

“I knew where help was.”

Identifying Substance Use Patterns, Associated
Predictors of Harm, and Barriers to Help
Seeking among Music Festival Attendees: The
Development of a Targeted Harm Reduction
Intervention

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DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

SignedChloe Rayner..... (candidate)

Date11/09/2023.....

STATEMENT

This thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended. I hereby give consent for my thesis, if accepted, to be available for electronic sharing.

SignedChloe Rayner..... (candidate)

Date11/09/2023.....

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Nice one, bruva.

Prelude

Following a decade of professional experience within welfare and safeguarding organisations at music festivals, it became evident that further understanding of recreational substance use and associated harms within this context, could inform the development of psychologically based interventions to promote the safety and wellbeing of attendees. My own experiences of supporting attendees who experienced harm in relation to their substance use at music festivals often suggested that the impulsive and uneducated use of substances were particularly prevalent, and had the potential to lead to serious and significant harm. Through my welfare and safeguarding roles, I encountered a wide variety of individuals, with ranging demographic and psychological characteristics, suggesting that such interventions should target a wide population. This thesis aimed to use novel data collected from music festival attendees and festival workers to inform the development of a psychoeducational intervention targeting high risk substance use at music festivals. The resulting evidence-based preventative intervention is rooted within the principles of harm reduction, with the ability to be delivered widely at a low cost, both financially and in terms of resource burden.

Summary

This thesis explores substance use among music festival attendees alongside experiences of harm, with an overarching aim to develop a novel preventative intervention rooted within harm-reduction principles. The integrative systematic literature review (Chapter 4) examined a spectrum of harm-reduction interventions targeting substance use at music festivals and similar settings. This review highlighted the lack of psychoeducational harm-reduction interventions which target attendee substance use.

An online quantitative study (Chapter 5) with festival attendees (N=773) collected data about substance use during music festivals aiming to develop models of predictors associated with harm to be identified, highlighting the impact of alcohol use, and polysubstance use. The subsequent qualitative study (Chapter 6) explored the experiences of 21 frontline festival workers aiming to determine barriers to effective service delivery namely, law enforcement presence, perceived stigma, environmental factors, and a lack of education for music festival attendees.

Findings from the review and the two empirical studies described above were used to create a novel, online video promoting harm-reduction through a psychoeducational format. A two-part pilot study with individuals planning festival attendance (N = 468) was conducted. Pre-intervention, data on intended substance use and behaviours were recorded. Following festival attendance post-intervention, recalled substance use was reported. Data from participants who completed both study components (N=68) supported efficacy of the intervention in reducing harm and increasing receptiveness to help-seeking. Ways to improve engagement and efficacy were also identified.

This research demonstrates the potential effectiveness of a short psychoeducational intervention targeting music festivals attendees. This approach will likely benefit individuals and public health agencies, and is also economically advantageous, able to reach large numbers of people, reducing harm with low financial and resource costs. This approach now requires widescale testing to confirm its potential public health impact. An extended abstract is appended (Appendix A).

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Chapter One: An Overview of the Thesis

Rationale and Project Objectives

This thesis explores the phenomenon of recreational substance use among music festival attendees; understanding that this behaviour is often associated with harmful outcomes for both individuals and wider communities (Day et al., 2018; Hutton et al., 2014; Luther et al., 2018). The cost of harm associated with attendee substance use at music festivals has been well documented (Black et al., 2020; Chhabra et al., 2018; Palamar et al., 2019; Turriss et al., 2019), and the wider implications of attendee recreational substance use can be significant, including mortality and impacts upon local critical services (Chhabra et al., 2018; Turriss & Lund, 2017). Whilst the frequency and prevalence of both attendee recreational substance use and harmful outcomes have been well documented (Bijlsma et al., 2020; Black et al., 2020; Carmo Carvalho et al., 2014; Ivers, Killeen & Keenan, 2021; Measham, 2019), associations between psychological and behavioural variables in relation to experiences of harm is less well understood. However, such understanding is needed if steps are to be taken to successfully implement preventative harm reduction measures or interventions.

This thesis seeks to establish a greater psychological understanding of recreational substance use at music festivals and any associated harms in order to develop and test a preventative psychoeducational intervention. Evidence from previous research (Chapter 4), with experiences and views of music festival attendees' (Chapter 5), and frontline workers within onsite support services at music festivals (Chapter 6) is used to provide an understanding of recreational substance use and harms from multiple perspectives. Ultimately, this thesis reports findings from a pilot study of the psycho-educational model developed, based on participant feedback about engagement and perceived efficacy. It is intended that this can inform further development of a feasible and effective intervention for harm reduction in relation to substance use at festivals.

Overarching Research Project Aims

This thesis is comprised of four research studies which together aim to a) further the evidence base about music festival attendees' experiences of harm in relation to recreational substance use and b) identify how recreational substance use and associated harms might be reduced. Specifically, this thesis aims to:

1. Provide a systematic and critical examination of current research focussed on recreational substance use and harm reduction strategies utilised at music festivals and similar contexts.
2. Provide an understanding of attendees' self-reported experiences of recreational substance use and related harm.
3. Provide an understanding of the experiences of professionals in relation to effective service delivery and health outcomes at music festivals.
4. Develop a novel intervention informed by this evidence, which could be delivered preventatively to music festival attendees to reduce recreational substance use, substance use associated harms and promote early help-seeking.

Integrative Systematic Literature Review of Current Harm Reduction Efforts

An integrative systematic literature review was completed aiming to collate and critically examine the contemporary (last ten years) evidence-based harm reduction interventions which target substance use and related harms amongst attendees of music festivals or similar recreational settings. This review found that current intervention efforts focused upon four primary aspects within the context of music-based events, namely medical interventions, drug checking services, psychosocial interventions, and alcohol licencing measures. It was evident from the findings within this review that preventative interventions targeting harmful recreational substance use, rooted within psychoeducation and harm-reduction, were limited for this population.

Explorative Quantitative Study Surrounding Substance Use Patterns and Harm Among Music Festival Attendees

The first empirical study within this thesis was explorative in nature and aimed to gather a current understanding of substance use patterns and behaviours among music festival attendees. This study aimed to gather a range of data surrounding attendee's substance use including the type, frequency, and quantity of use alongside behavioural variables such as risk behaviours and harm reduction strategies. Cognitive variables were also collected including motivations and perceived benefits.

This study aimed to comprehensively explore the harm experienced by festival attendees who reported substance use, and predict the likelihood of increased harm. Demographic and psychological data were collected alongside substance use behaviours for regression analysis. Analysis concluded that polysubstance use, lower age, and some psychological variables could predict and increased risk of experiencing more types of harm as well as serious incident of harm. These findings are intended to guide intervention strategies for reducing harm and improving health outcomes.

Qualitative Exploration of Frontline Workers' Experiences and Challenges Faced During Current Service Delivery

Experiences of frontline workers in relation to the delivery of onsite support services during music festivals in the UK was collected via a qualitative online study. Through open-ended questions, participants shared their professional experiences and opinions in relation to current service delivery and the challenges or barriers faced. Thematic analysis was used to collate common understandings and perceptions surrounding current intervention efforts, service delivery, challenges and barriers faced, and individual professional experiences. The key findings from this study identified a lack of preventative education for festival attendee's surrounding safer substance use. Some content analysis was also undertaken to establish patterns within the discussion surrounding law enforcement presence and the barrier this poses to effective service delivery and support for attendee's experiencing harm in relation to substance use.

Longitudinal Pilot Testing of an Evidence Informed Psychoeducational Online Intervention for Music Festival Attendees

Finally, a longitudinal study establishing the possible efficacy of a novel psychoeducational intervention rooted within the principles of harm reduction was conducted. The brief intervention was informed by the previous findings within this thesis alongside existing literature aiming to target the risk of harm associated with substance use at music festivals alongside any perceived stigma or fear in relation to help-seeking. The intervention aimed to promote safer substance use through the provision of accurate and non-judgmental information as well as improving the receptibility to help-seeking by providing participants with knowledge surrounding the availability of onsite support services and expectations upon accessing these. The study aimed to collect data at three time points, pre-intervention immediately post intervention and following the attendance of a music festival post-intervention (between 4-6 months). Participants who completed all parts of this study supported the possible efficacy of this intervention in both reducing high-risk behaviours in relation to substance use and the frequency of harm experienced. Further evidence as to how this model could be improved to promote increased efficacy and engagement were also collected.

Chapter Two: Background Literature, Theory & Key Principles

Background Literature & Theory

This chapter examines music festivals as a unique socio-cultural space including established patterns and impact of attendee substance use within this context. This forms the context for the work contained within this thesis. This is followed by an exploration of the relevant psychological theories within this field and the wider constructs of health behaviour, behaviour change, and brief intervention efficacy. Together these provide a theoretical context which deliver a foundation for the research reported within this thesis. Finally, key principles, namely health behaviour change models, harm-reduction theories, and the normalisation of substance use, which underpin the research reported within this thesis are critically evaluated, providing an understanding of how the research has been constructed to effectively inform critical services and individuals allowing for improvement of both service delivery and wider health outcomes.

Music Festival Culture

Music Festivals across the world have evolved and grown in popularity in recent years, becoming a unique psycho-social context within which we have observed significant variations in the psychology of human health and behaviour (Brown & Sharpley, 2019; Szmigin et al., 2017). Festival Culture, as we know it today, first developed in the 1950s where gatherings of people, seemingly from varying social and economic backgrounds, came together to celebrate music and a sense of holistic community. Strongly linked with the Counterculture of the 1960's, associated with youth movement of a hippie subculture, festivals became a space for likeminded people to meet and celebrate their mutual desire for world peace, societal cohesion, and good music (Griffin et al., 2018). From the very beginning these gatherings had a strong relationship to the recreational use of substances, most commonly, psychedelics. Trips Festival took place in San Francisco, 1966, and was thought to mark the beginning of the counterculture era (McIntyre, 2006; Tamony, 1981). The event was attended by over ten thousand people, with thousands more

being turned away on each night of the event. Most attendees were likely to have been under the influence of psychedelics, primarily LSD. The event hosted one of the first ever integrated and developed light shows of the time which has hugely influenced the production of music festivals even to this day. Trips Festival was also one of the first events to market the experience as immersive and participatory, providing multi-media performances and activities to its audience. This type of event design is replicated in most modern music festivals where other arts are celebrated and multiple immersive experiences are offered to the attendees (Ballantyne, Ballantyne & Packer, 2014; Gelder & Robinson, 2009).

Reading Festival is thought to be the oldest popular music festival still in existence within the UK. The event first took place in 1961 as the National Jazz and Blues Festival, however, this quickly morphed alongside the development of a Hippie Subculture into an event which is more comparable to today's image. This landmark event has adopted many philosophies associated with the counterculture, including offering tickets for as little as two pounds in the early years, allowing attendees to see a number of hugely popular acts at very low prices. These pricing strategies often promoted equality, fostering diversity through the encouragement of attendance from varying communities, inherently encouraging community cohesion in the face of individual differences. Huge influxes of people attended these early events, and it has since been commonly observed that the use of substances was, and continues to be, a renowned pastime for attendees (Dilkes-Frayne, 2016; Ivers, Killeen & Keenan, 2021; Jaensch et al., 2018; Measham, 2019; Lim et al., 2010; Robinson, 2015).

The surrounding literature commonly suggests that music festivals are in high demand among young people internationally as places for pleasure, entertainment, and socialising (Ballico, 2018; McCarthy, 2013) with festivals being highly anticipated events, perceived by attendees as a break from day-to-day life, and which consequently can provide an opportunity for recreational substance use (Borlagdan et al., 2010, Luckman, 2003; Moss, Whalley & Elsmore, 2020). With this context it is perhaps unsurprising that festival attendees frequently present with higher rates of high-risk substance use when compared to the general population (Bijlsma et al., 2020; Brett et al., 2022; Hesse and Tutenges, 2012, Lai et al., 2013; Lim et al., 2010; Palamar, Rutherford & Keyes, 2022).

The Psychosocial Nature of Music Festivals

The health dynamics of mass gatherings have been conceptualised as comprising biomedical, environmental, and psychosocial domains (Arbon, 2004; Hutton et al., 2020). For example, research has shown that factors which can influence the well-being and safety of attendees at mass gatherings include the nature and duration of the event, the demographic composition (e.g. age) of the crowd, and the presence of drugs and alcohol (Arbon, 2007; Milsten et al., 2002). However, it should also be noted that a disproportionate amount of research has examined negative manifestations of crowd behaviour, such as instances of violence or conflict (Berlonghi, 1995).

In the literature surrounding music festivals, there is a lack of consensus regarding the conceptualisation of crowd behaviour, mood, and type. Nonetheless, these aspects have diverse applications, including event management and event medicine. Despite only constituting a portion of the broader psychosocial domain, the exploration of crowd type, mood, and behaviour warrants further investigation. Hutton et al., (2011) conducted a study aimed at evaluating the psychosocial aspects present within crowds during mass gatherings which discussed the underexplored aspects of crowd behaviour, mood, and type within the context of mass gatherings. While existing research predominantly focused on negative aspects such as violence, there remained ambiguity surrounding the definitions of these elements. The paper outlined a pilot project aiming to assess the effectiveness of current crowd assessment tools in understanding the psychosocial domain of mass gathering events. Findings from the pilot project outlined the necessity for a more standardized descriptive dataset, particularly concerning crowd behaviour. The study represented an initial step towards comprehending the psychosocial dynamics of mass gatherings, emphasizing the importance of further research to elucidate the interplay between physical, environmental, and psychological domains, and their respective impacts on safety and health outcomes for participants.

A recent integrative review of 31 studies (Hutton et al., 2019) found that various environmental, psychosocial, and biomedical factors influenced health service utilisation during such events. The authors were able to identify and code a number of key variables such as alcohol or drug use, crowd behaviour, mood, motivation for attendance, and duration of stay

however they emphasised the need to establish a consensus on a set of variables for collecting de-identified psychosocial data.

Motivations & Risk Behaviours Among People Who Use Substances at Music Festivals

Within this thesis the term *recreational substance use* will be used to refer to the use of substances which is not related to addiction difficulties, and where the motivation lies largely within realms of entertainment and leisure, being generally attributed to the attendance of a recreational occasion. Whilst recreational substance use presents many diversities it is discrete from substance addiction and regular substance use both of which can impact the daily living of the user (Bellis, Hughes & Lowey, 2002; Hase, Erdmann, Limbach & Hasler, 2022). While differences in motivation to use are recognised, problematic or harmful substance use can still be present within the context of recreationally motivated substance use (Fraser, 2016; Nordfjærn et al., 2016). When looking at substance use within the context of music festivals it is vital that we distinguish between recreational substance use and addiction. While most of the research concerning substance use is conducted in relation to addiction difficulties, research on recreational substance use does identify key differences in predisposing factors, behaviours and resulting effects (Meyer, King & Ferrario, 2016; Ostlund & Balleine, 2008). Additionally, people who use substances recreationally have been shown to be exposed to different risks when compared to individuals who use substances in relation to addiction; for example, those who engage in long-term substance use may be at risk of injury associated with overuse of particular routes (e.g. injection related abscesses or nasal injury), whereas recreational users could be at a higher risk of overdose due to a reduced tolerance level. (Balconi, Finocchiaro & Campanella, 2014; Hulka et al., 2014). Why people choose to use substances, how they use them and the precautions they take vary extensively when comparing the two populations (Hogarth et al., 2013; Vonmoos et al., 2013).

Motivation can be viewed as comprising emotional and cognitive components with internal and external factors acting as facilitators and inhibitors (Gnoth, 1997). Whilst many paradigms have been proposed to understand motivation, the push-pull theory has been widely discussed (Snepenger et al., 2006). This theory suggests that push motivation arises from a discrepancy between the current and ideal states, while pull motivation stems from the inherent

attractiveness of an activity (Dann, 1977). Additionally, the escape-seeking dichotomy considers two motivational forces: escaping from the everyday environment and seeking psychological rewards in a contrasting setting (Coleman & Iso-Ahola, 1993; Iso-Ahola, 1982). Another paradigm, proposed by Getz (1991; 2008), categorizes leisure activity needs into physical, interpersonal/social, and personal categories, drawing from Maslow's hierarchy of needs. This framework suggests that the fulfilment of one need typically depends on the satisfaction of a more fundamental need (Abulof, 2017; Healy, 2016).

Recent survey research of attendees at Electronic Dance Music (EDM) events found that enjoyment was the primary motive for attendance, followed by music and socialization (pull factors) although substance use varied by event type (e.g. cocaine was common in nightclubs, while cannabis and magic mushrooms were favoured in private settings), and certain motives were associated with specific substance types (Van Dyck et al., 2023). In an examination of the prototype willingness model to understand music festival substance use motivations, a survey of festival attendees before, during, and after music events was used to examine the extent to which attendee substance use is pre planned or influenced by situational factors like peer presence or the perceived prevalence of drug use (Ponnet et al., 2023). Positive attitudes toward drug consumption were strongly associated with prior intentions to use drugs at festivals whilst, a stronger identification with the prototype of a drug-using festival attendee correlated with a higher likelihood of drug use. However, the perceived availability of illicit substances at festivals was also significantly linked to actual drug use behaviour. Thus, this study suggests that drug use at music festivals involves both deliberate decision-making and spontaneous behaviour, highlighting the complex nature of substance use within this context.

Multiple studies have shown an association between recreational substance use at music festivals and harm to both the individual and public health (Black et al., 2020; Chhabra et al., 2018; Friedman et al., 2017; Hutton 2014; Turriss & Lund, 2017). It is likely that health psychology will play a key role in the development of effective frameworks to promote safer behaviours among music festival attendees who use substances (Hopkins & Reicher, 2016; Robertson, Hutton & Brown, 2018). Understanding the psychology of both recreational substance use, associated behaviours and help-seeking will be crucial to the development of targeted and effective interventions which promote safer behaviours surrounding substance use alongside the reduction of risk amplifying behaviour.

Music event genre, length, and location may all impact recreational substance use. Examination of the wastewater at music festivals of different genres found that MDMA was the dominant substance identified during dance music festivals, whilst cocaine and methamphetamine were more prevalent than other substances at rock music festivals (Mackul'ak et al., 2019). In contrast, consumption of substances such as cannabis and alcohol were found to be common across music events. Together these findings suggest that interventions designed to reduce recreational substance use and associated harms may need to include general as well as genre specific messaging.

Due to the hard-to-reach nature of the festival attendee population, alongside significant ethical challenges surrounding legality and safeguarding, it has proven difficult to obtain robust quantitative data regarding the frequency and type of recreational substance use found at music festivals (Bengry-Howell & Griffin, 2012; Calle et al., 2019; Kurcevič & Lines, 2020). Novel research methods have been used in recent studies, attempting to capture more reliable data (Moore & Matias, 2018; Sumnall & Atkinson, 2022). This has included the collection of anonymous pooled urine samples from urinals (Wood & Dargan, 2016) to identify the types of substances being consumed. Whilst useful, this method does not allow individual frequency or quantity of use to be identified. NPS use may be more prevalent within festival contexts, with additional literature supporting this observation (da Cunha et al., 2021; Di Trana et al., 2022; Richeval et al., 2019; van Amsterdam et al., 2015). The prevalence of NPS use found within festival contexts could also be attributed to the increase in the frequency of contaminated or mis-sold substances within these contexts (Calle et al., 2019; McCrae et al., 2019). Research has suggested that the distribution of substances at music festivals carries an inherently higher risk of reprimand due to more visible law enforcement, alongside a reduced requirement for customer satisfaction, with a captured market and a reduced desire for repeated custom (Anderton, 2008; Smith & May, 2022; Turner, 2018). The contextual nuances found within the distribution of substances at music festivals could contribute to Wood and Dargan's (2016) findings of wider NPS variety within music festival contexts and may suggest a likely increase in the risk of harm among attendees.

Other research in which alcohol and drug testing has been employed have found that participants who had tested positive for illicit substances also tested positive for alcohol consumption (Gjersing et al., 2019). This suggests that polysubstance use involving alcohol is

particularly widespread. The use of illicit and legal substances appears to be largely intertwined, with a very high prevalence of polysubstance use being reported repeatedly within the associated literature (Fernández-Calderón et al., 2020; Mohr et al., 2018; Vera et al., 2021. Gjersing et al., (2019) also found that cannabis, cocaine and MDMA were the most prevalent substances detected, suggesting that these substances should be specifically targeted within the design of harm-reduction focused interventions.

The use of substances at music festivals is often associated with a higher risk and harm, which presents a significant public health risk for both attendees and the wider community (Black et al., 2020; Hughes et al., 2019; Jenkinson et al., 2014) however, patterns associated with specific genres may again be important to note. For example, research with Electronic Dance Music (EDM) music festival attendees found high rates of recreational substance use with 73% of participants testing positive for at least one illicit substance type and 35% having two or more substances detected within their samples. Further, Novel Psychoactive Substances (NPS) were the second most common substances detected in paired blood and urine samples after Tetrahydrocannabinol (TCH). Of particular concern is that participants did not self-report consuming NPS and had most frequently reported consuming MDMA suggesting that substance (e.g. MDMA) adulteration occurred within the sample studied. Mohr et al., (2015). Given these understandings it is highly possible that the type and frequency of substance use may have been under-reported within this study, and as such, could prove to be significantly more prevalent or high-risk within the event.

Research has shown relationships between personality traits and self-reported engagement with different harm reduction strategies. For example, those with higher scores in relation to impulsivity, sensation seeking, and hopelessness have been found to be more likely to use a wider range of substances, as well as engaging in more extensive polysubstance use (González Ponce et al., 2020). In addition, higher impulsivity scores were strongly associated with a lower likelihood of adopting any of the nine harm reduction strategies explored within this study. These findings suggest that there may be strong links between high-risk behaviours and personality traits which could inform the design of interventions for reducing drug-related harm among this population. There is limited further research supporting this conclusion, which leads to the requirement for additional investigation surrounding the relationship between psychological and behavioural variables related to substance use among music festival attendees.

As described above, it has been well evidenced that festival attendees present with a high prevalence of high-risk substance use which has been reported to have a detrimental impact upon both individual and public health outcomes. While it is evident that there is a critical need for preventative intervention, there is limited research surrounding the indicators and predisposing factors which influence the likelihood of music festival attendees experiencing harmful outcomes. Without this knowledge the development of effective and targeted interventions is limited; the identification of relationships between psychological or behavioural factors and the experiences of harm among attendees will inform effective intervention design, enabling methods which actively mitigate identified risk amplifiers.

Normalisation of Recreational Substance Use

Research undertaken in recent years suggests the presence of a multitude of relationships between music festival attendees and their unique patterns of substance use (Dilkes-Frayne, 2016; Fernández-Calderón et al., 2019; Jenkinson et al., 2014), aiming to further understand why it may be that different psychological, social, and economic factors may influence the likelihood of harmful outcomes among this population (Day et al., 2018; Duff, 2005; Fox et al., 2018; Lim et al., 2008; Measham, 2019). Significantly, a proportion of the available literature reports that higher levels of social acceptance exist when examining recreational substance use within music festival contexts (McCormack, Measham & Wignall, 2021; Shiner & Newburn, 2013; Wilson et al., 2010). Contrastingly, evidence suggests that substance use in relation to dependence or daily substance use within community settings is more commonly stigmatised, with much of the research suggesting a perceived unacceptableness of this type of substance use within societal norms (Wogen & Restrepo, 2020; Yang et al., 2017; Zwick, Appleseth & Arndt, 2020). These contrasting perceptions of stigma or acceptability could support the notion that those who feel more governed by social acceptance may be less likely to form a substance dependence for fear of social rejection, however these same individuals could be more likely to engage in recreational substance use, particularly within music festival spaces.

The concept of normalisation was first introduced to the understanding of substance use in recreational settings by Parker, et al., (1999), who identified an increase in the prevalence of recreational substance use within the British dance club scene. Recent research has shown that

several aspects of normalisation can be identified when considering the recreational use of MDMA, cocaine and amphetamine among university students (van den Bos, Blaauw and Bieleman, 2022). These included the availability and accessibility of substances, the prevalence of substance use, and the social accommodation of substance use, particularly among people who do not use substances. Whilst one third reported having tried MDMA previously, most considered it was acceptable to try MDMA regardless of reported substance use history, in contrast to try cocaine or amphetamine where fewer considered it acceptable to try these substances. Participants were also found to have accurate knowledge surrounding the risks and effects of MDMA, cocaine and amphetamine, indicating some presence of social accommodation. Van den Bos, Blaauw and Bieleman (2022) also considered the influence of setting upon the presence of normalisation; it was noted that substance use was less prevalent in public places when compared to recreational settings with likeminded people. The study findings further reported that students were found to speak openly about their substance use with friends, but much less openly with family members, strangers, teachers, or student advisors. This indicates that the participants did not perceive open discussion surrounding their substance use to be widely acceptable. In conjunction with previous research (O’Gorman, 2016; Measham & Shiner, 2009; Shildrick, 2002), the findings within this study recognise that the state of normalisation surrounding recreational substance is complex, particularly when considered among young people. Instead of a broad normalisation of illicit recreational drugs among young people, a picture of differentiated normalisation emerges, largely directed by the type of substance, the usage, the users.

Considering the literature surrounding the normalisation of substance use within the context of music festivals is critical to the development and delivery of effective interventions. As discussed above, normalisation surrounding substance use is more likely to occur within recreational settings, among likeminded people, where the use of particular substances is highly prevalent, and where the use of substance is easily discussed between individuals with accommodating attitudes (van den Bos, Blaauw & Bieleman, 2022). Given the complex and intrinsic nature of normalisation surrounding substance use within these contexts, it is unsurprising that our understanding of this phenomenon is limited in terms of its application to intervention design of delivery. Music festivals tend attract large numbers of likeminded individuals who share a range of values from musical preference through to political positioning

and included within this appears to be a wider presence of social acceptance surrounding recreational substance use (Coutinho, 2006; Packer & Ballantyne, 2011; Sharpe, 2008; Turner & Measham, 2019). As such, it is unsurprising that much of the related literature supports the notion of a heavy normalisation among festival attendees regarding their own and others' recreational substance use (Gibbs et al., 2023; Jenkinson et al., 2014; Wilson et al., 2010). This normalisation leads to a number of considerations when designing and delivering interventions which aim to reduce the likelihood of harmful outcomes associated with attendee substance use. Some research has suggested that the implementation of interventions such as drug checking and trip-sitting services could foster further normalisation surrounding substance use, and in turn increase the prevalence of substance use among attendees (Ruane, 2018; Scott & Scott, 2020). However, alternative research also recognises the value of normalisation in reducing perceived stigma and encouraging help-seeking behaviour among attendees who require support (Hughes et al., 2019; Pennay & Moore, 2010; Soares et al., 2017). Given the intricacy of this aspect of substance use at music festivals, it is critical that further research is undertaken which explores the nuances surrounding normalisation, identifying how these complexities impact the reach and efficacy of harm reduction focussed interventions.

Psychological Models of Health Behaviour Change

Several theories have been developed to understand and promote behaviour change which may have application to understanding and promoting change in recreational substance use amongst music festival attendees. These models typically seek to understand motivations for change and methods to support intended actions. The following section presents a short introduction to five of the most dominant models.

The Health Belief Model (HBM; Rosenstock, 1966; Becker, 1974), posits that behaviour change is prompted by a "cue to action," which can be internal (e.g., symptoms) or external (e.g., health advice). Within the model, the decision to change behaviour is influenced by weighing perceived benefits against drawbacks within the context of key beliefs such as perceived vulnerability to health risks, perceived severity of a disease, self-efficacy, and health motivation. Within this thesis factors which increase the risk of harmful experiences for festival attendees who use substances are identified and disseminated within the intervention model developed. On

the basis of this model, such information may provide an external prompt for behaviour change based on the individual's recognition of their perceived vulnerability to health risks. Systematic reviews suggest that the HBM effectively predicts various health behaviours and that interventions informed by it can improve adherence to medication, dietary plans, and lifestyle changes (Carpenter, 2010; Jones, Smith & Llewellyn, 2014). However, there is variability in its predictive power across different behaviours, and the importance of individual beliefs may vary. Additionally, it remains unclear whether intervention success is solely attributable to factors outlined by the model or if other factors, such as specific behaviour change techniques, play a significant role.

The Theory of Planned Behaviour (TPB; Fishbein & Ajzen, 1977; 1985; 1991), emphasizes that intention serves as the primary predictor of behaviour change. This intention is formed after individuals assess the potential changes in behaviour and their outcomes, influenced by factors like attitude, subjective norms, and perceived behavioural control. Research on TPB interventions for health behaviours suggests that while intention strongly correlates with behaviour change, the model is more adept at explaining intention than actual behaviour (McEachan et al., 2011). However, interventions based on TPB, such as one by Darker et al. (2010) promoting walking, have shown improvements in perceived behavioural control and increased walking activity. The intervention piloted within this thesis, encourages participants to forge future action and response intentions designed to impact their behaviour in relation to substance use, risk behaviours and help seeking.

The Stages of Change Model (SCM; Prochaska & DiClemente, 1983), categorizes behaviour change into five stages and has been very widely used alongside motivational interviewing in the treatment of addictions. Despite its appeal in tailoring interventions to individuals' readiness to change, evidence from systematic reviews does not strongly support its effectiveness across various behaviours (Bridle et al., 2005). Further criticism by West (2005) highlights the model's limitations in explaining behaviour change, particularly its oversimplification of discrete stages and disregard for unconscious processes. It is recognised that the self-selecting nature of the sample that participate in the intervention study may be over-represented by those who might already be preparing to or making changes to their behaviour.

In contrast, the Self-Determination Theory (SDT; Deci & Ryan (2013), emphasizes intrinsic motivation, suggesting that people are more likely to engage in and sustain behaviours

they find enjoyable and aligned with their values. SDT-informed interventions aim to internalize and value healthy behaviours, emphasizing autonomy, competence, and relatedness. Systematic reviews of SDT-informed interventions across various health behaviours have shown positive associations between autonomy-supportive environments and improved health outcomes (Ng et al., 2012). The intervention study within this thesis recognises the importance of an honest, non-judgmental approach to the delivery of substance use information, understanding that this may better align with the values of participants.

Finally, the Temporal Self-Regulation Theory (TST), introduced by Hall and Fong (2007), considers the timing of behaviours, acknowledging that unhealthy actions often offer immediate rewards but long-term consequences, while healthy habits may involve short-term sacrifices for future benefits. TST posits that behaviour change hinges on individuals' beliefs about present actions and future outcomes (connectedness beliefs) and their valuations of outcomes over time (temporal valuations). For example, someone may plan to exercise the next morning but prioritize staying in bed when the alarm rings, influenced by factors like habitual responses (behavioural prepotency) and self-control (self-regulatory capacity), especially in supportive environments that facilitate healthy habits. A study by Booker and Mullan (2013), supports TST's premises, finding that students in supportive environments were more likely to maintain healthy lifestyles, with behaviour influenced by both habitual responses and self-control measures. This highlights TST's assertion that behaviour performance depends less on intentions in supportive settings. Again, the intervention model piloted within this thesis adopts supportive approach to the delivery of information, aiming to facilitate healthy habits.

Theories of motivation and behaviour change are fundamental in both informing intervention design or delivery and gauging their effectiveness. Michie, Van Stralen & West (2011), proposed a comprehensive framework for understanding and designing behaviour change interventions. Their Behaviour Change Wheel (BCW) integrates multiple behaviour change theories and frameworks into a practical tool for intervention development. The BCW consists of three layers: the COM-B model (Capability, Opportunity, Motivation - Behaviour), the intervention functions, and the policy categories. This framework enables researchers and practitioners to systematically identify factors influencing behaviour, select appropriate intervention functions, and align interventions with relevant policy contexts. The authors emphasise the importance of understanding behaviour in its context and provide a structured

approach to designing effective behaviour change strategies. These concepts are adopted within the design and delivery of the intervention model piloted within this thesis, ensuring that participants have the capability to engage with the psychoeducational video, at an appropriate opportunity prior to the attendance of an upcoming music festival, and are motivated to evoke some form of change regarding their substance use during these events.

West and Hardy's (2007) PRIME Theory of human motivation outlines five crucial elements influencing behaviour change: plans, responses, impulses, motives, and evaluations. Plans represent individuals' intentions or strategies regarding their behaviour, while responses denote the actions undertaken to realise these plans. Impulses refer to sudden urges or desires that may either support or conflict with these plans. Motives serve as the driving force behind behaviour, stemming from intrinsic or extrinsic factors. Evaluations involve individuals' assessments of their plans, responses, and outcomes, subsequently shaping future behaviour. By comprehensively addressing these components, interventions can be tailored to effectively promote behaviour change, considering the intricate interplay between intentions, actions, motivations, impulses, and evaluations. Building upon this framework within health promotion interventions, West et al. (2010) categorized Behaviour Change Techniques (BCTs) in relation to smoking cessation interventions. Reflecting facets of the PRIME framework, providing practical support, offering social support through counselling or group therapy, enhancing motivation and self-efficacy via goal-setting, and tailoring interventions to individual needs were correlated with higher short-term quit rates. Again, these principles are utilised within the intervention video developed later in this thesis by providing practical information and advice, enhancing motivation through the encouragement of protective strategies and early help-seeking, and tailoring the intervention delivery methods and content to meet the needs of this population. The intervention model piloted also encouraged attendees intending to use substances at music festivals to evaluate their plans, responses, and previous outcomes to encourage protective changes in future behaviour.

Brief Intervention Efficacy

Previous research indicates that brief interventions effectively boost motivation for change in various health-related behaviours (Dunn, Deroo & Rivara, 2001). The definition and delivery of brief interventions vary considerably although within primary healthcare a 'brief'

intervention involves four or fewer sessions and is often conducted within the typical consultation period of 5 to 30 minutes (Kaner et al., 2018). Typically, in the context of substance use, they involve interactions with individuals which are limited in duration, aimed at providing information, boosting motivation to change, or imparting behaviour change skills to reduce substance use and its associated negative outcomes. Bien, Miller and Tonigan (1993), proposed that successful brief interventions commonly incorporate elements encapsulated in the acronym FRAMES: feedback on behaviour and consequences, responsibility to change, advice, menu of options for change, empathy, and self-efficacy for change.

Brief interventions with young individuals have been advocated (Werner, 1995), yet their effectiveness within adolescent populations remains largely unexplored (Monti et al., 1999). However, a systematic review examining the effectiveness of brief interventions in reducing alcohol, tobacco, or other drug (ATOD) use among adolescents identified 11 studies for inclusion (Tait & Hulse, 2003). Most interventions used motivational interviewing, with a small overall impact reported across the studies ($d = 0.126$). However, when substance type was considered the impacts differed with alcohol interventions reporting a small effect ($d = 0.275$), tobacco interventions a very small effect ($d = 0.037$), and interventions addressing multiple substances showing a medium to large effect ($d = 0.78$). A more recent meta-analysis of 22 randomized controlled trials (Steele et al., 2020) examined brief behavioural interventions for adolescents aged 12–20 presenting with problematic substance use. Compared to treatment as usual, motivational interviewing (MI) was found to reduce heavy alcohol use days by 0.7 days per month, alcohol use days by 1.1 days per month, and overall substance-related problems. However, MI did not significantly decrease cannabis use days. The review acknowledged limitations such as inconsistent outcome reporting and limited comparison availability. In conclusion, while MI shows promise in curbing heavy alcohol use and related problems in adolescents, its impact on cannabis use remains uncertain.

Current Drug Policy and a Harm Reduction Approach

Drug policy varies significantly between events, locations, and countries (Atkinson et al., 2019; Babor et al., 2019; Benfer et al., 2018) and further categorising substances via their legality within a particular location exposes the possibility of associating risk with illegality despite the lack of robust evidence to support these associations (Schlag, 2020). This approach of

associating risk with legality has been heavily evidenced to be a poor method of understanding the risk associated with particular substances, recognising that this can lead to biased findings, influenced by this invalid understanding of relationship between lawfulness and harm (Aldridge, Measham & Williams, 2013; Lampe & Attorney, 2021; Mokwena, 2019; Vari et al., 2020;). As such, within this thesis the term substance use is considered to include the use of alcohol and any other legal or decriminalised substances which may be used recreationally, in equal weighting to the use of substances which are illicit or criminalised in particular countries. The studies included within this thesis will frequently explore the differences found between individual substance types, particular combinations of substance types, and the inherent differences in associated risk and harm between substance types or combinations. During these analyses the legality of particular substances will not influence the methodology; while it is likely that illicit substances may be used more infrequently when compared to legal substances, it is likely that this is largely due to accessibility and individuals' receptiveness to law-breaking activities which again will likely vary depending on location (Sutin, Evans & Zonderman, 2013; Turiano et al., 2012; Walton & Roberts, 2004). While these are interesting aspects to explore, this thesis primarily aims to identify behavioural, psychological, and sociodemographic traits which may increase the likelihood of outcomes harmful to both individual and public health. It is vital that this thesis is able to identify these risk amplifiers outside of the legality framework, ensuring that inherent risk is identified objectively and reliably from robust evidence rather than political policy.

Prior to recent years the general policies regarding recreational substance use were largely abstinence based, promoting the use of illicit substances as a negative behaviour in its entirety and offering little in the way of support to recreational users (Atkinson et al., 2019). The majority of nations and international organisations have drug classification systems, which claim to be organised, based on the proportional dangers and risks associated with each substance type. However, the method used to identify the risk of harm is often underreported, and when revealed, is commonly observed to be vague and random (Nutt et al., 2007; Nutt, King & Phillips, 2010). This ambiguity is likely to be a result of the wide variety and complexity surrounding how individuals come to experience harm in relation to their use of particular substances (Bonomo et al., 2019; Morgan et al., 2013; Room, & Reuter, 2012; Van Amsterdam et al., 2010). The evidence base is also subject to these limitations, and as such, often fails to

recognise the diversity of risk between substance types when viewed externally from the constraints of currently policy or legality (Carhart-Harris & Nutt, 2013; Corazza et al., 2013; Deligianni et al., 2017; McLeod et al., 2016). Understanding of these limitations within drug policy has allowed for the introduction of harm-reduction focused models of support and intervention, recognising that the risk of harm is a complex experience, likely influenced more heavily by a number of sociodemographic, psychological, and behavioural characteristics, when compared to the indications of particular legal frameworks (Gross, 2015; Merkinaite, Grund & Frimpong, 2010; Ritter & Cameron, 2006)

Whilst it is evident that this harm reduction focused approach is effective in reducing both the frequency of recreational substance use and the rate of related harms, the UK has been slow to react in adapting drug policy to consider more effective methods of service delivery and intervention for music festival attendees (Kimmel et al., 2021; Sage, 2015; Windle, 2015). The current evidence base largely supports a stance of decriminalisation and harm reduction approaches when supporting individuals who use substances (Eastwood, Fox & Rosmarin, 2016; Greer et al., 2022; Hughes et al., 2019; Measham, 2019). Most findings within the associated literature suggest that this approach offers increased feelings of safety when help-seeking, reduced perceptions of stigma, and a reduced frequency of harmful substance use (Day et al., 2018; Ivers, Killeen, & Keenan, 2021; Strike and Watson, 2019; Unlu, Tammi & Hakkarainen, 2020).

Implications for Public Health and Frontline Services

The recreational use of substances among music festival attendees is a widespread behaviour which has been recognised within the literature as a significant challenge to both individual and public health (Beržanskytė, 2020; Black et al., 2020; Friedman et al., 2017; Mema et al., 2018). This can include the impact of substance use on safe event management (research suggests that crowd behaviour is influenced by the consumption of substances and that this can directly contribute to or worsen emergency situations (Earl, 2006)) as well as at the individual level (e.g. physical health impacts including mortality, major mental health implications, violence, crime, and distress) (Black et al., 2020; Koning et al., 2021; Palamar & Sönmez, 2022; Turrís & Lund 2017). Recreational substance use and its associated harms can also lead to

increased service burden and reduced capacity to deliver services effectively for both onsite and community services (Chhabra et al., 2018; Friedman et al., 2017; Lund & Turriss, 2015).

Individual Harm & Mortality

Research exploring attendee mortality at music festivals has documented that the majority (75%) of non-traumatic deaths were found to be substance use related (Turriss & Lund, 2017). While several attendee deaths have been found to involve a complex series of events, where multiple contributors were identified, substance use remains a prominent factor within the majority of recorded deaths (Black et al., 2020; Jones, 2019; Palamar et al., 2019; Turriss, Jones & Lund, 2018). MDMA use has been identified as a regular predecessor to attendee deaths, with Setright (2019) reporting that the use of MDMA alongside other high-risk behaviours, such as increased use of alcohol and caffeinated drinks, decreased consumption of water, electrolyte losses, and prolonged levels of aerobic activity, are all significant risk factors for heat associated illness. It has been widely recognised that there are major health risks associated with heat related illness among music festival attendees, recognising that significant levels of harm have been observed in relation to this health outcome (Callahan, 2020; Palamar et al., 2019; Ridpath et al., 2014). Setright (2019) highlighted the importance of preventative actions for both event organisers and attendees to ensure that harms associated with MDMA induced heat illnesses are minimised. In order to evaluate how much exposure to high temperatures music festival attendees are experiencing, Setright (2019) recommended that events monitor the wet-bulb globe temperature (WBGT) during events, which measures temperature, humidity, wind chill, and sunlight exposure. This article suggested that a combination of effective service delivery alongside preventative actions among attendees will likely lead to a reduction in heat related harm. Setright (2019) further recommend that events consider implementing extra on-site medical teams with appropriate cooling and resuscitation equipment, when the WBGT readings approach dangerous levels. In addition, events should advise attendees of the risks associated with energy drinks, alcohol and MDMA, whilst also encouraging attendees to stay hydrated by drinking water or electrolyte-based drinks. Events should also consider implementing break periods between entertainment, encouraging attendees to check their friends, rehydrate and cool down during these periods of rest. Setright (2019) also suggested that events increase water

cooling spray points over crowds during periods of extreme exposure to high temperatures. Alongside this Setright (2019) recognised that attendees' behaviour plays a key role in preventing heat related harm, suggesting that attendees could be advised to implement a number of personal harm reduction strategies to reduce the risk of harm. The article suggested attendees should use ice packs, water, or fans for cooling whilst consuming sodium-containing electrolyte drinks and monitoring body temperature. The article suggested attendees could be advised to use a thermometer if they or a friend is unwell, informing attendees that temperatures over 40°C can be fatal if not treated promptly, encouraging attendees to help-seek quickly when heat related illness could be present. Understanding contextually specific factors at music festivals which are likely to increase the risk of mortality or serious harm is critical to the development of effective harm reduction interventions.

Black et al., (2020), recognised the substantial increase in substance use related harm observed during the 2018–2019 Australian music festival season. This increase in harm sadly included the death of five young people during this festival season. Black et al., (2020), conducted a critical study as part of a rapid public health response following this observation of increased harm. The researchers received information from the New South Wales Ministry of Health regarding patients who had presented with suspected severe drug related illness during music festivals. Black et al., (2020) identified 40 cases from eleven different music festivals; finding that most cases (80.0%) were under the age of 25. Within the sample there were five fatalities, and 62.5% of all cases analysed were admitted to hospital intensive care units. The researchers identified that MDMA was the most frequent substance used within the sample, being detected in 87.5% of cases. In 82.9% of the cases where MDMA had been used, blood concentrations were found to be above the thresholds associated with toxicity. The ingestion of multiple substances was detected in 60.0% of cases within the sample, while novel psychoactive substances were not detected within any of the cases. It was also acknowledged that while the use of other substances in combination with MDMA were likely to have enhanced MDMA toxicity, however it is unlikely that these substances would have caused severe toxicity in isolation. The researchers' findings strongly suggest that MDMA-related toxicity and polysubstance use were major influences in the severity of health outcomes among these cases, and as such could present as a wider issue within the population of festival attendees who use substances. These findings have important implications for harm reduction strategies targeted to

music festival settings, understanding that substance specific and behaviour targeted approaches are critical aspects within the design and delivery of interventions. The findings reported by Black et al., (2020), suggest that interventions should not only target MDMA use specifically but also address the high prevalence of polysubstance use found within the sample analysed, understanding that this may have increased the severity of harmful outcomes experienced by these individuals.

Help-Seeking and Impact for Critical Onsite Services

Research conducted with Australian festival attendees explored links between alcohol use, illicit substance use and the requirement for emergency medical treatment (Barratt et al., 2019). It was found that several relationships exist between population demographics, behavioural risk factors and help-seeking within emergency medical services. The researchers found that alcohol was the most commonly consumed substance linked with attendees requiring emergency medical treatment. The second most common substance type associated with medical intervention was MDMA. The research also concluded that females aged between sixteen and twenty were most likely to access emergency medical treatment at music festivals, followed by males aged sixteen to twenty; it was found that adults aged over twenty-one were less likely to seek medical treatment. Barratt et al., (2019) also explored risky behaviours in relation to help-seeking finding that several behaviours were linked to an increase in seeking emergency medical treatment; these included polysubstance use, intake of large quantities and intake of substances with unknown content or purity. These findings are useful when looking to design holistic harm reduction interventions which are both relevant and effective in mitigating the risks of harm identified within this population.

Some further research exploring the prevalence of harm amongst music festival attendees has also looked to identify frequent characteristics of patient presentations at medical services during music festivals. Hutton et al., (2014) explored the presentation of young people at music festivals finding that substance use made up 15% of all cases seen by the medical team, not including injuries or incidents which were secondary to alcohol or substance consumption. The researchers also found that females attended more frequently than males suggesting females may be at a higher risk of harm or that help-seeking amongst male attendees may be particularly poor.

The study also concluded that males frequently presented with lacerations to the hands and or face suggesting that males may be more prone to physical injury or violent incidents during music festivals. These results may suggest that gender plays a role in the likelihood of particular harmful outcomes during music festivals which should be explored further when considering targeted intervention design. Further investigation is required to understand the relationship between attendee harm and demographic, psychological or behavioural factors. Whilst it is evident that patient presentations at medical services during music festivals are considerably diverse, the findings reported do suggest that some relationships may exist between harm and individual profiles. Further exploration surrounding predictors of harm is urgently required in aid of further preparing service providers, in addition to informing the effective design and delivery of tailored harm reduction interventions.

Impact on Wider Public Health Systems

The impact of recreational substance use among festival attendees upon wider public health systems and community services has been well evidenced (Chhabra et al., 2018; Hoegberg et al., 2018; Hughes et al., 2019; Young et al., 2015). While large scale music festivals often provide extensive onsite resources to manage emergency situations, some harmful events do impact heavily upon wider services such as emergency departments, mental health services and local authorities (Chhabra et al., 2018; Black et al., 2020; Turriss & Lund, 2017). Smaller music festivals can also present challenges to wider public health systems, as while the population of attendees remains small, it is likely that the budget possessed by the organisers is insufficient in providing extensive onsite harm reduction services (Friedman et al, 2019; Westrol et al., 2017). In addition to the above, it is important to recognise that no matter the size of a particular event, any form of emergency could result in significant harm and burden to critical services, which could reduce availability among the wider community (Ranse et al., 2019). Whilst several harmful incidents could occur outside of the realms of attendee substance use, it has been widely acknowledged that incidents in relation to attendee substance use often present a significant volume of work for onsite services, resulting in burden upon services which should be readily available to manage emergency events (FitzGibbon et al., 2017; Munn et al., 2016).

Research exploring the impact of music festivals upon nearby emergency departments has found that substance related harms can present a significant pressure upon their capacity to deliver an effective service. Gresnigt et al., (2022) looked to explore the impact of a large-scale music festival in Amsterdam upon the emergency services following an observed increase of substance use related harm during recent dance festivals. The study identified 113 attendees who required the ambulance service and a further 81 attendees who accessed the local emergency department for substance use related complaints, an increase of around 230% when compared to weeks outside of the music festival period. Gresnigt et al., (2022) compared the use of these community-based services with the use of first aid stations provided by the music festival. The researchers found a higher percentage of polysubstance use among those who accessed the emergency department (58%), compared to attendees who accessed onsite medical services (25%). Given the increased prevalence of polysubstance use observed among attendees using external medical services, it is critical that future models of intervention and service delivery aim to target this high-risk behaviour specifically. Whilst these findings do suggest a significant impact upon critical services within the wider community, this study did report that the total number of patients had remained within the normal range for the emergency medical services' capacity.

Chapter Three: Research Methodology & Underpinning Epistemology

Epistemology and Fundamental Theory

A variety of research methods are used within this thesis, aiming to gather both qualitative and quantitative data, linking and triangulating findings, to provide a holistic overview of music festival attendees' and frontline services' experiences of recreational substance use and associated harm. This thesis is informed by a pragmatism approach; understanding and accepting that human enquiry must involve interpretation and is often moulded by both intention and values (Hothersall, 2019; Kaushik & Walsh, 2019; Morgan, 2014). However, the importance of conclusions being grounded within robust empirical data is also valued; allowing for additional confidence surrounding the reliability of the reported findings (Kelley-Quon, 2018; Onwuegbuzie & Leech, 2005). Through these assumptions it can be recognised that no research is entirely objective and free of values, but can still be considered as rigorous and holistic evidence when quantitative and qualitative data is effectively amalgamated (Baškarada & Koronios, 2018; Bowling, 2014; Ormston et al., 2014). The pragmatist epistemology adopted within this thesis understands that in order to find the truth it must be accepted that this cannot be independent of the natural diversities found within human experiences (Feilzer, 2010; Maarouf, 2019; Johnson, 2017). The recognition of anecdotal evidence in its ability to provide a rich and holistic understanding of the world around us is critical within the effective research of hard-to reach and vulnerable populations (Bonevski et al., 2014; Hoeken & Hustinx, 2009; Moore & Stilgoe, 2009). This approach recognises that a combination of methods is often the most effective means of securing reliable and valid knowledge (Gibson, 2017; McKim, 2017; Mertens, 2013; Tariq & Woodman, 2013).

This research aims to understand the experiences of festival attendees who use substances whilst attending these events, alongside the challenges and barriers faced by the current provision of onsite support services. This unique context is often associated with heterogenous findings surrounding associated behaviours, motivations and incidents of harm leading to a poor understanding of where public health promotion can be achieved (Benaglia et al., 2020; Gjerde et

al., 2019; Johnson, Stansfield & Hassan, 2020). This thesis explores the experiences of festival attendees, alongside the experiences of frontline festival workers who provide onsite support services in mitigation of harmful outcomes for attendees who use substances. This combination of perspectives was thought to provide space for a holistic and triangulated understanding of the nuances and patterns found within the contexts where these populations interact. It was hypothesized that the effective collection and interpretation of anecdotal experiences alongside empirical advocacy would promote the effective development and delivery of a relevant and targeted harm reduction intervention. It was essential that qualitative data was obtained within this thesis, reflecting the individual experiences of those who have encountered substance use related harm during music festivals, understanding that this can be an uncommon and frequently complex event. This collection of human experiences could then be analysed to identify common themes and understandings which promoted a thoughtful and rounded approach to the identification of the phenomenology associated with these often-exceptional experiences. It was also critical that this qualitative evidence was upheld and supported within robust quantitative measures within this thesis, which provided robust empirical evidence of the patterns identified within this context. Developing a strong understanding of attendees' experiences of substance use, related behaviours, help-seeking, and harm assisted the development, delivery and efficacy testing of the novel intervention designed within this thesis.

When completing the qualitative elements of this research it was important to consider that the researcher is often a significant element in the process of co-constructing the data (Pilarska, 2021; Snape and Spencer, 2003). For example, decisions made by the personal values and experiences, or the researcher will influence the type of research conducted and the analysis reported. To maximise transparency and rigour the use of self-evaluation and reflexivity has been used to ensure accountability (Attride-Stirling, 2001; Bogna, Raineri & Dell, 2020; Erciyas, 2020 Singh, 2015). The kinds of relationships that exist between the knower and the known are critical concepts within epistemology (Coleman, 2015; Magolda, 2004; Pohlhaus, 2002). The positivist worldview adopts an objectivist philosophy, according to which we as researchers may dissociate ourselves from the process or event we are documenting and so ascertain its real nature (Mahoney, 1992; Tolman, 1992). Contrastingly, the researcher and the researched are perceived as inevitably intertwined within constructivists' perspective (Denicolo, Long & Bradley-Cole, 2016; Fedyk & Xu, 2018; Van der Walt, 2020). This thesis acknowledges the

paradigm that the researcher will predictably utilise personal opinions, biases, experiences, and values within the investigations reported. It is very likely that these constructivist elements will affect both the subject of the study and the interpretation of the findings within this thesis; however, it is likely that this constructivist research will promote a greater knowledge of and comprehension surrounding this understudied and hard-to-reach population.

The work within this thesis and the range of methods adopted, see to provide a synthesis between the constructivist standpoint as reflected in respondents views and opinions with a more positive stance in which replicability is important (Sukumar, & Metoyer, 2019; Tuval-Mashiach, 2021). Whilst replication in a positivist or traditional sense does not typically lend itself to qualitative research (Penders, Holbrook & Rijcke, 2019; Mwita, 2022; Vu, 2021), a wider concept more akin to triangulation has been adopted here in which numerous discourses of and sources of information about the same phenomenon have been utilised (Levitt, 2021; Norman, 2017; Priya, 2021; Prosek & Gibson, 2021). Surrounding literature has outlined the potential implications of replication within qualitative research; often suggesting that such replications can be effectively obtained through the promotion of candid and open research practices to highlight the iterative and emergent processes that are typical of these studies but frequently hidden within their published reports (Caelli, Ray, & Mill, 2003; Chenail, Cooper & Desir, 2010; Makel et al., 2022; Schmidt, 2009). Consequently, this thesis aims to provide a detailed and robust conceptualisation of both the methods and any co-construction evident within the design of research to improve the possibility of replication during future research.

Reflexivity

Within this thesis it has been important to consider my own values and intentions; understanding how these have influenced both the research design and analysis. Music festivals have long been a familiar presence within my life, attending my first event at the age of six. Throughout my childhood, adolescence, and adult life I have attended a variety of music festivals both within the UK and across the world. At the age of eighteen I began volunteering with an organisation providing welfare services to attendees at major UK music festivals. This is an experience I thoroughly enjoyed, taking value and satisfaction in supporting those experiencing challenges or harm during music festivals, including where these occurred in relation to attendee

substance use. Over the next ten years I continued working with this organisation and others, developing my skills and experience whilst adopting additional responsibilities including senior roles, such as safeguarding lead, evictions manager and coordinating emergency responses within event control. During these experiences I gathered an understanding of the widescale issues surrounding recreational substance use at music festivals, the challenges faced by onsite services, and the impact that high-risk attendee substance use can have upon both public health and attendee safety. These experiences have shaped my intentions and values in relation to this research which is important to recognise when considering any risk of bias or influence within the constructs of methodology. Many of my experiences have led me to recognise the often-devastating outcomes following harm experienced by attendees in association with their substance use or related behaviours. This has inevitably influenced intentions surrounding this research, understanding that an intention to improve public health, reduce service burden and improve individual attendee experiences would be influential within this thesis. Additionally, it is important to recognise my own personal values surrounding these experiences; understanding that my perceptions and opinions concerning attendee substance use, the provision of support services, interventions and drug policy would be dominant within this research. My experiences of working with and supporting attendees who have used substances has undoubtedly influenced my opinions surrounding substance use. My position is that attendee substance use during events represents a significantly increased prevalence, frequency and risk when compared to normal day-to-day use of substances within the same population. This has been informed by the lack of knowledge surrounding safer substance use among attendees I have witnessed, with many individuals having reported impulsive substance use with little to no consideration for the utilisation of harm reduction strategies or protective behaviours. Many of the attendees, who I have supported during or following harmful experiences, have reported engaging in high-risk behaviours associated with their substance use. My perception is that substance use is likely to have increased the likelihood of the occurring harm and that attendees who engage in subjectively high-risk behaviours associated with their substance use are more likely to experience harmful outcomes.

Outside the music festival context, I have gained approximately ten years' worth of professional experience working within several support services targeting hard-to-reach and vulnerable populations. This has included roles from support-based positions, through to senior

leadership roles within services such as substance use support services, prison and probation services, homelessness services and veteran services. Through this I have gained knowledge and experience surrounding the challenges and complexity of engagement, service delivery, and the impact of this upon both individual and public health outcomes. These experiences of working within high-pressure, and often demanding environments have impacted upon the values I hold surrounding effective support and provisions for vulnerable young people and adults. Within many of my professional roles, I have often faced barriers to providing effective support which are rooted within both policy, social stigma, and deprivation of funding. It has become clearer to me, through my experiences, that in order to deliver effective support for individuals presenting with stigmatised backgrounds such as substance use, offending or homelessness, we must promote early help-seeking behaviour and receptivity to service access, whilst simultaneously reducing perceived shame and stigma. Many individuals that I have supported, who experience stigma in relation to their difficulties or behaviour, are often found to be reluctant in accessing services, which can lead to more frequent presentations at an advanced stage of harm. My professional experience has led me to the understanding that this typically leads to an increased need for resources and support, which not only places burden upon the service, but also reduces the likelihood of positive health outcomes for both the individual and the community. Throughout this research it has been critical to ensure that these experiences did not overwhelm the data through, for example, the robust triangulation of data from different sources, and the use of test and challenge within supervision settings, promoting rigour and transparency (O'Cathain et al., 2019; Tuval-Mashiach, 2017; Yardley, 2000)

Key Approaches to Research

Across all studies within this thesis particular key aims were held at the forefront of methodology and design. A major research aim was to define and understand any relationships between the psychology of music festival attendees who use substances, the type and frequency of access to harm reduction services and the resulting effects or harmful outcomes. In addition to this, the thesis looked to develop an informed intervention targeting festival attendees which would be both economically advantageous in terms of benefit versus cost, and would offer a tangible impact upon both individual and public health outcomes. The prevalence and impact of substance use within festivals has been well documented within the associated literature,

recognising the impact this has upon both onsite support services and wider community settings such as emergency departments and crisis mental health teams (Black et al., 2020; Chhabra et al., 2018; Nix et al., 2006; Turriss et al., 2019). This thesis aimed to provide research which actively contributed to the transformational change and direct improvement of service efficacy in supporting music festival attendees, improving the reach and impact of these services within this population.

Approaches to Data Analysis

Research methods within this thesis vary between studies and include quantitative and qualitative approaches to data analysis; aiming to provide a triangulated and holistic overview of the experiences of festival attendees who use substances, and the services which support them. Throughout this thesis a balance between documenting and validating the lived experiences of individuals, whilst also gathering robust and reliable data has been attempted. Consequently, quantitative data has been collected alongside qualitative data, which together provide an understanding of trends, common relationships and change over time, with insight and understanding derived from individuals sharing their perceptions and experiences. The following provides an overview of the nature of the data and methodological approaches adopted in each of the chapters contained within this thesis.

The integrative systematic review conducted at the beginning of the research reported in this thesis (see chapter 4) aimed to provide an understanding of the current harm-reduction focused intervention models targeting the attendees of music-based events. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) criteria were employed (Moher et al., 2010), in which systematic searches of harm reduction intervention efficacy contained within a variety of databases were conducted. Data about the populations studied, methods of intervention delivery, outcome measures and reported efficacy were extracted for each study. Included studies utilised a range of designs including descriptive, experimental, randomised controlled trial, and mixed method; consequently, a quality appraisal tool designed for different study types was employed (MMAT; Hong et al., 2018).

The first empirical study within this thesis adopted a largely quantitative approach; aiming to gather a substantial amount of empirical data surrounding music festival attendees'

substance use, related behavioural patterns, cognitions, and experiences of harm. A qualitative component was included in which respondents could provide additional information using text response options within the survey. Regression modelling, which estimates the relationship between one dependent variable and one or more independent variable (Wampold & Freund, 1987), was utilised to identify potential predictive factors for increased risk of harm. Alongside this a number of exploratory methods were employed within the data analysis including Chi squared tests, Cochran's Q tests and McNemar tests to identify any links between the data collected (Maydeu-Olivares & Millsap, 2009). These findings were used to inform the design and development of a targeted harm reduction intervention model that was piloted and reported in Chapter 7.

The second empirical study within this thesis adopted a qualitative approach to examine the experiences of frontline festival workers of attendees' recreational substance use at music festivals and the effects of this upon safety, service delivery, and health outcomes. Professionals including medical staff, welfare workers, and police officers shared their experiences of working within these environments. Data were analysed using a thematic approach (Braun & Clarke, 2006), in which common experiences of the challenges and barriers to effective service provision were revealed. This analysis was supplemented by content analysis (Harwood & Garry, 2003), of the vocabulary used in relation to the presence of visible law enforcement during festivals.

The findings from the first descriptive study and the second qualitative study were linked and triangulated, identifying commonalities between the findings whilst also recognising contrasts (Fielding & Fielding, 2008; Jick, 1979; Restivo & Apostolidis, 2019). This combination of methods allowed for a distinct and novel identification of related experiences between music festival attendees who experience harm and the professionals providing support services, aiming to improve health outcomes for these individuals. Through the methodological triangulation of findings reported within the first two empirical studies, a psychoeducational harm reduction intervention video was informed. This intervention model utilised the findings drawn from the evidence reported within this thesis and the supporting literature to develop unique and relevant content and a targeted delivery method.

The final empirical study within this thesis adopted a dual method approach to ensure a holistic evaluation of the novel intervention piloted within this research. The quantitative and qualitative data captured within this study allowed for evaluative feedback, and evidence of the

perceived efficacy and engagement level within the intervention pilot to be established. Qualitative data facilitated a varied and rich understanding of how well the intervention was received by participants within the pilot in order to further develop and optimise this intervention for future research. The value of evaluative feedback within healthcare interventions in relation to improved engagement and efficacy has been well established within the surrounding literature (Catwell & Sheikh, 2009; Des Jarlais et al., 2004; Maynard & McDaid, 2003). Quantitative data was used to provide indications as to the likely efficacy of the intervention in terms of its aim to promote safer substance use and receptiveness to early help-seeking within onsite services. Such initial efficacy data is critical to inform decision making for further research. For example, analysis of pilot data can provide estimates of treatment impact which can be used to determine the sample size likely to be needed in a formal intervention trial.

Chapter Four: An Integrative Systematic Literature Review – Delivering Effective Harm Reduction Interventions Targeting Substance Use at Music Events

Introduction

Research concerning harm reduction interventions within music festivals and nightlife settings has grown intensely over the past decade, with many studies recognising that the abstinence promotion model and existing drug policy is largely ineffective in reducing the prevalence of substance use or associated harms (Atkinson et al., 2019; Malins 2019; Scott & Scott, 2020; Sommerville, Ritter & Stephenson, 2022). Current literature consistently reports that the most effective way of reducing the harm associated with recreational substance use is via targeted and informative interventions which specifically reach and actively engage high-risk individuals, aiming to reduce the likelihood of negative outcomes following substance use (Giulini et al., 2022; Maghsoudi et al., 2022; Valente et al., 2019). It has been widely recognised that the prevalence of substance use is unlikely to be reduced through prohibition and abstinence promotion alone, recognising that harm reduction focussed interventions which provide non-judgmental information, support and advice are more likely to reduce the risk of harm surrounding substance use within recreational settings (Atkinson et al., 2019; Bacon, 2022; Marlatt, Larimer & Witkiewitz, 2011; Van Boekel et al., 2013).

Within this paper alcohol and any other legal substances are considered as part of the construct of substance use, including substances which may be used illicitly. There are significant differences between substance types and the associated harm and risk presented with use; policy surrounding individual substances is generally location specific and rarely correlates successfully with the risk of harm associated with recreational use (Nutt et al., 2007; Nutt, King & Phillips, 2010). Alcohol had been consistently shown to present significant harms when used recreationally (Jaensch et al., 2018; Martinus et al., 2010; Jenkinson et al., 2014), and as such this review is interested in interventions which target any type of recreational substance use.

This review attends to literature which specifically discusses and explores the efficacy of intervention approaches, or studies which seek to understand the best options for design and

delivery methods. Over a decade ago, the concept of harm reduction interventions specifically targeting recreational substance use was in its infancy, and since then a rapid expansion of interventions has occurred with little to no consolidation as to which approach demonstrates the most efficacious results. This review aims to examine available evidence for all approaches to reducing the harms resulting from recreational substance use at music festivals, music nightlife settings and organised music events. This review seeks to identify how we might most effectively target harmful outcomes associated with attendee substance use within the context of music festivals or similar settings.

Previous Systematic Reviews

Three previous literature reviews have been produced which explore interventions developed to target public health related harms related to substance use within music events and nightlife settings. The first review focused upon young adults (17–24-year-olds) attending popular recreational settings, such as bars or nightclubs (Akbar et al., 2011). Their review, which identified studies published between 1998 and 2011 found three main intervention types: staff training interventions, law enforcement interventions, and attendee education. Other less frequently mentioned interventions included advertisements placed inside establishments, attendee risk assessments, use of breathalysers, the provision of alcohol-free drinks, and a brief alcohol intervention. The review concluded that approaches geared towards harm / use reduction in recreational settings is understudied with a call for research to assess interventions and identify their most beneficial elements.

The second systematic review examined research published between 1990 to 2016, concerning preventive interventions targeting young adults' use of alcohol and illicit drugs in nightlife settings (Brunn, Brunner & Mütsch, 2021). Interventions were grouped according to when they took place i.e. prior to, during, and following the musical or recreational event. Prior to the event, research rated as high-quality found social media interventions had a favourable impact upon alcohol consumption among attendees. Low to medium quality research of 'at-the-event' interventions supported the use of crisis interventions and medical treatment during music festivals. In contrast, grey literature dominated the after-the-event category, although evidence for such interventions (e.g. designated drivers and street safety actions) remained sparse. A

stakeholder dialogue component of this study provided support for harm prevention through multi-sector approaches, social media feedback tailored to the individual, maintaining awareness among nightlife managers, and focusing upon the safety of night-time public transportation. The authors concluded that the most promising treatments were those that focused upon the individual, such as guided reflection on alcohol or drug use and tailored feedback delivered via social media.

The final systematic review explored the delivery and efficacy of drug checking services at music festivals based on the heightened risk of consuming substances which are not as expected, adulterated or mis-sold (Palamar et al, 2021). All of the six studies included used self-selected samples with male participants disproportionately overrepresented. Across the studies, between 11% to 55% of samples submitted for drug checking were found to be contaminated or to contain adulterants. The authors note the need to move beyond self-selection to random sampling using systematic, stratified, or time-space sampling inside music festivals and highlight that attendees should be surveyed about their sociodemographic status (e.g. gender, employment status), their intended substance use at music festivals, and their willingness to submit their substances to drug checking services.

Review Aims and Rationale

This integrative systematic review seeks to identify and consolidate contemporary approaches to reduce the risk of harm associated with substance use within music focused recreational settings such as music festivals, pubs, clubs, and raves. This review aims to identify and critically evaluate harm-reduction intervention methods and their reported efficacy, providing a systematic and critical examination of current research. Through identifying which methods are currently employed and to what extent these are effective in reducing adverse outcomes for attendees it is hypothesised that an overview of the current landscape may be achieved. In doing so it is anticipated that future interventions designed to reduce or mitigate the harm(s) linked to substance use will be informed by this consolidation of evidence.

Method

The design and methods used within this review were influenced by the earlier systematic review conducted by Akbar et al., (2011) which is largely replicated here. Consequently, the current review provides an up-to-date review of the most current approaches to harm reduction interventions targeting this population. No population age requirements were set within the inclusion criteria in order to reflect the wide age range included within music-based events or festival contexts. Systematic reviews adhere to rigorous methods to minimise bias, offering reliable findings essential for informing practice, policy, and further research. They serve to confirm or refute current practices, establish the quality of evidence, address uncertainties, and identify gaps for future research (Munn et al., 2018).

Due to the limited existing research in this domain, a preliminary pilot search was undertaken, leading to the decision to adopt an integrative systematic review methodology. This approach was chosen for its adaptability in encompassing diverse study methodologies and for its systematic framework, facilitating the achievement of the research objectives. The current review used an adaptation of the approach outlined by Whitemore and Knafl (2005) that allowed for multiple study designs to be evaluated with the reporting standards guided by the PRISMA systematic review guidelines and checklist (Moher et al., 2010). Together these provide the basis for a review approach which has repeatable and rigorous methods to find, select, and synthesize the available evidence whilst minimising bias, establishing the quality of the evidence, identifying gaps, and informing future practice or research.

Inclusion Criteria

Studies were required to meet the following inclusion criteria in order to be included within the review:

- a) Written or effectively translated in the English language,
- b) Published between 2012 and 2022,
- c) Discussed the use of any substance (legal or illicit) at music festivals or similar nightlife settings,
- d) Specifically report:

- a. the efficacy of a model of harm reduction focused intervention or;
- b. the efficacy of a type of harm reduction focused interventions or;
- c. the efficacy of a design or delivery method for a harm reduction focused intervention.

Search Strategies

To ensure inclusion of literature from a range of music event settings, the context terms covered pubs, raves, festivals, recreational, and music events. In addition, different harm reduction interventions and terms relating to risk minimisation, drug checking, prevention, and reduction were used. No search restrictions were set in relation to population characteristics, or the risks, behaviours and harms that might present. Substances were searched for using formal and street names, as well as differing terms for substance use. The final search strategy was compiled and reviewed by two research supervisors, in order to minimise the likelihood of relevant terms being omitted. In addition, using wild card characters (asterisks) enabled variations of particular words to be identified.

Final Search Strategy

The following terms and strategy was adopted and forms the basis for the review reported here:

1. “Drug use*” OR “substance use*” OR “substance misuse*” [Title/Abstract]
2. Alcohol OR “designer drug*” OR “club drug*” OR “party drug*” OR “legal highs” OR narcotic* OR opiate* OR stimulant* OR hallucinogen* OR ecstasy OR heroin OR mushrooms OR LSD OR amphetamines OR cocaine OR cannabis OR marijuana OR mephedrone OR solvent* OR GHB OR ketamine OR poppers OR MDMA OR pills OR 2CB OR “novel psychoactive substance*” OR “research chemical*” OR “nitrous oxide” [Title/Abstract]
3. 1 OR 2
4. Club* OR nightclub* OR disco OR festival* OR rave* OR “music event*” [Title, Abstract]

5. Reduc* OR decrease* OR improve* OR prevent* OR safer OR minimis* OR manage* [Title/Abstract]
6. Enforce* [Title/Abstract]
7. Educat* OR intervent* OR approach* OR “drug checking*” [Title/Abstract]
8. (5 OR 6) AND 7
9. 3 AND 4 AND 8
10. Limit 9 to: language: English; publication date: 2012–current (2022)

Screening and Extraction

All papers identified within the searches were screened by title and abstract with duplicates and irrelevant papers excluded. While methodology for included studies could vary, other reviews of the literature or opinion pieces were omitted. The remaining papers were reviewed using the full text where available to ensure the inclusion criteria were met. Where these criteria were met, papers were included for data extraction and synthesis. Data extracted from the literature included, intervention type, delivery methods, measures, target populations and reported efficacy where applicable. In addition to the above, studies were also examined for quality based on the experimental design and research methodology implemented.

Risk of Bias and Quality Assessment

It was not possible to recruit an additional researcher in order to review search results or full texts for inclusion. This did introduce the potential for bias as decisions within the screening and extraction process were undertaken by a single researcher. This was mitigated to some extent by the use of specific inclusion criteria designed to reduce any ambiguity about inclusion or exclusion of particular papers. Of the 287 papers taken forward for a full text review against the inclusion and exclusion criteria, 41 papers were retained for analysis. The process of screening and study inclusion / removal was discussed regularly with research supervisors and there were no discrepancies or conflicts surrounding this process.

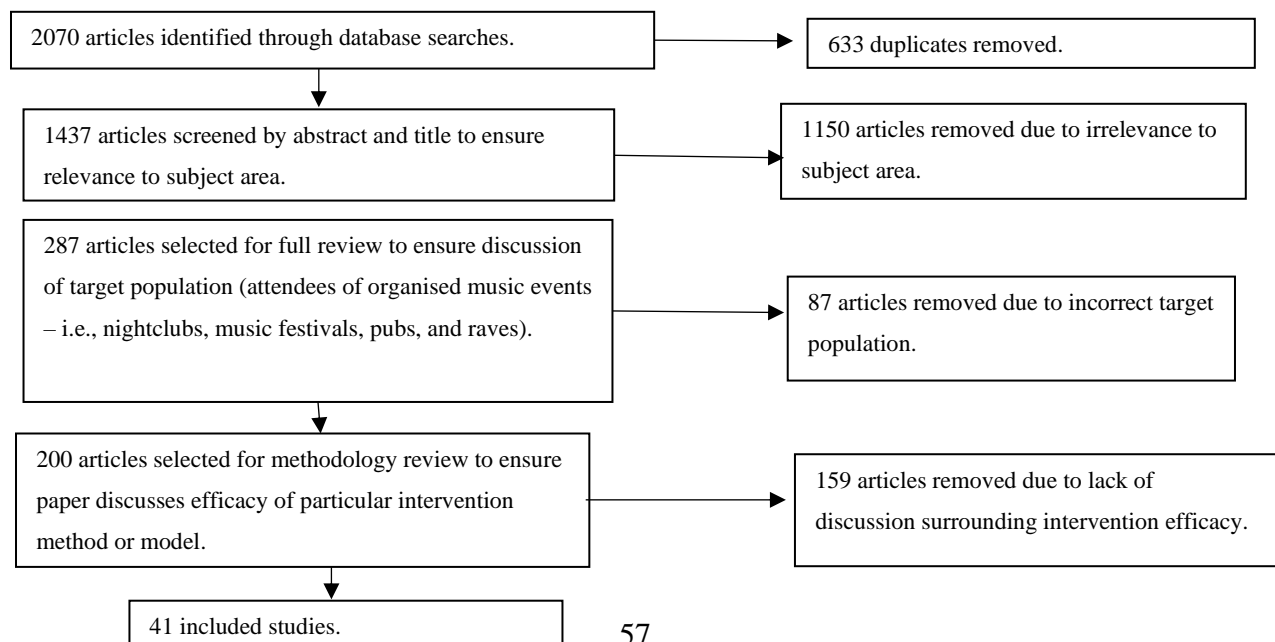
A quality review framework, the Mixed Methods Appraisal Tool (MMAT) Version 2018 (Hong et al., 2018), was utilised to identify the methodological strengths and limitations of each study. This tool enables the assessment of methodological quality and rigour by applying five

core quality criteria to qualitative, quantitative, and mixed methods designs. While the assessment of study quality derived from the MMAT proved useful when contextualising the findings from and implications of the included papers, no research was excluded based on quality. This allowed research detailing all approaches and implications for practice to be reported and discussed within the context of their own limitations and scope. However, it is of note that much of the research was of good to excellent quality, with a limited number of papers presenting any significant concerns in terms of quality.

Findings

Searches were carried out between June and August 2022. The databases used within the search were, PsycINFO, Med-Line, Web of Science and Embase. Further searches were also conducted using Google Scholar to ensure that any relevant grey literature could be identified and included. During the Google Scholar searches a scraping method was used where searches returned more than 100 results, screening only the first five pages of results when ordered by relevance, filtered by date (2012-2022), and transcript language (English). As identified within the PRISMA diagram (Figure 3.1) 1237 articles were screened for inclusion, identifying 41 studies which met the inclusion criteria implemented within this review. None of the grey literature identified met the criteria for inclusion in the study.

Figure 3.1 Prysma Diagram of Excluded and included Papers.



MMAT Quality Appraisal Tool

All 41 studies identified for inclusion within this review were subject to appraisal using the MMAT tool as described above. The quality of research was generally good, and a range of research methods were identified, supporting the decision to use MMAT frameworks. Overall, 22 descriptive (Table 3.1), 11 non-randomised (Table 3.2), seven randomised controlled (Table 3.3), and one mixed method study (Table 3.4) were identified. More qualitative research was expected; however, no qualitative studies were identified which specifically explored the efficacy of a harm reduction intervention targeting music festival or other nightlife venue attendees. The majority of research included within the review met most of the MMAT criteria, however some studies were found to have a high risk of non-response bias due to recruitment and delivery methods. Further limitations surrounding the transferability of findings and the usefulness of outcome measures in assessing intervention efficacy were also identified. There was no impact of study type on the study quality.

Table 3.1 Quantitative Descriptive Studies – MMAT Quality Appraisal Tool

Study	Are there clear research questions?	Do the collected data allow to address the research questions?	Is the sampling strategy relevant to address the research question?	Is the sample representative of the target population?	Are the measurements appropriate?	Is the risk of nonresponse bias low?	Is the statistical analysis appropriate to answer the research question?
Allen, B., Sisson, L., Dolatshahi, J., Blachman-Forshay, J., Hurley, A., & Paone, D. (2020).	Yes	Yes	Yes	Yes	Yes	No, large number of venues in target area refused to participate.	Yes
Betzler, F., Ernst, F., Helbig, J., Viohl, L., Roediger, L., Meister, S., & Köhler, S. (2019).	Yes	Some – further measurements surrounding experiences of harm could have been beneficial	Yes	Yes	Yes	No - some self-selection may have occurred during sampling due to nature of study being made known to participants.	Yes
Causanilles, A., Kinyua, J., Ruttkies, C., van Nuijs, A. L. N., Emke, E., Covaci, A., & de Voogt, P. (2017).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Day, N., Criss, J., Griffiths, B., Gujral, S. K., John-Leader, F., Johnston, J., & Pit, S. (2018).	Yes	Yes	Yes	Yes	Yes	No - As recruitment occurred during the event attendees could be intoxicated, unable to fully engage in study. Self-report data could be affected.	Yes
Deconinck, E., Ait-Kaci, C., Raes, A., Canfyn, M., Bothy, J., Duchateau, C., Mees, C., De Braekeleer, K., Gremaux, L., & Blanckaert, P. (2021).	Yes	Yes	Partially, all samples collected from Belgium which reduces transferability of findings to other music festival locations.	Yes	Yes	Yes	Yes

Douglas, N., Carew, J., Johnson, D., Green, M., Wilson, N., Donovan, J., Mulherin, T., Holbery-Morgan, L., Bourke, E., & Smith, E. (2020).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dutch, M. J., & Austin, K. B. (2012).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Friedman, N. M. G., O'Connor, E. K., Munro, T., & Goroff, D. (2019).	Yes	Partially, further data surrounding the experiences of attendees and workers could have been collected to further establish efficacy	Yes	Partially, the event studied is not representative of more mainstream music festivals	Yes, however further measure surrounding experiences would likely have been beneficial.	No – this study does not consider the proportion of attendees who may not actively help-seek but may still experience harm	Yes
Frinculescu, A., Maier, A. F. G., Shine, T., Ramsey, J., Araneda, J. F., Riegel, S. D., Frascione, N., & Abbate, V. (2022).	Yes	Yes	Yes	Yes	Yes	No – samples collected through amnesty and entry confiscation only – does not consider substances which are distributed during the event post-entry	Yes
Ivers, J.-H., Killeen, N., & Keenan, E. (2022).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Johnson, C. S., Stansfield, C. R., & Hassan, V. R. (2020).	Yes	Yes	Yes	Partially, all substances in sample were seized and not freely submitted, some differences in rates of identification could have been evident.	Yes	Yes	Yes

LaSane, K., Ko, C., Dolatshahi, J., Nolan, M. L., Libou, M., Barrasse, D., & Paone, D. (2022).	Yes	Yes	Yes	Yes	Yes	No – Venues may not wish to participate due to nature of study. Some venues may see participation as a sign of illicit substance problems being present within their venue.	Yes
Luther, M., Gardiner, F., Lenson, S., Caldicott, D., Harris, R., Sabet, R., Malloy, M., & Perkins, J. (2018).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
McCrae, K., Tobias, S., Tupper, K., Arredondo, J., Henry, B., Mema, S., Wood, E., & Ti, L. (2019).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Martins, D., Barratt, M. J., Pires, C. V., Carvalho, H., Vilamala, M. V., Espinosa, I. F., & Valente, H. (2017).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Measham, F. C. (2019).	Yes	Yes	Yes	Yes	Yes	No – As recruitment occurred during the event attendees could be intoxicated, unable to fully engage in the intervention. 62.9% of service users reported consuming alcohol and 43% using drugs before accessing the service.	Yes
Munn, M. B., Lund, A., Golby, R., & Turriss, S. A. (2016).	Yes	Partially – some data could have been collected surrounding the use of HR services prior to or post medical intervention to observe interaction between services in relation to patient presentation.	Yes	Yes	Yes	Yes	Yes

Munn, M. B., White, M. S., Hutton, A., Turriss, S., Tabb, H., Lund, A., & Ranse, J. (2019).	Yes	Yes	Yes	Yes	Yes	No – Recruiting participants upon entry to events increases the risk of non-response bias due to the nature of data collected surrounding illicit substance use in addition to many attendees wishing to enter the event quickly.	Yes
Valente, H., Martins, D., Carvalho, H., Pires, C. V., Carvalho, M. C., Pinto, M., & Barratt, M. J. (2019).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Valente, H., Martins, D., Pinto, M., Fernandes, L., & Barratt, M. J. (2022).	Yes	Yes	Yes	Yes	Yes	No – high attrition rate, small proportion of participants returned for 6 month follow up. Further research is needed to evaluate the medium- and long-term effects of drug checking services.	Yes
Vocht, F., McQuire, C., Brennan, A., Egan, M., Angus, C., Kaner, E., Beard, E., Brown, J., De Angelis, D., Carter, N., Murray, B., Dukes, R., Greenwood, E., Holden, S., Jago, R., & Hickman, M. (2020).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yamamoto, T., Kawsar, A., Ramsey, J., Dargan, P. I., & Wood, D. M. (2013).	Yes	Yes	Yes	~Yes	Yes	No – most attendees are unlikely to utilise amnesty bins – may be unrepresentative sample, dose not account for potential relationship between substance type and discard rate.	Yes

Table 3.2 Quantitative Randomised Controlled Studies – MMAT Quality Appraisal Tool

Study	Are there clear research questions?	Do the collected data allow to address the research questions?	Is randomization appropriately performed?	Are the groups comparable at baseline?	Are there complete outcome data?	Are outcome assessors blinded to the intervention provided?	Did the participants adhere to the assigned intervention?
Baldin, Y. C., Sanudo, A., & Sanchez, Z. M. (2018).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Byrnes, H. F., Miller, B. A., Bourdeau, B., Johnson, M. B., Buller, D. B., Berteletti, J., & Rogers, V. A. (2019).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kurtz, S. P., Buttram, M. E., Pagano, M. E., & Surratt, H. L. (2017).	Yes	Yes	Yes	Yes	No, 148 respondents did not complete follow up.	Yes	Yes
Moore, S. C., Alam, M. F., Heikkinen, M., Hood, K., Huang, C., Moore, L., Murphy, S., Playle, R., Shepherd, J., Shovelton, C., Sivarajasingam, V., & Williams, A. (2017).	Yes	Yes	Yes	Yes	Yes	Yes	No – some intervention premises were unavailable to receive assigned interventions.
Quigg, Z., Butler, N., Hughes, K., & Bellis, M. A. (2022).	Yes	To some extent, pseudo-patrons used which may not reflect actual attendees.	Can't tell	Yes – however some inherent differences between venues will likely be present.	Can't tell	Yes	Yes
Sanchez, Z. M., & Sanudo, A. (2018).	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3.3 Quantitative Non-Randomised Studies – MMAT Quality Appraisal Tool

Study	Are there clear research questions?	Do the collected data allow to address the research questions?	Are the participants representative of the target population?	Are measurements appropriate regarding both the outcome and intervention (or exposure)?	Are the confounders accounted for in the design and analysis?	Are outcome assessors blinded to the intervention provided?	During the study period, is the intervention administered (or exposure occurred) as intended?
Benaglia, L., Udrisard, R., Bannwarth, A., Gibson, A., Béen, F., Lai, F. Y., Esseiva, P., & Delémont, O. (2020).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brett, J., Siefried, K. J., Healey, A., Harrod, M. E., Franklin, E., Barratt, M. J., & Gerber, C. (2022).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Carrà, G., Crocamo, C., Bartoli, F., Carretta, D., Schivalocchi, A., Bebbington, P. E., & Clerici, M. (2016).	Yes	No – data collected at two week follow up, further longitudinal data would have further evidenced efficacy.	Yes	No - study records changes in BD prevalence, further outcome measures could have further evidenced efficacy.	Yes	Can't tell.	No, significant attrition reported.
Deconinck, E., Van Campenhout, R., Aouadi, C., Canfyn, M., Bothy, J. L., Gremeaux, L., Blanckaert, P., & Courselle, P. (2019).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Feltmann, K., Gripenberg, J., & Elgán, T. H. (2020).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fregonese, M., Albino, A., Covino, C., Gili, A., Bacci, M., Nicoletti, A., & Gambelunghe, C. (2021).	Yes	Yes – although a larger sample size may have been more effective in addressing the	Partially - some participants may have been individuals who were inherently more unsure of their substance, for	Yes	No – data surrounding source of substance could have informed findings.	Yes	Yes

		research question.	example those who purchased substances from unfamiliar sources.					
Gerace, E., Seganti, F., Luciano, C., Lombardo, T., Di Corcia, D., Teifel, H., Vincenti, M., & Salomone, A. (2019).	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hollett, R. C., & Gately, N. (2019).	Yes	Yes	Yes	Yes	No – associated substance use behaviours not measured I.e., polysubstance use	Yes	Yes	Yes
Kurtz, S. P., Surratt, H. L., Buttram, M. E., Levi-Minzi, M. A., & Chen, M. (2013).	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lai, F. Y., Thai, P. K., O'Brien, J., Gartner, C., Bruno, R., Kele, B., Ort, C., Prichard, J., Kirkbride, P., Hall, W., Carter, S., & Mueller, J. F. (2013).	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Malveiro, J., de Jesus, S. N., Viseo, J., Pechorro, P., Pacheco, E., Lima-Rodríguez, J. S., & Lima-Serrano, M. (2015).	Yes	Partially – the use of a control group could have further evidenced efficacy of the intervention.	Yes	Partially, further outcome measures surrounding protective behaviours could have further evidenced efficacy.	Yes	Yes	Yes	Yes

Table 3.4 Mixed-Method Studies - MMAT Quality Appraisal Tool

Study	Are there clear research questions?	Do the collected data allow to address the research questions?	Is there an adequate rationale for using a mixed methods design to address the research question?	Are the different components of the study effectively integrated to answer the research question?	Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?
Carmo Carvalho, M., Pinto de Sousa, M., Frango, P., Dias, P., Carvalho, J., Rodrigues, M., & Rodrigues, T. (2014).	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Findings

Studies were categorised according to the intervention type and subtype reported, namely medical interventions, drug checking services, brief psychosocial interventions, and alcohol licencing regulations. The majority of the research included within this review concerned drug checking services, specifically studies exploring the efficacy of chemical analysis techniques, wastewater and amnesty bin analysis, service delivery, and behavioural outcomes following the use of drug checking services. Several papers were also identified concerning the delivery of medical interventions, including prehospital treatment and overdose prevention or management. Less research was identified that focussed on psychosocial interventions and alcohol licencing, however, there were four papers which specifically discussed the delivery of brief interventions via electronic or web-based methods.

Medical Interventions

A total of seven papers were identified which examined medical interventions intended to reduce harm among those who use substances at organised music events. These comprised two clusters - pre-hospital interventions and the prevention of opiate overdoses. Pre-hospital interventions are onsite medical services which treat attendees presenting with medical concerns surrounding substance use. These are intended to prevent or reduce pressure upon external community healthcare services such as emergency departments and mental health teams. The prevention of opiate overdoses included two papers which discussed responses to the contamination of recreational substances with fentanyl at organised music events.

Prehospital Interventions

Table 3.5 Prehospital Interventions

Study	Intervention Type	Target Population / Sample	Delivery Method(s)	Efficacy Measure(s)	Reported Efficacy	MMAT Score
Douglas, N., Carew, J., Johnson, D., Green, M., Wilson, N., Donovan, J., Mulherin, T., Holbery-Morgan, L., Bourke, E., & Smith, E. (2020).	Onsite Medical Services	20 attendees presenting with sympathomimetic or serotonin toxicities SST at mass gatherings in Victoria (Australia) 2018–2019.	Protocol = combination of benzodiazepines ; cold IV fluid; specific therapies, rapid intubation; and cooling with ice, misted water, and convection techniques.	The primary outcome was need for ambulance transport to hospital. The threshold for safety was prospectively defined as less than 10% of patients requiring ambulance transport to hospital.	For the primary outcome, three of the 20 patients required transport to hospital via ambulance and 17 of the 20 were treated on-site. Analysing this outcome by the severity of illness, one patient of seven in the moderate group and two patients of seven in the severe group required transport to hospital. None of the six patients in the mild group required transport to hospital. Findings suggest onsite treatment protocol is safe and effective.	7/7
Dutch, M. J., & Austin, K. B. (2012).	Onsite Medical Services	18-month study period, 61 attendees presenting with GHB intoxication at 14 of the 24 music festival events included.	Face-to-Face	Clinical presentation, medical interventions, and discharge destination.	Onsite medical teams at dance events successfully managed the majority of GHB intoxications onsite and avoided acute care ambulance transfer and emergency department attendance in most cases.	7/7
Friedman, N. M. G., O’Connor, E. K., Munro, T., & Goroff, D. (2019).	Onsite Medical Services	Estimated 2,000 attendees for each year (2014-2017) at an outdoor music festival for college students	Face-to-Face	Retrospective data from event staff, college administrators, and Skidmore College EMS on event-related variables, patient encounters, and medical operations at Fun Day over a four-year period (2014-2017). Outdoor music festival event data. Calvary Public Hospital Bruce Emergency Department (ED). St John Ambulance.	High service usage rates were observed, primarily due to alcohol/illicit substance use and traumatic injuries. The provision of emergency care by a collegiate-based first response service in coordination with a contracted, private ambulance agency serves as an innovative model for mass-gathering medical care.	4/7
Luther, M., Gardiner, F., Lenson, S., Caldicott, D., Harris, R., Sabet, R., Malloy, M., & Perkins, J. (2018).	Onsite Medical Services	23,008 attendees at Canberra 2016 outdoor music festival (Australia)	Face to Face	ACT Ambulance Service; Youth Health Services. Event Observations and Health Presentation Results	Integrated medical service accessed by 292 patients. Final analysis consisted of 286 patients' records. Results from this report indicated that substance use was prevalent, with 15 (5.1%) treated on site and 13 emergency department (ED) presentations. Identifies an important public health issue, supports a coordinated approach, including a robust on-site medical service, recognising frequency of risk-taking behaviour.	7/7
Munn, M. B., Lund, A., Golby, R., & Turriss, S. A. (2016).	Onsite Medical Services	15,000 attendees at a multi-day electronic music festival where on-site HR interventions and	Face-to-Face	Patient presentation rate, ambulance transfer rate, intubation rate, fatality rate, mobile and booth-based preventive and educational services interaction frequency, drug checking	Onsite medical and HR services are complementary public health strategies at music festivals. The extent to which HR services reduce the need for medical intervention remains unclear. Incorporation of HR services when planning on-site interventions has the potential to inform patient management,	6/7

Munn, M. B., White, M. S., Hutton, A., Turris, S., Tabb, H., Lund, A., & Ranse, J. (2019).	Onsite Medical Services	dedicated medical care were delivered as parallel public health measures. 587 attendees at a multi-day electronic dance music festival	Face-to-Face	frequency, and discard rate following drug checking. Quantitative Survey	reduce presentation rates/acuity, and decrease burden for local, community-based health services. Intended substance use may be reduced when medical services are not present.	6/7
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On-site harm reduction interventions and dedicated medical pre-hospital interventions have been examined in several studies. Such studies tend to describe the types, usage rates, and impacts of medical and non-medical services. For example, of the 67,120 attendees at the Shambala Music Festival, 1,393 attendees required support (patient presentation rate (PPR): 20.8 per one thousand; Munn et al, 2016). Of these, the majority (90.9%) presented with non-urgent difficulties and the transfer rate for individuals requiring hospital treatment was 0.194 per one thousand, no patients required onsite intubation and there were no fatalities. In contrast, onsite harm reduction services (e.g., outreach teams, educational information distribution, drug checking facilities, a women's safe space, and a Sanctuary area for attendees experiencing crisis or distress) had much higher rates of use. The study found that approximately 10,000 attendees accessed mobile and fixed-base preventive and educational services, and 2,786 substance samples were checked on-site with a seven percent disposal rate. Whilst the extent to which harm reduction strategies reduced the need for dedicated medical care is challenging to quantify, Munn et al. (2016) concluded that harm reduction interventions inform effective patient management and are likely to reduce medical service presentation rates, as well as decreasing the use and cost for external community-based health services. In addition to collecting data on service use, self-reports methods have been used to understand whether festival attendees' awareness of onsite medical services impacted their risk evaluation in relation to their substance use planning. Data from 587 festival attendees who completed a 19-item questionnaire revealed that the majority of participants (60%, n=343) stated they would still have attended the event if there were no onsite medical services available (Munn et al., 2019). However, almost a third (30%, n=174) agreed that the absence of medical services would have reduced their intended use of alcohol and other recreational substances (46%, n=266). In the context of a music festival, it would appear that the presence of medical services is an important factor for decision-making surrounding substance use for between one third and half of participants. The researchers did not relate this to any other literature surrounding the validity of self-reported data within this population, however, the study did note that the findings concerning attendees' reported plans of continued substance use in the absence of medical services could have heightened the risk of a Type 1 error, artificially inflating their importance through the introduction of a Hawthorne effect.

Pre-hospital interventions combining volunteer based first-response services in coordination with private ambulance agencies have also been studied (Frinculescu et al., 2022).

The combined approach included: mobile first response crews, effective communication systems, preventative education, and harm reduction services. Retrospective data found that over four years (and a total of approximately 8000 attendees), the mean patient presentation rate was 7 per 1,000 attendees (i.e., 54 patients received emergency medical care on site, of these 18 (33.3%) were transported to an external emergency department). Frinculescu et al., concluded that while approximately half of the attendees who accessed support did present with intoxication or medical difficulties related to substance use, the interventions delivered worked effectively in minimising the rate of hospital transfer and reduced the pressure upon external health services.

The final two papers considered the efficacy of prehospital interventions in reducing the rate of hospital transfers in cases of gamma-hydroxybutyrate (GHB) intoxication and serotonin and sympathomimetic toxicity (SST) after ingestion of amphetamine-based drugs (Douglas et al., 2020; Dutch and Austin, 2012). After recognising that the use of GHB and amphetamine-based substances were becoming increasingly common at music events, it was observed that overdose often occurs in clusters and could cause significant pressure for both onsite and external medical services. These studies show that the deployment of onsite medical services delivering pre-hospital interventions at music events has proved to be effective in managing the majority of GHB and amphetamine intoxication related events onsite. For example, in cases of pre-hospital treatment for GHB intoxication the median length of stay was 90 minutes, onsite intubation was only required in three percent of cases and hospital transfer was avoided in 65% of cases (Dutch and Austin, 2012). Similarly, the efficacy of a pre-hospital intervention protocol for SST has been found to be a safe, efficacious, and efficient alternative to urgent hospital transfers (Douglas et al., 2020). Critical to the success of this intervention appears to be inclusive and clear education among all staff within the organisation, robust referral pathways to senior clinical staff, and the timely delivery of the response.

Overdose Prevention

Table 3.6 Overdose Prevention

Study	Intervention Type	Target Population / Sample	Delivery Method(s)	Efficacy Measure(s)	Reported Efficacy	MMAT Score
Allen, B., Sisson, L., Dolatshahi, J., Blachman-Forshey, J., Hurley, A., & Paone, D. (2020).	Awareness campaign	Attendees at 23 New York City nightclubs, and music venues with established associations between alcohol consumption and occasional cocaine use; no venues were included with a prior on-site overdose event.	Education campaign. Posters and coasters designed to display educational messages about presence of fentanyl in cocaine supply. Campaign messages designed to engage people who use cocaine occasionally and may not have knowledge risks associated with fentanyl. Posters were designed to hang in bathrooms; coasters were double-sided to promote visibility.	At the point of enrolment, manager/owner was surveyed to assess awareness of the opioid overdose risk in relation to cocaine use. Survey included 7 questions capturing awareness of fentanyl and naloxone prior to the pilot; possession of a naloxone kit as part of venue first aid; experience of overdose response and reversal in or near the venue; perception of the need for overdose prevention; and response training for venue staff.	23 (49%) venues in the pilot test area participated. Of the participating sites, 11 (48%) venues received naloxone training for their staff. 24 (51%) venues declined to participate. Reasons for declining = belief that messaging was not suitable for venue (n = 1; 4%); the venue operated under corporate management (n = 3; 13%); or no reason (n = 20; 83%). Of participating venues 10 (43%) had heard of naloxone. No venues had a naloxone kit onsite pre intervention. Post intervention 21 (91%) owners or managers had interest in hosting naloxone training for their staff. The campaign generated substantial local media coverage, and a photograph of the coasters was disseminated on Twitter by 20 173 users.	6/7
LaSane, K., Ko, C., Dolatshahi, J., Nolan, M. L., Libou, M., Barrasse, D., & Paone, D. (2022).	Overdose prevention messaging and naloxone provision	Attendees at 75 nightlife venues (bars, nightclubs, and music venues in New York City	Displaying coasters and posters containing overdose prevention messaging. Bar staff overdose education naloxone kits. A.	Post-intervention survey assessed reception of intervention, staff and attendee responses to intervention messaging and staff awareness of fentanyl, naloxone, and access to naloxone	41 venues agreed to display materials and staff at 28 of these venues (68%) completed naloxone training. Participants reported learning about naloxone and fentanyl through the intervention, and most staff (92%) were receptive to the intervention's messages. Venue management and staff were receptive to the intervention, its messaging and keeping a naloxone kit on the premises.	6/7

Overdose prevention was the focus of two papers included in this current review, both of which recognised the importance of naloxone availability in both intramuscular and nasal spray form. In the first study, a pilot campaign, was implemented within 23 nightlife music settings in New York, to raise awareness of fentanyl overdose risk among people who use cocaine within organised music event settings (Allen et al., 2020). The researchers found that the campaign was effective in reaching people at potential risk of opioid overdose within a short period of time, and in ensuring naloxone was available in premises where the risk of overdose may be higher. The second study delivered a public awareness intervention, including providing naloxone kits and information about overdose to the employees of 75 nightlife music venues (LaSane et al., 2022). The researchers reported that 92% of participating staff stated that they were receptive to the intervention's messages with staff at 28 of these locations (68%) completing naloxone administration training. By raising knowledge and expanding the availability of naloxone, these studies show the potential effectiveness of educational interventions in lowering the risks of opioid-related overdose.

Drug Checking

Drug checking has become a prominent and commonplace intervention method over the past decade, introducing effective and robust harm reduction via education surrounding actual substance contents. Drug checking provides valuable information and education for an individual intending to use specific substances from which more informed and conscious decisions can be made. These include the detection of unexpected substances and the strength, purity, or quality of expected substances. At an organisational level, drug checking can also enable services to deliver more accurate interventions informed by the needs of attendees at specific events. This can enable mass warning systems, alerts for medical services and pre-emptive law enforcement. The papers identified within this systematic review addressed the efficacy of particular methods for substance analysis, the analysis of wastewater and amnesty bins, and how these service provisions can impact attendee behaviour surrounding substance use.

Efficacy of Chemical Substance Analysis Techniques

Table 3.7 Efficacy of Chemical Substance Analysis Techniques Studies

Study	Intervention Type	Target Population / Sample	Delivery Method(s)	Efficacy Measure(s)	Reported Efficacy	MMAT Score
Deconinck, E., Ait-Kaci, C., Raes, A., Canfyn, M., Bothy, J., Duchateau, C., Mees, C., De Braekeleer, K., Gremaux, L., & Blanckaert, P. (2021).	Drug Checking Chemical Analysis	287 total samples. 180 = music festivals (Belgium 2018 & 2019). 80 = Modus Vivendi, (drop-in drug checking Brussels). 27 = National Institute for Criminalistics and Criminology seizures.	Spectroscopic techniques hyphenated with partial least squares (PLS) modelling	Identify white powders as amphetamine, cocaine, ketamine. Estimate the purity of samples	For identification mid-infrared spectroscopy hyphenated with PLS-discriminant analysis allowed the distinction between amphetamine, cocaine, ketamine, and other samples (correct classification rate of 93.1% for an external test set). For quantitative estimation, near-infrared spectroscopy was more performant, allowed estimation of the dosage/purity with error 10% w/w. An easily applicable, practical, and cost-effective approach for on-site characterisation of t psychoactive samples encountered in nightlife settings.	6/7
Deconinck, E., Van Campenhout, R., Aouadi, C., Canfyn, M., Bothy, J. L., Gremaux, L., Blanckaert, P., & Courselle, P. (2019).	Drug Checking Chemical Analysis	Attendees' ecstasy tablets, seized at summer festivals in the seasons 2016 and 2017	Attenuated total reflectance- infrared spectroscopy and chemometrics.	Identification and the dosage estimation of MDMA	For differentiation between MDMA positive and negative tablets, best results obtained by NIR and PLS-DA (a correct classification rate of 96% for an external test set). For quantification of MDMA, best results obtained with a PLS model based on NIR spectra. Error varies between 8 mg for low mass tablets and 27.8 mg for high mass tablets. These are acceptable values and give a first indication of risk. The presented approach will be of use for on-site analysis., and when applied in a laboratory environment will reduce workload, liberating resources.	7/7
Fregonese, M., Albino, A., Covino, C., Gili, A., Bacci, M., Nicoletti, A., & Gambelungho, C. (2021).	Drug Checking Chemical Analysis	120 samples given to drug checking service by attendees at nightlife events in Italy.	Multiple colorimetric reagents. Some samples analysed by GC/MS.	Concordance of results obtained using two methodologies and the intended behaviours of consumers after being informed of the test result was evaluated.	High percentage of attendees reported no intention of consuming unidentifiable drugs indicating drug checking is viable as harm-reduction strategy. Colorimetric reagents showed a good performance regarding samples being unadulterated (LSD) or minimal in quantity but failed to identify mixtures of substances and the adulterants present in. Therefore, the use of more discriminatory on-site methods such as Raman or infrared spectrometry is strongly recommended.	5/7
Frinculescu, A., Maier, A. F. G., Shine, T., Ramsey, J., Aranceda, J. F., Riegel, S. D., Frascione, N., & Abbate, V. (2022).	Drug Checking Chemical Analysis	Attendees' 'ecstasy' tablets which were seized at music events.	Quantitative Nuclear Magnetic Resonance analysis (qNMR) carried out on a 60 MHz benchtop NMR spectrometer employing ethylene carbonate as an internal calibrant.	Within batch variation.	Good specificity and selectivity, with linearity, precision, accuracy, and recovery within UNODC criteria. The limit of detection and quantification are 0.33 mg/mL and 0.10 mg/mL respectively, proving the method works well on small amounts of MDMA. MDMA content of a single tablet may not reflect that of the whole batch.	6/7

Gerace, E., Seganti, F., Luciano, C., Lombardo, T., Di Corcia, D., Teifel, H., Vincenti, M., & Salomone, A. (2019).	Drug Checking Chemical Analysis	472 samples from drug checking service at electronic music events in Italy.	A handheld Raman spectrometer. Delayed laboratory analysis by GC-MS or LC-MS/MS.	Correct identification of substances, Concordance of two methodologies and providing data surrounding prevalence of substance types	Drug checking by Raman spectroscopy proved effective to identify psychoactive drugs including NPS and track the drug distribution in various recreational settings.	7/7
Johnson, C. S., Stansfield, C. R., & Hassan, V. R. (2020).	Drug Checking Chemical Analysis	305 samples seized from attendees at New Zealand music festivals.	A handheld Raman spectrometer.	Correct Identification of Substances, Efficacy in providing data surrounding prevalence of substance types.	Handheld Raman spectrometer identified at least one component in 54% of the samples; a large proportion of samples tested were unable to be identified using this device. A collaborative testing approach between on-site testing services and laboratory-based scientists is recommended to improve testing accuracy and provide additional information that might assist in harm reduction from drug use at music festivals.	6/7
McCrae, K., Tobias, S., Tupper, K., Arredondo, J., Henry, B., Mema, S., Wood, E., & Ti, L. (2019).	Drug Checking Chemical Analysis	336 samples from drug checking service at music festivals.	Combination Fourier Transform Infrared (FTIR) spectroscopy and fentanyl immunoassay strips.	Concordance between expected substance as reported by clients to results from the FTIR/fentanyl immunoassay strip. Tracked unexpected adulterants.	Of 233 psychedelic samples, 72.5% contained expected, unadulterated substance, 11.6% contained additional contaminants. Of 66 stimulant samples, 62.1% contained expected substance, 36.4% contained additional contaminants. Unexpected adulterants such as fentanyl, levamisole, and phenacetin were found, in addition to several novel psychoactive substances. Found a large proportion of substances contained unexpected adulterants. Findings highlight the value of continued drug checking.	7/7

This review identified seven papers which discussed the efficacy of specific chemical substance analysis techniques employed within drug checking services provided for the attendees of organised music events. Drug checking refers to a suite of techniques that are an essential factor in harm-reduction strategies at music festivals, especially with the emergence of novel psychoactive substances (NPS). Research has shown high rates of unexpected adulterants and contaminants in drugs analysed at organised music events (McCrae et al., 2019), highlighting the value of drug checking as part of harm reduction responses. However, the cost and speed of the testing varies by method (Deconinck et al., 2019), where rapid but accurate data within a field-based setting is important. In particular the purity and composition of substances, and the possible impact of expected effects and risks following use, are likely to be important. Another challenge for harm reduction services is the presence of batch variation within MDMA tablets which may mean that the MDMA content of a single tablet may not reflect that of the whole batch (Frinculescu et al., 2022). This can present significant difficulties for those tasked with advising an attendee who may have multiple pills in their possession.

Ease of testing is an important consideration if testing is to play a role in harm reduction especially where DIY kits could enable attendees to test substances instantly and independently, without the need for professionals. While this method shows some promise in terms of cost and time efficiency, there remains a large number of substances or adulterants which are currently unidentifiable using the approaches which form the basis for such kits. Consequently, professional methods remain more discriminatory (Fregonese et al., 2021), especially as unidentifiable adulterants or substance types may present significantly higher risks to attendees. However, this research did identify that a high percentage of individuals who received inconclusive results from the method underpinning the DIY kits (72.41%) stated that they no longer intended to consume the substance. This may mean such approaches may have a role to play especially for those who may not seek professional analysis.

The trade-off between speed, simplicity and accuracy is complex. For example, the use of a handheld device (Raman spectrometer) allows for testing to be conducted through a plastic bag enabling a high turnover of samples. However, potentially low rates of correct identification (Johnson, Stansfield & Hassan, 2020), and low rates of attendees submitting unidentifiable substances for further off-site testing (Gerace et al., 2019), suggests that unidentified substances may have still been consumed despite a lack of harm-reducing information about the substance

being provided. Given that music festival attendees are likely to consume their intended substances during the period of the music event, the balance between speed and accuracy is important. Whilst current laboratory-based analysis techniques provide the most accurate information, these methods require specialist equipment, time, and a significant level of expertise to conduct and interpret (Deconinck et al., 2019; 2021). Although more accessible methods of drug checking have been examined, more development is needed in order to achieve an improved balance between speed and accuracy.

Wastewater and Amnesty Bin Analysis

Table 3.8 Wastewater and Amnesty Bin Analysis Studies

Study	Intervention Type	Target Population / Sample	Delivery Method(s)	Efficacy Measure(s)	Reported Efficacy	MMAT Score
Causanilles, A., Kinyua, J., Ruttkies, C., van Nuijs, A. L. N., Emke, E., Covaci, A., & de Voogt, P. (2017).	Wastewater Analysis	Eight 24-hr flow-dependent influent composite samples collected after sand trap at main WWTP in Amsterdam, during 2012 and 2014 music festival.	Liquid chromatography coupled to high-resolution mass spectrometry. Data processed using algorithm, extracting accurate masses of expected m/z from an in-house database containing about 2,000 entries, including NPS and transformation products.	Efficacy of method in identifying NPS in wastewater and establishing current trends in substance use.	Positively identified eight NPS belonging to the classes of synthetic cathinones, phenethylamines and opioids. In addition, the presence of other illicit substances. Screening workflow based on database search effective to identify NPS biomarkers in wastewater. findings highlight low NPS use in the Netherlands.	7/7
Benaglia, L., Udrisard, R., Bannwarth, A., Gibson, A., Béen, F., Lai, F. Y., Esseiva, P., & Delémont, O. (2020).	Wastewater Analysis	All festival's wastewater conveyed to the same STP. Sampling carried out at the inlet of STP, contributions of both festivalgoers and inhabitants of the city.	Substances were extracted through SPE (Solid Phase Extraction) and analysed using liquid chromatography coupled to tandem mass spectrometry.	Samples tested during festival period and non-festival period to compare general usage with use during festival.	Findings support efficacy of analysing substance use patterns and comparing for different period. Also report efficacy of method in identifying substance prevalence when comparing time periods.	7/7
Lai, F. Y., Thai, P. K., O'Brien, J., Gartner, C., Bruno, R., Kele, B., Ort, C., Prichard, J., Kirkbride, P., Hall, W., Carter, S., & Mueller, J. F. (2013).	Wastewater Analysis	Daily wastewater samples collected from inlet of onsite WWTP at Australian music festival. 13 substance residues identified for analysis.	Substance residues in the filtered samples and the extracts were analysed and quantified using liquid chromatography coupled with tandem mass spectrometry. Back estimation of drug mass loads and doses.	Efficacy of method in establishing current trends. Compare with non-festival population.	Findings support efficacy of analysing substance use patterns and comparing for different period. Also report efficacy of method in identifying substance prevalence when comparing time periods.	7/7
Brett, J., Siefried, K. J., Healey, A., Harrod, M. E., Franklin, E., Barratt, M. J., ... & Gerber, C. (2022).	Wastewater Analysis	Six single-day music festivals in New South Wales 2019/2020 - between 15% and 100% of portaloos sampled at each festival. Samples screened for 98 psychoactive substances and/or their metabolites	Qualitatively expressed as detection frequencies for each substance at each festival and across all festivals, compared these data with the results of surveys of self-reported drug use at four of the six festivals.	Efficacy of method in establishing current trends. Compare with self-reported survey data from attendees.	Findings support efficacy of analysing substance use patterns and prevalence of contamination. Also report efficacy of method in identifying substance prevalence when comparing to self-report data.	7/7

Yamamoto, T.,
Kawsar, A.,
Ramsey, J., Dargan,
P. I., & Wood, D.
M. (2013).

Amnesty Bin
Analysis

Gay-friendly dance club
attendees, 544 samples from
2 South London nightclubs.

Contents were categorized then attempt to
visually identify all solid samples using the pre-
existing TICTAC, A sample from each batch
was then subjected to a Marquis Test. Liquid and
powder samples analysed using ATR FTIR. If
inconclusive, GC-MS. Herbal products were
identified by visual inspection only.

Efficacy of method in
establishing current trends in
substance use amongst
attendees of gay-friendly
nightclubs in South London

Method successful in identifying
unique substance use patterns
within this population. Valuable
in informing targeted harm
reduction intervention.

6/7

The use of wastewater and amnesty bin analysis were considered within five of the papers in this review. Amnesty bin analysis can provide a unique understanding surrounding patterns of drug use and drug disposal within particular communities at organised music events with the findings providing quantitative and unbiased information for harm reduction agencies. Such analysis can complement other methods (e.g. self-reported surveys and qualitative studies), helping to guiding the design and delivery of targeted interventions and for monitoring the impact of changes in legislation (Yamamoto et al., 2013).

Wastewater analysis is able to objectively capture information about substance use at music festivals without raising any major ethical issues associated with self-report or the analysis of individual samples. Using this method of monitoring could allow effective assessments of risk for attendees, identifying patterns in use and informing harm reduction agencies at music festivals in the future. Such methods have been shown to be able to detect known recreational substances and NPS and the days when different substances were used, to provide a means for estimating per capita consumption – useful for examining year on year patterns, and to allow comparison with nearby urban communities (Lai et al., 2013). Such information can also allow comparisons across event country and culture which may also reflect a differing availability of substances in different countries and communities (Benaglia et al., 2020). This could also indicate the movement of people who use substances and people who sell drugs to areas where music events are taking place; this irregular sourcing of substances inherently increases the risk of contamination or the mis-selling of substances (Calle et al., 2019).

The use of wastewater samples could be particularly effective in the rapid recognition increased NPS use within certain events (Causanilles et al., 2017). However, successful monitoring of wastewater at music festivals and events requires effective sampling, robust analysis, and data processing. This can be challenging given limited existing information about NPSs and the presence of differentiating types of NPS resulting in low concentrations of residues. Therefore, combining wastewater analysis with information sources such as drug checking services, on-site surveys, and medical presentations may be the most effective approach (Brett et al., 2019). However, the relationship between information from wastewater analysis and self-report may also highlight the presence of adulterated, contaminated, or substituted substances (Brett et al., 2019). Therefore, combining such information can be useful for early warning systems, public health alerts, and peer-based harm reduction education which can be

effective ways to reduce harm through targeting festival attendees who use substances (Brett et al., 2019).

Behavioural Outcomes Associated with Onsite Drug Checking Services

Table 3.9 Behavioural Outcomes Associated with Onsite Drug Checking Services

Study	Intervention Type	Target Population / Sample	Delivery Method(s)	Efficacy Measure(s)	Reported Efficacy	MMAT Score
Day, N., Criss, J., Griffiths, B., Gujral, S. K., John-Leader, F., Johnston, J., & Pit, S. (2018).	Onsite sexual health promotion stall – Survey (day light hours recruitment)	Australian music festival 2016.- a sample of attendees (n = 642) aged between 18 and 30 years	Survey	Substance use patterns and receptiveness to accessing onsite drug checking services.	73.4% reported using illicit drugs in the past 12 months, 86.5% believed ‘somewhat’ or ‘a lot’ that drug checking services could help users seek help to reduce harm, and that drug checking services should be combined with harm reduction advice (84.9%). 68.6% agreed ‘somewhat’ or ‘a lot’ that drug sellers may use this service as a quality control mechanism. 54.4% indicated they would be highly likely and 32.7% would be somewhat likely to use free drug checking services at music festivals. Participants reported that they would not take substances shown to contain methamphetamine (65.1%), ketamine (57.5%) or para-methoxyamphetamine (PMA) (58.4%)	6/7
Hollett, R. C., & Gately, N. (2019).	Hypothetical pill test scenarios and reported their risk intentions, MDMA use history and sensation seeking. .	276 (56.5% female) attendees of a music festival in Australia aged between 18 to 56 years (M= 23.66, SD = 6.1)	Survey	The pill test scenarios described an inconclusive test (unknown substance), the detection of a high MDMA dose, or a harmful adulterant (PMA or PMMA)	Findings suggest access to pill test results would facilitate reduced risk behaviour. behaviour for people who have never used MDMA. Predictive analysis suggested harm-reducing behaviours are less likely when a person has a history of MDMA use and for those high in sensation seeking, particularly if a test result indicates a high MDMA dose.	6/7
Ivers, J.-H., Killeen, N., & Keenan, E. (2022).	Anonymous online survey, recruited via social media.	1193 Irish music festival attendees 2019.	Online Survey	Substance use patterns and receptiveness to accessing onsite drug checking services.	86.8%/n=1036 reported polysubstance use, 39.98% reported having had sex following the use of a drug at a festival; of these, 66% said that the sex was unprotected. Most participants (84.0%/) engaged in some form of harm reduction when taking drugs at festivals. 96.3% reported a willingness to engage with drug-checking services. 75.1% reported that they would use an ‘amnesty bin’ for drugs if it were part of an alert system to notify if dangerous drugs are in circulation. Difference between testing modalities (onsite, offsite and amnesty bin) shows a significant difference p<001 between those who would use onsite and offsite drug testing facilities.	7/7
Martins, D., Barratt, M. J., Pires, C. V., Carvalho, H., Vilamala, M. V., Espinosa, I. F., & Valente, H. (2017).	Drug checking service at Boom Festival 2014 (Portugal)	245 samples expected to contain LSD were submitted to a drug-checking service. 110 post-test surveys were successfully matched with test results	Chemical Analysis & Survey	Samples analysed and results returned, participants asked to answer a pre- and post-test survey. Measured participants expectation of samples pre-test. Post-test survey measured intended behaviours, following receipt of test result	67.3% of LSD samples tested as expected; 0.8% contained LSD combined with adulterants; 24.1% did not contain LSD but did contain another psychoactive substance, and no psychoactive substance was detected in 7.8%. 74.2% of participants who received unexpected test results reported that they did not intend to consume the drug. Following alerts on day 2, a larger proportion of tests were for LSD, when comparing the 2014 festival to 2012, where no such alert was made. Results support the efficacy of integrated drug-checking services.	7/7

Measham, F. C. (2019).	Four days of front of house drug checking service at UK festival in July 2016	247 substances submitted by attendees Consultation data were collected at point of care, matched with test results, coded, and analysed using SPS	Face-to Face	230 test results were returned to participants with healthcare consultations delivered including harm reduction advice, and an optional disposal service.	Results supported efficacy of drug checking service in increasing disposal rates and promoting safer substance use. Service users who acquired substances onsite at the festival were more than twice as likely to have been mis sold them as those acquired offsite, were nearly twice as likely to use the disposal service and were on average two years younger. Women were more likely to be using the drug for the first time and more likely to use the disposal service.	6/7
Valente, H., Martins, D., Carvalho, H., Pires, C. V., Carvalho, M. C., Pinto, M., & Barratt, M. J. (2019).	Pre-analysis and a post-analysis questionnaire. 310 pre- and post-analysis questionnaires were successfully matched.	753 drug samples submitted to the drug checking service for analysis.	Face to Face	The impact of onsite drug checking service on its users' behavioural intentions at music festivals.	Results support efficacy of drug checking services in adopting safer substance use behaviours and managing drug adulteration. The findings support the supposition that when provided with objective information about the content of their drugs, some users consider health protecting behaviours. Additionally, these results can contribute to the design of targeted harm reduction interventions which consider characteristics, profiles and motivations.	7/7
Valente, H., Martins, D., Pinto, M., Fernandes, L., & Barratt, M. J. (2022).	Front of house drug checking service at Boom Festival 2018 (Portugal).	343 festival attendees, 671 drug samples. Post analysis 290 participants reported on 341 sample results, three-day follow-up (N=145), survey after six months (n = 71).	Face to Face	The validity of behavioural intention measures against reports of actual behaviour and the adoption of protective behavioural strategies	At first follow-up, when the results were 'not the expected substance' (N = 35), 86% reported abstaining, 11% 'took a smaller dose than initially planned' and only 1 'took it as planned'. In 71% (n = 63) of the matched post-test and third-day follow-up answers (N = 89), the behaviour reported at third day matched the behavioural intention reported during post-test. After six months, there was a slight increase in most harm-reduction behaviours. Results support value of drug checking in promoting the adoption of safer substance use.	6/7

The impact of onsite drug checking delivered during music festivals was discussed in seven of the papers included within this review. These services offered drug checking and brief interventions to attendees with the aim of supplying harm reduction education to reduce the risk of harm surrounding their intended substance use. Many of these papers also discussed the rate of disposal following use of onsite drug checking interventions with higher rates of disposal supporting a likely efficacy of the discussed interventions.

The vast majority of festival attendees who were able to access an onsite drug checking service reported that it would influence their drug use behaviour (Day et al., 2018). However, whilst most (85%) agreed that drug checking services should be combined with harm reduction advice and that drug checking services would be likely to help reduce harm (86.5%), only half (54.4%) indicated they would be highly likely to utilise free drug checking services should they be available. Whether or not the respondent would use the substance after testing varied by substance type (e.g. methamphetamine - 65.1%, ketamine - 57.5%). However, two thirds of the participants agreed that drug sellers may use this service as a quality control mechanism (68.6%).

Further research has shown that the vast majority of young people who use drugs at festivals would be likely to utilise drug checking services (96.3%; N=1149) and to use amnesty bins for disposing dangerous drugs in circulation where this formed part of a safety alert (75.1%; N=897; Ivers, Killeen & Keenan, 2021). This online survey also revealed that most participants (84.0%; N=1003) engaged in some form of harm reduction when taking drugs at festivals, with particular strategies proving more popular than others (mono substance use (15.4%), staying hydrated (75.5%), taking a test dose (59.1%), and leaving time between doses (62%)). The impact of drug checking information on behaviour has also been demonstrated in other studies. For example, almost all attendees who received unexpected results from the drug checking services (94.3%) reported that they would not take the drug (Valente et al., 2019) although when the test result indicated that a sample contained the expected substance plus adulterants only 32% of users stated they would not take it. Conversely, when the test result showed only the expected substance, 98% of the participants reported they would be likely to use the substance. These findings were broadly supported in a subsequent study in which participants who received an unexpected result for their substance changed their behaviour. In the three-day follow up survey, 86% reported that they 'didn't take the substance'; 11% 'took a smaller dose than initially planned' and only 3% 'took the substance as originally planned' (Valente et al., 2022).

A further pilot study in the UK, in which a temporary onsite drug checking service gave attendees test results embedded within brief psychosocial interventions, concluded that festival attendees do engage productively with onsite drug checking services and that such provisions can be extremely beneficial in accessing harder-to-reach and new user groups (Measham, 2019). Of the samples tested, 20% were found to be an unexpected substance with substances acquired at the music festival more than twice as likely to be an unexpected substance compared with substances acquired offsite. Those using the drug testing service for substances purchased on site were twice as likely to use the disposal service and were on average two years younger than those accessing the drug checking service overall. Within this study, one in five attendees utilised the disposal service and one in six moderated their consumption in response to receiving test results. Sharing results with emergency services and issuing alerts across the festival site also appeared to have an unanticipated impact of reducing the availability of substances as reported by attendees and onsite police officers.

Psychosocial Interventions

Technology Based Interventions

Table 3.10 Technology Based Interventions

Study	Intervention Type	Target Population / Sample	Delivery Method(s)	Efficacy Measure(s)	Reported Efficacy	MMAT Score
Baldin, Y. C., Sanudo, A., & Sanchez, Z. M. (2018).	Web-based intervention	Probabilistic sample in 31 nightclubs in São Paulo, Brazil, recruiting 1,057 participants.	Web-based intervention exposed participants to normative feedback screens about alcohol consumption, risks associated with amount consumed, money spent on drinks, drink driving, risk classification, and tips to reduce damage.	Those classified as problem drinkers (n = 465) using the Alcohol Use Disorders Identification Test were randomized into two study groups – intervention and control.	38% reduction in the practice of binge drinking during weekdays among intervention participants after six months (p < 0.05). No significant reduction outcomes when the intervention and control groups were compared at baseline and six months.	7/7
Betzler, F., Ernst, F., Helbig, J., Viohl, L., Roediger, L., Meister, S., & Köhler, S. (2019).	Survey	Online (n = 674) and field recruitment (n = 203), a total of 877 attendees of “Berlin party scene”	Community drug counselling services. Websites and forums. Youth workers and Teachers. Event Staff. MSM counselling. Onsite Counselling/ Support. Drug education in Schools.	Self-report measures of receptiveness and perceived usefulness of harm reduction intervention types provided in Berlin Club Scene.	The most demanded preventive measure was more education about drugs and harm reduction strategies, in addition participants stated that drug-checking services would also be likely to be frequently utilised.	5/7
Byrnes, H. F., Miller, B. A., Bourdeau, B., Johnson, M. B., Buller, D. B., Berteletti, J., & Rogers, V. A. (2019).	Group-based mobile intervention at nightclubs. Nightlife Safety Plans (NSP)	352 groups, consisting of 959 attendees at 41 events across seven nightclubs.	Club patrons were surveyed anonymously and completed breath tests as they entered and exited clubs. Oral fluid samples collected from patrons at exit assessed drug use.	Analyses examining assignment to NSP versus a control condition on fire safety predicted individual- and group-level protective strategy use and AOD use, controlling for background variables	Findings support efficacy of NSP for increased protective behaviours. The findings support the use of an intervention utilizing group-based strategies delivered within high-risk settings.	7/7
Carrà, G., Crocamo, C., Bartoli, F., Carretta, D., Schivalocchi, A., Bebbington, P. E., & Clerici, M. (2016).	Mobile E-Health Intervention - The Digital-Alcohol Risk Alertness Notifying Network	Milan, Italy, areas with a high density of pubs, clubs, discos, or live music events - young (18–24 years) people (N = 590)	Participants self-administered D-ARIANNA and were re-evaluated after two weeks.	Frequency of binge drinking behaviours.	Study supports population-level benefit at 2 weeks, surrounding D-ARIANNA intervention. This can be distributed easily and economically among young people. Additional elements, including regular feedback and repeated intervention, perhaps via gamification, may be required to make this intervention model suitable for longer term impact	3/7

Sanchez, Z. M., &
Sanudo, A.
(2018).

Web-based
alcohol
intervention
for nightclub
attendees.

Probabilistic sample in 31
nightclubs in São Paulo,
Brazil, recruiting 1,057
participants

At baseline and post
intervention, participants were
classified into 2 AUDIT score
groups: a “high-risk” group,
and a “low risk” group.

Randomized
controlled trial, with
data collection at 0, 3,
6, and 12 months –
AUDIT Scores,
prevalence of binge
drinking.

At 12 months, no differences found between the
intervention and the control conditions in either risk group.
In the “high-risk” group, there were significant reductions
of AUDIT score and the prevalence of binge drinking in
both the control and the intervention subgroups. In
addition, an effect of the intervention was observed at 6
months, 13% reduction in the AUDIT score in favour of the
intervention subgroup. In the “low risk” group, both the
control participants and those receiving the intervention
had increased AUDIT scores. Results suggest that the time
effect of participating in the study may have had a
beneficial outcome in reducing harmful drinking among
patrons in the “high-risk” group. The intervention is not
recommended to the “low risk” group.

7/7

Psychosocial interventions which utilise technological delivery systems, including computer assisted interviews as well as website and mobile based applications, were discussed within five of the papers included in this review. These studies generally concurred that interventions delivered via technology-based methods may be effective in delivering impactful harm reduction information and advice.

The receptiveness of individuals to different types of harm reduction services appears encouraging with high levels of demand for educational interventions about substance use and harm reduction strategies reported (Betzler et al., 2019). Clearly this provides justification for developing resources, several of which have been subject to formal study. In relation to problematic alcohol use among nightclub attendees, a web-based intervention providing personalized normative feedback on the participant's alcohol consumption and its potential consequences has shown promising results (Sanchez & Sanudo, 2018). After 12 months, significant reductions in alcohol use (i.e. AUDIT tool score) and binge drinking were found in both the control and the intervention subgroups with the intervention impact observed at the 6-month stage. In a further study of those categorised as presenting with problematic alcohol, a similar web-based intervention led to a significant reduction in binge drinking among participants after six months (Baldin, Sanudo & Sanchez, 2018). Together these findings suggest that web-based interventions, targeting attendees who present with high levels of alcohol use, may be effective in delivering impactful harm reduction information and advice.

Delivering an intervention via mobile phone applications may be economically advantageous and enable wider reach where such interventions show good efficacy (Byrnes et al., 2019; Carrà et al., 2016). Such methods can also allow increased tailoring of information and intervention. For example, the use of an e-Health app in which estimating current risk of alcohol use, matching identified risk factors, and providing an overall risk score, was found to reduce problematic alcohol use at a 2-week follow-up (18% vs. 37% at baseline; Carrà et al., 2016). The researchers suggested that additional components, including regular feedback and repeated administration by gamification, may improve long term impact and overall efficacy. Improving safety may also be possible through group-based mobile interventions in the form of Nightlife Safety Plans (Byrnes et al., 2019). Engaging in such plans was found to be significantly related to increased protective actions (e.g. agreeing meeting points, homeward travel plans), and with lower blood alcohol concentration although no association with cannabis and cocaine use. Given

that these latter factors were not included in the intervention, this may suggest specificity of the intervention.

Brief Psychosocial Interventions

Table 3.11 Brief Psychosocial Interventions

Study	Intervention Type	Target Population	Delivery Method(s)	Efficacy Measure(s)	Reported Efficacy	MMAT Score
Carmo Carvalho, M., Pinto de Sousa, M., Frango, P., Dias, P., Carvalho, J., Rodrigues, M., & Rodrigues, T. (2014).	Crisis Support	176 participants who used service at Boom Festival	Crisis intervention models, and Groff's (1989) psychedelic psychotherapy approach for crisis intervention in situations related to unsupervised use of psychedelics.	Intervention was expected to produce knowledge about the relation between substance use and mental health impact in reducing potential risk, as well as an impact upon target population's views of themselves, their relationship to substance use, and to life events in general. Research includes data on process and outcome indicators through a mixed methods approach. Pre and post mental state evaluation	52% of Kosmicare visitors reported LSD use. Over 40% also presented with polysubstance use. Pre and post mental state evaluation showed statistically significant difference (p<.05) confirming crisis resolution. Visitors showed high satisfaction with intervention (n=58) and according to follow-up (n=18) this perception was stable over time. Crisis intervention was experienced by attendees as very significant.	7/7
Kurtz, S. P., Buttram, M. E., Pagano, M. E., & Surratt, H. L. (2017).	Brief Assessment Intervention	750 EDM nightclub attendees, Miami, aged 18–39 with multidrug use were randomized in equal proportions to the three conditions.	Interviewer led and self-administered comprehensive health and social risk assessments as distinct interventions compared to waitlist control.	Past 90-day substance use and risky sexual behaviour, abstinence, mental distress, and substance dependence symptoms.	Reported risk behaviour and health outcomes did not differ by assessment modality. Adjusted HLM analyses showed a significant main effect of assigned condition on all outcomes. Interviewer led participants had greater reductions in drug use, risky sex, mental distress and substance dependence symptoms, and greater increases in abstinence, compared to self-administered intervention or control participants at 12 months, both conditions had similar efficacy for reductions in drug use. study supported therapeutic benefit of interviewer interaction in reducing risk behaviours among this population. The findings support the efficacy of a low threshold intervention in reducing drug use, sexual risk, and related co-morbidities.	6/7
Kurtz, S. P., Surratt, H. L., Buttram, M. E., Levi-Minzi, M. A., & Chen, M. (2013).	Interviewer Led Assessment Intervention	44 young adult multidrug users in the club scene, ages 18–29.	Individual assessment interviews at baseline and 6-, 12-, and 18-month follow-ups including measures of substance use and dependence.	Substance use frequency, associated behaviours, substance dependence, health outcomes.	At 18-month follow-up participants reported significantly fewer days of cocaine, ecstasy, benzodiazepine, and opioid use, and reduced substance dependence symptoms. Findings, suggest that comprehensive health and social risk assessments may have effective intervention effects.	7/7

<p>Malveiro, J., de Jesus, S. N., Viseo, J., Pechorro, P., Pacheco, E., Lima-Rodríguez, J. S., & Lima-Serrano, M. (2015).</p>	<p>Brief Intervention Program (Tú Decides)</p>	<p>5,079 participants during 10 nights of academic festival - University of Algarve (Portugal)</p>	<p>Participants attended onsite "Tú Decides" booth, complete a questionnaire regarding alcohol use and intention to drive. The CAS was then measured with Blood Alcohol Level (BAL) and given to participants alongside an information session with recommendations. After receiving this information, participants were asked again to report intention regarding driving behaviour.</p>	<p>Intention to Drive Self-Reported Alcohol Use Alcohol Detection Breathalyser</p>	<p>Findings reported intention to drive was lower post intervention. This intention was influenced by BAC, gender, age and professional situation. Findings support the efficacy of this intervention in reducing risk of drink driving among university festival attendees.</p>	<p>5/7</p>
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Four papers included within this review explored the efficacy of brief psychosocial interventions delivered by professionals in a face-to-face manner. Most of the studies explored interventions in which participants were informed of risks associated with substance use and advised on mitigating actions to minimise harm. The studies all demonstrated the efficacy and acceptability of low threshold interventions in reducing substance use among a not-in-treatment young adult population who exhibit high-risk and complex levels of substance use.

Whilst most brief interventions target risks associated with a range of substances; specific attention has been given to the intention to drive whilst under the influence of alcohol. In a study of over 5000 participants, the intention to drive was found to be significantly reduced when participants were asked about driving intentions before and after a reading of their blood alcohol (Malveiro et al., 2015). However, further research is clearly needed to determine whether this change in intention translated into a behavioural change.

The impact of comprehensive health and social risk assessments targeting alcohol and other illicit substances together have been examined. In a study of 44 young adult nightclub attendees who reported using multiple substances, interviewers assisted participants to complete a comprehensive health and social risk assessment (Kurtz et al., 2013). At 18 months, participants reported significantly fewer days of cocaine, ecstasy, benzodiazepine, and opioid use, and reduced substance dependence symptoms compared to baseline. A further study (Kurtz, et al., 2017) found that interviewer led participants had greater reductions in substance use, mental health difficulties, and dependence symptoms, as well as greater increases in abstinence ($d = 0.2-0.3$), compared to the self-administered intervention or control groups at 12 months. Finally, the use of face-to-face psychological crisis interventions for festival attendees who presented with substance use found statistically significant improvements in mental health evaluations undertaken by trained onsite staff between pre and post intervention (Carmo Carvalho et al., 2014). Further, those receiving the intervention reported high levels of satisfaction and experienced the intervention as very effective in achieving a reduction in harmful or traumatic outcomes. Crisis episodes which presented with no resolution were more often related to a significant mental health crisis.

Alcohol Licencing

Table 3.12 Alcohol Licencing Interventions

Study	Intervention Type	Target Population	Delivery Method(s)	Efficacy Measure(s)	Reported Efficacy	MMAT Score
Feltmann, K., Gripenberg, J., & Elgán, T. H. (2020).	Alcohol Serving Regulations	A large music festival in Sweden hosting approximately 50,000 visitors.	Professional actors, (pseudo-patrons), were observed enacting a standardized scene in which a highly intoxicated attendee attempted to buy alcohol at licensed site inside the festival. A total of 52 purchase attempts were conducted.	Compliance to the Swedish Alcohol Act at music festivals by assessing the rate of alcohol overserving to festivalgoers.	Rate of overserving = 26.9% and was not predicted by server's gender, number of servers, or level of crowdedness at bar. Overserving differed between server age groups but was not statistically significant when controlling for other factors. Findings suggest compliance to Alcohol Act at the festival could be improved. Intoxication related harms could be reduced by implementing a multicomponent intervention including staff training, policy work, and improved enforcement.	7/7
Moore, S. C., Alam, M. F., Heikkinen, M., Hood, K., Huang, C., Moore, L., Murphy, S., Playle, R., Shepherd, J., Shovelton, C., Sivarajasingam, V., & Williams, A. (2017).	Alcohol Licencing Regulations	Nightlife venues (pubs, clubs, hotel)	Intervention group premises were audited by environmental health practitioners who identified risks of violence and provided feedback on how these risks could be addressed. Control premises received usual practice (informal, written advice).	Police data were used to derive a binary variable describing whether, on each day premises were open, one or more violent incidents of violence were reported over a 455-day period.	Due to premises being unavailable at the time of intervention delivery only 208 engaged with intervention and 245 were subject to usual practice. Findings suggest that intervention predicted an increase in police recorded violence compared to normal practice. Exploratory analyses suggested that reduced violence was associated with greater intervention dose.	6/7
Quigg, Z., Butler, N., Hughes, K., & Bellis, M. A. (2022).	Alcohol Serving Regulations	Four nightlife settings in cities within Northwest England and South Wales (2013 to 2015).	Three intervention modalities: (1) community mobilisation, responsible beverage server (RBS) training and routine law enforcement; (2) community mobilisation and enhanced law enforcement; and (3) community mobilisation, RBS training and enhanced law enforcement	Alcohol test purchases by pseudo-intoxicated actors pre (n = 206) and post intervention (n = 224)	Pre-intervention, 20.9% of sales were refused. Post-intervention, 42.1%, 68.8% and 74.0% of sales were refused in areas with intervention 1, 2, and 3 respectively. Service refusal was higher if the test purchase was implemented on a Saturday/Sunday night; and lower if implemented in a nightclub or if age verification was requested at the bar.	4/7

Vocht, F.,
McQuire, C.,
Brennan, A.,
Egan, M., Angus,
C., Kaner, E.,
Beard, E., Brown,
J., De Angelis, D.,
Carter, N.,
Murray, B.,
Dukes, R.,
Greenwood, E.,
Holden, S., Jago,
R., & Hickman,
M. (2020).

Alcohol
Licencing
Regulations

Three nightlife
settings in
England.

Three cases from different regions in England were selected for inclusion (1) the closure of a venue following a licensing committee review, (2) the closure of two venues following review, and (3) new local licensing guidance and increased inspections.

Time-series data were obtained surrounding emergency department admissions, ambulance callouts and alcohol-related crime.

Findings report nightclub closure led to temporary reductions in antisocial behaviour but no change in other outcomes. New licensing guidance led to small reductions in drunk and disorderly behaviour. The unplanned end of the LLG coincided with an increase in domestic violence. Findings support local government actions such as closure or restriction of alcohol venues and alcohol licensing which may improve health and crime outcomes.

7/7

Alcohol licencing regulations as a means to reduce alcohol related harms among the attendees of organised music events was addressed in four papers included within this review. The research in this area generally concludes that alcohol licencing and regulation are likely to be effective in reducing and preventing alcohol related harm, negative outcomes, and public health-related concerns.

Alcohol can contribute to higher levels of assault-related injury through poor operational practices. However, research has shown that auditing and risk management advice by environmental health practitioners can promote better operational practices such as consistently reporting violent incidents to the police (Moore et al., 2017). Whilst it was not possible to assess changes in the frequency of unreported violent incidents, this study also showed that reductions in the frequency of reported violent incidents was associated with greater intervention dose (i.e. follow-up visits). Other studies have focussed on the sale of alcohol itself. First, server compliance with legislation designed to address the provision of alcohol to intoxicated attendees found that the rate of overserving by staff was 26.9% suggesting that compliance with legislation could be improved (Feltmann, Gripenberg and Elgán, 2020). However, a second unrelated study found that interventions for staff could increase rates of refusal to serve alcohol to those who appeared intoxicated. Compared with a pre-intervention refusal rate of 20.9%, community mobilisation (42.1%), responsible beverage server training (68.8%) and enhanced law enforcement (74.0%) all improved refusal rates. Whilst service refusal was higher on a Saturday or Sunday night, however, it is possible that confounding factors such as more part-time staff or the increased presence of intoxicated attendees could explain this. Finally, direct licencing interventions directed at nightlife settings can impact on alcohol related harms indexed through emergency department admissions, ambulance callouts and alcohol-related crime (Vocht et al., 2020). Time-series data showed that closure of a nightclub led to temporary reductions in antisocial behaviour, however, the closure of a restaurant/nightclub did not lead to any measurable changes. New licensing guidance were associated with small reductions in disorderly behaviour; however, the unplanned end of this guidance was found to coincide with an increase in police-reported incidents of domestic violence.

Discussion

Within this review four key lines of intervention were identified which target substance use and related harms among attendees at organised music events or nightlife settings, namely: medical interventions, drug checking services, psychosocial interventions, and alcohol licencing regulations. Whilst most interventions seek to reduce harms through changing consumption, medical interventions are generally focused on managing and reducing harms for attendees who have already used substances. The use of prehospital medical treatment can reduce the harm to the individual (Frinculescu et al., 2022; Munn et al, 2016), and reduce burden on local services (Douglas et al., 2020; Luther et al., 2018), whilst overdose prevention and response information and training can also impact potential harms (Allen et al., 2020; LaSane et al., 2022). The research reviewed here concerning drug checking services found a range of testing approaches with trade-offs between cost, accuracy, reliability, ease, timeliness, and ability to identify contaminants (Fregonese et al., 2021; Gerace et al., 2019; Johnson, Stansfield & Hassan, 2020). However, drug checking was associated with reduced rates of use for adulterated or contaminated substances and increasing the rate of substances surrendered via amnesty routes (Hollett & Gately, 2019; Measham, 2019; Valente et al., 2019; Valente et al., 2022). These impacts suggest that drug checking services should be implemented where possible.

The psychosocial interventions included within this review adopted a variety of delivery methods including mobile phone applications and websites. These interventions were associated with reduced intended and actual substance use, however, the in-person interventions reported were generally delivered over a substantial period of time (Kurtz et al., 2013), with most indicating the need for more intensive interventions to achieve long-term change in behaviour (Carmo Carvalho et al., 2014; Malveiro et al., 2015). For addressing substance use at music events it is likely that delivering brief psychoeducational interventions immediately prior to attendance is likely to be the most practical and efficacious approach however this remains to be studied.

Finally, alcohol licencing measures show some promise in reducing risks linked to alcohol use. This includes tackling risks of harm associated with the over-provision of alcohol to attendees (Feltmann, Gripenberg & Elgán, 2020), and interventions designed to address very specific risks (e.g. driving whilst over the legal alcohol limit; Malveiro et al., 2015). Improved

staff training and the monitoring of alcohol serving premises to reduce the frequency of over-provision are clearly important ways to impact on alcohol related harms.

Whilst each of the four approaches identified through this study were able to reduce harms associated with risky substance use, the impact of combining these methods needs to be tested. In addition, no studies were identified which examined a psychoeducational approach to delivering harm reduction information or advice for music festival attendees. In order to address this gap, developing an electronically delivered brief psychoeducational harm reduction approach could usefully complement services and approaches which have already demonstrated efficacy in reducing the risk of harm associated with substance use at music event settings.

Chapter Five: Identifying Substance Use Patterns and Associated Predictors of Harmful Experiences among Music Festival Attendees.

Introduction

Whilst recreational substance use, potential risk behaviours, and harmful outcomes are likely to be higher among music festival attendees than the general population (Bijlsma et al., 2020; Day et al., 2018; Gjersing et al., 2019; Measham 2019), this population may also be unlikely to help-seek either prior to or following the use of substance at music festivals (Page et al., 2022 Sage, 2016; Mohr, 2018). However, individual personality traits or values might influence the likelihood of harmful events (González Ponce et al., 2020), while characteristics such as engaging in polysubstance use and being young (Hughes et al., 2019; Jenkinson et al., 2014) may also play a role. Improving our understanding of the relationships between high-risk behaviours or harm and individual personality traits, values or other psychological factors could increase the reach and targeting of interventions and services (Douglass et al., 2022). In addition, perceived vulnerability could moderate the relationships between substance use, the use of protective harm reduction strategies and the risk of associated harms among high-risk young adults (Garcia et al., 2018; Munn et al., 2019; Tabb, 2019).

Motivations, Perceived Benefits, Risk Behaviours & Harm

Within the wider context of substance use, the risk of harm may be influenced by maladaptive social cognition; global cognitive ability; delay discounting; reward valuation; and executive functions such as working memory, selective attention, and response inhibition (Castellanos-Ryan & Conrod, 2020; Ingram et al., 2020; Mann et al., 2017; Morin et al., 2019). It has also been reported that some cognitive functions may predict a pattern of risk which overlaps with general psychopathology, externalizing problems, and early onset substance use (Castellanos-Ryan et al., 2016; Pieters et al., 2015; Ramey & Regier, 2019). In addition, polysubstance use, poor injecting practices, high-risk sexual activity, and solitary use have all been evidenced as likely predictors of harm among substance using populations (Friedman,

Rossi & Braine, 2009; Sewell et al., 2017; Tran et al., 2020; Tucker et al., 2006); including some studies which have considered populations of music festival attendees (Healey et al., 2022; Jenkinson et al., 2014). Further particular motivations such as compulsion, mediation of negative affect, or escapism have been found to predict the likelihood of negative or harmful outcomes (Gregg et al., 2014; Pettersen et al., 2013; Pitman et al., 2020). The limited available evidence concerning common motivations for substance use during music festivals has identified reasons such as social enhancement, recreational intensification and sensation seeking (Palamar & Sönmez 2022; Van Dyck et al., 2023; Ruane, 2018). However, from this research it is unclear as to the antagonistic, moderating, or mediating effects these motivations may have upon the risk of harmful experiences.

Perceived benefits of substance use can directly or indirectly influence associated behaviour and subsequent harms (Brady et al., 2022; Sharma & Lal, 2011; Subeliani et al., 2020). For example, research considering those who use substances within the context of sexual activity have reported greater confidence in socializing and sexual interactions (Carey et al., 2019; Palamar et al., 2018); disinhibition (Currin et al., 2019; Lefkowitz et al., 2016); and pleasure (Pedersen et al., 2017) as well as providing a form of justification for regretted or unsanctioned sexual behaviour (Coleman & Cater, 2005; Lindgren et al., 2009; Smith, Toadvine & Kennedy, 2009). In contrast, studies of substance using populations experiencing homelessness identify protection from cold weather through sensation alteration (Chatterjee et al., 2021); increased ability to remain awake during nighttime hours in promotion of personal safety (McCarthy & Hagan, 2005; McKenna, 2013); as well as reductions in negative affect or physical pain (Carney et al., 2021). While research is limited, music festival attendees have reported some commonly perceived benefits of substance use including euphoria, reduced anxiety, increased self-confidence, disinhibition, feelings of empathy or intimacy with others and recreational enhancement (Falcon, Halstead & McCabe, 2023; Scott & Scott 2020). However, certain risk behaviours such as polysubstance use, pre-loading; onsite purchasing intentions and impulsive or unplanned use may be common among festival attendees who use substances (Barratt et al., 2019; Day et al., 2019; Healey et al., 2022).

Harms associated with substance use among music festival attendees include mortality (Corkery et al., 2021), medical emergencies (Friedman et al., 2017); and physical or sexual assault (Aborisade, 2021; Fileborn, Wadds & Tomsen, 2020; Wadds, Fileborn, & Tomsen,

2022). In addition, less impactful experiences such as becoming lost or distressed, and experiencing unwanted side effects such as bruxism or hangovers have also been identified (Palamar & Le, 2023). Although the prevalence of harm associated with substance use among music festival attendees has been well documented, little research has directed attention towards the additional factors which could predict the likelihood of substance use related harm within this population.

Personality Traits & Individual Values

Interventions designed to address substance use within general populations has recognised the impact of personality ‘types’ on engagement and efficacy (Barrett et al., 2015; O’Leary-Barrett et al., 2010). For example, the Preventure Programme, which has shown promising outcomes in terms of substance use, harms, and mental health (Edalati and Conrod, 2019), targets four personality facets namely hopelessness, anxiety sensitivity, impulsivity, and sensation seeking. Within the music festival context, impulsivity, hopelessness, and sensation seeking have been found to be associated with substance use variety and polysubstance use, with impulsivity also related to reduced adoption of harm reduction strategies (Woicik et al., 2009). Further, González Ponce et al., (2020) has also indicated that personality traits may be associated with polysubstance use, risk behaviours and decreased use of harm reduction strategies at music festivals.

In addition to personality facets, individual values may also impact substance use with values such as hedonism associated with an increased likelihood of substance use (Huebner et al., 2021) whilst tradition or conformity may decrease the likelihood of substance use (Danioni, Villani & Ranieri, 2023; Young & West, 2010). However, whilst these provide a general picture, the influence of such values upon substance use among music festival attendees has not yet been explored.

Locus of Control

Locus of control seeks to explain how and why people actively deal with difficult experiences or situations (Rotter, 1966). Specifically, when describing perceptions of the

connections between action and consequence, the notions of internal and external control are adopted. Internal control refers to "the degree to which persons expect that a reinforcement or an outcome of their behaviour is contingent upon their own behaviour or personal characteristics" whilst external control describes "the degree to which persons expect that reinforcement is a function of chance, luck, or fate, is under the control of powerful others, or is simply unpredictable" (Rotter, 1990, p. 489). Within generalised substance using populations an internal locus of control has been associated with increased self-esteem (Heidari & Ghodusi, 2016); increased motivation to achieve success (Mardane et al., 2013); reduced likelihood of anxiety (Holder et al., 2022; Hunter 1994); reduced prevalence of other signs of maladjustment (Segal, 1974; Khodabakhshi et al., 2016; Langberg et al., 2016) and as a protective factor against the risk of harms associated with recreational substance use (Taylor et al., 2020; Turner, 2021). While research within these wider contexts suggest that locus of control could play a critical role in the risk of harm associated with substance use, this has yet to be explored among populations of music festival attendees.

Study Aims & Rationale

This exploratory study aimed to further establish the patterns of behaviour observed when examining substance use among music festival attendees, understanding how and why attendees use substances within these contexts in order to further inform targeted intervention design. The secondary aim of this study was to identify potential relationships between attendees' personal traits and characteristics, their experiences of recreational substance use, their use of harm reduction services at music festivals, and their risk of harm. Identifying such relationships including factors associated with or likely to mitigate harm was considered an essential starting point for understanding how interventions designed to reduce substance use and associated harms might be designed, promoted, and delivered. This understanding might also be of use when promoting awareness of individual vulnerabilities amongst music festival attendees in order to enable protective behaviours and harm reduction strategies to be adopted (Blankenship et al., 2015; Chapman & Liberman, 2005; McNeil et al., 2014).

Method

This study collected primarily quantitative data; however, qualitative data was collected to enhance validity and to shed some light on atypical experiences. Examples of this included allowing participants to provide text responses to multiple response questions and requests for explanatory information surrounding some of the quantitative elements.

When designing surveys looking to gather quantitative and qualitative data, the researcher is often found to be a significant element within the process of co-constructing the data (Snape and Spencer, 2003). As such it was vital that transparency and rigor were upheld within the study through the use of self-evaluation and reflexivity, ensuring accountability throughout (Attride-Stirling, 2001). The design of the survey closely aligned with previous research discussed within the introduction, alongside personal knowledge and lived experiences surrounding the subject matter. To ensure individual experience could be gathered from participants, several variables offered a text option where qualitative data could be collected which may have fallen outside of the constructs implemented by the researcher's design.

Survey Design

Behavioural and experiential variables hypothesised to be associated with experiencing harm relating to substance use at music festivals were identified, including the types and frequency of substance use; motivations for use; prior risk behaviours; perceived benefits of substance use; and self-reported awareness, use and perceived efficacy of harm reduction services. Behavioural and experiential variables were supplemented with sociodemographic information and psychological data such as personality traits, values, and locus of control.

Achieving a balance between comprehensive data collection and engagement whilst mitigating attrition involved several rounds of survey review, during which the inclusion and exclusion of potential items was discussed with research supervisors. The final survey was designed with Qualtrics software (Appendix B iv), which enabled a wide range of potential participants to be reached through the provision of a simple link to the survey. Use of decision options within the Qualtrics software allowed participants to be directed through different branches of questions throughout the survey depending upon responses to previous questions.

Measures

Three brief pre-existing scales were used to measure personality facets, values, and locus of control. In addition, a set of questions developed for this study sought to provide a comprehensive index of substance use and experience.

Ten Item Personality Index (TIPI)

The Ten Item Personality Index (TIPI; Gosling, Rentfrow & Swann, 2003) measures five personality traits based on the 'Big 5' personality model: emotional stability, extraversion, openness, agreeableness, and conscientiousness. Each dimension within the scale is measured by two items, one which represents the positive pole of the dimension and the other represents the negative pole. The psychometric properties of this scale have been widely evidenced, with many studies reporting satisfactory convergent and divergent construct validity in relationship with the Big Five Inventory (Herzberg, & Brähler, 2006; Romero et al., 2012; Storme, Tavani, & Myszkowski, 2016). As this scale was developed to capture data briefly it used two items per trait; consequently, Alpha values do not provide an effective index of internal consistency.

Ten Item Values Index (TIVI)

The Ten Item Values Index (TIVI; Sandy et al., 2017) provides a brief measure of values within the constructs of human behaviour based on the longer 40-item Portrait Values Questionnaire (PVQ; Schwartz, 2003). During the process of development Sandy et al., (2017) applied rigorous psychometric procedures based on separate derivation (N = 38,049) and evaluation (N = 29,143) samples which supported the 10 measures of values. The authors reported that this testing found the scale to be successful in capturing the patterns and magnitude of correlations associated with the original PVQ.

University of Washington - Locus of Control Scale (UW-LCS)

The UW-LCS (Plotnick, 2007) is a six-item scale designed to measure locus of control based on a small standard set of items from Rotter's (1966) 29 item forced-choice questionnaire.

Examples of the six items include: *'when I make plans, I am almost certain I can make them work'* and *'in my life, good luck is more important than hard work for success'*. Participants were unable to select a neutral response for these questions, therefore these items were scored from one (strongly disagree) to four (strongly agree) for questions identifying external locus of control; a reversed scoring strategy was used for questions identifying an internal locus of control.

Substance Use and Associated Experiences

Participants were asked to indicate the substance types they had used at music festivals during the past year by selecting these from a list provided. Participants were also able to indicate any additional substance types not captured by the list provided. For each of the substance types used, participants were then asked to indicate the frequency and quantity of use and to select their motivations for use, perceived benefits of use, harmful experiences, and access to harm reduction services, critical onsite services accessed as well as any risk behaviours they had engaged in.

Ethical Considerations

Ethical approval for this study was provided by the Swansea University Ethics Committee prior to the commencement of any research (Appendix C). Participants were provided an information sheet (Appendix B i) which described the aims of the study, data protection including security and storage measures, their right to exit at any time and were required to confirm that they were not currently intoxicated prior to providing informed consent (Appendix B ii). Although sensitive data was collected, ethical concerns were limited by the retrospective nature of this cross-sectional study and the use of participant anonymisation. Participants were required to be over the age of 18 removing any concerns surrounding the safeguarding of children. A debrief document (Appendix B iii) was provided detailing support agencies for participants where involvement in the study may have initiated a desire to help-seek.

Procedure

Participants were recruited online by advertising the study within Facebook groups dedicated to music festivals such as Glasto Chat, Boomtown Chat, Creamfields Social and UK Music Festival Solos Group. Alongside this Reddit forums related to music festivals were used including r/glastonbury, r/festivals, r/boomtownfestival and r/music. A total of seventy-two different social media group platforms were used to advertise the study, these groups were contextually diverse from a range of genres and purpose. Groups ranged in membership size however these were often in the many thousands. It is not possible to obtain information regarding the frequency of active membership however it is likely that the study advert reached a large and diverse population of festival attendees.

Advert respondents were presented with information sheet as outlined above (Appendix B i), following which respondents were required to provide informed consent (Appendix B ii) in order to proceed to the survey itself. At the end of the study participants were offered a debrief sheet (Appendix B iii), again outlining the study details, contact information for the researchers, and some harm reduction services.

Participants were first asked to provide demographic information and complete the brief psychological measures described above. Fielding and conditional questions were used to direct participants to relevant question blocks and to reduce the survey burden on those answering 'no' to specific experiences. For example, participants were asked to self-report which substance(s) they had used at a festival in the previous twelve months which allowed them to be directed to specific follow-up questions about these. In addition, participants who selected more than four substances regularly used at music festivals were requested to select the two most frequently and two least frequently used substances about which they were asked follow-up questions. This survey flow automation was designed to allow the survey to be completed within approximately 30 minutes. All questions within the survey were optional to maximise engagement through to the end of the survey.

Data Analysis

Data derived from optional and multiple-choice questions will be used to create a number of binary variables with a wide range of number of respondents (N values). Quantitative data

analysis will be largely exploratory, utilising descriptive statistics and correlation analysis including Chi squared tests, Cochran's Q tests and McNemar tests to identify links between key variables (Maydeu-Olivares & Millsap, 2009). Regression modelling, which estimates the relationship between one dependent variable and one or more independent variable (Wampold & Freund, 1987), will be employed to determine predictor variables in relation to participants' experiences of harmful outcomes. SPSS software will be employed for the majority of data management, descriptive and inferential statistics with R and Python used for regression modelling and Bayesian statistical validity testing. Prior to analysis, assumptions such as those relating to data distribution will be tested and decisions such as the choice of statistic and data transformations will be informed by this. Qualitative text-based responses will be clustered to identify core concepts that indicate individual experiences surrounding substance use and associated behaviours.

Participants

Of the 1120 participants who engaged with the study, 773 participants provided sufficient data to be included in the analysis (i.e. they completed at least 75% of the survey including all fielding questions and all questions in relation to their substance use).

Demographics & Distribution

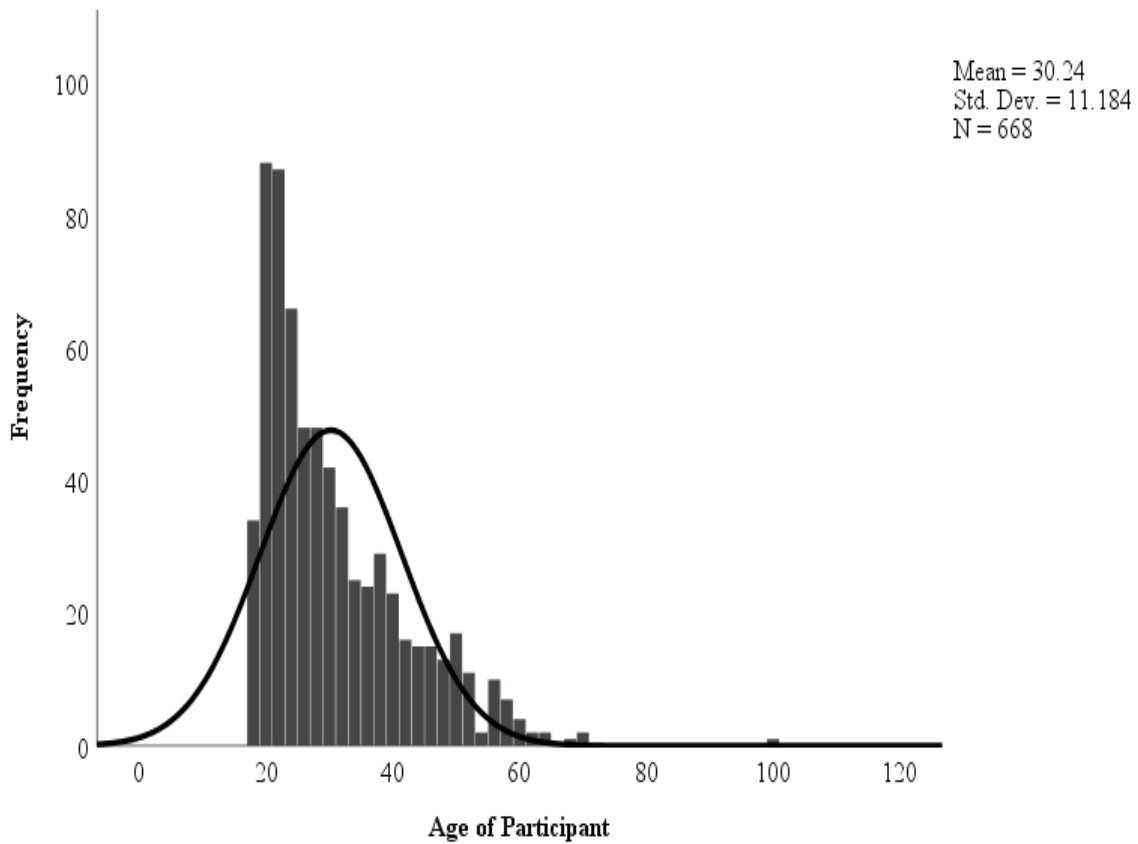
Several demographic variables were collected within the survey including age, gender, education, ethnicity, and relationship status. As has been found previously, respondents were younger than the general population (Moss, Whalley & Elsmore, 2020) whilst the gender of participants was equally distributed between males and females (Table 4.1). Non-binary and undisclosed responses were recorded however due to the very small number of participants reporting this gender identity no analysis was conducted in relation to these gender types.

Table 4.1 The distribution of gender among participants.

Gender	Frequency (N)	Percent
Male	371	48.0
Female	390	50.5
Non-Binary	2	.3
Prefer not to say	1	.1
Total	764	98.8

The age of participants was, not normally distributed, and was positively skewed with an increased number of young participants ($M = 30.24$, $SD = 11.184$, Skewness = 1.321, Kurtosis 2.273). The majority of participants were aged under twenty-five however the range remained fairly large (Figure 4.2).

Figure 4.2 A histogram displaying the distribution of age.



Overall, the respondents were well educated with the majority of participants reporting undergraduate degree level or above education (Table 4.3).

Table 4.3 The distribution of education level among participants.

Level of education	Frequency (N)	Percent
GCSE or equivalent	69	8.9
A Level or equivalent	181	23.4
Diploma or equivalent	97	12.5
Degree or equivalent	310	40.1
Master's degree or equivalent	88	11.4
Doctorate or equivalent	19	2.5

The distribution of relationship status was examined and while the most frequently selected response was single (N=275), this is unsurprising given the sample is positively skewed towards younger participants. Other responses were equally distributed however causal relationship was most infrequently selected (N=63).

A large majority of participants reported their ethnicity as White British (N=643, 83.2%) which broadly reflects the distribution of ethnic background reported in other music festival studies (e.g. Hughes et al., 2019).

Results

Substance Use Patterns Among Festival Attendees

Participants within the study reported which substances they had used on one or more occasions at a music festival during the previous twelve months (Table 4.4). Participants most frequently reported the use of alcohol (92.8%, N=718) followed by the use of MDMA (48.9%, N=378), cannabis (46.9%, N=363), cocaine (37.3%, N=288), and ketamine (29.8% N=230). The most infrequently reported substances used were opioids (2.5%, N=19) and mephedrone (1.4%, N=11). Within this section of the survey, participants were asked to identify whether they used MDMA in pill (ecstasy), or crystal form. This differentiation within the survey responses

allowed for data collection to identify attendees who were perhaps not aware of these substances being the same chemical in different forms, allowing those individuals to identify as a user either way. Of those reporting MDMA use 38.1% (N=295) reported using MDMA in its crystal form and 34% (N=263) reported using pills containing MDMA, with 23.3% (N=180) reported using MDMA in both forms. These results may indicate a preference for a particular form of MDMA, which may also suggest that some participants could believe that the form of MDMA they use could alter their expectations surrounding the effects or risks associated with the substance.

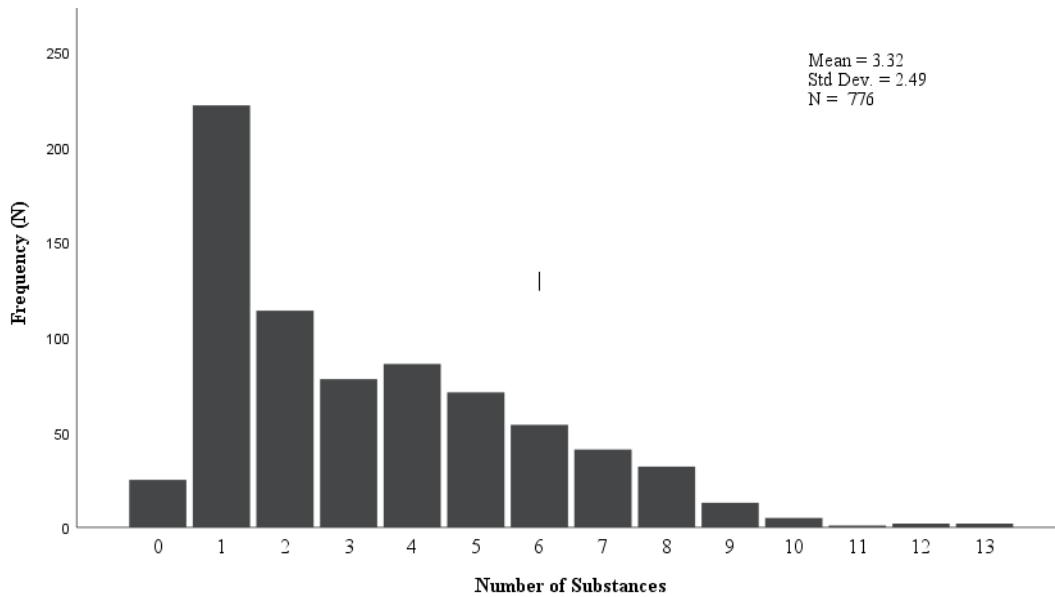
Of the ‘other drug’ responses the most commonly reported substances were *nitrous oxide*, *spice* and *GHB*. However, as the number of users of ‘other’ substance types were minimal these were not included during between substance analysis.

Table 4.4 The frequency of self-reported use of substance types at music festivals 2018-19.

Substance Type	Frequency (N)
Alcohol	718
MDMA	378
Cannabis	363
Cocaine	288
Ketamine	230
LSD	101
2CB	83
Psilocybin (Mushrooms)	67
Amphetamine	47
Benzodiazepines	43
Novel Psychoactive Substances	30
Opioids	19
Mephedrone	11
Other	33

Participants also reported on the number of different substances they used on one or more occasion during music festivals within the past year (Figure 4.5). Results showed that the mean number of substances used by participants was 3.32 (SD = 2.49, N=776). The high frequency of single substance users can be largely attributed to individuals who reported alcohol use only (Table 4.8).

Figure 4.5 The total number of substance types used by participants.



Age and Substance Use Patterns

The mean participant age for each substance type can be seen in Table 4.6. While there is a large variance within this sample, these results indicate that some substance types may be more frequently used by younger attendees while other substance types appear to be more likely attract older attendees. Mephedrone, opioids, amphetamine and psilocybin and alcohol appear to be more frequently used by older music festival attendees within this sample, compared to 2CB, ketamine and novel psychoactive substances (NPS) which all appear to be more frequently used by younger attendees. This effect could suggest that younger individuals may be more likely to experiment with more novel substances. These findings could also suggest that older individuals may continue using substances which were historically popular, however have decreased in popularity over the years.

Table 4.6 Mean age of music festival attendees per substance type.

Substance Type	Frequency (N)	Mean Age (Years)	Standard Deviation (SD)
Mephedrone	10	35.20	23.724
Opioids	18	32.00	10.347
Alcohol	630	29.98	10.727
Magic Mushrooms	58	30.10	10.104
Amphetamine	41	30.27	10.414
Cannabis	322	28.29	10.524
Cocaine	252	28.07	9.649
Benzodiazepines	37	28.35	8.798
MDMA Crystals	265	27.17	8.887
MDMA Pills (Ecstasy)	233	27.20	9.203
LSD	93	26.70	9.684
2CB	76	24.16	7.446
Ketamine	205	24.28	7.107
Novel Psychoactive Substances	28	23.07	6.182

Binary variables were recorded for each substance type, defining whether a participant had reported use or no use of each substance type at a music festival during the past year. When looking to compare the mean age between groups for each substance type it was found that the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality were significant for every substance type suggesting that the data was not normally distributed between the groups (user or non-user). Due to the nature of the data non-parametric testing was applied through the computation of Mann-Whitney U tests for each substance type, comparing the mean age of users versus nonusers (Table 4.7). The findings suggest that there is a significant difference in age between users and non-users of cannabis, MDMA crystals and pills, cocaine, ketamine, LSD, and novel psychoactive substances. For all of the substance types identified it was found that the mean age for users of the substances was lower than those who reported no use of the substance.

Table 4.7 Mann-Whitney U tests comparing age between user and non-user groups for each substance type.

	User?	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Z	Significance (p)																																																																																																																																												
Alcohol Use	No	35	367.64	12867.5	9812.5	-1.097	.273																																																																																																																																												
	Yes	630	331.08	208577.5				Cannabis Use	No	335	366.90	122912.5	41237.5	-5.226	<.001	Yes	322	289.57	93240.5	MDMA Crystals	No	391	363.88	142279.0	37972.0	-5.814	<.001	Yes	265	276.29	73217.0	MDMA Pills	No	426	360.37	153518.0	36691.0	-5.543	<.001	Yes	233	274.47	63952.0	Cocaine	No	401	350.11	140395.0	41258.0	-3.953	<.001	Yes	252	290.22	73136.0	Ketamine	No	450	380.76	171341.0	22384.0	-10.582	<.001	Yes	205	212.19	43499.0	LSD	No	555	336.45	186729.0	19176.0	-3.973	<.001	Yes	93	253.19	23547.0	Magic Mushrooms	No	587	322.58	189357.0	16779.0	-.180	.857	Yes	58	327.21	18978.0	Benzodiazepines	No	607	323.97	196647.5	10339.5	-.811	.417	Yes	37	298.45	11042.5	Amphetamine	No	605	323.18	195525.5	12210.5	-.166	.868	Yes	41	328.18	13455.5	Mephedrone	No	634	322.33	204359.0	3064.0	-.182	.856	Yes	10	333.10	3331.0	Novel Psychoactive Substances	No	615	328.60	202089.5	4550.5	-4.227	<.001	Yes	28	177.02	4956.5	Opioids	No	625	320.96	200597.5	4972.5	-.841	.401
Cannabis Use	No	335	366.90	122912.5	41237.5	-5.226	<.001																																																																																																																																												
	Yes	322	289.57	93240.5				MDMA Crystals	No	391	363.88	142279.0	37972.0	-5.814	<.001	Yes	265	276.29	73217.0	MDMA Pills	No	426	360.37	153518.0	36691.0	-5.543	<.001	Yes	233	274.47	63952.0	Cocaine	No	401	350.11	140395.0	41258.0	-3.953	<.001	Yes	252	290.22	73136.0	Ketamine	No	450	380.76	171341.0	22384.0	-10.582	<.001	Yes	205	212.19	43499.0	LSD	No	555	336.45	186729.0	19176.0	-3.973	<.001	Yes	93	253.19	23547.0	Magic Mushrooms	No	587	322.58	189357.0	16779.0	-.180	.857	Yes	58	327.21	18978.0	Benzodiazepines	No	607	323.97	196647.5	10339.5	-.811	.417	Yes	37	298.45	11042.5	Amphetamine	No	605	323.18	195525.5	12210.5	-.166	.868	Yes	41	328.18	13455.5	Mephedrone	No	634	322.33	204359.0	3064.0	-.182	.856	Yes	10	333.10	3331.0	Novel Psychoactive Substances	No	615	328.60	202089.5	4550.5	-4.227	<.001	Yes	28	177.02	4956.5	Opioids	No	625	320.96	200597.5	4972.5	-.841	.401	Yes	18	358.25	6448.5								
MDMA Crystals	No	391	363.88	142279.0	37972.0	-5.814	<.001																																																																																																																																												
	Yes	265	276.29	73217.0				MDMA Pills	No	426	360.37	153518.0	36691.0	-5.543	<.001	Yes	233	274.47	63952.0	Cocaine	No	401	350.11	140395.0	41258.0	-3.953	<.001	Yes	252	290.22	73136.0	Ketamine	No	450	380.76	171341.0	22384.0	-10.582	<.001	Yes	205	212.19	43499.0	LSD	No	555	336.45	186729.0	19176.0	-3.973	<.001	Yes	93	253.19	23547.0	Magic Mushrooms	No	587	322.58	189357.0	16779.0	-.180	.857	Yes	58	327.21	18978.0	Benzodiazepines	No	607	323.97	196647.5	10339.5	-.811	.417	Yes	37	298.45	11042.5	Amphetamine	No	605	323.18	195525.5	12210.5	-.166	.868	Yes	41	328.18	13455.5	Mephedrone	No	634	322.33	204359.0	3064.0	-.182	.856	Yes	10	333.10	3331.0	Novel Psychoactive Substances	No	615	328.60	202089.5	4550.5	-4.227	<.001	Yes	28	177.02	4956.5	Opioids	No	625	320.96	200597.5	4972.5	-.841	.401	Yes	18	358.25	6448.5																				
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	Yes	233	274.47	63952.0				Cocaine	No	401	350.11	140395.0	41258.0	-3.953	<.001	Yes	252	290.22	73136.0	Ketamine	No	450	380.76	171341.0	22384.0	-10.582	<.001	Yes	205	212.19	43499.0	LSD	No	555	336.45	186729.0	19176.0	-3.973	<.001	Yes	93	253.19	23547.0	Magic Mushrooms	No	587	322.58	189357.0	16779.0	-.180	.857	Yes	58	327.21	18978.0	Benzodiazepines	No	607	323.97	196647.5	10339.5	-.811	.417	Yes	37	298.45	11042.5	Amphetamine	No	605	323.18	195525.5	12210.5	-.166	.868	Yes	41	328.18	13455.5	Mephedrone	No	634	322.33	204359.0	3064.0	-.182	.856	Yes	10	333.10	3331.0	Novel Psychoactive Substances	No	615	328.60	202089.5	4550.5	-4.227	<.001	Yes	28	177.02	4956.5	Opioids	No	625	320.96	200597.5	4972.5	-.841	.401	Yes	18	358.25	6448.5																																
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	Yes	18	358.25	6448.5																																																																																																																																															

Further analysis considered participants' reported substance using patterns; as to whether they had used substances in simultaneous combination (polysubstance use), or whether they had used substances independently of one another. It was found that participants most frequently self-identified as polysubstance users (60.71%) with a much smaller number of participants reporting the use of alcohol and other substances independently of each other (5.6%). A proportion of participants reported using alcohol only (27.12%). While very small numbers of participants reported abstinence from all substance use (3.18%) or using illicit substances while

remaining abstinent from alcohol (3.44 %). Initially it was found that the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality were significant, suggesting that the data was not normally distributed between the groups. As such non-parametric analysis was considered again, computing a Kruskal-Wallis H test to establish any significant differences in age when comparing substance use patterns (Table 4.8). Results showed that there was a statistically significant difference in age between the different substance use pattern types, $\chi^2(4) = 45.489$, $p < .001$, with mean rank ages suggesting an older age for alcohol only or abstinence participants, and a younger age for polysubstance use.

Table 4.8 The frequency of alcohol only users, illicit substance only users and combined users.

Participant Type	Frequency (N)	Percent (%)	Mean Age (Years)	Mean Rank
Abstinent	25	3.18	39	467.65
Alcohol Only Users	213	27.12	34	403.18
Substance Only Users*	26	3.44	31	325.28
Independent Dual Users**	44	5.60	27	277.97
Polysubstance Users***	476	60.71	29	300.24
Total	784	100.0	30	

* Participants who reported using illicit substances independently, no alcohol use and no polysubstance use.

** Participants who reported using alcohol and other substances independently of one another, did not report any polysubstance use.

*** Participants who reported using multiple substances (including alcohol) simultaneously.

The high prevalence of alcohol use was also identified when analysing the patterns of substance use reported by participants; finding a large proportion of participants who self-reported as polysubstance users where alcohol was one element of their use (Table 4.9). Given the frequency of polysubstance use involving alcohol (71.6 %, N=341). These findings suggest that the design and delivery of harm reduction focused services should look to recognise and target the prevalence of alcohol use, particularly within the context of polysubstance use, when providing support for music festival attendees.

Table 4.9 A comparison of polysubstance frequency including and not including alcohol.

Participant Type	Frequency (N)	Percent
Polysubstance Use Not Including Alcohol	135	28.4
Polysubstance Use Including Alcohol	341	71.6
Total	476	100.0

Gender and Substance Use Patterns

The gender of participants was evenly distributed within this sample (Table 4.1), with 48% of the participants being male (N=371) and 50.5% of participants being female (N=390). When comparing gender to the types of substance use reported, it was found that females reported using illicit substances less frequently than males; however, females did report using alcohol and opioids more frequently than males (Table 4.10). It should be considered that the number of participants who reported use of opioids is significantly smaller than other substance types within this study, and as such the results here should be taken as indicative only.

Table 4.10 Type of Substance Use Compared with Gender.

Substance Type	Male (N)	Female (N)
Alcohol	340	377
Cannabis	204	157
MDMA Crystals	157	137
MDMA Pills	152	110
Cocaine	155	132
2CB	61	22
Ketamine	136	93
LSD	73	28
Magic Mushrooms	35	31
Benzodiazepines	29	14
Novel Psychoactive Substances	16	13
Amphetamine	21	25
Mephedrone	7	4
Opioids	6	12
Other	19	14

Further analysis was conducted to determine the independence of gender for each type of substance used by participants. Results suggest there were significant differences between genders for the use several substance types (Table 4.11); the most likely substances influenced by gender were the use of cannabis ($\chi^2(1) = 17.46$, $p < .001$); LSD ($\chi^2(1) = 26.302$, $p < .001$); MDMA pills ($\chi^2(1) = 14.087$, $p < .001$); 2CB ($\chi^2(1) = 23.220$, $p < .001$); and ketamine ($\chi^2(1) = 14.087$, $p < .001$).

Table 4.11 Correlation Analysis: Chi-Square relationships between gender, and the self-reported combined use different substance types.

Factor	X ²	df	Cramer's V	Significance (p)
Alcohol	6.116	1	.090	.013
Cannabis	17.462	1	.153	<.001
MDMA Crystals	4.739	1	.080	.029
MDMA Pills	14.087	1	.137	<.001
Cocaine	5.909	1	.089	.015
Ketamine	15.611	1	.145	<.001
LSD	26.302	1	.189	<.001
Magic Mushrooms	.668	1	.030	.414
2CB	23.220	1	.117	<.001
Mephedrone	1.052	1	.038	.305
Benzodiazepines	6.702	1	.095	.010
Amphetamine	.124	1	.013	.724
Opioids	1.640	1	.047	.200
Novel Psychoactive Substances	.538	1	.028	.445

Due to the nature of the data, it was not possible to calculate a regression analysis which predicted substance type based on gender. As such, a binary logistic regression considering the influence of all substance types upon gender was computed with a forward likelihood ratio variable selection method. Results suggested that the use of alcohol, cannabis, 2CB and LSD were able to predict gender most reliably (Table 4.12). The model was statistically significant, $\chi^2(4) = 45.034$, $p < .001$, however this only explained 7% (Nagelkerke R²) of the variance in substance types used between genders, correctly classifying 60.4% of cases. It should be

considered that this test was one directional, and as such inferences surrounding the prediction of substance use through the knowledge of gender should be taken cautiously.

Table 4.12 A table of classification for steps computed within binary logistic regression concerning gender and substance type.

			Gender		Percentage Correct	-2 Log Likelihood	Cox & Snell R ²	Nagelkerke R ²
			Male	Female				
Step 1	Gender	Male	68	286	19.2	993.514	.031	.041
		Female	28	352	92.6			
	Overall Percentage				57.2			
Step 2	Gender	Male	96	258	27.1	983.775	.044	.058
		Female	40	340	89.5			
	Overall Percentage				59.4			
Step 3	Gender	Male	96	258	27.1	978.022	.051	.068
		Female	40	340	89.5			
	Overall Percentage				59.4			
Step 4	Gender	Male	114	240	32.2	971.584	.060	.079
		Female	51	329	86.6			
	Overall Percentage				60.4			

The best fitting model, reported in Table 4.13, suggests that those who report using alcohol are 2.41 times more likely to be female, whereas those who report using 2CB, Cannabis, and LSD are 3.75, 3.33 and 2.10 times more likely to be male.

Table 4.13 Model of substance type predictors associated with festival attendee gender.

Predictive Factor	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Alcohol	.880	.357	6.078	1	.014	2.411	1.198	4.854
LSD	-.420	.159	6.930	1	.008	.657	.481	.898
2CB	-.757	.287	6.956	1	.008	.469	.267	.823
Cannabis	-.698	.257	7.344	1	.007	.498	.300	.824
Constant	-.405	.349	1.346	1	.246	.667		

Finally, the influence of gender upon substance use patterns were analysed finding most substance use patterns were endorsed at similar rates between gender types. One significant difference between gender types and substance use pattern was found among those who use alcohol only, finding female participants (N=138) were more likely to endorse this type of substance use when compared to male participants (N= 71; $X^2(4) = 34.182, p <.001$).

Frequency and Quantity of Substance Use

Due the survey design participants who reported using more than four substance types were asked to nominate four substances for which they would respond to the substance specific question blocks. This was achieved by asking participants to nominate their two most frequently and two most infrequently used substances. Over half of the sample (N = 439, 56.8%) indicated using four or more substances at music festivals during the past 12 months. Due to this response a significant proportion of the sample were asked to select four substance types for which to completed substance specific question blocks. This did mean that the proportion of participants who were directed to substance specific question blocks, for each substance type, was reduced compared to the proportion of participants reporting use (Table 4.14).

Table 4.14 Frequency of participants self-directed to substance specific questions.

Substance Type	Frequency of Users (N)	Frequency of Users Completing Substance-Specific Question Blocks (N)	Percentage of Total Users (%)
Alcohol	718	675	91.10
MDMA	378	292	77.25
Cannabis	363	271	74.66
Cocaine	288	178	61.81
Ketamine	230	132	57.39
LSD	101	6	0.05
2CB	83	50	60.24
Psilocybin (Mushrooms)	67	33	49.25
Amphetamine	47	22	46.81
Benzodiazepines	43	13	30.23
Novel Psychoactive Substances	30	8	26.67
Opioids	19	11	57.89
Mephedrone	11	4	36.36

When analysing the proportion of participants who had identified as a user of each substance type, who were then directed to the relevant substance specific question blocks, it was observed that some substances had received very few responses. These substance types included LSD (N = 6, 5%); novel psychoactive substances (N = 8, 26.67%); and benzodiazepines (N = 13, 30.23%). These findings suggest that, when asked to identify the most frequently and infrequently used substance types, it is possible that substances such as LSD, NPS and benzodiazepines are commonly not identified as either by attendees who use more than four substance types.

Those reporting the use of four or more substance types, were asked to identify their two most frequently used substance types. Among this group of participants, alcohol (36.4%, N=167) and cannabis (20.5%, N=94) were reported as most frequently used. The other substance types identified as *most frequently used* also appeared to match the frequency of substances used within the general population of this study, with MDMA (11.3%, N=52), Ketamine (13.9%, N=64) and Cocaine (12%, N=55) commonly endorsed. Due to the small sample sizes directed to substance specific question blocks for some of the substance types, the following analysis generally considers responses from the five most frequently completed substance specific question blocks; namely alcohol, cannabis, MDMA, ketamine and cocaine.

When responding to substance specific question blocks participants consistently reported an increased frequency of use within music festival contexts, across all substance types, when compared to non-festival contexts (Table 4.15). These results suggest that for the substance types analysed, attendees who use these substances are more likely to use these most or every day during a music festival period.

Table 4.15 Reported frequency of substance use within music festival settings compared with non-festival contexts.

Substance	Frequency	Non-Festival Context Use (N)	Music Festival Context Use (N)
Alcohol	Every day	32	535
	Most days	98	64
	Some days	265	31
	Occasionally	267	23
	Never	13	12
Cannabis	Every day	43	119
	Most days	35	46
	Some days	39	29
	Occasionally	109	40
	Never	45	30
Cocaine	Every Day	2	48
	Most Days	2	39
	Some Days	14	37
	Occasionally	117	27
	Never	43	19
MDMA	Every Day	0	33
	Most Days	1	24
	Some Days	4	39
	Occasionally	110	30
	Never	47	32
MDMA / Ecstasy Pills	Every Day	1	26
	Most Days	2	19
	Some Days	1	25
	Occasionally	77	22
	Never	51	36
Ketamine	Every Day	8	52
	Most Days	5	15
	Some Days	19	16
	Occasionally	67	13
	Never	33	32

Further analysis surrounding these findings was conducted to view the frequency of participants who shifted positively (increased use during festival periods) or negatively (decreased use during festival periods) in regard to their normal use versus festival use. Results show that for all substance types analysed a positive shift was seen significantly more frequently than a negative shift (Table 4.16). From this we can understand that the majority of people increase their frequency of use when comparing normal use to use within a festival context.

Table 4.16 Shifts in frequency of use between festival contexts and non-festival contexts per substance type.

Substance	Positive Shift Frequency (N) *	Negative Shift Frequency (N) **	Total (N)
Alcohol	598	18	616
Cannabis	156	31	187
MDMA	160	34	194
Cocaine	125	11	136
Ketamine	80	16	96

* Participants who reported using the substance more frequently during music festival periods when compared to non-festival contexts.

** Participants who reported using the substance less frequently during music festival periods when compared to non-festival contexts.

The shift in frequency of use was further analysed to explore the size of the effect. The sizes of positive shifts were categorized, defining a larger shift as equal to a larger move across the frequency values recorded. Results show that the most frequent shift size for alcohol was medium (some days to most or every day), with most participants shifting from some or most days during non-festival periods to every day during festival contexts (Table 4.17). For illicit substances it was observed that the most frequent shift size was found to be large (never or occasionally to most or every day) for all analysed substances. These findings suggest that attendees are likely increase their substance use frequency significantly during music festival periods; harm reduction services and interventions should look to mitigate the potential risks associated with a highly increased substance use.

Table 4.17 Change in frequency of use per substance type between non-festival contexts and music festival periods.

Substance Type	Movement from Usual Use to Festival Use		
	Never or Occasionally to Most or Every Day	Some Days to Most or Every Day	Occasionally to Some Days or Most Days
	Day (Large Shift)	(Medium Shift)	(Small Shift)
	N	N	N
Alcohol	13	223	20
Cannabis	45	23	15
Cocaine	43	6	24
MDMA	91	2	41
Ketamine	33	12	7

In addition to the frequency of use, participants were also asked to report on the quantity¹ of each substance type consumed per day during the music festival period(s). Descriptive analysis surrounding this data showed that for the five most frequently used substances the quantities used were concerningly high (Table 4.18). It was also found that a large proportion of participants were unsure of the quantity they had used on average per day during the music festival. These findings suggest that onsite services should be prepared for attendees to present having used a high or unknown quantity of substances.

Table 4.18 Reported quantity¹ of each substance used by participants per day within the event.

Substance Type	Low Quantity (N)	Medium Quantity (N)	High Quantity (N)	Unsure (N)
Alcohol*	160 (22.2 %)	165 (22.9%)	273 (37.9%)	121 (17%)
Cannabis**	100 (37.5%)	49 (18.4%)	72 (27.1%)	45 (16.9%)
Cocaine***	33 (19.4%)	64 (37.6%)	58 (34.1%)	15 (8.8%)
MDMA****	48 (16.7%)	77 (26.9%)	87 (30.4%)	74 (25.8%)
Ketamine*****	50 (39.1%)	17 (13.2%)	37 (28.9%)	24 (18.8%)

* Low quantity = 0-5 units, medium quantity = 5-10 units, high quantity = >10 units

** Low quantity = 0-0.5g, medium quantity = 0.5-1g, high quantity = >1g

*** Low quantity = 0-0.2g, medium quantity = 0.2-0.5g, high quantity = >0.5g

**** Low quantity = 0-0.1g or half a pill, medium quantity = 0.1-0.2g or half – full pill, high quantity = >0.2g or more than one pill.

***** Low quantity = 0-0.1g, medium quantity = 0.1-0.2g, high quantity = >0.2g

¹ Quantities derived from average doses described in: <https://www.drugwise.org>, <https://www.tripsit.me> and <https://www.nhs.uk>.

Among MDMA users who completed the relevant substance specific question block (N=286), it was found that where participants reported the use of MDMA crystals, 73 (25.52%) reported being unsure of the average quantity they had used, however only one participant reported being unsure of how many MDMA pills they had used. Given this is one of the only 'pre-dosed' substances within this analysis we can perhaps infer that predosed substances could be easier to monitor in terms of quantity of use. While it could be argued that alcohol is also a *packaged* substance, participants were asked to report the number of units consumed rather than the number of drinks and as such this could have led to uncertainty. It is also important to consider the quantity differences found between crystal and pill forms of MDMA: the number of participants who reported high quantity use of MDMA crystal was 29, and the number for MDMA pills was 58. This finding suggests that those using MDMA pills may be at a higher risk of overdose, however this could also be due to MDMA crystal users underestimating the quantity of their use.

Substance Use Combinations

When exploring combinations of polysubstance use analysis surrounding the five most frequently used substances were explored to understand the most common combinations. Only combinations including alcohol were examined due to the very small number of polysubstance users who did not use alcohol. While combinations with less frequently used substances were evident, the small number of participants that these combinations applied to meant that they could not be relied upon to inform the design and delivery of future interventions. Self-identified polysubstance users within this study were analysed to identify the most common substance combinations reported among this sample (Table 4.19). Results show that the most common combination of use when analysing the five most frequently reported upon substance types was a combination of all five substances (26.3%, N=119), followed by the use of cannabis and alcohol only (21.4%, N=97). These results could be explained by the widespread social acceptance of cannabis within current society which likens its use to the use of alcohol. When examining age, the combined use of all substance types with the exception of cocaine showed the lowest mean age at 21 years, suggesting younger attendees are also likely to use a higher number of substance

types when engaging in polysubstance use. The highest mean age found within this analysis was in relation to a combination of alcohol, cannabis, and cocaine use (M=34), suggesting cocaine use could be associated with an older age. The results also suggest that where illicit substances other than cannabis are used then they likelihood of multiple substances being used is increased.

Table 4.19 Frequency and age of common substance use combinations.

Substance Combination	Frequency (N)	Mean Age
Alcohol + Cannabis	97	32
Alcohol + MDMA	37	29
Alcohol + Ketamine	17	23
Alcohol + Cocaine	38	32
Alcohol + Cannabis + MDMA	40	31
Alcohol + Cannabis + Cocaine	54	34
Alcohol + MDMA + Cocaine	40	31
Alcohol + MDMA + Ketamine	25	24
Alcohol + Cannabis + MDMA + Cocaine	54	32
Alcohol + Cannabis + MDMA + Ketamine	26	21
Alcohol + Cannabis + MDMA +Ketamine + Cocaine	119	25
Total	476	31

Further findings suggest that combinations including the use of cocaine appear to attract an older attendee (M=30.5 years), however conversely where ketamine is an element of the substance use combination the mean age reports much lower at 23.5 years (Table 4.20).

Table 4.20. Frequency and Age of Ketamine and Cocaine Users.

Participant Type	Frequency (N)	Percent	Mean Age
Ketamine User*	59	17.1	22
Cocaine User**	119	34.5	32
Ketamine & Cocaine User	167	48.4	25
Total	345	100.0	26

* Reported using Ketamine, did not report using Cocaine

** Reported using Cocaine, did not report using Ketamine

As the largest proportion of polysubstance users reported a combined use of alcohol, cannabis, MDMA, cocaine and ketamine during music festivals (N = 119), further analysis considered any factors which may predict this type of polysubstance use. Increased numbers of substance types used in relation to polysubstance is known to directly increase the risk of harm (Bailey, Farmer & Finn, 2019; Hjemsæter et al., 2019). Future service providers or intervention models could benefit from understanding who may be more likely to engage in this type of polysubstance use.

When exploring possible predictors for individuals using a combination of these five substances, it was found that this variable was significantly skewed (1.92, S.E = 0.88) and platykurtic (1.69, S.E = 0.17); as such non-parametric two tailed correlation analyses were performed to identify any possible relationships between the combined use of these five substances and any antecedent sociodemographic, behavioural, or psychological factors recorded within the survey. Several significant relationships were identified between this combination of substance use and the variables tested (Table 4.21; 4.22). Sociodemographic factors including age, gender, relationship, employment were found to correlate with this polysubstance use combination. Behavioural correlates included total motivations reported; total perceived benefits reported; total risk behaviours reported; total harm reduction services accessed; alternative, electronic and grime festival genres; and the total number of festivals attended. Finally psychological variables such as individual values of self-direction, hedonism, stimulations, security, and achievement; as well as the emotional stability personality trait were found to significantly correlate with the reported combined use of alcohol, cannabis, MDMA, cocaine and ketamine. Despite the significance of these relationships most displayed a weak correlation. The strongest factors identified were age ($r_s = -0.26$); number of motivations ($r_s = 0.27$), number of perceived benefits ($r_s = 0.24$); number of risk behaviours ($r_s = 0.27$); number of harm reduction services accessed ($r_s = 0.22$); number of music festivals attended; ($r_s = 0.24$); higher scores for hedonism value ($r_s = 0.19$); and higher scores in relation to stimulation value ($r_s = 0.23$). When analysing correlations between categorical factors and this substance use combination (Table 4.22), the strongest relationships identified were employment status, relationship status, impulsive substance use, as well as attendance at electronic, grime or alternative genre music festivals.

Table 4.21 Correlation Analysis: Chi-Square relationships between sociodemographic or behavioural, and the self-reported combined use of alcohol, cannabis, MDMA, cocaine and ketamine.

Factor	X ²	<i>df</i>	Cramer's V	Significance (p)
Gender*	8.409	1	.105	.004
Employment Status*	28.839	6	.195	<.001
Relationship Status*	21.071	4	.116	<.001
Education Level	9.166	5	.110	.103
Awareness of Risks & Effects	2.081	1	.052	.127
Impulsive Substance Use*	15.998	1	.144	<.001
Festival Genre - Popular	.571	1	.027	.450
Festival Genre – Alternative*	13.404	1	.132	<.001
Festival Genre – Electronic*	86.043	1	.334	<.001
Festival Genre – Grime*	43.489	1	.237	<.001

Table 4.22 Correlation Analysis: Spearman’s Rho relationships between sociodemographic, behavioural, or psychological factors, and the self-reported combined use of alcohol, cannabis, MDMA, cocaine and ketamine.

Factor	Correlation Coefficient (r_s)	Significance (p)	Frequency (N)
Age*	-.256	<.001	668
Total Motivations Reported*	.269	<.001	773
Total Perceived Benefits Reported*	.241	<.001	773
Total Risk Behaviours Reported*	.269	<.001	773
Total Harm Reduction Services Accessed*	.216	<.001	773
Total Festivals Attended*	.235	<.001	746
Internal Locus of Control	.030	.419	730
Conformity (Value)	.024	.500	761
Tradition (Value)	-.013	.720	761
Benevolence (Value)	.051	.160	761
Universalism (Value)	-.053	.141	761
Self-Direction (Value)*	-.074	.040	761
Stimulation (Value)*	-.227	<.001	761
Hedonism (Value)*	-.190	<.001	761
Achievement (Value)*	-.109	.003	761
Power (Value)	.005	.892	761
Security (Value)*	.091	.013	761
Openness (Trait)	-.043	.240	733
Extroversion (Trait)	.010	.790	734
Agreeableness (Trait)	-.003	.941	731
Emotional Stability (Trait)*	.088	.017	734
Conscientiousness (Trait)	-.041	.268	734

Following the correlation analysis above, further analysis considered the possibility of predictive relationships between these variables and the combined use of alcohol, cannabis, MDMA, cocaine and ketamine. Following the removal of cases with missing values (N=117), analysis considered the likelihood of a participant using this combination of substances (N=100) compared to attendees who reported any other substance use pattern (N = 536). A binary logistic regression was computed using a statistical stepwise (forward likelihood ratio) approach for variable selection among those identified during correlation analysis; namely, gender, employment, relationship status, age, number of motivations; impulsive substance use; number of perceived benefits; number of risk behaviours; number of harm reduction services accessed; number of music festivals attended; higher scores for hedonism value; and higher scores for stimulation value; and attending alternative, electronic or grime genre music festivals (Table 4.23).

Table 4.23 Classification table for binary logistic regression for the likelihood of festival attendees reporting a combination of alcohol, cannabis, MDMA, cocaine and ketamine use.

			Alcohol Cannabis MDMA Ketamine &		Percentage Correct	-2 Log Likelihood	Cox & Snell R ²	Nagelkerke R ²
			Cocaine Use	Other				
Step 1	Alcohol Cannabis MDMA Ketamine &	Other	536	0	100.0	478.674	.111	.191
	Cocaine Use	Uses Combination	100	0	.0			
	Overall Percentage				84.3			
Step 2	Alcohol Cannabis MDMA Ketamine &	Other	523	13	97.6	455.195	.143	.246
	Cocaine Use	Uses Combination	93	7	7.0			
	Overall Percentage				83.3			
Step 3	Alcohol Cannabis MDMA Ketamine &	Other	515	21	96.1	440.011	.163	.281
	Cocaine Use	Uses Combination	81	19	19.0			
	Overall Percentage				84.0			
Step 4	Alcohol Cannabis MDMA Ketamine &	Other	516	20	96.3	426.031	.181	.312
	Cocaine Use	Uses Combination	81	19	19.0			
	Overall Percentage				84.1			
Step 5	Alcohol Cannabis MDMA Ketamine &	Other	512	24	95.5	415.543	.195	.335
	Cocaine Use	Uses Combination	78	22	22.0			
	Overall Percentage				84.0			
Step 6	Alcohol Cannabis MDMA Ketamine &	Other	515	21	96.1	409.603	.202	.348
	Cocaine Use	Uses Combination	74	26	26.0			
	Overall Percentage				85.1			

The best fitting model of predictors identified through this analysis considered the influence of age, stimulation value, the number of reported motivations surrounding substance use, attendance of grime and electronic genre music festivals and male gender (Table 4.24). The model was statistically significant ($\chi^2(6) = 143.783, p < .001$) and explained 35% (Nagelkerke R^2) of the variance in the reported use of this combination of substances, correctly classifying 85.1% of cases. Males were 2.44 times more likely to report using a combination of alcohol cannabis, cocaine, MDMA and ketamine than females. In addition, the model reported suggests that individuals who attended electronic or grime genre festivals are 4.35 and 2.82 times more likely to use this combination of substances. Finally, it was also found that those who scored higher for stimulation value and reported more motivations surrounding substance use were also more likely to engage in this type of polysubstance use. When considering this model, it can be inferred that attendees who present with these characteristics, would be the most likely sub-population to use a combination of all five most commonly reported substances: namely alcohol, cannabis, cocaine, MDMA and ketamine.

Table 4.24. Model of Predictors for festival attendees who report using a combination of alcohol, cannabis, MDMA, cocaine and ketamine.

Predictive Factor	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Age	-.039	.017	5.152	1	.023	.962	.930	.995
Stimulation Value	-.341	.130	6.929	1	.008	.711	.551	.917
Number of Substance Use Motivations	.090	.022	16.389	1	<.001	1.095	1.048	1.144
Attending Grime Genre Festival	-1.037	.315	10.815	1	.001	.354	.191	.658
Attending Electronic Genre Festival	-1.471	.270	29.662	1	<.001	.230	.135	.390
Male Gender	.892	.263	11.488	1	<.001	2.439	1.456	4.084
Constant	.604	.595	1.030	1	.310	1.829		

Motivations & Perceived Benefits of Substance Use

The following analysis considered self-reported motivation types prior to use and perceived benefits following use in relation to recalled incidents of substance use at music festivals within the past year. Findings are reported considering the influence substance use patterns upon motivation type.

Motivation Types and Substance Use Patterns

The five most commonly selected substance specific question blocks were analysed to understand the type and frequency of reported motivations and perceived benefits for each substance type. Participants were provided with thirteen motivation types including the option of ‘*other*’ and asked to select all options which applied to their use of each substance type. Over these five substances types a total of 5357 motivation endorsements were reported providing a rich source of data for analysis (Table 4.25). It was evident upon analysis that each substance type presented with differing frequencies for each motivation type. For example, motivations surrounding confidence were reported more commonly for alcohol (N = 338, 47.08%) and cocaine (N = 108, 37.50%) when compared to cannabis (N = 33, 9.07%) and ketamine (N = 34, 14.7%).

Table 4.25 Frequency of motivation type reported per substance type.

Motivation Type	Alcohol (N = 718)	Cannabis (N = 364)	Cocaine (N = 288)	MDMA		Ketamine (N=230)	Total
				Crystals (N = 285)	Pills (N = 261)		
Habit	249	76	20	8	10	24	363
Enjoyment	340	134	92	133	113	67	879
Social Inclusion	126	40	23	14	19	30	252
Social Pressure	38	27	15	11	17	19	127
Lower Inhibitions	288	54	81	70	61	43	597
Confidence	338	33	108	82	73	34	668
Social	455	65	113	89	78	36	836
Happiness	352	134	92	116	102	57	853
Impulse	43	37	33	17	15	24	169
Reduce Mental Health Symptoms	59	34	7	7	6	7	120
Reduce Effects of Other Substance	6	35	22	0	0	6	69
Increase Effects of Other Substance	74	48	21	18	8	34	203
Other	106	53	21	14	9	18	221
Total	2474	770	648	579	511	375	5357

As participants provided multiple responses in regard to motivations for each substance type this presented a binary variable for each motivation type per substance type. Where participants had provided responses surrounding motivation types for more than one substance type, it was possible to compare any differences in motivation between substance types via the use of paired samples testing. As such a Cochran's Q test was computed for each motivation type assessing whether a statistically significant difference existed between the proportions of participants who selected the motivation type across each substance type (Table 4.26). As the distribution of motivation selection between MDMA pills and crystal was evidently very similar, the following analysis considered MDMA crystal responses only (N=285), in order to provide five distinct substance types. This analysis reported significant differences in the proportion of participants who selected the motivation type *habit*, *enjoyment*, *reducing inhibitions*, *happiness seeking* and *confidence seeking*, *reducing*, and *increasing effects of other substances* and the selection of the *other* option across the five substance types analysed.

Table 4.26 Cochran's Q tests exploring proportions of selection between substance types for each motivation type.

Motivation Type	Substance Type	Mean	Standard Deviation	Cochran's Q	df	Significance (p)
Habit	Alcohol	.35	.478	60.394	4	<.001
	Cannabis	.25	.434			
	Cocaine	.04	.196			
	MDMA Crystals	.02	.140			
	Ketamine	.12	.325			
Enjoyment	Alcohol	.48	.502	23.094	4	<.001
	Cannabis	.26	.439			
	Cocaine	.22	.415			
	MDMA Crystals	.24	.428			
	Ketamine	.24	.428			
Social Inclusion	Alcohol	.09	.288	1.910	4	.752
	Cannabis	.09	.288			
	Cocaine	.09	.288			
	MDMA Crystals	.05	.219			
	Ketamine	.09	.288			
Social Pressure	Alcohol	.07	.256	4.769	4	.312
	Cannabis	.06	.239			
	Cocaine	.08	.273			
	MDMA Crystals	.02	.141			
	Ketamine	.08	.273			
Reduce Inhibitions	Alcohol	.41	.494	40.209	4	<.001
	Cannabis	.10	.302			
	Cocaine	.18	.386			
	MDMA Crystals	.14	.349			
	Ketamine	.14	.349			
Confidence Seeking	Alcohol	.46	.501	69.325	4	<.001
	Cannabis	.05	.219			
	Cocaine	.28	.451			
	MDMA Crystals	.15	.359			
	Ketamine	.09	.288			
Better Social Interactions	Alcohol	.57	.497	80.551	4	<.001
	Cannabis	.11	.313			
	Cocaine	.30	.459			
	MDMA Crystals	.15	.357			
	Ketamine	.12	.325			

Happiness Seeking	Alcohol	.48	.502	30.094	4	<.001
	Cannabis	.27	.445			
	Cocaine	.20	.400			
	MDMA Crystals	.20	.400			
	Ketamine	.21	.408			
Impulse	Alcohol	.10	.302	6.571	4	.160
	Cannabis	.08	.273			
	Cocaine	.06	.239			
	MDMA Crystals	.02	.141			
	Ketamine	.05	.219			
Reduce Mental Health Symptoms	Alcohol	.08	.273	8.780	4	.067
	Cannabis	.08	.273			
	Cocaine	.01	.100			
	MDMA Crystals	.04	.197			
	Ketamine	.04	.197			
Reduce Effects of Other Substance(s)	Alcohol	.02	.141	12.108	4	.017
	Cannabis	.09	.288			
	Cocaine	.04	.197			
	MDMA Crystals	.00	.000			
	Ketamine	.04	.197			
Increase Effects of Other Substance(s)	Alcohol	.25	.314	21.383	4	<.001
	Cannabis	.11	.288			
	Cocaine	.09	.219			
	MDMA Crystals	.05	.349			
	Ketamine	.14	.314			
Other	Alcohol	.12	.12	11.781	4	.019
	Cannabis	.15	.15			
	Cocaine	.05	.05			
	MDMA Crystals	.04	.04			
	Ketamine	.09	.09			

Further analysis computed McNemar tests for each of the motivation types that were identified as having significant differences in the proportion of endorsement rates between substance types (Table 4.27). As the McNemar tests were run across each possible substance type pair (N=10) for each motivation type, a Bonferroni adjustment was calculated to mitigate the risk of a type one error; the alpha value was set as 0.004 for this analysis.

Table 4.27 McNemar tests for every possible substance pair comparing the difference in rate of selection per motivation type.

		Alcohol & Cannabis	Alcohol & Cocaine	Alcohol & MDMA	Alcohol & Ketamine	Cannabis & Cocaine	Cannabis & MDMA	Cannabis & Ketamine	Cocaine & MDMA	Cocaine & Ketamine	MDMA & Ketamine
Habit	N	349	281	282	224	207	202	167	195	167	168
	Chi-Square	13.674	78.222	91.093	29.922	33.620	34.568	8.163	7.345	1.750	6.332
	Significance (p)	<.001	<.001	<.001	<.001	<.001	<.001	.004	.143	.186	.007
Enjoyment	N	349	282	282	224	207	168	202	196	168	169
	Chi-Square	8.151	13.827	.000	13.248	.188	.063	.964	1.266	.357	1.891
	Significance (p)	.004	<.001	1.000	<.001	.664	.801	.326	.261	.550	.169
Reduced Inhibitions	N	348	282	282	224	206	201	166	196	168	168
	Chi-Square	63.780	14.297	25.500	20.753	13.288	7.018	3.361	2.521	.766	.098
	Significance (p)	<.001	<.001	<.001	<.001	<.001	.008	.067	.112	.381	.755
Confidence Seeking	N	348	281	282	224	206	201	166	195	167	168
	Chi-Square	120.756	7.327	19.776	50.813	39.945	17.521	7.482	11.045	20.132	3.512
	Significance (p)	<.001	.007	<.001	<.001	<.001	<.001	.007	<.001	<.001	.061
Better Social Interactions	N	349	282	282	224	207	202	167	196	168	168
	Chi-Square	127.646	26.803	63.780	80.960	29.922	7.018	.103	9.592	17.254	5.447
	Significance (p)	<.001	<.001	<.001	<.001	<.001	.008	.749	.002	<.001	.020
Happiness Seeking	N	349	282	282	224	207	202	168	196	168	169
	Chi-Square	11.059	19.471	1.474	26.772	.110	.000	3.322	.000	1.049	2.817
	Significance (p)	<.001	<.001	.225	<.001	.740	1.000	.068	1.000	.306	.093
Reducing Effect of Other Substance(s)	N	348	281	282	224	206	201	166	195	167	168
	Chi-Square	24.324	15.278	8.36	2.839	1.441	16.771	10.212	12.056	.877	1.409
	Significance (p)	<.001	.001	.031	.754	.230	.001	.003	.001	.424	.031
Increase Effect of Other Substance(s)	N	348	281	282	224	206	201	166	195	167	168
	Chi-Square	1.370	15.188	19.446	3.409	3.184	5.281	.250	3.017	3.559	4.364
	Significance (p)	.242	<.001	<.001	.065	.074	.022	.617	.143	.059	.037

As seen above the motivation type *habit* was identified as having significantly different rates of selection between alcohol (N=117, 109, 103,72) and all other paired substance types: cannabis (N=74), cocaine (N=20), MDMA (N=8), and ketamine (N=23). No significant differences were found surrounding the motivation of *habit* between any other substance type pairs; suggesting that alcohol is used consistently more frequently in response to the motivation of *habit* when compared to all other substance types analysed. The rate of selection for *habit* between all illicit substances appeared to be lower and remained stable between substance types, although the smallest significant difference is noted surrounding cannabis use.

Happiness seeking was also found to have significantly different rates of selection for alcohol (N=167, 138, 127, 107) when paired with cannabis (N=125), cocaine (N=92), and ketamine (N=54); suggesting this motivation is more commonly endorsed in relation to cannabis, cocaine, or ketamine. No further significant differences were identified between any other substance type pairs suggesting the rate of selection for the *happiness seeking* motivation was stable across all illicit substances. Similarly, the motivation of *enjoyment* was also found to have significant differences in the rate of selection between three substance type pairs: alcohol (N=132) and cocaine (N=92), alcohol (N=115) and ketamine (N=66), and alcohol (N=162) and cannabis (N=125). These differences suggested an increase in the rate of selection for the *enjoyment* motivation for alcohol when compared to cocaine, ketamine, and cannabis; it can also be inferred that the proportion of participants who endorsed the *enjoyment* motivation were similar for both MDMA and alcohol. The rate of selection for *enjoyment* between ketamine, cocaine and cannabis appeared to be lower and remained stable between substance types.

The differences in the rate of endorsement between possible substance type pairs for the *reduce inhibitions* motivation showed significant differences for alcohol (N=144, 120, 120, 85) when paired with all other substance types: cannabis (N=53), cocaine (N=81), MDMA (N=68) and ketamine (N=42). In addition, a significant difference was identified between cannabis (N=24) and cocaine (N=53). These findings suggest that this motivation is more frequently associated with alcohol use when compared to all other substance types, and for cocaine when compared to cannabis use. Similarly, McNemar tests for the motivation *confidence seeking* reported findings suggesting that it was more commonly endorsed for alcohol (N=171, 137, 128, 101) when compared to cannabis (N=21), MDMA (N=108) and ketamine (N=81). This test also identified significant differences in the rate of selection for *confidence seeking* between cannabis

(N=15) and cocaine (N=70); and cannabis (N=14) and MDMA (N=44), indicating that the frequency of endorsement for *conference seeking* was lower for cannabis when compared to MDMA and cocaine. In addition, the McNemar tests also identified significant differences in the rate of selection for *confidence seeking* between cocaine (N=74) and MDMA (N=46) and cocaine (N=59) and ketamine (N=21), suggesting that *confidence seeking* is more commonly selected in relation to cocaine use compared with ketamine use or MDMA use. When combined the findings surrounding the motivations of *reducing inhibitions* and *confidence seeking* suggest that these motivations are more commonly associated with alcohol and cocaine use when compared other substance types. The *better social interactions* motivation was also found to have significant differences in the rate of selection between alcohol (N=217, 170, 177, and all other substance types: cannabis (N=64) cocaine (N=113), MDMA (N=86) and ketamine (N=35); suggesting this motivation is more frequently selected in relation to alcohol use when compared to all other substance types. The McNemar test for this motivation type also identified significant differences between cocaine (N=77) and cannabis (N=28); cocaine and MDMA; and cocaine and ketamine. These findings suggest *better social interactions* is more frequently endorsed for cocaine when compared with cannabis, MDMA, and ketamine.

Reducing the effects of other substance(s) and *increasing the effect of another substance* were both found to have significant differences in the rate of selection between some substance type pairs. Differences between alcohol (N=4) and cannabis (N=35); and alcohol (N=5) and cocaine (N=22) were both found to be significant for *reducing the effects of other substance(s)*, suggesting that this motivation is more commonly endorsed for cannabis and cocaine use when compared to alcohol use. Significant differences were also identified between cannabis (N=20) and MDMA(N=0); and cocaine (N=16) and MDMA (N=0), again suggesting cannabis and cocaine are likely to be used more frequently in relation to the *reducing the effects of other substance(s)* motivation when compared with MDMA. Contrastingly analysis surrounding the *increasing the effect of other substance(s)* motivation found significant differences in the rates of endorsement between alcohol (N=49) and cocaine (N=21); and alcohol (N=51) and MDMA (N=17). These findings suggest that alcohol may be used more commonly in association with the motivation of *increasing the effects of other substance(s)* when compared to cocaine or MDMA use.

Overall, these findings suggest that motivations such as *habit*, *happiness seeking* and *enjoyment*, are more likely to be affiliated with the use of alcohol when compared to other substances. Further findings suggest that alcohol and cocaine are both likely to be associated with motivation types such as *confidence seeking*, *better social interactions*, and *reducing inhibitions*. When exploring motivations surrounding increasing and decreasing the effects of other substances it was found that alcohol was associated with *reducing the effects of other substance(s)* less frequently, and that this motivation was commonly associated with cannabis and cocaine. Contrastingly alcohol was found to be more commonly endorsed in relation to *increasing the effects of other substance(s)* when compared to other substances. These findings suggest that music festival attendees could be more likely to use some illicit substances such as cocaine or cannabis in an attempt to reduce feelings of intoxication, while attendees wishing to boost intoxication may use alcohol.

Those who selected the *other* option, when asked to report their motivations, were also asked to provide a complementary text response. When exploring these text responses surrounding the use of alcohol, most participants described motivations surrounding taste, thirst, relaxation, and hot weather. Individuals who selected *other* for cannabis motivations generally provided responses which could have been categorised within the survey options provided, for example “*I enjoy it*”, however a sizable proportion of participants did report motivations surrounding relaxation, pain relief and aiding sleep. Cocaine users who selected *other* frequently reported motivations surrounding a desire to stay awake for longer and general feelings of intoxication. Again, those selecting *other* for MDMA reported motivations surrounding feelings of intoxication, for example “*to feel high*” or “*euphoria*”. Interestingly, when exploring the motivations reported by participants surrounding their use of ketamine (N=230), the frequency of selection was reduced across all motivation categories provided within the survey including the *other* option (range: 6-67; M = 31.25). These results suggests a possibility of frequent ketamine use with a reduced prevalence of particular motivations as known by the user. Interestingly ketamine was found to have the largest proportion of participants who selected a motivation for use surrounding the enhancement of other substances (N = 34, 14%). Participants who had selected *other* in relation to their motivations surrounding ketamine use submitted complementary text responses which largely referred to motivations surrounding increased feelings of intoxication. One example of this was “*for the 'high' effect, usually taken towards the*

end of the night". Interestingly one participant also referred to motivations surrounding urine retention effects: "*no need to urinate frequently*". This participant references motivations describing the known risks of urine retention surrounding ketamine use, this effect is well documented, often resulting in extensive kidney and bladder damage which can lead to significantly harmful health implications (Wood et al., 2001). These findings may suggest that knowledge surrounding the potential effects and risks of ketamine could be limited among this population.

Perceived Benefits and Substance Use Patterns

As participants moved through each substance specific question block they were asked to recall any perceived benefits surrounding their use of each substance at the music festival(s). Eight possible options in addition to an '*other*' option were presented to participants, for which they were directed to select as many as applied for each substance. A total of 6243 perceived benefits were endorsed by participants across the five most commonly reported upon substances, suggesting a high frequency of benefit perception among participants (Table 4.28).

Table 4.28 Frequency of perceived benefit type reported per substance type.

Perceived Benefit	Alcohol (N = 718)	Cannabis (N = 364)	Cocaine (N = 288)	MDMA		Ketamine (N=230)	Total
				Crystals (N = 285)	Pills (N = 261)		
Felt Happier	445	168	111	143	115	79	982
Felt Confident	463	64	130	111	94	38	900
Felt Alert	46	15	140	90	77	11	379
Better Social Interactions	463	99	109	111	95	42	919
Enjoyed Music More	386	151	98	142	118	78	973
Stayed Awake Longer	149	10	126	112	93	20	510
Felt Less Anxious	312	86	52	57	59	44	610
Felt More Relaxed	192	187	37	14	8	78	516
Fell Asleep More Easily	203	138	3	10	6	37	397
Other	34	12	2	3	2	4	57
Total	2693	930	808	793	667	352	6234

Cochran's Q tests were computed again to establish any significant differences found between substance type and perceived benefit type (Table 4.29). Again, MDMA crystals and pills were seen to present with similar selection rates for each perceived benefit type, therefore, to ensure a distinct substance type, only MDMA crystals (N=285) were included in the following analysis.

Table 4.29 Cochran's Q tests exploring proportions of selection between substance types for each perceived benefit type.

Motivation Type	Substance Type	Mean	Standard Deviation	Cochran's Q	df	Significance (p)
Felt Happier	Alcohol	.55	.500	35.249	4	<.001
	Cannabis	.28	.451			
	Cocaine	.24	.429			
	MDMA Crystals	.22	.416			
	Ketamine	.25	.435			
Felt Confident	Alcohol	.67	.473	105.372	4	<.001
	Cannabis	.09	.288			
	Cocaine	.30	.461			
	MDMA Crystals	.18	.386			
	Ketamine	.14	.349			
Felt More Alert	Alcohol	.08	.273	51.741	4	<.001
	Cannabis	.03	.171			
	Cocaine	.32	.469			
	MDMA Crystals	.16	.368			
	Ketamine	.05	.219			
Experienced Better Social Interactions	Alcohol	.56	.498	61.353	4	<.001
	Cannabis	.17	.376			
	Cocaine	.26	.439			
	MDMA Crystals	.19	.393			
	Ketamine	.14	.347			
Enjoyed the Music More	Alcohol	.47	.501	18.220	4	<.001
	Cannabis	.27	.445			
	Cocaine	.23	.421			
	MDMA Crystals	.25	.434			
	Ketamine	.27	.445			
Stayed Awake Longer	Alcohol	.16	.368	28.899	4	<.001
	Cannabis	.01	.100			
	Cocaine	.27	.446			
	MDMA Crystals	.19	.394			
	Ketamine	.11	.314			

Felt Less Anxiety	Alcohol	.43	.498	45.641	4	<.001
	Cannabis	.17	.378			
	Cocaine	.13	.338			
	MDMA Crystals	.09	.288			
	Ketamine	.23	.423			
Fell Asleep More Easily	Alcohol	.47	.501	60.638	4	<.001
	Cannabis	.28	.451			
	Cocaine	.31	.465			
	MDMA Crystals	.00	.000			
	Ketamine	.02	.141			
Felt More Relaxed	Alcohol	.47	.501	43.932	4	<.001
	Cannabis	.28	.451			
	Cocaine	.32	.469			
	MDMA Crystals	.09	.288			
	Ketamine	.02	.141			

Results found significant differences between substance types for every perceived benefit type. As such, McNemar tests were performed for each possible substance pair surrounding each perceived benefit in order to identify where these differences were located (Table 4.30). A Bonferroni adjustment was calculated again to mitigate for type one error; with ten tests included the alpha value was set at $p = 0.005$

Table 4.30 McNemar tests for every possible substance pair comparing the difference in rate of selection per motivation type.

		Alcohol & Cannabis	Alcohol & Cocaine	Alcohol & MDMA	Alcohol & Ketamine	Cannabis & Cocaine	Cannabis & MDMA	Cannabis & Ketamine	Cocaine & MDMA	Cocaine & Ketamine	MDMA & Ketamine
Felt Happier	N	349	282	283	224	206	201	167	196	168	169
	Chi-Square	17.890	32.303	3.101	27.771	.011	.988	.379	.000	.613	.875
	Significance (p)	<.001	<.001	.078	<.001	.915	.320	.538	1.000	.434	.350
Felt Confident	N	348	282	282	224	206	201	166	196	168	168
	Chi-Square	165.647	31.796	26.912	91.843	37.779	20.928	1.289	9.260	19.938	6.612
	Significance (p)	<.001	<.001	<.001	<.001	<.001	<.001	.256	.002	<.001	.010
Felt Alert	N	348	283	282	224	208	201	166	198	168	168
	Chi-Square	3.115	94.316	56.967	1.044	77.287	41.952	.778	21.500	50.209	19.184
	Significance (p)	.078	<.001	<.001	.405	<.001	<.001	.549	<.001	<.001	<.001
Experienced Better Social Interactions	N	349	282	282	224	207	202	167	196	168	168
	Chi-Square	105.292	37.878	29.898	77.280	8.779	8.224	.022	4.563	12.742	6.353
	Significance (p)	<.001	<.001	<.001	<.001	.003	.004	.883	.033	<.001	.012
Enjoyed the Music More	N	349	282	282	224	207	202	168	196	168	169
	Chi-Square	8.556	19.776	.060	13.163	.105	.613	.000	1.551	.000	.790
	Significance (p)	.003	<.001	.806	<.001	.746	.434	1.000	.213	1.000	.374
Stayed Awake Longer	N	348	283	282	224	208	201	166	198	168	168
	Chi-Square	49.227	38.409	20.757	11.294	71.309	58.141	8.361	6.127	26.266	24.446
	Significance (p)	<.001	<.001	<.001	<.001	<.001	<.001	.001	.013	<.001	<.001
Felt Less Anxiety	N	348	282	282	224	206	201	166	196	168	168
	Chi-Square	36.623	42.227	31.439	24.695	.463	.845	.098	.655	.766	1.829
	Significance (p)	<.001	<.001	<.001	<.001	.496	.358	.755	.418	.381	.176

	N	348	282	282	224	206	201	166	195	167	168
Fell Asleep More Easily	Chi-Square	5.440	13.611	49.315	6.817	72.014	56.700	15.018	1.275	26.036	21.189
	Significance (p)	.020	<.001	<.001	.009	<.001	<.001	<.001	.125	<.001	<.001
	N	348	282	282	224	206	201	166	196	168	168
Felt More Relaxed	Chi-Square	34.012	13.611	49.315	2.250	49.878	68.942	1.408	12.893	17.161	48.431
	Significance (p)	<.001	<.001	<.001	.134	<.001	<.001	.235	<.001	<.001	<.001

Findings from the McNemar tests analysing the perceived benefit of *feeling happier* identified significant differences between alcohol (N=214) and cannabis (N=159); alcohol (N=173) and cocaine (N=110); and alcohol (N=130) and ketamine (N=75). These results suggest that alcohol is more commonly perceived to induce happiness when compared to cannabis, cocaine, and ketamine. It can also be inferred that MDMA use is equally associated with the perceived benefit of *feeling happier* when compared to alcohol use. The differences surrounding this perceived benefit were not significant between other illicit substance pairs. The next perceived benefit analysed was *'enjoyed the music more'* where significant differences in endorsement rates were found between alcohol (N= 179, 145, 115) and cannabis (N=141); MDMA (N=98) or ketamine (N=77). These findings suggest that perceived benefits surrounding enjoyment of music are more commonly associated with alcohol when compared to cannabis, MDMA and ketamine, whereas these rates are similar between alcohol and cocaine, and across illicit substance pairs.

When examining the perceived benefit of *'felt less anxious'* significant differences were observed in the rates of endorsement between alcohol (N=152, 117; 114, 88) and all other substance types: cannabis (N=82); cocaine (N=52); MDMA (N=55); or ketamine (N=42). No further differences were observed between other substance type pairs, suggesting that this perceived benefit is associated with alcohol use more frequently than other substance types, while the endorsement rate was found to remain stable between all illicit substance pairings. Similarly, the perceived benefit of *'felt more confident'* was found to have significantly different rates of selection between alcohol (N=238, 188, 174, 146) and all other substance types: cannabis (N=61); cocaine (N=129); MDMA (N=107); ketamine (N=37). These findings suggest that alcohol is more commonly perceived as confidence inducing when compared to all other substance types analysed. In addition, further significant differences were found between cannabis (N=23) and cocaine (N=81); and cannabis (N=26) and MDMA (N=65), suggesting that cocaine and MDMA are more commonly perceived to induce confidence when compared to cannabis. Further differences were also identified between cocaine (N=87) & MDMA (N=60); cocaine (N=61) and ketamine (N=24), again suggesting that cocaine is more commonly associated with perceptions of increased confidence when compared to MDMA and ketamine. Overall, these findings suggest that alcohol and cocaine are the substances most frequently

associated with the *felt more confident* perceived benefit, in addition to some increases in endorsement rates for MDMA.

Likewise, '*experienced better social interactions*' was a perceived benefit found to have significantly different rates of endorsement between alcohol (N=229, 175, 172, 143) and all other substance types: cannabis (N=95); cocaine (N=108), MDMA (N=105); or ketamine (N=41). These findings suggest alcohol is more frequently associated with an increase in the quality of social interactions when compared to all other substance types analysed. However, further differences were also identified between MDMA (N=98) and cannabis (N=34) or ketamine (N=21); suggesting that '*experienced better social interactions*' was more commonly associated with MDMA use when compared to cannabis and ketamine. In addition to this, a further significant distinction was identified between cannabis (N=40) and cocaine (N=67), suggesting cocaine may be more frequently associated with *better social interactions* when compared to cannabis. These findings suggest that alcohol, MDMA and cocaine were the substances most commonly associated with the perceived benefit of *better social interactions*.

When examining the perceived benefit of '*felt more alert*' significant differences in the rate of endorsement were found between several of the substance pairs. Firstly, differences were identified between cocaine (N=139, 93, 67, 90) and alcohol (N=26); MDMA (N=49); ketamine (N=8); or cannabis (N=7). Further differences were identified between MDMA (N=88, 60, 38) and alcohol (N=15); cannabis (N=8); or ketamine (N=10). These findings suggest that cocaine and MDMA are more frequently associated with alertness when compared to other substances. However, it should be noted that when paired cocaine was seen to have higher rates of endorsement than MDMA for this perceived benefit; suggesting cocaine is the substance most associated with alertness. Similarly, the perceived benefit of '*stayed awake longer*' was found to have significant differences in the rate of endorsement between every substance type pair possible between the five substances analysed. Results suggested that alcohol (N=68, 45) was more commonly associated with *staying awake longer* when paired with cannabis (N=10); or ketamine (N=20). While cocaine (N=124) and MDMA (N=108) showed higher endorsement rates when paired with alcohol (N=58, 59). Further analysis found significant differences between cannabis (N=4) and MDMA (N=66); cannabis (N=3) and cocaine (N=80); and cannabis (N=4) and ketamine (N=18). These findings suggest cannabis is less frequently associated with *staying awake longer* than all other substance types. Other significant differences were identified

between cocaine (N=82, 57) and MDMA (N=59); or ketamine (N=15), suggesting cocaine is more frequently associated with this perceived benefit when compared to MDMA and ketamine. Finally, a significant difference was also found between MDMA (N=51) and ketamine (N=13), suggesting an increased endorsement rate for MDMA when compared to ketamine. Overall, these findings suggest alcohol, cocaine and MDMA are the most commonly associated substances for the *stayed awake longer* benefit, whereas cannabis and ketamine are less frequently associated with this effect.

The perceived benefit of *'fell asleep more easily'* was found to be endorsed at significantly different rates between alcohol (N=73, 71) and cocaine (N=3); or MDMA (N=10). These findings suggest alcohol use is more commonly associated with this perceived benefit when compared with MDMA and cocaine. Further differences were identified between cannabis (N= 76, 72, 55) and cocaine (N=2); MDMA (N=8); or ketamine (N=25); suggesting cannabis is more frequently associated with falling asleep when compared to all other illicit substance types analysed. Lastly, significant differences were also observed between ketamine (N=28, 34) and cocaine (N=); or MDMA (N=5). Overall, these results suggest that MDMA and cocaine are less frequently associated with the perception of easier sleeping when compared to all other substance types. In addition, these finding suggest that this benefit is endorsed for alcohol most frequently followed cannabis and ketamine. Consistently, the perceived benefit of *'felt more relaxed'* was analysed, finding significant differences between alcohol (N=105, 71,) and cannabis (N=180); cocaine (N=10); or MDMA (N=37). Suggesting that cannabis is more frequently associated with feeling relaxed when compared to alcohol, however MDMA and cocaine were less frequently associated with this perceived benefit. In addition, further differences were identified between cannabis (N=86, 86, 63) and cocaine (N=18); MDMA (N=8); or ketamine (N=52). Other significant differences were also identified between ketamine (N=52, 59) and cocaine (N=20) or MDMA (N=5); suggesting ketamine is more frequently associated with feelings of relaxation when compared to cocaine and MDMA. Finally, a significant difference in rate of endorsement was identified between cocaine (N=25) and MDMA (N=5); suggesting cocaine is more frequently associated with this benefit when compared to MDMA. Overall, these results are similar to those reported for the *'fell asleep easier'* benefit; in that alcohol, cannabis and ketamine are more frequently associated with *'felt more relaxed'* when compared to MDMA and cocaine.

Most participants who selected ‘*other*’ provided text responses detailing perceived benefits which could have been classified within the options provided, a proportion of participants also stated that they did not perceive any benefits surrounding their substance use. Given the lack of data collected surrounding this element of the survey, no analysis of the qualitative could be completed to identify any additional perceptions surrounding recalled benefits of substance use.

Agreement between Motivations and Perceived Benefits

Participants provided responses to multiple choice questions regarding motivation and perceived benefits, within these choices four motivation and perceived benefit types were able to be matched in order to compute paired samples analysis. These were *happiness, enjoyment, social interaction quality* and *confidence*. McNemar tests were computed for each substance type, with a Bonferroni adjustment calculated to assume a p value of 0.013. Agreement between the types of motivation and perceived benefit for each substance type was good to very good across most substance types. (Table 4.31).

Table. 4.31 Agreement between motivations and perceived benefits per substance type

		Happiness	Enjoyment	Social Interaction Quality	Confidence
Alcohol	N	667	666	666	666
	Chi-Square	20.689	6.633	.463	44.911
	Significance (p)	<.001	.010	.496	<.001
Cannabis	N	180	181	181	179
	Chi-Square	4.594	.105	6.780	11.025
	Significance (p)	.032	.746	.009	<.001
Cocaine	N	121	121	121	121
	Chi-Square	.590	.521	.000	2.526
	Significance (p)	.442	.470	1.000	.112
MDMA	N	90	90	90	114
	Chi-Square	4.891	2.041	5.625	1.761
	Significance (p)	.027	.153	.018	.185
Ketamine	N	80	80	80	80
	Chi-Square	.485	.346	.220	.220
	Significance (p)	.486	.556	.824	.824

Some significant differences were identified for alcohol surrounding the motivation (N=330, 233) and perceived benefit (N=413, 433) of *happiness* and *confidence* respectively; suggesting that these perceived benefits were more commonly endorsed than their comparable motivations. These findings indicate that attendees may expect the effects of happiness and confidence less frequently than they recall experiencing these effects in relation to their alcohol use. Cannabis was found to have significant differences in the rates of endorsement between the motivations (N=47, 33) and perceived benefits (N=26, 11) of *social interaction quality* and *confidence* respectively. These findings suggest that *social interaction quality* and *confidence* are both more commonly identified as a motivation for cannabis use when compared to recalled perceptions of benefiting effects. It is possible that participants may have anticipated these effects in relation to their use of cannabis but may not have experienced them, suggesting a possible lack of understanding surrounding the expected effects of cannabis. No further differences were identified for any of the paired motivation and perceived benefit types surrounding cocaine, MDMA or ketamine; these findings may suggest a good level of knowledge among participants surrounding expected effects of these substances.

Substance Use Related Risk Behaviours and Experiences of Harm

The following analysis considered the self-reported engagement in risk behaviours associated with recreational substance use at music festivals. This included awareness and knowledge prior to substance use, intentions surrounding substance use, and some substance use methods which are known to increase the associated risk of harms. In addition, participants also reported on their experiences of negative outcomes or harm perceived to be associated with their substance use. Participants were again asked these questions as an aspect of each substance specific question block allowing for analysis between substance types. This also allowed differing behaviours or perceptions between substances to be identified for each substance type, as well as allowing participants to identify which substance(s) they had correlated to their experience of harm.

Awareness of Effects and Associated Risks

During the analysis participants’ knowledge of possible risks and effects associated with recreational substance use were considered. Descriptive analysis surrounding self-reported awareness of expected effects and associated risks for each substance type showed that almost all of the participants in this sample reported an awareness of both the expected effects and associated risks of each substance type before they used the substance (Table 4.32).

Table 4.32 Awareness of Expected Effects and Associated Risks among Participants per Substance Type.

Substance Type	Expected Effect Awareness				Associated Risk Awareness			
	Aware		Unaware		Aware		Unaware	
	N	%	N	%	N	%	N	%
Alcohol	675	100.00	0	0.00	673	99.70	2	0.30
Cannabis	271	100.00	0	0.00	268	98.89	3	1.21
Cocaine	177	99.44	1	0.56	178	100.00	0	0.00
MDMA	290	98.97	3	1.03	292	99.65	1	0.35
Ketamine	129	97.68	3	2.32	130	98.48	2	1.52
2CB	46	93.98	3	6.12	46	92.00	4	8.00
Opioids	11	100.00	0	0.00	11	100.00	0	0.00
LSD	6	100.00	0	0.00	5	83.33	1	16.67
Magic Mushrooms	32	96.96	1	3.04	31	93.94	2	6.06
Benzo	12	92.37	1	7.23	11	84.66	2	15.34
NPS	6	85.79	1	14.21	6	85.79	1	14.21
Amphetamine	20	90.99	2	9.01	20	90.99	2	9.01
Mephedrone	3	75.00	1	25.00	4	100.00	0	0.00

The substance types LSD, NPS and benzodiazapines were observed to have the largest proportion of participants who reported a lack of awareness surrounding the possible risks associated with these substances; however, the sample sizes surrounding these items, for these substance types were very small. While these findings may advocate positive implications in relation to the safety of attendees who engage in recreational substance use; when considered alongside some of the differences identified within the agreement analysis surrounding prior

motivations and recalled effects, these results could also suggest a possibility of overconfidence surrounding prior awareness among participants.

Intended and Impulsive Substance Use

Intentional and impulsive substance use among music festival attendees is likely to present inherent differences in terms of both associated behaviours, risk, and harm. Participants completing the relevant substance specific question blocks, were also asked to report whether their use of each substance type was intended prior to use or impulsive in nature. The question asked participants to report whether they had intended on using each substance prior to their *arrival* at the music festival(s); in so, this allowed for some inference as to the possible motivators surrounding any impulsive use reported among participants, for example environmental or social influences.

Results evidenced that while the majority of users did intend to use each substance type before attending the event, there was a significant proportion for each substance type, other than alcohol, who used impulsively (Table 4.33). When considering the illicit substances within this list we can see that approximately one in five engaged in substance use impulsively. This proportion rose to approximately one in three for substances such as amphetamine, magic mushrooms, and LSD; and one in two for mephedrone, benzodiazepines and novel psychoactive substances (NPS). With alcohol being a legal and widely used substance it is unsurprising that this presents with a much smaller proportion of impulsive users; approximately one in twenty.

Table 4.33 Frequency of Participants who Intended to Use Substance and Impulsively Used Substance.

Substance Type	Intended Use (N)	Impulsive Use (N)	Percentage Impulsive (%)
Alcohol	641	34	5.04
Cannabis	216	55	20.30
Cocaine	134	44	24.72
MDMA	238	54	18.49
Ketamine	101	31	23.48
2CB	40	10	20.00
Opioids	8	3	27.37
LSD	1	5	16.66
Magic Mushrooms	24	9	27.27
Benzo	7	6	46.15
NPS	4	4	50.00
Amphetamine	15	7	31.81
Mephedrone	2	2	50.00

When exploring the motivations reported among participants who had identified as using substances impulsively several chi-squared tests of independence were computed for each substance type in order to identify any significant differences between motivation type and reported intentions surrounding use. As the sample sizes for some substance types were particularly small, this analysis considered the five most commonly reported upon substances: alcohol (N=674); cannabis (N=269); cocaine (N=174); MDMA Crystals (N=161) and ketamine (N=131). Due to the high levels of agreement between responses for MDMA crystals and MDMA pills, this analysis excluded MDMA pill related responses, in order to form a distinct substance type group for this analysis; MDMA crystal responses were included due to the larger sample size when compared to MDMA pills. The Bonferroni correction for these tests allowed for an assumed p value of 0.004 (Table 4.34).

Table 4.34. Chi square tests of independence for each substance and motivation type between impulsive and intended use.

		Habit	Enjoyment	Social Inclusion	Social Pressure	Reduce Inhibitions	Confidence Seeking	Better Social Interactions	Happiness Seeking	Impulse	Reduce Mental Health Symptom(s)	Reducing Effect of Other Substance(s)	Increase Effect of Other Substance(s)
Alcohol	Chi-Square	1.686	3.288	1.131	.489	6.159	47.872	6.826	2.809	1.738	.406	.322	.952
	Cramer's V	.050	.070	.041	.027	.096	.258	.101	.065	.051	.025	.022	.038
	Significance (p)	.194	.070	.228	.484	.049	.013	.009	.094	.187	.524	.571	.329
Cannabis	Chi-Square	14.483	16.881	.220	5.639	1.049	2.708	2.963	10.169	37.002	1.575	3.186	11.537
	Cramer's V	.232	.251	.029	.145	.063	.101	.105	.194	.372	.077	.109	.207
	Significance (p)	<.001*	<.001*	.639	.018	.306	.100	.085	.001*	<.001*	.209	.074	<.001*
Cocaine	Chi-Square	4.520	14.425	1.640	16.214	11.229	8.679	5.129	10.359	50.886	2.303	1.517	1.266
	Cramer's V	.161	.297	.097	.305	.253	.233	.171	.243	.539	.115	.093	.085
	Significance (p)	.034	<.001*	.200	<.001*	<.001*	.003*	.024	.001*	<.001*	.129	.218	.261
MDMA Crystals	Chi-Square	.278	9.503	4.004	6.021	2.019	.028	3.993	13.016	28.061	3.059	2.001	.654
	Cramer's V	.042	.243	.158	.193	.112	.013	.157	.284	.417	.138	.109	.064
	Significance (p)	.598	.002*	.045	.014	.155	.866	.046	<.001*	<.001*	.080	.122	.419
Ketamine	Chi-Square	9.109	27.355	1.005	2.136	5.134	8.037	11.998	15.139	19.551	2.293	2.414	5.598
	Cramer's V	.264	.455	.090	.128	.198	.248	.303	.339	.386	.132	.136	.207
	Significance (p)	.003*	<.001*	.304	.114	.023	.005	<.001*	<.001*	<.001*	.130	.120	.018

Independence between impulsive and intentional substance use surrounding the endorsement rates for each motivation type was mostly non-significant. No significant differences were observed between impulsive and intentional users surrounding the endorsement rates for the motivation types: *social inclusion, reducing mental health symptoms; reducing the effects of other substance(s)*. However, some significant differences were identified surrounding some motivation types. These findings enabled distinction between those reporting impulsive use and those reporting intentional use with regards to commonly associated motivator types for each group. Perhaps unsurprisingly the largest differences in the rate of endorsement between impulsive and intentional users was observed among tests surrounding the motivation of *impulse*. However, while large effect sizes were observed for each of the illicit substance types analysed, there was no significant difference found among participants reporting on their alcohol use. This may suggest that alcohol users were unable to recognise the motivation of impulse in relation to impulsive use.

The motivation of *social pressure* was stable across most substance types; however, a significant difference in endorsement rates between impulsive and intentional users was found among those reporting for cocaine use. These findings suggest that participants who used cocaine impulsively were more likely to endorse the motivation of *social pressure* than those who used cocaine with the intention of doing so prior to attending the festival. Similarly, the motivations of *reducing inhibitions and confidence seeking* were also found to be stable across all substance types other than cocaine. Significant differences were again identified between impulsive and intentional users suggesting that larger proportions of impulsive users endorsed these motivations when compared to non-impulsive users.

The motivation of *better social interactions* was found to be stable between impulsive and intentional users across all substance types other than ketamine. There was a significant difference observed between impulsive and intentional ketamine users with the descriptive findings suggesting that intentional users were more likely to endorse this motivation type when compared to impulsive users. In addition, the motivation of *habit* remained stable between impulsive and intentional users for most substance types; however, some significant differences were found for cannabis and ketamine. These findings suggest that impulsive users were less likely to endorse the motivation of *habit* when compared to intentional users for these substance types. The motivation of *increasing the effects of other substance(s)* was also stable across all

substance types other than cannabis; with a significant difference in endorsement rates found between impulsive and intentional users. These findings suggested that impulsive cannabis users were less likely to endorse this motivation when compared to intentional users.

Interestingly the motivations of *enjoyment* and *happiness seeking* were found to differ significantly between impulsive and intentional use groups for all of the illicit substance types analysed. These findings suggest that *happiness seeking*, and *enjoyment* are more commonly endorsed among impulsive users when compared to intentional users among those who reported upon their cocaine, cannabis, MDMA and ketamine use. This should be considered when designing the content and delivery methods of harm reduction focused services, recognising that the prevalence of impulsive substance use could be more frequent if attendees are seeking happiness or enjoyment. It could therefore be inferred that music festivals where environmental factors such as poor weather, or poor event management, could lead attendees to seek happiness or enjoyment more frequently, which may lead to an increase in the prevalence of impulsive substance use.

Risk Behaviours

Participants indicated their risk behaviour types by substance type during music festival(s). Risk behaviour options were *taking more than an average or safe dose; redosing before feeling the effects of an initial dose; buying from an unknown or untrusted source; and polysubstance use*. Participants reported on these behaviours in relation to each substance and these were generally found to be low in frequency, The mean number of risk behaviours endorsed for each substance type was less than 1 for most substance types with the exception of alcohol (mean = 1.27) and 2CB (mean = 2.44) where participants reported being more likely to engage in the named risk behaviours when using these substances (Table 4.35). The fewest number risk behaviours were reported for LSD (mean = 0.049) and novel psychoactive substances (mean = 0.033) which may suggest that attendees are likely to be more cautious when using these substances.

Table 4.35 Mean number of risk behaviours engaged in per substance type.

Substance Type	N	Mean	SD	Variance	Skewness	Kurtosis
Alcohol	718	1.27	.928	.907	.366	.182
Cannabis	363	.932	1.20	1.44	1.79	3.60
Cocaine	288	.747	1.069	1.14	1.63	2.56
MDMA Crystal	295	.711	1.03	1.07	1.60	2.09
MDMA Pills	263	.716	1.08	1.17	1.69	2.64
Ketamine	230	.871	1.30	1.71	1.72	2.44
2CB	83	2.44	.951	.905	2.01	5.51
Opioids	19	.631	1.42	2.02	3.32	12.28
LSD	101	.049	.218	.048	4.21	16.09
Magic Mushrooms	67	.417	.654	.428	1.64	2.88
Benzodiazepines	43	.162	.531	.282	4.16	19.78
NPS	30	.033	.182	.033	5.47	30.00
Amphetamine	47	.510	.881	.777	3.14	13.97
Mephedrone	11	.545	1.03	1.07	1.83	2.44

During analysis, the type of risk behaviour most commonly reported was explored for each substance. Across most substances it was shown that mixing a substance with another substance was the most commonly reported risk behaviour, which again suggests that polysubstance use should be targeted within future interventions (Table 4.36). The most commonly reported risk behaviour in association with alcohol use was drinking more than the recommended amount. Participants also commonly reported being given a drink or substance by someone they did not know or trust, this is particularly concerning in terms of risk and should be focused upon in future interventions. Buying substances from unknown or untrusted sources was less commonly reported suggesting most participants took precautions when procuring their substances. Encouragingly feeling pressured into taking more of a substance than planned was infrequently reported.

Table 4.36. Mean number of risk behaviours engaged in per substance type.

Substance Type	Risk Behaviour Type													
	Taking more than an average or safe dose.		Mixing substance with any other substance		Taking a substance found discarded or dropped		Given substance by someone unknown or untrusted		Feeling pressured into taking more of a substance than planned		Re-dosed before feeling the effects of an initial dose.		Brought substance from an unknown or untrusted source.	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Alcohol	469	65.3	341	47.4	37	45.2	43	6.0	21	2.9	– ^a	– ^a	– ^a	– ^a
Cannabis	42	11.6	181	49.9	17	4.7	47	12.9	5	1.4	23	6.3	22	6.1
Cocaine	30	10.4	114	39.3	9	3.1	21	7.3	4	1.4	24	8.3	18	6.2
MDMA Crystal	29	9.8	111	37.6	7	2.4	15	5.1	2	0.7	31	10.5	15	5.1
MDMA Pills	34	12.9	85	32.2	4	1.5	24	9.1	2	0.8	18	6.8	23	8.7
Ketamine	39	16.9	82	35.5	11	4.8	23	10.0	5	2.2	20	8.7	22	9.6
2CB	5	6.0	36	41.1	1	1.2	8	9.5	0	0.0	3	3.6	8	9.6
Opioids	2	10.5	5	26.3	1	5.3	1	5.3	1	5.3	1	5.3	1	5.3
LSD	0	0.0	4	4.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.0
Magic Mushrooms	1	1.5	20	29.0	0	0.0	4	6.0	0	0.0	2	3.0	3	4.5
Benzodiazepines	1	2.3	5	11.6	0	0.0	0	0.0	0	0.0	0	0.0	1	2.3
NPS	0	0.0	1	3.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Amphetamine	1	2.1	18	38.3	1	2.1	2	4.3	1	2.1	1	2.1	0	0.0
Mephedrone	0	0.0	3	27.3	0	0.0	2	18.2	0	0.0	0	0.0	1	9.1

a. These variables were not collected within this study due to alcohol being a legal substance sold through official vendors. Alcohol is also consumed over a period of time and cannot be reliably considered as individual doses.

When exploring the frequencies of reporting for each named risk behaviour type it was observed that the rates of endorsement remained fairly similar between substance types. The risk behaviour *taking more than an average or safe dose* was generally seen to be approximately 10% of users across all illicit substance types; however, this rose to among participants reporting on their alcohol use to over two thirds of the sample. These findings suggest that music festival attendees may drink higher amounts of alcohol than is considered average far more frequently than those using other substances. *Polysubstance use* was seen to be the most frequently reported risk behaviour for all substance types. Approximately thirty to fifty percent of participants reported using each substance type with another substance type among the most frequently used substance types: alcohol, cannabis, cocaine, MDMA crystal, MDMA pills, ketamine and 2CB.

While the proportions of participants reporting polysubstance use for the other substance types analysed remained high, the small sample sizes for these substance types limit the reliability of findings. Risk behaviours surrounding the use of LSD and novel psychoactive substances (NSP) were exceptionally less frequently reported when compared to other substance types which could suggest that attendees are more cautious when using these substances. Overall, the final four named risk behaviours within this study were infrequently reported across all substance types. While these findings have positive connotations for attendee safety it is important to consider that this self-report data may have limitations surrounding recall and possible response biases.

Experiences of Harm and Negative Outcomes

Participants were also asked to report on any experiences of harm or negative outcomes they experienced which they associated with their recreational substance use at music festivals. Participants were asked to report their experiences for each substance type. Harm and negative experiences were recorded within two category types, primary and secondary. Primary negative outcomes were considered to be direct results of consuming the substance, for example, paranoia, vomiting or inability to sleep. Secondary outcomes were considered to be events where substance use made the participant more vulnerable to experiencing harm, for example, becoming lost, sexual assault, arrest, or physical injury. Due to the small sample sizes observed, the subsequent analysis excluded the following substances due to the high risk of type two errors: LSD, magic mushrooms, opioids, amphetamine, novel psychoactive substances (NSP) and mephedrone. A total of 1899 experiences of harm were reported by participants suggesting a critical need for specified intervention. When examining the differences in harms reported between substance types it appears that both primary (Table 4.37), and secondary harms (Table 4.38), are more frequently reported in relation to alcohol use when compared to any of the other substance types analysed. These findings could suggest that the use of alcohol among festival attendees could present more risk of harm than other illicit substances within this analysis.

Table 4.37 Frequency and proportion of reported primary harms per substance type

Substance Type	Primary Harm Type																				Total
	Nausea / Vomiting		Confusion / Disorientation		Loss of Consciousness		Loss of Motor Control		Loss of Memory		Inability to Sleep		Hangover		Jaw / Tooth Pain		Paranoia		Low Mood		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Alcohol	91	12.7	54	7.5	11	1.5	65	9.1	93	13.0	24	3.3	350	48.7	22	3.1	8	1.1	38	5.3	756
Cannabis	6	1.7	14	3.9	1	0.3	5	1.4	19	5.2	3	0.8	4	1.1	2	0.6	26	7.1	8	2.2	88
Cocaine	11	3.8	1	0.3	0	0.0	2	0.7	3	1.0	45	15.6	22	7.6	19	6.6	10	3.5	19	6.6	132
MDMA Crystal	20	6.8	16	5.4	0	0.0	11	3.7	13	4.4	36	12.2	16	5.9	55	18.6	11	3.7	30	10.2	208
MDMA Pills	20	7.6	11	4.2	0	0.0	10	3.8	19	7.2	42	15.9	15	5.7	59	22.3	11	4.2	23	8.7	210
Ketamine	10	4.3	49	21.3	2	0.9	41	17.8	13	5.7	4	1.7	3	1.3	3	1.3	7	3.0	5	2.2	137
2CB	11	12.9	13	15.5	0	0.0	4	4.8	2	2.4	8	9.5	0	0.0	6	7.1	5	6.0	1	1.2	50
Total	169		158		14		138		162		162		410		166		78		124		1581

Table 4.38 Frequency and proportion of reported secondary harms per substance type.

Substance Type	Primary Harm Type																												Total
	Physical Injury		Dental Injury		Sexual Assault		Domestic Violence		Physical Assault		Verbal Altercation		Becoming Lost / Separated		Unsafe Sex		Committed Criminal Act		Intervention by Security or Police		Arrested		Evicted or Denied Entry		Urgent Medical Difficulties		Urgent Mental Health Difficulties		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Alcohol	34	4.7	2	0.3	2	0.3	0	0.0	2	0.3	23	3.2	93	13.0	36	5.0	8	1.1	4	0.6	2	0.3	0	0.0	3	0.4	3	0.4	212
Cannabis	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	2.5	9	2.5	1	0.3	2	0.6	0	0.0	0	0.0	0	0.0	7	1.9	28
Cocaine	0	0.0	1	0.3	0	0.0	0	0.0	0	0.0	2	0.7	9	3.1	5	1.7	2	0.7	1	0.3	0	0.0	1	0.3	0	0.0	2	0.7	23
MDMA Crystal	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	10	3.4	5	1.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.3	18
MDMA Pills	2	0.8	1	0.4	0	0.0	0	0.0	0	0.0	2	0.8	8	3.0	2	0.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4	16
Ketamine	1	0.4	0	0.0	0	0.0	0	0.0	0	0.0	2	0.9	6	2.6	3	1.3	1	0.4	1	0.4	0	0.00	0	0.00	0	0.00	0	0.00	14
2CB	2	2.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	4.8	1	1.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7
Total	40		4		2		0		2		30		139		61		12		8		2		1		3		14		318

The types of primary harm identified within this study varied considerably in endorsement rates between substance types. The primary harm type *hangover* was found to be the most frequently reported harm when examining total harms reported, however this was largely attributed to those reporting upon alcohol use (N=350, 48.7%). While this harm was reported to some extent among stimulant users, there was little to no endorsement for *hangover* among cannabis, ketamine or 2CB users. Similarly, the endorsement rates for *jaw or tooth pain* and *inability to sleep* were highest among stimulant users, such as MDMA (N=55, 59; 18.6%, 22.3%), cocaine (N=19, 6.6%) and 2CB (N=6, 7.1%). *Nausea or vomiting* was reported across all substance types with the highest endorsement rates observed for alcohol (N=91, 12.7), 2CB (N=11, 12.9) and MDMA (N=20, 20; 6.8%, 7.6%). Experiences of *confusion or disorientation*, *loss of memory*, and *loss of motor control* were also identified across all substance types. For each of these types of primary harm the highest rates were observed for alcohol, MDMA, ketamine and 2CB users; suggesting that attendees who use these substance types may be at a higher risk of experiencing these negative outcomes. *Loss of consciousness* was observed to have very low rates of endorsement across all substance types; however, the highest rates were found among alcohol (N=11, 1.5%) and ketamine users (N=2, 0.9%). Cannabis was found to have the highest rates of endorsement for *paranoia* (N=26, 7.1%); however, it was observed that the rates of endorsement for this harm type were higher among all illicit substance types when compared with alcohol (N=8, 1.1%). Finally, *low mood* was also endorsed across all substance types, however rates were highest for each form of MDMA (N=30, 23; 10.2%, 8.7%). The rates of endorsement surrounding *low mood* for cocaine and alcohol were found to be similar.

Descriptive analysis surrounding the endorsement rates for secondary types of harm observed the prevalence of reported harm to remain very low (Table 4.34). Again, alcohol was seen to have the highest rates of endorsement for almost all of the secondary harm types analysed; the exception being *urgent mental health difficulties*, which were most prevalent among cannabis users (N=7, 1.9). The most commonly endorsed secondary harm type was *becoming lost or separated* across all substance types, ranging from 13% among alcohol users (N=93) and 2.5% among cannabis users (N=9). The next most commonly endorsed secondary harm types were *unsafe sex* and *physical injury* which were reported across all substance types analysed. These were found to be most prevalent among alcohol users for both *unsafe sex* (N=36, 5.0%), and *physical injury* (N=34, 4.7%). All of the remaining secondary harm types were found

to have very low prevalence rates across all substance types, with less than 1% of users reporting these types of secondary harm. While the frequency remains very low, sexual assault, urgent medical difficulties, dental injuries, crime, interventions by onsite security or police, arrest, and site eviction were all endorsed by some participants for some substance types (Table 4.34). Domestic violence was not reported by any participants surrounding the use of any substance type.

Participants who reported experiencing urgent medical difficulties or urgent mental health difficulties were asked to provide text responses in order to identify further specificity surrounding their experience of harm. One participant who had reported experiencing urgent medical difficulties explained their response: “*hypoglycaemia following heavy alcohol use*”. The remaining two participant who reported urgent medical difficulties did not provide a further text response in relation to this. Among participants who reported urgent mental health difficulties these were largely attributed to panic attacks following a range of substance use. One participant reporting upon their experience of *urgent mental health difficulties* related this to emotional distress following an experience of sexual assault associated with alcohol use: “*due to being sexually assaulted/raped whilst drunk*”.

It was also observed that the total count for almost all types of harm was zero for a large proportion of participants (N=260, 33.6%). This suggests that the majority of participants did not report experiencing any harm or negative effects in relation to their recreational substance use at music festivals. The large proportion of participants who reported no experiences of harm, alongside the heterogenous variance within this variable, including some extreme outliers, was likely to influence the mean values significantly. The following analysis considered both the entire sample and a sample excluding counts of zero for each substance type when exploring the average number of harmful experiences reported by participants.

Findings surrounding the average number of primary harms reported by participants appeared to remain approximately one for each substance type analysed, however this was seen to increase to approximately two or three among participants who reported experiencing at least one type of primary harm (Table 4.39). Similarly, when exploring secondary harms reported by participants for each substance type; findings suggest that the average number remained close to zero for analysis considering the entire sample. This value did increase to approximately 1.5 within the zero excluded sample. Overall, these findings suggest that attendees who experience

at least one type of harm may be more likely to experience additional types of harm. It was also shown that primary harms were more commonly experienced than secondary harms.

Secondary harms reported in relation to all substance types other than alcohol identified that exposure to harm was reported to be very low. The mean number of secondary adverse experiences in relation to alcohol was found to be significantly higher, suggesting attendees who use alcohol may be at higher risk of exposure to harm. When considering primary negative outcomes, we can see that again alcohol was found to have the highest mean number of harms reported among participants. These findings consistently suggest that music festival attendees who use alcohol may be at a higher risk of harm than those who use illicit substances. However, it should be considered that participants were asked to report upon their experiences of harm in relation to each substance type. While this does introduce an element of perception, especially among users of multiple substances, it also allowed for some expression of the nuances surrounding individual experiences to be explored, understanding that individual circumstances, environmental factors and behavioural or cognitive factors could all influence how and why harm is experienced.

Table 4.39 Mean number of primary adverse outcomes per substance type.

Substance Type	Primary Harms (Entire Sample)				Secondary Harms (Entire Sample)				Primary Harms (> 0 Reported)				Secondary Harms (> 0 Reported)			
	N	M	SD	Var	N	M	SD	Var	N	M	SD	Var	N	M	SD	Var
Alcohol	718	1.02	1.17	1.39	718	0.29	0.71	0.50	424	1.76	1.06	1.12	145	1.46	0.89	0.79
Cannabis	363	0.24	0.70	0.49	363	0.07	0.29	0.08	53	1.66	1.02	1.04	26	1.08	0.27	0.74
Cocaine	288	0.45	0.90	0.83	288	0.08	0.29	0.81	77	1.70	0.96	0.92	21	1.09	0.30	0.09
MDMA Crystal	295	0.72	1.38	1.91	295	0.06	0.29	0.85	92	2.30	1.57	2.48	15	1.2	0.56	0.34
MDMA Pills	263	0.79	1.30	1.71	263	0.06	0.28	0.08	94	2.22	1.26	1.59	14	1.14	0.53	0.28
Ketamine	230	0.61	1.12	1.26	230	0.06	0.28	0.08	68	2.07	1.12	1.26	11	1.27	0.46	0.22
2CB	83	0.62	1.57	2.48	83	0.08	0.38	0.15	18	2.88	2.24	5.04	5	1.40	0.89	0.80
Total	718	2.16	2.75	7.61	718	0.44	1.02	1.05	489	3.17	2.82	7.96	173	1.83	1.36	1.85

Access Rates for Critical Onsite Support Services

During the survey participants were asked to report if they were aware the term *harm reduction* in relation to recreational substance use, it was found that only 61.7% of participants (N= 383) had an awareness of this concept (Table 4.40).

Table 4.40. Awareness of harm reduction in relation to recreational substance use.

Response	Frequency (N)	Proportion of Sample (%)
Aware	383	61.7
Unaware	238	38.3

While the term *harm reduction* may be more frequently circulated within professional or academic contexts, the large proportion of participants who were unaware of the term may suggest a limited history of access to harm reduction focused interventions or service provisions. Fewer than 10% of the sample reported having ever accessed the majority of the specific harm reduction services listed within the survey (Table 4.41).

Table 4.41 Number of participants who engaged with harm reduction services by type.

Harm Reduction Service Type	Number of Participants (N)	% Proportion of Sample (N=773)
Onsite Welfare Services	82	10.6
Onsite Medical Services	57	7.4
Onsite Substance Advice, Checking or Testing Services	52	6.7
Onsite Mental Health Services	13	1.7
Onsite Addiction Support Services / Charities	4	0.5
Onsite Trip Sitting Services	3	0.4
Onsite Needle Exchange	2	0.3
Onsite Supervised Consumption Areas	1	0.1
Substance Information Provided by the Festival on their App or Website	42	5.4
Substance Information / Advice Leaflets	52	6.7
Online Substance Information / Advice	92	11.9
Offsite Drug Testing / Postal Drug Testing Services	23	3.0
DIY Reagent Testing	57	7.4
Online Pill Reports or Trip Reports	127	16.4
Community Mental Health Services	25	3.2
Community Substance Use Advice Services	17	2.2
Online Trip Sitting / Advice Services	26	3.4

Participants reported generally low access rates across all types of harm reduction service named within the survey; with all service types receiving an endorsement rate of less than 17%. This finding suggests a distinct lack of engagement with available services which is very likely to reduce their efficacy in reducing the likelihood of harm within this population. When comparing the types of service accessed it was observed that *online pill reports or trip reports* was the most commonly accessed service (N=127, 16.4%). This finding could suggest that this population may place more trust in the lived experience of other individuals who have also engaged in similar recreational substance use. It is also likely that levels of engagement are improved for this service type due to the online accessibility without any formal help-seeking associations. This possible effect is also observed within the slightly increased prevalence of access to *DIY reagent testing* (N=57, 7.4%) and *Substance use information or advice leaflets* (N=52, 6.7%). Other online services were also observed to have higher rates of endorsement when compared to in-person settings, including *online substance information or advice* (N=92,

11.9%), *online trip sitting services* (N=26, 3.4%) and *online substance use information provided on festival websites or apps* (N=42, 5.4%). When exploring the onsite provisions of harm reduction services, it was found that *onsite welfare services* were the most commonly accessed (N=82, 10.6%), followed by *onsite medical services* (N=57, 7.4%) and *onsite substance advice, checking or testing services* (N=52, 6.7%). The access rates for *onsite mental health services, onsite addiction support services / charities, onsite trip sitting services, onsite needle exchange* and *onsite supervised consumption areas* remained very low.

As the survey continued, participants were also asked to report whether they had accessed the support of critical frontline services as a result of their recalled substance use event(s) within the past 12 months at music festivals. These services included onsite medical teams, onsite welfare provisions and onsite emergency services. Very few participants reported using these services within the period discussed, which may suggest that harmful experiences relating the need for these services were minimised within the sample. However, it should be considered that this finding may also reflect a reluctance to help-seek within this population (Table 4.42).

Table 4.42 Accessing Critical Frontline Services as a Result of Substance Use

Substance Type	Number Participants Accessing Services (N)	Proportion of Sample (%)
Alcohol	10	1.53
Cannabis	1	0.38
Cocaine	0	0.00
MDMA Crystal	3	1.92
MDMA Pills	1	0.78
Ketamine	1	0.79

Again, participants were asked to report on whether they had accessed these services in relation to each substance type they were reporting on. This allowed participants to express their opinion as to which substance(s) had most contributed to their requirement of these services. While the proportions within this analysis are very small, it was observed that MDMA crystals (N=3, 1.92%) and alcohol (N=10, 1.53%) reported the highest rates in terms of frequency in accessing frontline services. It is also found that cannabis and cocaine had very low access rates suggesting the risk of harm associated with these substances may be lower. Whilst cannabis is

known to be a low-risk substance, cocaine is generally a far riskier substance and as such we may have expected to see a higher access rate in relation to use. It could be suggested that the low access rate for cocaine could be related to the average age of users; the older demographic seen among cocaine users alongside the marginally lower frequencies of risk behaviour could suggest more cautious use. While the very prevalence rates of access to critical onsite services are encouraging in terms of harm reduction, these findings could also suggest a significant reluctance to help-seek within the context. The between substance analysis of access rates is limited by the small sample sizes among those who reported accessing services, therefore these findings should be considered as indicative only.

Exploring the Predictors of Harm and Negative Outcomes

Predicting an increased risk of harm among festival attendees would be very likely to inform service providers or intervention designs, allowing for these to specifically target individuals who are likely to be at a higher risk of harm. The sum of all negative outcomes reported across all substance types for each participant was calculated to provide a total of negative outcomes (harms). A ratio total was considered to mitigate the total number of substances used by each participant; however, it was found that the total number of substances only moderately correlated with the raw negative outcome total ($r_s = 0.402$, $p < 0.001$), meaning that it should not be assumed that a higher total substance number should always cause a higher negative outcome total. This total of harms was used in the following correlation and regression analysis as the sole dependent variable.

Relationships between Substance Use Related Harm and Other Factors

A correlation analysis was completed with all demographics, psychological and behavioural variables collected within the study to identify any significant relationships between these factors and the raw negative outcome (harms) total. Assumption testing found that the dependent variable was not normally distributed with heterogeneous variance ($N=773$, $M=2.36$,

SD=3.09, skewness = 2.10, kurtosis = 5.57). Consequently, non-parametric two tailed correlations were calculated for each of the variable groups. Where continuous or ordinal variables were considered Spearman’s rho or rank tests were computed to identify any significant correlations between the variables tested and negative outcome total. Where categorical variables were present within the analysis (e.g., demographic variables) Kruskal-Wallis H tests were completed to identify any independence between the categories in relation to the continuous variable, negative outcome total. Findings suggest that there were significant between group differences in the mean rank values for negative outcome total surrounding, employment type, education level, and relationship status (Table 4.43). No significant differences were identified between groups for the variables of gender and ethnicity.

Table 4.43 Kruskal-Wallis H tests exploring between group independence for negative outcome total (harms) within categorical demographic variable groups.

		Gender	Education	Relationship Status	Ethnicity	Employment
Negative Outcome Total	Kruskal-Wallis H	1.62	19.75	41.52	14.54	22.90
	Sig. (2-tailed)	.665	.001	<.001	.337	<.001
	<i>df</i>	3	5	4	13	4
	N	764	764	763	762	761

Mean rank values suggest that attendees who reported A-level education, casual relationships and student employment types may have been more likely to report a higher frequency of harms (Table 4.44).

Table 4.44 Mean rank values for significant Kruskal-Wallis tests surrounding demographic variables and negative outcome total.

Categorical Variable	Category Types	N	Mean Rank
Employment Type	Full time employment	500	362.39
	Part time employment	78	348.22
	Student	146	448.89
	Unemployed	28	420.20
	Housewife / Househusband	9	475.39
Relationship Status	Single	275	386.72
	Causal relationship(s)	63	470.44
	Long term relationship(s)	192	404.98
	Cohabiting	104	397.72
	Married / Civil partnership	129	281.88
Education Level	GCSE or equivalent	69	367.49
	A Level or equivalent	181	439.26
	Diploma or equivalent	97	352.37
	Degree or equivalent	310	377.82
	Master's degree or equivalent	88	337.06
	Doctorate or equivalent	19	336.92

The final demographic variable considered was age, which was a continuous variable. As, such a spearman's rho correlation was computed to identify any correlation with negative outcome total (Table 4.45). Findings suggest that age does significantly correlate with negative outcome total however this relationship was fairly weak ($r_s = -0.287$).

Table 4.45 Spearman's rho correlation analysis between age and negative outcome total (harms).

		Age
	Spearman's Rho -Correlation Coefficient	-.287
Negative Outcome Total	Sig. (2-tailed)	<.000
	N	668

The relationship between the psychological variables (locus of control, personality, and values) and negative outcome total (harms) were considered. Whilst the correlation between an external locus of control and negative outcome total was statistically significant (Table 4.46), this relationship was considered to be weak ($r_s = -0.112$).

Table 4.46 Spearman’s rho correlations between locus of control and negative outcome total (harms).

		Internal Locus of Control
Negative Outcomes	Spearman’s Rho Correlation Coefficient	-.112
Total	Sig. (2-tailed)	.002
	N	730

Of the five personality traits assessed, only the relationships between negative outcome total (harms) and openness or agreeableness (Table 4.47). Again, these relationships were very weak ($r_s = -0.132$; $r_s = -0.110$). However, the negative relationship identified does suggest that higher affinity to these traits could be associated with lower scores for negative outcome total (harms).

Table 4.47 Spearman’s rho correlations between personality traits and negative outcome total (harms).

		Openness	Extraversion	Agreeableness	Conscientiousness	Emotional Stability
Negative	r_s	-.132**	0.022	-.110**	-0.065	0.039
Outcomes	Sig. (2-tailed)	<.001	.553	.003	.077	.296
Total	N	733	734	731	734	734

Analysis of individual values revealed weak but statistically significant relationships between stimulation ($r_s = .142$, $p < 0.001$), hedonism ($r_s = .191$, $p < 0.001$), and achievement ($r_s = .220$, $p < 0.001$) and negative outcome total (Table 4.48).

Table 4.48 Spearman's rho correlations between values and negative outcome total (harms).

	Negative Outcomes Total		
	Spearman's Rho Correlation Coefficient	Sig. (2-tailed)	N
Conformity	-.046	.206	760
Tradition	-.045	.213	760
Benevolence	.065	.075	761
Universalism	.047	.191	761
Self-Direction	.003	.924	761
Stimulation	.142	> .001	761
Hedonism	.191	> .001	761
Achievement	-.220	> .001	762
Power	-.046	.203	762
Security	.040	.275	760

The relationship between genre of festival attended and total negative outcome was examined. As participants were able to report attending more than one type of festival genre a dummy binary variable (*attended event of this genre – yes / no*) was created. Kruskal-Wallis H tests revealed significant differences only between those who did / did not attend electronic or grime music festivals (Table 4.49).

Table 4.49 Kruskal-Wallis H tests exploring between group independence for negative outcome total (harms) within festival genre attendance groups.

		Festival Genre			
		Popular	Electronic	Alternative	Grime
Negative Outcome Total	Kruskal-Wallis H	.092	36.720	2.49	9.05
	<i>df</i>	1	1	1	1
	Sig. (2-tailed)	.762	<.001	.115	.003
	N	773	773	773	773

Mean rank values indicated that attendees at these festival genres were more likely have higher scores in relation to negative outcome total (Table 4.50)

Table 4.50 Mean rank values for significant Kruskal-Wallis tests surrounding festival genre and negative outcome total.

Genre	Group	N	Mean Rank
Electronic	Did not attend Electronic Music Festival	513	353.25
	Attended Electronic Music Festival	260	453.60
Grime	Did not attend Electronic Music Festival	513	353.25
	Attended Electronic Music Festival	260	453.60

Analysis of substance use patterns (alcohol use, illicit substance use, polysubstance use, or abstinence) revealed significant differences between the substance pattern groups for negative outcome total (Table 4.51).

Table 4.51 Kruskal-Wallis H tests exploring between group independence for negative outcome total (harms) within substance use pattern groups.

		Substance Use Pattern
	Kruskal-Wallis H	133.375
Negative	<i>df</i>	3
Outcome Total	Sig. (2-tailed)	<.001
	N	764

Review of the mean rank values suggests that polysubstance use is likely to lead to higher scores for total negative outcomes when compared to all other substance use pattern types, with abstinence associated with lower scores for negative outcome total (Table 4.52).

Table 4.52 Mean rank values for the Kruskal-Wallis tests surrounding substance use pattern type and negative outcome total.

	Substance Use Pattern Type	N	Mean Rank
Negative Outcome Total	Abstinent	23	128.00
	Alcohol Use Only	211	277.44
	Illicit Substance Use (no poly)	54	315.06
	Polysubstance Use	476	449.02
	Total	764	

The final variable types considered within this correlation analysis were behaviours, cognitions, and perceptions associated with participants' recreational substance use at music festivals, identifying any existing correlations with negative outcome total (harms). The variables considered were the total number of motivations, perceived benefits and risk behaviours reported, and whether use was impulsive or intentional.

Three continuous variables were computed to calculate the total number of motivations, perceived benefits and risk behaviours reported by participants in relation to their substance use. Spearman's rho correlations were computed for each of these variables finding significant positive correlations between all three variables and negative outcome total (Table 4.53). While these relationships were positive, indicating higher scores for these variables could be associated with higher scores for negative outcome total, it should be recognised that these relationships were fairly moderate.

Table 4.53 Spearman's rho correlations between behavioural or cognitive variables and negative outcome total (harms).

	Negative Outcomes Total		
	Spearman's Rho Correlation Coefficients	Sig. (2-tailed)	N
Motivations Total	0.599	< 0.001	773
Benefits Total	0.574	< 0.001	773
Risk Behaviour Total	0.612	< 0.001	773

Impulsive use versus intentional use as reported by participants in relation to their substance use at music festivals was analysed to identify any between group differences in scores for negative outcome total. A Kruskal-Wallis H test was computed finding a significant difference between intentional and impulsive substance use with regards to negative outcome total (Table 4.54).

Table 4.54 Kruskal-Wallis H tests exploring between group differences for negative outcome total (harms) surrounding impulsive or intentional substance use.

		Intentional vs Impulsive Substance Use
	Kruskal-Wallis H	35.868
Negative	<i>df</i>	1
Outcome Total	Sig. (2-tailed)	<.001
	N	773

The mean rank for impulsive substance use was 463.97 (N=209), while the mean rank for intentional substance use was 358.48 (N=564), suggesting that those who reported impulsive substance use were more likely to have higher scores for negative outcome total when compared to those who did not.

Finally, substance use types and combinations were considered; firstly, the use of each substance was analysed through the use of several Kruskal-Wallis tests for each substance type. As participants were able to identify as using more than one substance types this resulted in a number of binary variables recording whether a participant did or did not use each substance type. The five most commonly reported upon substance types were included within this analysis, excluding all other substance types where small sample sizes were observed; participants who reported abstinence were also excluded. Findings suggest that there was a significant difference in the scores for negative outcome total (harms) between those who reported use and those who did not for all substance types analysed (Table 4.55).

Table 4.55 Kruskal-Wallis H tests exploring between group differences for negative outcome total (harms) surrounding substance use types.

		Negative Outcome Total
Alcohol	Kruskal-Wallis H	51.003
	<i>df</i>	1
	Sig. (2-tailed)	<.001
	N	762
Cannabis	Kruskal-Wallis H	47.561
	<i>df</i>	1
	Sig. (2-tailed)	<.001
	N	762
Cocaine	Kruskal-Wallis H	72.007
	<i>df</i>	1
	Sig. (2-tailed)	<.001
	N	762
MDMA Crystals	Kruskal-Wallis H	81.015
	<i>df</i>	1
	Sig. (2-tailed)	<.001
	N	762
MDMA Pills	Kruskal-Wallis H	78.641
	<i>df</i>	1
	Sig. (2-tailed)	<.001
	N	762
Ketamine	Kruskal-Wallis H	78.113
	<i>df</i>	1
	Sig. (2-tailed)	<.001
	N	762

The mean rank values surrounding these tests of independence suggest the use of each substance type was associated with higher scores for negative outcome total when compared to non-users (Table 4.56). Findings suggest that ketamine and MDMA were likely to see the largest difference in scores for negative outcome totals; suggesting that attendees who use these substances may be at higher risk of harm.

Table 4.56 Mean rank values for significant Kruskal-Wallis tests surrounding substance use type and negative outcome total.

Substance Type	Group	N	Mean Rank
Alcohol	Did Not Use Substance	46	175.81
	Did Use Substance	718	399.86
Cannabis	Did Not Use Substance	398	329.85
	Did Use Substance	364	437.08
Cocaine	Did Not Use Substance	474	326.99
	Did Use Substance	288	462.21
MDMA Crystals	Did Not Use Substance	467	324.35
	Did Use Substance	295	467.53
MDMA Pills	Did Not Use Substance	499	331.47
	Did Use Substance	263	476.42
Ketamine	Did Not Use Substance	528	334.29
	Did Use Substance	234	483.29

Further analysis considered the possible relationships between scores for negative outcome total and substance use combination types. Participants were grouped based upon their reported combinations of the top five most commonly reported upon substance types. This resulted in a categorical variable consisting of nine types of substance use combination. Kruskal-Wallis test was computed which identified a significant presence of independence in scores for negative outcome totals between the groups (Table 4.57)

Table 4.57 Kruskal-Wallis H tests exploring between group independence for negative outcome total (harms) surrounding substance use combinations.

		Substance Use Combinations
	Kruskal-Wallis H	35.868
Negative Outcome Total	<i>df</i>	1
	Sig. (2-tailed)	<.001
	N	773

The mean rank values in relation to negative outcome total scores for each substance use combination group suggested that individuals who use a combination of alcohol and ketamine

were most likely to have higher scores for negative outcome total (Table 4.58). Alongside this, the mean rank values within this analysis suggest that other substance use combinations which include the use of ketamine were also more likely to be associated with increased scores or total negative outcomes. While the differences in the mean rank values for each substance use combination remained fairly similar; the lowest value was identified for alcohol and cannabis use, suggesting that the addition of further illicit substances could increase the likelihood of reporting higher scores for negative outcome total (harms).

Table 4.58 Mean rank values for the Kruskal-Wallis tests surrounding substance use combination type and negative outcome total.

	Substance Use Combination	N	Mean Rank
	Alcohol & Ketamine	1	269.50
	Alcohol, Cannabis, Cocaine, MDMA & Ketamine	119	227.22
	Alcohol, MDMA & Ketamine	25	222.96
	Alcohol, Cannabis, MDMA & Ketamine	26	201.77
Negative	Alcohol, Cannabis, MDMA & Cocaine	54	193.74
Outcome Total	Alcohol & Cocaine	37	181.59
	Alcohol, Cannabis & Cocaine	18	177.83
	Alcohol, MDMA & Cocaine	40	170.50
	Alcohol & Cannabis	69	152.53
	Total	389	

Overall, it was found that a number of the recorded variables did display significant relationships with scores for negative outcome total. While many of these relationships were found to be weak the large sample size allows for some confidence around the significance of these relationships. It should be considered that while the relationships may appear weak, an increase of just one negative outcome for an individual could translate into significant real-world harm.

Model of Predictors for Experiences of Harm

When considering the development of a regression model for the predictors of negative outcome total (harms) a generalized linear model was fitted with negative binomial errors and a log link function. The majority of participants reported no experiences of harm in relation to their substance use and as such a zero-inflated count model was calculated in relation to its predictors. A negative binomial regression was chosen due to the difference between mean and variance within the dependent variable, alongside a significant one-sample Kolmogorov-Smirnov test indicating the dependent variable did not follow a Poisson Distribution, ($D(773) = 2.36, p < 0.001$).

Due to limitations within SPSS and R, it was not possible to run a stepwise, forward, or backward approach when selecting the most effective model for this type of regression. As such, variable selection was achieved by firstly running several regression analyses containing all of the variables identified as having significant relationships with negative outcome totals (harms). This was achieved by splitting the variables into four groups, namely demographic, psychological, behavioural, and cognitive variables. Generalized linear, zero inflated count, models were fitted to each group of variables with negative binomial errors and a log link function. Following each regression analysis, the significant predictors from each model were included within a final regression analysis. Within the final regression analysis, variables were manually retained or removed over six steps, based on current literature, significance, and B value in order to develop the most effective model of predictors (Table 4.59). Within the final model of predictors, for higher scores in relation to negative outcome total, the goodness of fit test found the Akaike information criterion (AIC) and Bayesian information criterion (BIC) to be at the lowest possible values compared to other tests (2292.67, 2337.20) with a value/*df* of 1.002, again the closest value to 1 found among other tests. The omnibus test reported $X^2(8) = 348.615, p < .001$. This model found that several variables were significant in predicting a change in the number of negative outcomes experienced by an individual.

As hypothesised previously, alcohol use was found to have the largest effect upon negative outcome total ($\text{Exp}(B) = 2.413, p < 0.001$). In addition, age, locus of control, agreeableness, hedonism, and achievement were found to significantly predict changes in the number of negative outcomes experienced by participants, however the effect sizes for these

variables were small (Table 4.59). This model can be interpreted by assuming that for one unit of change within a predictor variable, the difference in the log counts of negative outcome total is expected to change by the respective regression coefficient, given the other predictor variables in the model are held constant. While the increase in total negative outcomes may appear small within this model, it is vital to understand that the majority of people experience no negative outcomes and that even one additional negative outcome can result in extremely high risks to both the individual and public health agencies.

Table 4.59 Final model of predictors for negative outcome total.

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
(Intercept)	.909	.4526	.022	1.796	4.032	1	.045	2.481	1.022	6.025
Age	-.011	.0043	-.019	-.002	6.465	1	.011	.989	.981	.998
Locus of Control	-.037	.0153	-.066	-.007	5.741	1	.017	.964	.936	.993
Agreeableness	-.060	.0231	-.105	-.014	6.641	1	.010	.942	.900	.986
Achievement	-.086	.0328	-.150	-.022	6.878	1	.009	.918	.861	.979
Motivations Total	.070	.0095	.052	.089	54.864	1	.000	1.073	1.053	1.093
Risk Behaviours Total	.103	.0178	.068	.138	33.663	1	.000	1.109	1.071	1.148
Alcohol Use	.881	.2814	.330	1.432	9.805	1	.002	2.413	1.390	4.189
Polysubstance Use (Scale)	.302	.1095	-.517	-.087	7.612	1	.006	.739	.597	.916
(Negative binomial)	.407	.0529	.315	.525						

Dependent Variable: Total Negative Outcomes

Model: (Intercept), Age, Internal LoC, Agreeableness, Achievement, Motivations Total, Risk Behaviours Total, Alcohol Use, Polysubstance Use

a. Fixed at the displayed value.

This model can be considered when assessing whether individuals are at a higher or lower risk of experiencing negative outcomes following their substance use. Age was found to have a negative relationship with negative outcome total suggesting younger individuals are at higher risk of experiencing more negative outcomes. Locus of control was found to be a significant predictor suggesting that those with higher scores for internal locus of control may be

at higher risk of experiencing negative outcomes. It should be considered however that those with internal locus of control may be more likely to attribute negative experiences to their substance use whereas individuals with external locus of control may attribute negative experiences to other causations rather than their own decision to use a substance. Achievement and agreeableness also appeared to have a negative relationship with negative outcome total, suggesting those who identified less with this value or trait were more likely to have a higher negative outcome total. Motivations and risk behaviours had a positive relationship with negative outcome total, suggesting the more motivations and risk behaviours reported the more likely an attendee would experience higher numbers of negative outcomes. Alcohol use and polysubstance use were also significant predictors of a higher negative outcome total.

The model described above suggests that music festival attendees who are younger, do not identify with the achievement value or agreeableness trait, display more motivations and risk behaviours in relation to their substance use, and who engage in alcohol or polysubstance use are predicted to experience more negative outcomes. The opposite should therefore be true of individuals who are at lower risk of experiencing negative outcomes. By distinguishing those who are at a higher risk of experiencing harm it is possible to direct targeted responses in terms of intervention delivery and active engagement, to promote positive health outcomes and overall safety most effectively.

Serious and Significant Negative Outcomes

While the regression analysis above allows for a clear understanding of predictors within the population studied it is vital that we also consider individual experiences, understanding that while the majority of individuals use substances with little to no harmful consequences some people do experience extremely harmful outcomes. The study collected data from some participants who had experienced serious medical or mental health difficulties, physical and sexual assault, altercations, arrests, and other high-risk experiences. Further analysis was completed to understand any predictors of an individual falling into this category.

Based on those who reported experience of serious medical or mental health difficulties, physical and sexual assault, altercations, arrests, and other high-risk experiences a binary

variable was created. This grouped participants into either low risk or high-risk negative outcomes; those falling into the later reported at least one serious and significant negative outcome (N=154). A binary logistic regression model was used with a forward conditional approach to select the predictor variables from all possible variables identified to have some relationship with negative outcome total during the previous correlation analyses. The best fitting model was found to share some predictor variables with the previous analysis, however there were some important differences (Table 4.60). Findings within this regression analysis suggest that individuals who used a combination of alcohol, MDMA and ketamine were predicted to be significantly more likely to experience serious and significant negative outcomes. It was also found that those who reported fewer benefits were more likely to experience these outcomes, however this is likely due to the survey being retrospective and any benefits experienced being overlooked by those who reported these highly negative experiences.

Table 4.60 Predictors of individuals experiencing serious and significant negative outcomes.

	B	S.E.	Wald	df	Sig.	95% C.I. for EXP(B)		
						Exp(B)	Lower	Upper
Age	-.027	.012	4.826	1	.028	.974	.951	.997
Internal LoC	-.096	.041	5.418	1	.020	.908	.838	.985
Achievement	-.285	.092	9.507	1	.002	.752	.628	.901
Motivations Total	.163	.037	19.194	1	.000	1.176	1.094	1.265
Risk Behaviours Total	.213	.050	18.306	1	.000	1.237	1.122	1.364
Perceived Benefits Total	-.090	.037	5.949	1	.015	.914	.851	.983
Alcohol +MDMA +Ketamine	-1.456	.716	4.131	1	.042	.233	.057	.949
Constant	1.245	.823	2.290	1	.130	3.474		

Validity Testing of Regression Models

The validity of the regression models reported was tested using Bayesian statistics (Appendix D). For both the negative binomial regression model (predictors of negative outcome total) and the binary logistic regression model (predictors of experiencing serious or significant negative outcomes), all possible predictors were entered into the Bayesian models. The

restrictive priors for all possible predictors were set to zero, therefore assuming within the model that none of the possible predictors would impact the independent variable tested. By analysing the data in this way, the posterior distribution found that variables which moved away from the vertical line should be considered as possible predictors with some effect on the variables relating to harm. Encouragingly, the predictor variables which were demonstrated to have some effect did show agreement with the variables within the regression models reported. This gives some indication that the models reported are valid.

Discussion & Implications for Future Research, Theory and Practice

Discussion

Within this study a large volume of quantitative data were collected from a niche and hard to reach population (Ivers, Killeen & Keenan, 2021; Measham 2019); allowing for a novel and in-depth analysis encompassing both individual human experiences and population wide commonalities in relation to recreational substance use at music festivals. The findings within this study offer information on the prevalence and types of substance use among music festival attendees, alongside an in-depth exploration of factors associated with substance use and risks and harm. Although the rates of illicit substance use among festival attendees has been well documented within recent years (Bijlsma et al., 2020; Day et al., 2018; Grigg, Barratt & Lenton, 2018), this study identifies the likelihood of an almost constant existence of attendee substance use when considered outside the realms of legality and drug policy. While illicit substance use carries an inherent understanding of a positive correlation between illegality and increased risk of harm, the findings within the present study suggest a strong possibility of legal substance use (alcohol) being a primary factor in the likelihood of harmful outcomes. Almost all of the participants within this study reported substantial levels of substance use whilst attending music festivals, with alcohol use reported by almost all participants (92.8%, N=718); suggesting that a significantly high proportion of the population studied could be at risk of substance use related harm. While the study did not exclude those who do not use substances at music festivals it is

likely that some self-selection in terms of relevance may have occurred within the sampling for this study. However, the results within this study also suggest that music festival attendees are more likely to use substances more frequently, and in increased quantities, during music festival periods when compared to their substance use within other contexts. These findings are particularly concerning in terms of individual and public health, understanding that prevalence, frequency, and quantity are all elements likely to increase risk of harm associated with recreational substance use in this setting (Jenkinson et al., 2014; Moore & Matias, 2018; Turriss & Lund, 2017).

The results reported a very high prevalence of self-reported polysubstance use among attendees (N=476, 60.71%), with the largest proportion of these participants reporting the combined use of alcohol, cannabis, cocaine, MDMA and ketamine (N=119, 25.0%) when compared to any other possible substance use combination types. These findings suggest that music festival attendees are very likely to engage in polysubstance use when using substances recreationally at music festivals. Alongside this it should be considered that attendees who do engage in polysubstance use are most likely to be using a combination of these five substances. The increased risks associated with polysubstance use (Bailey, Farmer & Finn, 2019; Hjemsæter et al., 2019), in addition to the inherent risk of a higher number of substance types involved within the polysubstance use, suggests that this sub-population is at a higher risk of harm. Further analysis considered the influence of age and gender upon the likelihood of polysubstance use behaviour. Findings suggested that individuals who are younger, attend grime or electronic genre music festivals, display greater affinity to stimulation values, and report more motivations in relation to their substance use are more likely to engage in polysubstance use. These predictor variables can be considered within the future design and delivery of harm reduction interventions or services to promote targeted support and effective mitigators of risk.

Demographic Factors

Age was found to be significantly different between users and non-users for cannabis, MDMA, cocaine, ketamine, and LSD, consistently finding that users of these substances were on average younger than those who did not use these substances. The age of alcohol users did not differ significantly, and it was found that individuals who reported abstinence or the use of

alcohol only were significantly older than those reporting any type of illicit substance use. These findings support the notion that younger festival attendees are more likely to engage in the use of substances which may carry a higher risk of harm, such as MDMA, cocaine and ketamine (Healey et al., 2022; Palamar et al., 2022; Vidal Gine, Fernández Calderón & Lopez Guerrero, 2016). These findings suggest that service providers should look to actively engage young people who are attending music festivals; aiming to provide targeted interventions surrounding the use of these substances. Providing this population with the knowledge and awareness of associated risks and harm reduction strategies is likely to significantly reduce the risk of harm following this type of substance use (Fernández-Calderón et al., 2019; Measham, 2019; Rigg & Sharp, 2018). Intervention designs which look to specifically engage young people, and provide specific substance type related information such as dosing strategies, high-risk combination warnings, and the promotion of drug checking services are likely to be most effective in supporting young festival attendees (Day et al., 2018 Palamar et al., 2021; Saleemi et al., 2017).

The influence of gender was found to be significant when considering alcohol use, finding that female participants were 2.41 times more likely to use alcohol when compared to male participants. In addition, it was identified that cannabis, LSD and 2CB users are approximately two to three times more likely to be male. These findings can support harm reduction services in recognising the likelihood for attendees of a particular gender being more or less likely to engage in particular forms of substance use, allowing for the provision of relevant and targeted information or advice. The findings within the present study suggest that alcohol specific interventions should look to actively engage female music festival attendees, while male attendees may be more likely to benefit from interventions which look to provide harm reduction advice and information regarding the use of psychedelic substances. The use of alcohol has previously been strongly associated with incidents of *spiking* where a substance (usually a tranquiliser) is added to a drink without the knowledge of the drinker, causing confusion and often unconscious (Sheard, 2011). These events are very often associated with incidents of sexual assault and violence, and are more commonly experienced by females (Kapoor et al., 2021; Neame, 2003). Given the increased likelihood of music festival attendees using alcohol to be female, it is critical that intervention models look to target incidents of *spiking*, providing information and advice regarding how risks can be mitigated through the

adoption of protective behaviours and harm reduction strategies (Anderson & Naidu, 2022; Pedersen et al., 2023).

Substance Use Patterns and Related Behaviours

Common risk behaviours in relation to recreational substance use were also reported by participants with results suggesting that *using more than the average or safe dose* and *polysubstance use* were the most frequently endorsed types of risk behaviour across all substance types. The use of alcohol, MDMA and ketamine were found to have the highest frequencies of risk behaviour types reported among users. Previous research has also highlighted the increased risk of harm associated with high-risk behaviours such as *polysubstance use* and *double dropping* which further emphasizes the need for targeted and effective intervention for this population (Black et al., 2020; Grigg, Barratt & Lenton, 2018; Healey et al., 2022; Hollett & Gately, 2019). The findings within the present study further advocate the critical need for service providers to apply intervention models which recognise the prevalence of risk behaviours within this population, particularly in relation to alcohol, MDMA and ketamine. These intervention models should look to specifically target the prevalence of such risk behaviours, particularly in relation to the use of alcohol, MDMA and ketamine, encouraging the adoption of protective behaviours and a reduction in high-risk behaviours.

Participants also reported upon the nature of their substance use, reporting impulsive or intentional use for each substance type. Participants were asked if they had intended to use the substance during the festival before they had entered the festival, finding that approximately one in three had not intended to use at least one substance. These findings suggest that harm reduction services should be aware of the possible lack of opportunity to inform users of risk mitigating information and advice prior to use. Interventions informed by these findings may consider the possibility that those with no intention to use substances at music festivals may still need preventative and proactive support. Surrounding literature regarding the benefits of early help-seeking behaviour among people who use substances has established a critical need for active engagement strategies (Barry, 2019; Dunne et al., 2017; Xu et al., 2018). It is understood that some young people, particularly those who may perceive more stigma surrounding substance use may be highly reluctant to formally help-seek (Clement et al., 2015; Heerde &

Hemphill, 2018; Organ, Jaffe & Bender, 2016). Examples of active engagement strategies include substance use and harm reduction focused education within schools and youth centres which may facilitate participation from those who would not normally help-seek or those who may deem the content irrelevant due to a current lack of intention to use substances (Marlatt, Larimer & Witkiewitz, 2011; Stockings et al., 2016). This concept within the context of the present study, suggest that service providers should look to actively engage music festival attendees in harm-reduction focused interventions surrounding substance use prior to attendance, even if they do not disclose a history or intention to use substances.

Motivations and Perceived Benefits

Motivations and perceived benefits in relation to participants substance use at music festivals were recorded and analysed finding that these varied significantly between different substance types and associated behaviours. Results reported that the motivation of *reducing the effects of another substance* differed significantly between users and non-users of cocaine and cannabis, suggesting these substances are frequently used in relation to this motivation. Conversely, the present study found alcohol to be commonly associated with the motivation of *increasing the effects of another substance*. Previous research has identified similar motivations surrounding cocaine use, which describe using this substance to reduce the effects of alcohol intoxication (Edland-Gryt, 2021; Pakula et al., 2009). These findings are particularly concerning when considered within the context of harm related to the combined use of cocaine and alcohol in its internal production of cocaethylene, which can lead to significant toxicity (Brache, Stockwell & Macdonald, 2012; McCance-Katz, Kosten & Jatlow, 1998; Jones, 2019). The findings within the present study indicate that some music festival attendees may be using cocaine under the impression that this may reduce the effects of other substances. This indicates a critical need for educational intervention surrounding the risks of polysubstance use, particularly within the context of concurrent cocaine and alcohol use.

Differences in motivation types and perceived benefits were also identified between participants who reported impulsive substance use and those who reported an intent to use each substance type before they had entered the festival. The findings suggested that individuals who reported impulsive substance use were more likely to endorse motivations or perceived benefits

surrounding *happiness* and *enjoyment seeking* when compared to international users. These findings could allow for some inference as to impulsive substance use potentially increasing in prevalence during festivals where feelings of happiness or enjoyment are lower than expected, for example during poor weather conditions or where effective event management is challenged. These findings could inform onsite service provisions and event organisers, providing a cautioning as to the likelihood of increased impulsive illicit substance use during festivals where environmental factors could reduce feelings of happiness and enjoyment. Examples of scenarios which are likely to reduce feelings of happiness or enjoyment during music festivals include poor crowd management (Martella et al., 2017; Sealy, 2020), poor infrastructure (Browne, Jack & Hitchings, 2019), and difficult weather conditions such as rain or wind (Anderton, 2011; Carlsen et al., 2010). Music festivals which are able to recognise these events and adapt their service provisions to offer both preventative interventions surrounding impulsive substance use, as well as increased resources for a possible increase in service usage, could moderate the risks associated with an increased prevalence of impulsive substance use.

Engagement with Harm Reduction Services

Further analysis considered participant's lifetime engagement with different types of harm reduction service as well as access to critical onsite services during the music festival period(s) recalled for this study. When exploring participants reports of accessing harm reduction service types within their lifetime a concerningly low proportion of participants endorsed any of the service types named. Again, these findings are supported within the surrounding literature which has identified a reduced tendency for help-seeking within this population (Measham, 2019; Page et al., 2022) The highest proportions of access were observed surrounding the use of online services, such as online pill or trip reports, online substance use information or advice, and information surrounding substance use embedded within festival websites or apps. Around twenty percent of participants reported using these online services whilst face-to-face community-based services were very infrequently accessed at approximately two percent of the sample. Literature surrounding young people and substance use has consistently identified the beneficial effects of online interventions and support services which offer reduced formality and participation burden, increasing the likelihood of engagement (Kauer, Mangan & Sancu, 2014;

Wiljer et al., 2016). Facilitating help-seeking through the provision of online resources and interventions is likely to improve the reach of harm reduction services, particularly among young music festival attendees who may be less likely to access formal face-to-face service provisions due to perceptions of stigma or shame (Day et al., 2018; Gutierrez et al., 2020; Schnyder et al., 2017). Future service delivery models should consider the possible benefits of an increased online presence, recognising that this may be a more effective mode of delivery in terms of both access rates and impact for young people.

Onsite services such as medical teams, welfare provisions and drug testing facilities were used by approximately one in ten participants reporting upon their lifetime experiences, with welfare provisions proving to be the most frequently accessed onsite service. Analysis considering the differences in access rates for these services between substance types, found that access to critical onsite services was most commonly associated with alcohol use. While other papers exploring the presentation types for onsite medical services have identified substance use as frequently predisposing factors in relation to patient presentation (Chhabra et al., 2018; Friedman et al., 2017; Turriss et al., 2019), there has been little consideration of the individual substance types associated with different incidents of harm. Within the present study participants indicated which substance types they perceived to be associated with their experiences of harm and access to onsite services, offering some valuable insight into the possible impacts of different substance types. The findings within this study suggest that music festival attendees may be more likely to access critical onsite services in relation to alcohol use when compared to other substances. While this finding may suggest an inherent risk associated with alcohol use, it could also indicate that there is a reluctance to help-seek among attendees who have used illicit substances. It could be inferred that perceptions of stigma and a fear of retribution could account for the reduced rates of individuals reporting access to critical onsite services in relation to illicit substance types (Reavley et al., 2010; Schomerus & Angermeyer, 2008).

Experiences of Harm

Participants within the present study reported their experiences of a number of primary and secondary harmful outcomes. Overall, participants reported a total of 1899 harmful experiences ranging from becoming lost or engaging in unsafe sex, through to urgent medical

difficulties or experiences of violence. These types of harm have also been identified within surrounding literature (Black et al., 2020; Bows, Day & Dhir, 2022; Wadds, Fileborn & Tomsen, 2022), suggesting a sustained impact of recreational substance use at music festival upon individual and public health. The average number of harms reported by participants was found to be between one and three, dependent upon the analyses performed. While these figures are encouragingly low, it should be considered that even one experience of harm, in relation to substance use at music festivals, could have a significant impact upon both individual health and wider public health agencies (Chhabra et al., 2018; Tomsen, Wadds & Stubbs, 2016). Again, participants reported which substance types they perceived to be associated with their experiences of harm, finding that these were most frequently linked with alcohol, MDMA and ketamine use. Surrounding literature strengthens these findings, further recognising that alcohol, MDMA and ketamine are often associated with poor health outcomes and incidents of harm (Black et al., 2020; Friedman et al., 2021; Jaensch et al., 2018; Measham, 2019). In response to these findings, future intervention design and delivery should implement strategic targeting of the use of these substance types, aiming to reduce the risk of harm associated with alcohol, ketamine and MDMA use through the promotion of relevant protective strategies.

The present study also examined several variables hypothesised to increase or decrease the likelihood of an attendee experiencing harm in relation to their substance use at music festivals. Two models of predictors were identified during the data analysis which considered both the likelihood of experiencing more types of harm, and the likelihood of experiencing a serious or significant incident of harm. The variables tested included demographic and psychological traits alongside behavioural and cognitive factors; consistently aiming to identify differences in individual experiences and patterns of behaviour surrounding recreational substance use and at music festivals. The best fitting model of prediction for all types of harmful outcomes among festival attendees, suggested that the use of alcohol and polysubstance use were most likely to have the largest significant impacts upon increasing the likelihood of more harms in relation to their substance use. Further factors identified within the model included the frequency of reported motivations and risk behaviours relation to substance use, suggesting higher totals reported for these variables could predict a higher number of harms. In addition, some psychological traits were found to have smaller but significant impacts upon the likelihood of more harms, suggesting that those with higher levels of internal locus of control and greater

affinity to the agreeableness trait or achievement value are less likely to experience harm. The second model reported looked to predict the likelihood of serious and significant harm such as urgent medical or mental health difficulties, sexual or physical violence, and incidents surrounding crime, altercations, or evictions. This model identified many of the same predictor variables as the general model discussed above. However, the combined use of alcohol, MDMA and ketamine was found to have a substantial impact upon the increased likelihood of significant or serious harm.

This type of analysis allows for future interventions to be informed by these findings; to implement designs which envelop antagonistic risks of harm within this population, aiming to improve health outcomes as well as mitigating the risk of more serious harm relating to substance use. Not only do these models provide a useful framework to identify key behaviours which are likely to predict harm, but they also give an insight into individuals profiles which can be associated with higher risks of significant harm, as seen within other substance using populations (Dean, Saunders & Bell, 2011; Kellner, Webster & Chanteloup, 1996; Little et al., 2013). The models reported within the present study suggest that service providers should pay particular attention to the combined use of alcohol, ketamine and MDMA among music festival attendees, ensuring that individuals engaging in this type of substance use are identified and actively engaged in intervention. Within both models reported the use of alcohol was also a key factor in predicting the likelihood of harm. When this is considered in the context of an established elevated prevalence of alcohol use within this population (Hutton & Jaensch, 2015; Jaensch et al., 2018; Martinus et al., 2010), it is likely that future interventions or practices which target the prevalence of alcohol use are likely to have an extensive impact upon reducing the likelihood of attendee harm.

Limitations

The data collected within this study were inherently non-normally distributed and heterogenous in terms of variance. Extreme outliers are generally likely when exploring substance use and related behaviours within this population (Hughes et al., 2019; Lim et al., 2010). While the population of festival attendees is often inherently found to be skewed for many demographic variables such as age, these non-normal distributions could create a risk of error

within analysis (Fox et al., 2018; Gjersing et al., 2019). While music festival attendee populations are often found to be non-normally distributed, previous research has also identified differences in population demographics when considering factors such as festival genre, location, or duration (Kinnunen, Honkanen & Karjalainen, Kruger & Saayman, 2018; 2020; Perron-Brault et al., 2020). As the present study recruited participants with a range of music festival experiences it was not possible to assume that the sample recruited was reflective of all music festival attendees. To mitigate the risk of error all of the tests used within the analysis were robust to normality assumptions.

It should also be recognised that the purpose of this study was made known to participants which could have introduced some self-selection and as such related concerns surrounding transferability of findings to the population studied. As the study intended to gather data surrounding substance use at music festivals it may be that the study was more attractive to potential participants who engage in substance use, compared to those who do not use substances while attending these events. While this recruitment method could have introduced some sampling error for this study, the use of advertisement within a wide range of platforms attracted a range of music festival attendees from different genres and locations, providing some mitigation. Alongside this we can assume some validity within the findings of this study when they are compared to similar research which has also looked to ascertain the prevalence of substance use among attendees. Much of the literature concurs with the conclusion of a high rate of attendee substance use which is line with the findings reported in this study (Benaglia et al., 2020; Day et al., 2018; Gjersing, et al., 2019; Healey et al., 2022). A further concern may be that people who have experienced harm in relationship to substance use at music festivals may perceive stigma or feelings of shame associated with these events and as such could have opted not to participate in the study (Crapanzano et al., 2018; Luoma et al., 2007). Future replications of this study could consider alternative recruitment strategies such as within service advertisements and during event ticket transaction correspondences in order to promote a wider range or responses.

The initial data set for the present study consisted of 1330 responses, during data cleaning processes 557 cases were removed, retaining 773 for the analysis. Most cases were removed due to incomplete survey responses. Some additional cases were examined due to extreme outlier responses within some variables, where these cases were deemed to be subject to extreme

response bias. Examples included cases where every multiple-choice option had been endorsed across the survey; or where extreme outlier values were found to be contrasting between variables such as reporting abstinence and use of all substance types. While the removal of these cases could introduce the risk of a processing error (Curran, 2016; McCabe, Mack & Fleeson, 2012), it was critical that these cases were removed to improve the reliability and validity of the findings reported within this study. The cross-sectional nature of the study also meant that causation or directionality of the associations observed could not be established. Additionally, although there is evidence that self-reported data on sensitive behaviour (such as illicit drug use) tends to be reliable if confidentiality is assured (Dowling-Guyer et al., 1994), the self-reported data collected within the present study could introduce a possibility of recall or social desirability bias.

During the regression analyses reported within the present study some validity testing was completed through the use of a Bayesian statistical approach. It was considered that further validity testing could be completed through the application of the model to a randomised cross section of respondents, however due to the time burden associated with creating a manual randomized dataset this was not completed within the present study. While this would have provided further validation for the models reported this was not completed during the current analysis. Future replication studies looking to further validate these models could implement this approach within further testing.

Implications for Future Research, Theory and Practice

The findings reported within the present study provide a valuable insight into the types and patterns of substance use and associated behaviours among music festival attendees. The large sample size within this study, alongside the parallels with other current literature (Benaglia et al., 2020; Day et al., 2018; Gjersing, et al., 2019; Healey et al., 2021), enables some reliability and validity to be taken from the findings. The findings reported surrounding the type and frequency of substance use, alongside experiences of harm and access to critical onsite services, can be used to effectively inform future onsite service provisions. Results within this study suggest that music festival attendees who have used substances require the support of onsite services most frequently in relation to becoming lost, having physical injuries, or experiencing

urgent mental health difficulties. Data were collected surrounding a number of other significant harms including urgent medical difficulties, experience of violence, crime, and eviction, however the prevalence rates for these types of harm were relatively low. While individuals, experiencing more infrequent types of harm, still require specific and intensive support, these findings allow for some preparation for future onsite service provisions. Where future onsite service provisions are able to anticipate common reasons for access, design and delivery methods can be altered to ensure that services are able to effectively manage these situations, whilst also ensuring services do not become overburdened (Chhabra et al., 2018; Tomsen, Wadds & Stubbs, 2016). As physical injuries, becoming lost and urgent mental health difficulties were the most frequently reported types of harm which could require the use of onsite services, it should be ensured that services can meet the needs of these attendees.

Medical teams are likely to encounter festival attendees who have sustained physical injuries following the use of substances at music festivals. While the study did not gather information relating to the type of physical injuries sustained, it should be ensured that medical provisions are able to treat presentations of minor or major trauma. It should also be considered that some individuals who experience physical injuries may require transportation both on and offsite, suggesting the critical need for effective vehicle access (Black et al., 2020; Chhabra et al., 2018; Turriss & Lund, 2017). Welfare provisions at music festivals should also consider the prevalence of urgent mental health difficulties and becoming lost. Music festival attendees who have become lost may require support to ensure their safety, as previous literature has identified this to be a common antecedent of sexual violence (Aborisade, 2021; Bows, Day & Dhir, 2022; Williams & Murray, 2022). Welfare provisions, onsite security or stewarding staff, and other workers should recognise that individuals who are lost and alone at a music festival following the use of substances are likely to be at a higher risk of harm. Ensuring that welfare teams and other onsite provisions have the ability to provide a safe space with support to reunite attendees with known others is essential in promoting the safety of attendees. Individuals experiencing urgent mental health difficulties could present to a variety of different service provisions, suggesting the need for good interagency working between onsite support provisions (Devaney et al., 2009; Guirguis, Gittins & Schifano, 2020; Webber, McCree & Angeli, 2013). Individuals within this study reported experiencing extreme levels of anxiety following substance use, suggesting the need for awareness of how to manage these incidents among all staff within the

festival site. The provision of safe and secure spaces within the festival, as well as trained mental health workers, would be likely to promote a reduction in harm among attendees who experience urgent mental health difficulties.

While drug policy within the UK continues to largely promote abstinence through the design and delivery of interventions or support services (Atkinson et al., 2019; Smith et al., 2019), the consistently high prevalence rates of substance use among this population calls for recognition and targeted action. Support services which adopt a harm reduction approach should look to ensure that both, the design, and delivery of intervention models are informed by the evidence base; acknowledging the substance use patterns, associated behaviours and cognitions observed within this population. The present study provides a substantial descriptive understanding of music festival attendees and their recreational use of substances at these events. The findings reported within this study are likely to be of significant value within both the design and delivery of targeted harm reduction interventions or support services. Services aiming to mitigate the risk of harm within this population should look to the findings reported within this study and similar research; ensuring that the delivery methods implemented allow for an engaging, relevant, and targeted approach. Services which can recognise the vulnerability to risk among specific festival attendee sub-populations, would likely be able to ensure that high-risk individuals are actively engaged (Paterson & Panessa, 2008; Stowe et al., 2022). The individual can then be provided with relevant and accurate support, advice and information which will reduce the likelihood of harmful experiences associated with their substance use.

In addition to the development of targeted intervention models and service design, the findings within this study can also be used to promote self-recognition of vulnerability to harm within this population. By providing individuals with information surrounding which characteristics, behaviours and cognitions may present an increased risk of harm, it is hypothesised that this will promote self-recognition of vulnerability among individuals who identify with risk increasing factors. This method of promoting self-recognition of vulnerability to harm could be utilised within the design and delivery of psychoeducational interventions. These types of interventions aim to provide individuals with information and advice surrounding their substance use and the associated risks (Kargin & Hicdurmaz, 2020; Jenkins, Slemon & Haines-Saah, 2017; Ugwueze & Ekechukwu, 2021); using the findings of this study would allow for the promotion of self-recognition of vulnerability to harm. Individuals who are enabled to

recognise their vulnerabilities through the application of these intervention types may be encouraged to adopt protective behaviours or implement harm reduction strategies which may mitigate increased risks to some extent.

Chapter Six: Defining the Common Experiences and Perceptions of Harm Reduction Services and Recreational Substance Use among Front Line Workers at Music Festivals

Introduction

Large-scale music festivals engage in planning and preparation in their attempts to mitigate potential risks (Hutton, 2018; Wynn-Moylan, 2017; Sealy, 2020), with thousands of staff and volunteers engaged as on-site crew members during the events (Earl, Parker & Capra, 2005). However, as recreational substance use is commonplace amongst festival attendees (Bijlsma et al., 2020; Day et al., 2018; Gjersing et al., 2019), front-line festival workers are likely to experience situations involving attendees who have used substances, and who have experienced negative outcomes in relation to this. While the provision of any support services surrounding attendee welfare and safety currently fall outside of event regulations stipulated by the Health and Safety Executive (HSE) or Public Health England/Wales (PHE/W), it is likely that individual local authorities will include these services as a prerequisite of licence. The Event Industry Forum (EIF) publishes The Purple Guide which provides safety guidance to festival organisers. The handbook has become a principal source of guidance for health, safety, and welfare at music festivals, advocating for individual risk assessments which recognise expected capacity, attendee demographics, onsite activities, and environmental conditions, as well as any data from previous years if available. Khazaie, Stott, and Khan (2021), explored healthcare workers' perceptions of social identities at mass gatherings. Participants from nursing organisations and event medical providers emphasized the importance of considering psychological factors in mitigating health risks. The study found that shared social identity in mass gatherings can lead to health-impairing behaviours, with specific training on social identity likely improving harm mitigation. Recognizing crowd identities effectively is crucial for managing health risks and ensuring safer mass gathering experiences.

As within any crowded market, the quality among organisations providing medical or welfare support is often fragmented. Minor injuries, illnesses and mental health difficulties or emotional distress are commonplace at music festivals and are generally easy to manage

(Friedman et al., 2019; Turriss et al., 2019), however it is very challenging to predict when an attendee may require more advanced skills surrounding medical care, crisis support or safeguarding and the quality of care that might be provided. Consequently, local authorities have been advised by the Deputy Chief Inspector and National Ambulance Lead for the Care Quality Commission of significant concerns arising in medical cover at temporary events (Armistead, 2018). Likewise, the Care Quality Commission have highlighted significant risks in medical cover at temporary events and recommended working with the Department for Health and Social Care to review the need for enhanced regulation (Care Quality Commission, 2019). In addition, research has highlighted a discrepancy between event types and the medical needs of onsite teams, recommending that services should be tailored to events, considering practitioner experience, skills, and time (Hopkins & Reicher, 2016; 2017).

A number of customer-facing, frontline roles exist within a festival organisation which directly contribute to ensuring the safety and enjoyment of attendees. These include stewards, security guards, medical and welfare teams, emergency services, safeguarding teams, and event control personnel. Frontline festival workers navigate a uniquely demanding environment, characterised by severe environmental challenges, communication barriers, and an often-chaotic multiagency management structure (Petriglieri, Ashford, & Wrzesniewski, 2018). This includes significant environmental obstacles, including large crowds, loud music, and limited vehicle access (Anderton, 2019; Bows, King & Measham, 2020; Robinson, 2015) coupled with festival attendees who are often young and intoxicated and who may be exhibiting anti-social behaviour (Anderton, 2019; Bows, King & Measham, 2020; Robinson, 2015). Given the frequency of substance use among attendees, it is likely that many frontline workers will have become involved in the care and support of attendees who have used substances (Munn, Sparrow & Bertagnolli, 2017) and may also have witnessed the negative outcomes or service challenges related to attendee substance use (Rodin & Braithwaite, 2018; Kranz, 2020; Wood et al., 2010). Further, such workers may be exposed to distressing situations without adequate support or crisis management training (Laura-Toraldo, Islam & Mangia, 2019; Hagan, 2021).

However, existing research with event staff or volunteers mainly addresses general event management and recruitment issues, overlooking specific insights into workers who witness or manage crisis events, particularly those related to substance use (Smith et al., 2014). Furthermore, existing research has not examined the challenges faced by frontline festival

workers, particularly in emergency situations, despite the prevalence of crisis events at music festivals (Calle et al., 2018). Understanding worker roles, experiences and views may provide insight into the nature and functioning of onsite services, public health, or attendee safety as well as how future services and interventions might be developed and delivered.

The Knowledge and Skill of Frontline Workers

Whilst most workers and volunteers have been shown to have adequate knowledge of emergency procedures, a significant number of workers lack a clear understanding of their roles during emergencies, or of specific hazards including aggressive behaviour related to substance use (Earl et al., 2003; 2005). Despite knowledge sharing among festival volunteers using formal and informal methods (e.g. documentation and induction processes, conversation and online communities), volunteers often reported feeling uncertain and unprepared, leading to challenges in directing individuals to vital services like medical tents, potentially causing dangerous delays (Clayton, 2014). Moreover, volunteers expressed concerns about chaotic leadership, poor communication, and their lack of experience and knowledge in radio communication, hindering their ability to resolve situations and seek support effectively. With this research in mind, we can see that the majority of experienced workers are likely to be knowledgeable and skilled within the industry, however it is likely that a proportion of less experienced workers may become overwhelmed within their roles, due to a lack of confidence or understanding. Both of these narratives can be very informative within the development of future onsite harm reduction services; we are able to collect the opinions and perceptions of individuals with years of experience, alongside the experiences of less accomplished workers; understanding how they cope both professionally and personally within their roles, the challenges, or barriers they face and how these impact the efficacy and safety of on-site harm reduction services.

The Role of Event Workers in the Evaluation of On-site Services

Frontline festival workers can provide invaluable perspectives about the effectiveness of harm reduction interventions and on future service development. For example, volunteers' experiences with the "Be Safe Lab" initiative at music festivals provided support for the

effectiveness of harm reduction measures and the personal and professional benefits of the scheme whilst also identifying the need for funding, improved training, and further collaboration with emergency medical teams (Beržanskytė, 2020). Similarly, evaluation of the Hoivakotilo harm reduction service highlighted positive experiences concerning the service's social, emotional, and spiritual support with volunteers' diverse backgrounds being crucial for effective service delivery (Kranz, 2020). As these studies show, gathering experiential data from workers and volunteers can provide invaluable insights into challenges and effective service delivery at music festivals able to promote attendee safety and well-being.

Study Aims & Rationale

The primary aim of this study was to gain novel insights into the narratives of frontline festival workers. The study aims to gather an understanding of how professionals manage and interpret situations involving attendees seeking support following substance use at music festivals. By seeking the perspectives of workers in different roles, this study aims to gain an understanding of the views, opinions, and experiences of frontline workers in relation to current service delivery and the design and development of future harm reduction interventions for music festival attendees who use substances. By exploring and understanding the challenges and barriers faced by front line staff, and their opinions regarding the robust development of these services, we can ascertain the key elements required for effective future intervention design.

Method

This study utilised an online survey format with front-line festival worker participants. Qualitative data was collected via extended typed answers to a series of open-ended, predetermined questions. As this study took place near the start of the COVID-19 pandemic, face-to-face interviews and focus groups were not possible and online interviewing was in its infancy. It was considered that a qualitative survey would allow a higher number of responses to be collected whilst placing a lesser burden on participants in terms of time and equipment requirements.

Survey Design

Questions were designed to ensure participants would be able to freely and candidly discuss their individual opinions or experiences, as well as their personal and professional perceptions of current harm reduction services and festival event management as a whole. The survey was designed to ensure that responses would capture the lived experiences of participants, enabling them to detail how specific elements of service delivery or external challenges may have impacted the efficacy of services, and ultimately the safety of attendees within their experiences (Appendix E iv). The wording of questions was reviewed within supervision to ensure that open language was used effectively to encourage more detailed responses. While most questions invited participants to consider particular aspects of their roles or services, the questions allowed for freedom of expression, encouraging participants to actively discuss their individual experiences, perceptions, and opinions. Most questions were designed around structural foundation phrases such as “tell me...” and “please describe/explain...” to ensure participants were prompted to respond in a detailed and meaningful manner. In addition, some questions were structured to focus attention onto personal experiences, perceptions, and opinions through the use of “what do you think...” and “what would you do” question conformations.

Questions were presented via an online survey using the Qualtrics platform. Four predetermined question clusters were used: worker experiences, challenges and barriers, service delivery and intervention methods although it was common for questions to overlap multiple categories. The categories aimed to encompass the experiences and satisfaction of workers within harm reduction services, the current delivery of services and challenges faced by workers, evaluation of current interventions, and discussion of improvements or development strategies for future interventions. The final set of thirteen questions guided the participants to discuss the crucial elements within their roles alongside their individual experiences, perceptions, and opinions, whilst consistently ensuring that they were able to freely explore entirely different narratives within each response.

Within both the information sheet (Appendix E i), and the survey itself (Appendix E iv), participants were encouraged to provide longer paragraph style responses in order to gain insight into individual experiences and opinions. Participants were also advised that they were free to use their response to go beyond the specific question if they wished to. Participants were actively

encouraged, at the beginning of the study, to express their personal perceptions and opinions regarding current services and how future services could be supported to provide more effective interventions. Participants were also prompted to recall and discuss the most challenging experiences they had encountered within their roles as well as their most high-risk experience and how this was managed and to provide their views on current policies, organisational structure, and delivery of onsite services.

Ethical Considerations

This study received ethical approval granted by the Swansea University Ethics Committee prior to the research being conducted (Appendix F). Participants were fully informed of the aims of the study and procedures required should they choose to participate within an initial information document (Appendix E i). Within this document participants were made aware of the overall survey content while also detailing their ability to answer freely within any responses and omit any questions. Participants were provided with information regarding data protection, including security and storage measures, alongside timescales surrounding their right to withdraw data from the study. Informed consent was also obtained from participants (Appendix E ii) to ensure they had a full understanding of the study and were willing to participate on a voluntary basis without material or monetary incentive. A debrief document (Appendix E iii) was also provided to participants which again detailed the study aims and provided contact details for the research team. It was considered that some participants could be affected emotionally following the study if any questions had prompted the recollection of difficult experiences, as such participants were provided with some helpline information for various mental health services within the debrief document.

Recruitment

Participants from a variety of frontline roles at music festivals were invited to participate. Participants were required to be over the age of eighteen and able to provide informed consent for the study. Inclusion criteria were that the respondent had experience of paid employment or volunteering within one of the following onsite roles at a music festival: medical services;

welfare services²; drug/alcohol services³; security teams, event control; face to face drug testing services; hospitality; stewarding/customer service; trip sitting services, mental health services; safeguarding teams or social workers; and emergency services. Workers within all of the above services are very likely have direct contact with festival attendees who require support following substance use. It is also likely that these workers would have diverse and distinct experiences of working with these attendees due to the variety, leading to the possibility of multiple narratives being collated to understand the presenting issue more holistically.

Methods for recruitment included online advertisements as well as individual direct email correspondence. Online advertising was posted on social media sites including Facebook, Instagram, Twitter, and Reddit. These advertisements were posted to be viewed publicly within relevant subreddits, hashtags and profiles, however they were also posted in a number of private Facebook groups which are primarily utilised as a discussion area for festival employees. In addition, links to the online advertisement were posted on private festival worker messaging groups on Facebook and WhatsApp that the primary researcher is an active member within. The researcher also directly shared the advert via email with known individuals who were unlikely to see the online advertisement due to a lack of online activity.

It was recognised that some participants would have worked alongside the primary researcher within their festival-based roles. Given that professional or personal relationships with the researcher could have introduced an element of participation incentive it was ensured that no participants felt any undue pressure to participate. Within the study advertisement and information sheet, participants were consistently informed of their right to autonomy surrounding any participation and that any data submitted would be fully anonymised and bear no impact on any relationships with the researcher.

² Any provision of onsite crisis support which directly aims to support the wellbeing of attendees, including mental health, drug and alcohol, and sexual health support alongside 1:1 intervention for attendees in need of intensive support.

³ Any onsite service providing advice or harm reduction supplies in relation to substance use but do not provide any crisis or medical interventions for people under the influence of substances. Some examples include recovery/addiction charities, drug information charities and the provision of “chill out zones”.

Procedure

Potential participants were recruited via the process discussed above. Each recruitment advertisement contained an embedded link which needed to be followed in order to participate. This link directed potential participants to the information sheet (Appendix E i) contained within the survey hosted on *Qualtrics*. This provided information about the study aims, procedure, requirements, and inclusion criteria. Participants who were eligible and wished to partake in the study then completed a consent form (Appendix E ii). Once completed participants were taken to the survey (Appendix E iv), where they were first asked to and provided brief demographic information about their age, gender, and employment experience. The main survey consisted of questions with text boxes which allowed for unlimited length responses. In general, it was found that most participants gave each question a response of between five to ten lines with occasional responses of several paragraphs also recorded. Responses shorter than two sentences were rarely provided by participants suggesting that most of the sample understood the requirement of longer more considered responses. At the end of the survey, participants were provided with a debrief document (Appendix E iii), which informed them of the research team contact details, their rights surrounding withdrawal of data from the study and contact details for mental health support charities.

Data Analysis

This study utilised a design grounded in interpretive methodology seeking to uncover the underlying meanings, values, and perspectives which shape the experiences of frontline festival workers (Biggerstaff 2012; Elliott & Timulak, 2005). A thematic approach to data analysis will be used within this study (Braun & Clarke, 2012; Terry et al., 2017) in which both deductive – using the four predetermined clusters, and inductive - allowing emerging themes within the data to be identified, methods will be used (Fereday & Muir-Cochrane, 2006; Simons, Lathlean & Squire, 2008). For the analysis, each participant's survey response will be recorded in a single file, treating the whole response as a transcript. This will allow content from across the transcript to be thematically analysed both deductively and inductively without a prior organisation framework implied by the question groupings. This will enable a more robust analysis of

emerging themes as initial coding will be conducted on the dataset from each participant in turn, allowing for themes to naturally emerge across multiple participant responses (Appendix G).

The analysis will be performed in a series of steps. Each respondent's transcript will be read and coded manually, also noting possible emerging themes. Once each transcript has been coded, transcripts will be reviewed to identify any refinements or changes that may be needed. Next, codes will be collated and organised, and thematic notes recorded both in the code file and the transcripts where appropriate. Codes will then be clustered and emerging themes will then be organized hierarchically to include primary themes, secondary themes, and any associated factors. For the deductive analysis, the four broad question categories determined during the survey design namely: worker experiences, intervention methods, barriers and challenges, and development of service delivery; will be considered as ways to organise the codes and make sense of the participant data. Additional, inductively derived themes which emerge during the thematic analysis will be organized and their relationship to the predetermined themes considered. All themes will be supported by exemplar quotes from the transcripts.

NVivo12 Software will be used for file and coding management within this study; however, no automatic coding features will be used during the analysis. The use of this software for file management will allow for fluid access between files ensuring that the identification of themes and sub-themes can be easily tracked and considered during the analysis. The use of NVivo12 will also allow for word frequency analysis to be conducted for some additional conceptualization of the data (Iliev, Dehghani & Sagi, 2015).

Reflexivity

This research accepts that a manner of knowledge construction will have taken place during both the study design and data analysis. During the study design it was evident that the formulation of questions relied heavily upon my own knowledge and were often constructed with first hand experiences in mind. An element of expectation often became apparent during development stages, where I felt able to identify likely responses, however this was actively recognised and recorded. While these constructive expectations were necessary in ensuring the relevant data was collected, I was continuously mindful of ensuring that questions did not lead participants to report any particular opinions or experiences expected by the researcher. I

consistently ensured that each question could be responded to freely, allowing both expected responses and any contrasting data to be discussed easily within the bounds of question interpretation. The nature of the data within this study must be understood to be cultural, incomplete, and intricate, as well as being positioned within a specific social and subsisting context. This study is neoteric and aims largely to introduce recognition surrounding the value in exploring the opinions and perceptions of individuals with expertise and lived experiences around the delivery of onsite support. With the above in mind, it is understood that assumption of truth within the results of this study cannot be guaranteed at that understanding the reality of this niche research field is not easily derived from the results of a single study.

During the analysis it was important to be aware of any influence my own experiences, perceptions and knowledge could have when studying the data collected (Braun & Clarke, 2021; Yardley, & Bishop, 2017). As an experienced worker within the context of harm reduction at music festivals, my personal experiences will both introduce the possibility of bias within the results and allow potentially subtle concepts within the data to be recognised. Given the constructivist nature of the approach being adopted, understanding, and combatting potential risk of bias is important (Gemignani, 2017; Hosking, & Pluut, 2010; Parker, 2014). Regular discussion and reflection with research supervisors during the process of data analysis provided some mitigation of bias through testing and challenging the justification and evidence for each theme and their proposed relationships. Further, the themes and relationships identified within the data during analysis showed high levels of homogeneity across participants suggesting that the emerging concepts were broadly shared by workers within the field. In addition, consensus within the supervisory team on emerging themes suggested that themes were unlikely to be overly influenced by my own opinions or experiences. It was recognised that within the analysis the concepts and themes identified were relatable to my own understanding, however some concepts did challenge my current beliefs. Such challenge and identification of themes outside those anticipated adds weight to the rigor of this study. By ensuring that any conflict between my own experiences and that of others was actively recognised and incorporated when analysing the data ensured, as far as possible, that the themes emerged naturally and reflected the data unconditionally (Pierre, 2023; Pillow, 2003; Shaw, 2010).

Participants

The study collected data from twenty-one participants - nine males and twelve females with a mean age of 42 ranging from 23 to 70 years old. Most participants reported an education level of undergraduate (N=9) or postgraduate (N=8), with the remaining four participants reporting GCSE (N=2) and A-Level (N=2) education levels. Participants reported a wide range of years of experience they had working within frontline roles at festivals (Table 5.1) with most reporting experience of working within more than one type of role previously. Roles included medical services, welfare service, emergency services (police), event control personnel, security teams, stewarding teams, onsite safeguarding/social work and drug and alcohol support services.

Table 5.1 Professional demographics of participants.

Years of Experience	N	Percentage
0-1	3	14.3
11+	5	23.8
2-3	5	23.8
4-6	5	23.8
7-10	3	14.3

Results and Discussion

Most participants offered a large quantity of qualitative data which provided a rich data source for analysis. Participants were generally very open about their experiences and perceptions and frequently offered alternative insights which broadened the opportunities for data analysis. During analysis the primary and secondary themes identified were collated within the four predetermined categories of exploration: intervention methods, service delivery, challenges and barriers, and worker experiences. It is important to consider that some of the themes identified can be seen to overlap between multiple categories. Where this is the case, the themes have been discussed within the most relevant area of the study, with significant overlaps discussed individually. Overall, thirteen deductive themes were identified which were grouped by the inductive categories, additionally, several subthemes were also identified and are detailed within Table 5.2.

Table 5.2 Representation of inductive and deductive themes.

Inductive Categories	Deductive Themes Identified	Sub-themes	
Current Intervention Methods	Education	Harm Reduction Schools & Young People	
	Law Enforcement		
	Onsite Support Services	Medical Services Welfare Services Drug Checking Services	
Service Delivery Methods	Providing a Safe Space	Confidentiality Non-judgmental Effective Safeguarding Service User Trust Supportive Interventions	
		Risk Amplifiers	Demographic Factors Behavioural Factors Environmental Factors
		Substance Use Related Harm	
Current Challenges & Barriers	Funding		
	Stigma		
	Interagency Working		
Worker Experiences	Risk of Harm to Workers		
	Policies & Procedures		
	Environmental Challenges		
	High Service Usage / Burden		

Intervention Methods

This category encompasses the perceptions, knowledge, and experiences which participants provided in relation to any types of current harm reduction intervention methods targeting festival attendees. Three themes emerged from the data collected identifying three main

intervention methods: education, onsite services, and law enforcement. The themes embodied most of the current intervention methods used within UK music festivals, identified within the systematic review at the beginning of this thesis, and represented a fair and progressive understanding of the universal standards within harm reduction targeting festival attendees.

Social support was also identified as a possible intervention method within the data; however, this was a singular reference:

“Around 50% of the time, a friend will sit by their side and if it is early hours in the morning, the friend may leave to get sleep themselves and come back first thing to check on their friend.”

Participant 11

Social support can become a critical element within the care and support of individuals experiencing crisis or negative outcomes following substance use. Friends are able to provide reassurance and comfort in what can often be a disorientating and unfamiliar environment, which can improve both compliance with treatment and experiences of service delivery. While the socio-spatial elements of intervention methods are relevant within the current scope of research (Dilkes-Frayne, 2016), it is not well supported within this dataset.

Education

Education as a primary intervention theme emerged from the data with a significant level of homogeneity in opinion, the concept of education surrounding safer substance use was identified on fifty-four occasions among twenty of the twenty-one participants. Participants frequently referred to the critical need for education among people who choose to use legal and illegal substances:

“Education! Knowledge is power.”

Participant 13

“If you want to reduce harm then provide people with the knowledge they need to stay alive.”

Participant 2

“Knowledge is key, people can still choose behaviours that are damaging but if they understand the risks, but people are less likely to choose them”.

Participant 21

“Education around safer drug and alcohol use would be a huge step to take.”

Participant 7

Almost all participants reported a lack of education provision for potential festival attendees, with education identified as important for reducing the risk surrounding substance use. Participants reported a homogeneous opinion that education is the key to reducing frequencies of harm and that this is vital in empowering individuals to make safer choices. Within this theme three sub-themes were identified which were *pre-festival harm reduction education*, *direct risk reducing information* and *information surrounding the availability of onsite services*. Multiple participants identified that including harm reduction information with ticket sales would be a practical method of delivering pre-festival educational intervention:

“Information with the delivery of their tickets and pre festival pack ensuring they have read that information prior to be able to access their tickets”.

Participant 8

“Give info with ticket - pre reading before ticket can be printed.”

Participant 12

“Pre festival information advice and information with tickets would be a great idea.”

Participant 1

Alternative ideas were identified, including providing pre-festival harm reduction education interventions within targeted groups or schools where a number of pupils are likely to be attending particular events:

“Targeted at schools that have high numbers going to those events...”

Targeted approach at schools that are known to have high percentages of students going to events...

Plain simple advice maybe targeted at parents as lots of parents have no idea.”

Participant 21

“Education in schools”

Participant 6

Many of the participants identified a key aspect of education being directly related to risk reduction around the use of substances. A clear perception emerged in relation to the opinion that education should refrain from an abstinence only policy and focus on direct information about risk reducing strategies:

“More of an emphasis on safe drugs- how to find them, how to check and how to use drugs safely.”

Participant 3

“Providing knowledge of how to be as safe as possible if taking substances (be with friends, don’t consume too much etc.)”

Participant 5

Several participants felt that pre-festival education allows for informed decisions and that this is the most appropriate method in education with the purpose of reducing harm:

*“Treat your audience like adults, let them make informed choices...
Giving people the education, space, and equipment to enable them to make properly informed decisions, use sterile/appropriate equipment and be in a safe environment if/when they want to take drugs.”*

Participant 13

“Knowledge is key to decision making”.

Participant 21

A large number of participants also indicated the importance of educating festival attendees on the availability, whereabouts and provisions of onsite services including welfare, medical and drug testing services:

“Map and details of welfare/medics and what we help with. Posters around site.”

Participant 12

*“More signage/posters, make people aware of welfare areas...
a Welfare area that is known by all festival goers so they know that if they or a friend or a
stranger has somewhere they can go to feel safe and be looked after.”*

Participant 11

*“Information about welfare, mental health and drug testing on site would inform punters and
break down barriers.”*

Participant 1

Overall, it is clear that the education of festival attendees is in the forefront of the participants' minds as they report their perceptions and opinions surrounding current and future harm reduction interventions. Participants consistently reported opinions surrounding how education should be delivered, recognising the impact that the provision of harm reduction focused education prior to early substance use experiences is critical in improving individual and public health outcomes (Stockings et al., 2016; Toumbourou et al., 2007). It is critical that the development of future harm reduction interventions directly consider education for attendees and how this can be delivered most effectively. Targeting festival attendees who may be particularly at risk of experiencing negative outcomes following substance use would allow for this intervention method to be particularly successful. Future interventions which utilise education should endeavour to provide direct and relevant safety information regarding safer substance use and information regarding the specific onsite services available at music festivals. In doing so, this will likely empower individuals to take further responsibility for their own safety, providing the opportunity for safe choices, in particular among those who are at higher risk of harms.

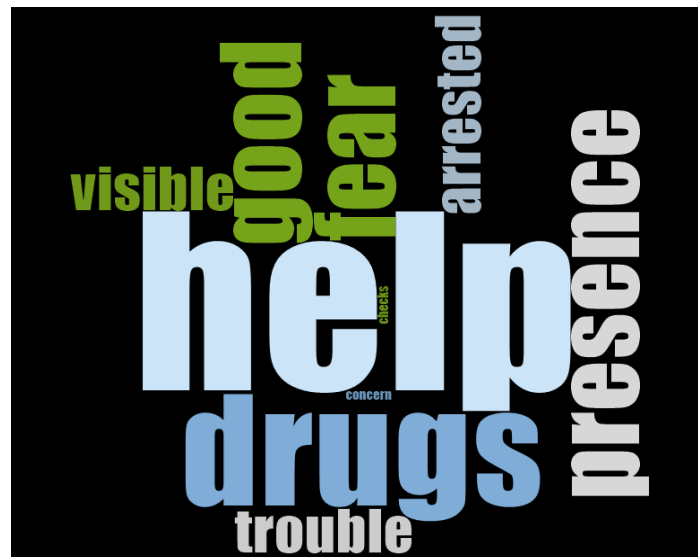
Law Enforcement

Law enforcement emerged as a significant primary theme within the category of intervention methods. Again, this theme was commonly discussed among participants with fifty-one references being identified among nineteen of the twenty-one participants. This theme recognised the implications surrounding the presence of police officers and security guards who enforce drug policy within the festival, as well as other onsite duties including the management of violence, safeguarding concerns and the provision of crisis support and crime reporting. A

large proportion of participants discussed this theme freely despite the fact that none of the survey questions specifically referred to or mentioned this intervention method. Interestingly, the majority of participants perceptions and experiences of police officers and security workers were negative. Many described the presence of police officers or security services as a challenge when looking to deliver effective harm reduction services. On most of the occasions where participants discussed law enforcement, police officers or security guards were in response to the question: *What (if any) barriers might discourage or stop people accessing harm reduction services at festivals?*

Within this theme there were strong indications during the initial analysis of recusant opinion and emotive language throughout the data, as such the references from participants were analysed to produce a word cloud representing the 10 most common words used to describe law enforcement (Figure 5.3). During the analysis, computed using NVivo 12 software, some words were included on a non-count list due to their non-descriptive nature⁴.

Figure 5.3 Law enforcement word cloud.



⁴ a about above after again against all am an and any are aren't around as at be because become been before being below between both but by can can't cannot can't could couldn't did didn't do does doesn't doing don't down during each education etc festival few for from further get good had hadn't has hasn't have haven't having he he'd he'll he's he'd he'll her here here's hers herself he's him himself his how how's I I'd I'll I'm I've I'd if I'll I'm in into involved is isn't it it's its itself I've know let's me more most mustn't my myself no nor not of off on once only or other ought our ours ourselves out over own people police said same say says security shall shan't she she'd she'll she's she'd she'll she's should shouldn't site so some such taking teams than that that's the their theirs them themselves then there there's these they they'd they'll they're they've they'd they'll they're they've this those through to too under until up upon us very was wasn't we we'd we'll we're we've we'd we'll were we're weren't we've what what's when when's where where's which while who who's whom who's whose why why's will with won't worked would wouldn't you you'd you'll you're you've you'd you'll your you're yours yourself yourselves you've

Interestingly the most common descriptive word used by participants in relation to law enforcement is *help*. Unfortunately, upon further analysis this description does not necessarily indicate positive regard and is not generally stated in context to help provided, with the word being commonly used in describing a lack of help and support:

"Police do not help in drug matters."

Participant 15

"The fear of being reported to the police or security is a concern to many users and as such will deny any illegal drug use despite it being clearly evident. This makes it far more challenging to recommend what to do and help them through the distressing period."

Participant 7

"The concern that the police will be involved and that they may get in to trouble by seeking help".

Participant 3

"People scared to get help if they're in a bad way...Overdoses and being scared to get help from services".

Participant 6

"...having to involve the police which is something we always try to avoid doing in order to maintain a good relationship with the people we are trying to help when we need them."

Participant 19

"Dogs/searches/CCTV/hand scanning etc etc etc @ gates - The harder a festival comes down on its ticketholders about drugs the more clandestine they become, the better they become at hiding it, the more taboo the subject, the less they want to ask for help, the more dangerous it is".

Participant 13

The second most common word identified during the analysis of this sub-theme was *fear* aligning with the common perceptions described by participants above. The word "*drugs*" was also commonly identified during the analysis which is unsurprising as this is often the term used to reference illicit substances. It is evident that this fear of reprimand is likely to reside among festival attendees who choose to use illicit substances, and that those who choose to use legal substances may not be subject to this challenging element of the intervention type. It is important

to consider the role of police officers and security services at music festivals in that they are often responsible for ensuring the safety of attendees by reducing a risk of victim-based crimes including sexual assault, violence or theft which is often overlooked due to the prevalence of illegal substance use. Many participants reported that festival attendees they have worked with have often reported a fear of getting arrested or into trouble if they sought any help during a difficult experience with substances:

“Fear of being arrested.”

Participant 17

“Fear of reprimand or police becoming involved”.

Participant 5

“Uniforms. Fear of arrest. Judgement”

Participant 1

“The fear of being reported to the Police”.

Participant 7

Other common words found within the analysis included, *concern*, *trouble*, and *arrested* which align with the above factors:

“Police or security is a concern to many users”.

Participant 3

“The concern that the police will be involved and that they may get in to trouble by seeking help”.

Participant 7

“Will I get into trouble if I tell you what I've taken/what my friends taken?”

Participant 11

Fear among attendees who require assistance can present significant increases in risk, as individuals may choose not to access support services for fear of retribution surrounding illicit substance use (Gibbs et al., 2023; Hoover et al., 2022). This could lead to delays in help-seeking and as such, the delivery of support which can significantly affect individual outcomes (Page et

al., 2022; Hughes et al., 2017). Often medical emergencies have been known to occur within campsites at music festivals where individuals, who could have perhaps accessed support services earlier, felt unable to due to a fear of reprimand and as such returned quieter but also less accessible areas in an attempt to self-support (Turriss & Lund, 2017). It is critical that attendees are made aware of policies surrounding access to support services; education and the promotion of services which offer support regardless of substance use can encourage individuals to access services.

Presence and visibility were also frequently used in reference to police officers and security guards onsite. While this was not solely a negative aspect, some participants did state that strong visibility and presence can create challenges in providing accessible harm reduction services. This is particularly evident within drug testing services where attendees are required to bring and hand over illicit substances which can be hindered if there is a visible law enforcement presence around the service:

“Police/officials /security too visible around services.”

Participant 12

“Threat of police - there’s still a lack of belief amongst some that getting drugs tested won't come with a risk of being arrested/similar.”

Participant 16

“Putting them in the same location as the police or security.”

Participant 13

A further component of this theme was drug policy; this factor was described on nine occasions among six participants. These participants reported that they felt current drug policy was ineffective and that drug police reform would significantly benefit harm reduction services:

“I'd argue legalising weed and putting the tax profit into among other things drug addiction services might help. Both because improved services, and because if you remove the cannabis dealers, a lot of people - especially the youngest people - won't have access to a supply as easily.”

Participant 16

“Legalisation”

Participant 6

“Allow personal use”.

Participant 15

“Trying to separate the act of taking drugs from the low-level crime which surrounds illegal dealing and unsafe usage, with a view to promoting health and wellbeing”.

Participant 13

“On-site drug policy”

Participant 12

Overall, it can be seen from the analysis above that the majority of participants feel that the visible presence of police and security teams around harm reduction services can result in challenges when encouraging engagement from attendees. It is also evident that many participants feel that law enforcement as an intervention method is ineffective in reducing harms surrounding recreational substance use. Several individuals expressed an opinion that policing can directly contribute to an increased risk of harm among attendees who may feel unable to access the services they need, due to a fear of retribution. These views are supported within the surrounding literature, which has identified the possible risks associated with onsite law enforcement during music festivals (Hoover et al., 2022; Hughes et al., 2017; Hughes et al., 2019; Page et al., 2022). Recognising the impact of this intervention method upon both receptiveness to help-seeking and the increased in harmful health outcomes must be achieved within future policy concerning music festivals.

Onsite Services

Participants discussed their perceptions surrounding the effectiveness of a range of onsite harm reduction interventions and safety services, namely contracted medical services, welfare provisions and drug testing facilities. In general participants discussed these services with positive regard however some challenges were reported.

Participants frequently discussed on site drug testing facilities, commonly suggesting that these play a critical role in the provision of harm reduction in relation to substance use at music festivals:

“On site drug testing creates chance for people to be more open about drug taking. Means it is more easily discussed and not underground. Test before taking.”

Participant 12

“I'm not sure that there is anything more educational than having someone donate a substance for testing, properly testing it, and then sitting down with them with enough time to explain the results and share harm reduction advice.”

Participant 13

“Drug testing tents make a huge difference.”

Participant 16

There was a common belief among the participants that drug testing facilities are hugely beneficial in providing attendees with an option to educate themselves on the substance they test. Participants did also discuss some of the challenges that can be expected when implementing this intervention method. One example of this was the involvement of police officers or security guards, which overlaps distinctly with the intervention method discussed above:

“Threat of police - there's still a lack of belief amongst some that getting drugs tested won't come with a risk of being arrested/similar.”

Participant 16

“Free drugs testing in several places on site.. no police involvement at all.”

Participant 15

Participants also discussed the importance of multi-agency information sharing, the reliability and accuracy of testing, the availability of service sites, and quick reporting:

“Onsite testing has been great when services have worked together. This has not always happened. Also, the limited hours they have worked has been a barrier to many accessing the service”.

Participant 9

“I heard the drug testing tent planned was blocked by council...”

Participant 16

“...work in collaboration with testing of substances to identify what substances we are dealing with and also to ensure data about those substances is shared around the agencies involved...The key challenge is finding out what substances are available at a festival, so information sharing across all the agencies involved is well organised.”

Participant 8

“More drug testing facilities around the festival camp sites”

Participant 19

“Drug testing, with reports in a timely manner and which provide enough data to be useful.”

Participant 13

It is evident above, that participants feel that this is a critical service and that the challenges described should be targeted when looking to improve future service delivery. Again, these opinions are supported within the surrounding literature, which has established the likely need for and efficacy of drug checking services at music festivals (Laing, Tupper & Fairbairn, 2018; McCrae et al., 2019; Measham 2019).

Service Delivery

The next category explored within this study was service delivery. This category encompassed any themes relating to how workers discussed and described the delivery of harm reduction services. Within this category there was a strong homogeneity of opinion with a single primary theme being identified within the data; the provision of a safe space. Within this primary theme several subthemes surrounding the need and construction methods of safer spaces were identified. These subthemes were confidentiality, non-judgmental approaches, effective

safeguarding, service user trust and supportive interventions. Participants frequently described the need for festival attendees to feel safe and secure when accessing the harm reduction services provided on site:

“Making the place welcoming so that people stay until they are safe to leave”.

Participant 1

“So, we will take the necessary steps to make them feel comfortable, by offering a safe, private space they can stay in until the substance has left their body. Sometimes they just need someone to talk too, and this can make the world of difference”.

Participant 11

“Safe spaces. Places to ask questions, to talk to experienced people, to stop and let your mind clear.”

Participant 20

“An open environment that people feel safe to ask for information and help.”

Participant 3

Participants often discussed this when asked about how they felt engagement with services could be improved, with many discussing the concept of reducing any fear or stigma surrounding access. This theme links strongly with the previously discussed theme of law enforcement where a fear of retribution among attendees appears prevalent. Attendees who have used substances are more likely to require the support of onsite harm reduction services (Munn et al., 2019; Turriss & Lund, 2017), and the legality of some substances can mean that accessing services is interpreted as riskier by attendees, reducing their tendency to help-seek (Hoover et al., 2019; Page et al., 2022). The front-line workers who participated in this study repeatedly reported a critical need for the creation of safe spaces, which welcome attendees, promoting early help-seeking behaviour, while ensuring they feel empowered and protected from reprisal.

Several subthemes emerged within this theme which were all recognised as elements of practice which contribute to the construction of a safe space. These included confidentiality, non-judgmental approaches, safeguarding, service user trust and supportive interventions. It is likely

that adopting the above practices within the development of a safe space for service delivery will improve both engagement and efficacy. Participants most frequently discussed the importance of a non-judgmental approach, reporting that improved engagement can result from reducing the taboo surrounding substance use:

“Not tabooing drug use so they feel scared to get help if they have taken too much is good. There has been many times when young adults have come to me and said, will I get into trouble if I tell you what I've taken/what my friends taken? If they can't get help somewhere when they are in a substance fuelled state, they could put themselves in a very dangerous position.... Tabooing drug use. Thinking they will get into trouble.”

Participant 11

“A non-judgmental, open approach is very effective.”

Participant 19

“People who come seeking welfare help and support are spoken to and helped appropriately and without prejudice.”

Participant 5

Workers have experienced offering support to attendees who were worried of being judged or reprimanded, which is concerning as these individuals may choose not to access support despite it being required for their safety. Ensuring that a non-judgmental approach is adopted by workers and volunteers will enable attendees to feel more at ease when accessing services. It is vital that attendees who are experiencing any negative outcomes following substance use feel able and safe to access help should they require it (Black et al., 2020; Page et al., 2022; Turriss, Jones & Lund, 2018). By ensuring that attendees do not feel judged, attendees who are at risk are more likely to access support and as such significant negative outcomes, including medical emergencies may be prevented (Page et al., 2022). It is critical that future services consider these aspects as a priority within the design and adaptation of future intervention models.

Participants also recognised confidentiality as an equally important aspect of developing a safe space for service delivery:

“The ability to make festival goers [aware] that service are available to support them and that services are confidential and that they will not be reported to the police...maintaining individuals’ confidentiality...Unsure about their confidentiality...what services are available at a festival, how to find them and that they are confidential”.

Participant 8

Workers here understand that the sensitive nature of substance use can mean that attendees are secretive about their consumption or any difficulties they encounter. It may be that a large proportion of attendees are concerned that parents, employers, law enforcement or other governing bodies may find out about accessing these services and lead to consequences (Measham, 2019; Page et al., 2022). By ensuring confidentiality is promoted and that attendees know they can access support without giving any identifying information, will likely improve engagement frequency.

Participants also discussed trust and its importance within the professional relationship between worker and attendee:

“It's difficult to gain people's trust so that they are honest about the substances they've used.”

Participant 1

“When service users deny illegal drug use. This makes the aiding of them more difficult. People against having any help despite needing it.”

Participant 7

“We have a great mix of volunteers within our service i.e., different ages and experiences this can be so helpful in engaging people...time to properly listen and engage with people about what they are using/ intending to use and why”.

Participant 19

Trust and honesty are vital when working with attendees, substance use is extremely prevalent, but in addition to this there are many other risks which can lead to negative outcomes, including medical difficulties (Black et al., 2020, Munn et al., 2018). When attendees access support services they can present with symptoms which could be attributed to a multitude of precursors and a lack of honesty can make it very difficult to assess risk and provide treatment. An example

of this can be an increased resting heartrate – if an individual had used stimulants a relatively safe but increased heart rate would be considered a normal outcome and relatively low risk while monitored, however if the attendee does not disclose this use, then it becomes difficult to ascertain the cause and associated risk. By promoting trust and honesty we can improve the efficacy of support services by enabling easier and more accurate diagnosis, risk assessment and intervention. One participant described the nature of the service they work in as having wide diversity among the workers to enable better professional relationships to be built with differing attendees, considering this when designing the service delivery would help in promoting trust. The importance of further research surrounding this concept is likely to be pivotal in the development of effective and targeted support services or intervention models.

Some workers also discussed the concepts of safeguarding and supportive interventions. While these emerged as distinctive subthemes they do relate to one another significantly. Participants described the importance of delivering a supportive service where attendees will feel listened to, supported, and safeguarded:

“Safety. Calmness. Chatting. Distraction. Time to come round.”

Participant 1

“Giving people time and building a relationship with those present.”

Participant 3

“Looking out for them or asking them questions to ensure they are in the right frame of mind and won't put themselves into a vulnerable position where they could be taken advantage of by someone else or bring harm to themselves, whether intentional or unintentional.”

Participant 11

Perhaps the most vital aspect when considering service delivery is efficacy, ensuring that the service provided is actively reducing the risk posed to attendees. By promoting a supportive environment where attendees who require safeguarding feel safe to help-seek, we can dramatically reduce the risk surrounding significant negative outcomes following substance use. One worker discussed “calmness”, “chatting” and “distraction” as key elements of offering effective support to those in crisis following the use of substances, stating that *“time to come*

round” is useful in safeguarding an individual from risk. These methods of supportive intervention should be considered when considering service design.

Overall, nearly all the participants identified a critical need for service provisions to consider safer spaces within their delivery models, ensuring that the promotion of help-seeking is at the forefront of design. Many participants have identified, throughout this study, the risk of festival attendees seeking help later than is ideal, reducing the opportunity to provide effective intervention, and placing increased burden upon critical services. If attendees are encouraged to help-seek through the provision of safe, unstigmatized and confidential spaces, then it is likely that they will present earlier before an escalation of harm is experienced. Not only would this model of service delivery be likely to reduce the challenges and barriers faced in providing effective intervention, but it is also likely to improve the experiences of both attendees and workers. These concepts are again well supported within the limited literature available surrounding help-seeking behaviours among festival attendees (Measham, 2019; Hughes et al., 2019; Page et al., 2022)

Challenges and Barriers

The next category analysed within this study was challenges and barriers faced by workers when delivering current onsite harm reduction services. Participants were asked specifically to describe challenges they have experienced and how these affected attendee’s engagement with services, efficacy of intervention and risk outcomes. Participants generally gave lots of detail surrounding the barriers and challenges they face within their roles, and it was clear from the data that many of the participants found providing effective intervention very challenging within the music festival environment. Participants discussed engagement and the effectiveness of interventions at festivals, detailing specific barriers they had experienced when trying to deliver services. Several themes emerged namely, risk amplifiers, substance related harms and negative outcomes, funding and stigma, interagency working, and risks to workers.

Risk Amplifiers

The most frequently mentioned theme identified during participants' discussion of challenges and barriers was risk amplifiers. Participants frequently discussed attributes which they felt increased the inherent risk of substance use:

“There is a direct correlation between genre, attendee age, attendee economic means, geographical location, time of year, festival layout and what sort of problems you get.”

Participant 13

This theme was divided into sub-themes which identified different types of risk amplifier, namely demographic, behavioural, and environmental factors. Participants reported that demographic differences, grooming, substance contamination, environmental challenges, peer pressure, expected substance use, risk behaviours, and festival genre are all likely to magnify risks posed to attendees. These risk amplifiers are recognised as common barriers when delivering intervention and support services as they increase the challenges faced when working with attendees.

When discussing demographic factors, participants reported that young people were at more risk of experiencing negative outcomes:

“Young people are more likely to not use drugs in a safe manner, under 25s”.

Participant 1

“From a safeguarding harm and substance abuse perspective my biggest concern is normally the teenagers, those who appear to be 17-21 (dependent on the festival). The 40+ crowd, and most of the 30+ crowd, quite simply know what they are doing with drugs. The young ones, both don't know what they are doing, take unnecessary risks.”

Participant 16

“Any music that attracts a young crowd. They have more energy and take more drugs. It happens at all festivals of course, but definitely related to age.”

Participant 2

“So, festivals that attract a younger crowd are usually the ones that need the most welfare support.”

Participant 1

Several participants experienced working with attendees who displayed unsafe behaviours surrounding their substance use and often attributed this to age, suggesting young people are more likely to engage in risk behaviours, and as such are at high risk of experiencing harm.

Participants also identified other demographic factors which they felt were risk amplifiers. One commonly reported factor was gender, with some participants suggesting being female carried an inherent risk:

“16 -18-year-old girls are at risk of being targeted by drug dealers and people who spike drinks as they are fairly naive when it comes to staying safe at the festival.”

Participant 18

“Single women being left by friend whilst heavily intoxicated.”

Participant 1

“The aged 18ish semi collapsed girls at boomtown ... which if not spotted by someone, would have been at significant risk if found by the wrong person.”

Participant 16

Participants indicated that female attendees were at high risk of experiencing harm, in particular if they are intoxicated or alone. This language suggests that there is fundamental risk of violence or harassment being perpetrated by males towards female attendees. Participants indicate that festival environments can be unsafe for females in relation to substance use, and that gender plays a role in increasing risk. This concept is well supported within the associated literature (Bows, Day & Dhir, 2022; Bows, King, & Measham, 2022; Fileborn, Wadds & Tomsen, 2020); presenting a significant challenge when delivering harm reduction services as a highly targeted approach is required to intervene and engage with individuals. It is vital that intervention services recognise the importance of educating male attendees about appropriate behaviour and

the construction of a safer space for female attendees. One participant also suggested that grooming can lead to an increase in risks:

“Grooming (Teenagers being pushed into something illegal by an adult)”

Participant 11

The safeguarding of children and young people at festivals does present unique challenges and is often vital in reducing the likelihood of negative outcomes (Hutton et al., 2014; Luther et al., 2018; McQueen, 2010). Young people often attend events unaccompanied or with adults who are not their usual caregivers, it is common to find unique social dynamics which can present difficulty when using normal safeguarding procedures. Many festivals now ensure an onsite safeguarding team is present, with social workers and other professionals, who are able to assess particular situations and implement safeguarding plans when necessary. The continual development of these types of service provision should be considered within future research, ensuring efficacy is optimised in terms of both health and social outcomes.

Participants also discussed the contamination of substances and how this increases the risks surrounding their use. Contaminated substances are considered as substances where the active ingredient is not as expected or where the substance contains a dangerous adulterant alongside the expected active ingredient. High purity substances were also discussed and are considered as substances which contain a higher level of purity than generally expected in street substances. Participants reported that contamination or high purity can change the risks and therefore delivering the correct harm reduction information challenging:

“‘Bad batches’ at a festival have led to significant harm.”

Participant 9

“Stronger than normal batch of pills led to the deaths and problems...often it’s not mdma it is pdma or pdmc or something.”

Participant 16

“Conversely if you target the regular ticketholders on the gate with hard searches they might not want to risk bringing in the stuff they got from Dave so they think ‘I’ll buy it there’ ... if you buy drugs from a dealer at a festival you have no idea what it is you are buying, the situation is often

rushed and possibly dangerous, the dealer might say something like ‘knock your socks off this will’ but that’s not proper advice, because they have no vested interest in you as a customer, they just want to charge you inflated prices and then never see you again – it doesn’t matter to them if you have a good time, if you get sick, it’s probably not ideal if you die but really they don’t care that much.’

Participant 13

Participants raised the issue of substance contamination when discussing barriers to effective harm reduction intervention, suggesting that significant harm is more likely to occur among attendees who use contaminated substances. Forewarning is rarely available when a contaminated batch of substances circulates a festival, there can be mass implication for attendees leading to a higher than usual workload for services (McCrae et al., 2019, Measham, 2019, Scott & Scott, 2020). Often, vital information about what the substance contains is unavailable for significant periods of time meaning that effective intervention methods are difficult to ascertain. Contaminated substances generally arise from supply difficulties as it is often dangerous substances which are cheaper to produce, easier to obtain and thus provide a higher profit margin to sellers (Calle et al., 2019; Laing, Tupper, & Fairbairn, 2018). Attendees at music festivals are more likely to obtain a contaminated substance from a seller onsite as opposed to purchasing from someone known to them prior to the festival. This can be due to known sellers being more likely to receive feedback where contaminated substances could be challenged, but in addition onsite sellers are likely to be more concerned with profit margins and risk versus reward in terms of the substances they choose to supply (Karila et al., 2015; Measham 2019; Pascoe et al., 2022).

Education for festival attendees regarding the risk of contaminated or high purity substances is essential in reducing the associated risks (Kuropka, Zawadzki, & Szpot, 2023; Pascoe et al., 2022). The associated literature acknowledges these risks, suggesting that attendees need to be aware that contaminated, and high purity substances, are in circulation and what factors increase the risk of obtaining them. Attendees with this knowledge are likely to be able to make more informed decisions about buying and using substances (Ivers, Killen & Kaelan; 2018; Measham, 2019). Onsite testing is also key in identifying contaminated or high purity substances which are onsite as early as possible to ensure that the relevant intervention services are able to

adapt to the potential associated risks (Deconinck et al., 2019; Measham & Turnbull, 2021). Any onsite testing is a positive element to harm reduction, however, for most festivals this is still conducted behind the scenes by law enforcement teams, which not only elongates the process but also limits the number of substances which are confiscated and therefore tested (Measham, 2019). Some festivals have adopted a customer facing drug checking service which allows any attendees to bring substances for testing without fear of prosecution. This not only allows for users to have more control over their use but also speeds up the process of testing and the sharing of information to relevant services. This method also increases the number of substances tested as they are freely given, rather than being obtained through stop and search procedures.

Participants also discussed how environmental factors contribute significantly to inherent risks surrounding substance use, and how if uncontrolled can lead to an increased likelihood of harm:

“Simply existing in a field for up to 10 days, living in a tent, coping with the weather – the relentless rain, the pounding sun, not eating properly, not sleeping properly, overindulgence”.

Participant 13

“People lying unconscious on the floor in dark tents with a lot of loud music, flashing lights and people dancing nearby.”

Participant 4

“Having been in a muddy field for a few days and being knackered!”

Participant 5

Participants commonly recognise that the unique environmental factors present at a festival such as being outdoors, in a crowded environment, often at night or in adverse weather conditions can lead to an increase likelihood of harm occurring. Participants discuss weather conditions and crowd control as major factors which can increase the risks significantly:

“It was a STUPIDLY hot day like 35 degrees Celsius ... level of security on the gate, water supply within the festival, response times from paramedics ... All these areas had issues and in my eyes, added to a stronger than normal batch of pills led to the deaths and problems. Some failures across all these areas in my eyes. Cancelling the Sunday, was the right call.”

Participant 16

“Challenges are mainly crowding control when very popular bands are on, and this is generally overcome with teamwork. Keeping crowd size manageable is essential, once it gets out of hand it can be very difficult to recover, people will not leave once they are allowed in Certainly, the only time I’ve felt seriously concerned.”

Participant 4

“Becoming dehydrated due to weather conditions.”

Participant 5

Participants recognise that environmental challenges such as hot weather or challenging crowd control can amplify the risks surrounding substance use. Hot weather can increase the effect of substances on the physiology of users, it can also present difficulties in the effective supply of water and shaded or cool rest areas (Litwiller & Barnes, 2022). Ineffective crowd control can also present difficulties in effective medical intervention where areas cannot be accessed by response teams (Earl & Raineri 2005, Earl 2008). Crowded environments can also increase the risk of crushing or overheating (Fidacaro, Friedman & Strayer, 2021; Setright, 2019).

A further sub-theme of risk amplifiers is the prevalence of substance use, five participants referred to the concept of inevitability surrounding substance use at music festivals:

“People will always take drugs and drink alcohol at festivals, even if it’s banned on entry etc.”

Participant 11

“People will want to take intoxicants during any festival.”

Participant 15

This homogeneity of opinion suggests that substance use is very likely to occur during music festivals and that this is well acknowledged among workers. However, it does present as an amplifier of risk as there is likely to be a higher frequency of harm when the frequency of use is higher. Peer pressure is also discussed by participants who recognise this as a factor which could increase the frequency of use among attendees:

“There are 2 main ones, those who are persuaded to try for the first time and those who regularly use.”

Participant 14

Peer pressure that occurs within the social context of a festival can lead to some attendees using substances that they did not initially intend to, which could mean they are less likely to understand the possible effects or associated risks. Attendees who choose to use substances without any harm-reduction knowledge could be more likely to experience negative outcomes.

A further sub-theme of risk amplifiers is attendee behaviour; participants detailed specific behaviours they regularly witness among attendees which were perceived to lead to an increase in risk:

“Excessive use, poly drug use, taking unknown substances.”

Participant 19

“People not knowing their limits or how their limits may be altered from normal day-to-day life after multiple days of little sleep/poor nutrition/dehydration at a festival.”

Participant 18

“People seem to take too much without knowing what the side effects are ... You face a lot of individuals who don't identify the risks of taking substances. Their perception has been glorified in films etc. They don't understand the risk to themselves in regard to vulnerability.”

Participant 20

Participants recognise that attendees are more likely to engage in risk behaviours surrounding substance use while at music festivals. Behaviours such as polysubstance use, impulsive use and overindulgence can lead to an increase in the risk of harm occurring.

Festival genre was the final subtheme identified within the theme of risk amplifiers. Participants recognised that particular festival genres may carry inherent increases in risk:

“I think most festivals will have its own pitfalls and choice of drugs.”

Participant 15

“Rock music loads of cannabis, some but not loads of cocaine, and only the occasional bit of other stuff. Drum and bass/other stuff, varies a chunk from festival to festival. 2019 saw huge amounts of ket, which I guess might be partly a reaction to the deaths and problems with mdma in 2018. In terms of harm, which is worst? I'm not sure. There's also some hallucinogenic, although more at the trance style stuff. Nos canisters appear, but it tends to be either the odd person with it, or a massive supply that's everywhere - wireless a few years ago for example, was awash with nos.”

Participant 16

“Drum & bass music / festivals appears to have more of those wanting a high energy drug - mdma, ecstasy & cocaine. Mellow music / hippie / trance - acid & cannabis music”

Participant 20

Eighteen participants discussed the impact of genre on the risks present at different festivals and consistently reported a difference in the type of substances used and behaviour of participants based on different music genres. This is an important recognition as certain barriers and challenges are likely to be dependent on the type of substance use at an event; genres which promote higher risk substances or behaviours will inherently lead to an increase in harm. The surrounding literature concerning festival genres and substance use is fairly limited in terms of its recognition of this factor as a risk amplifier. However, some findings do suggest that the prevalence of substance use, and resource utilisation has been observed to increase within particular music festival genres (Lim et al, 2008; Westrol et al., 2017). Further to this, the findings within the descriptive study at the beginning of this thesis, did suggest that attendance at electronic or grime genre music festivals could increase the likelihood of substance use related harm.

Overall, we can see that risk amplifiers were discussed at length by participants, and it was a common conception that these increases in risk would present significant barriers and challenges when delivering harm reduction services at music festivals. This finding will be significant in the development of future harm reduction services; by developing ways in which to mitigate these risk amplifiers we can reduce the likelihood of harm and as such make the delivery of onsite services less challenging.

Substance Related Harms & Negative Outcomes

The second theme identified when participants were asked to discuss the challenges and barriers they had faced within their roles was substance related harms and negative outcomes. The participants regularly shared experiences of negative outcomes or substance related harms which they had found challenging to manage or deliver intervention around. Participant described various scenarios consequences arising from or associated with substance use: direct substance effects, medical emergencies, domestic violence, safeguarding children, sexual assault, and violence.

Several participants referred to the specific effects of particular substances as challenging experiences:

“Alcohol = much sickness and incoherent, loss of continence, very sleepy, more likely dropped off by friends. Pills - manic, chatty, agitated, unpredictable, likely to wander off, paranoid tendencies. Usually found in festival lost all friends, no idea where tent is.”

Participant 12

“They [attendees] are usually disorientated and occasionally aggressive both verbally and physically.”

Participant 14

“Someone having a 'bad trip', they've taken too much of something or taken something that they didn't know what it was, so now they are tripping, and this can be ok for some but a horrible experience for others, paranoia, anxiety, difficulty concentrating or seeing things that aren't really there.”

Participant 11

Participants report that the actual effects of substances can affect their ability to deliver harm reduction services, and that the presentation of the person they are supporting can make communication difficult. It can also be challenging to help individuals who are experiencing a negative effect from the substance they have consumed as often it is not possible to relieve this effect until the substance has worn off naturally.

Participants also discussed their experiences of medical emergencies in relation to attendee substance use:

“Paramedics sedated an aggressive drunk male under restraint.”

Participant 1

“-aspirated vomit in their tent whilst drunk. CPR, med-evac to local A&E.

- gone over on smack - Narcan, medical, local hospital, recovered.

- took too much of everything, had a deal with his GF that he'd never tell her about his drug taking - when she found him unconscious in the tent we had no idea where to start with getting him back (turned out to be GBL). hospital, ITU, recovered.

- Wanted to gouge her own eyes out on LSD - de-escalation, restraint, removal, sedation, psychiatric assessment, recovered.

- Stopped taking prescribed MH meds at festival and started taking alcohol, weed and cocaine - Day 3 was acting so strangely was brought to medical, kept in medical until a place of safety could be found locally, section 136 & removal, sectioned for further time, treated as inpatient, recovered.

- Brothers took something (if I knew what, I've forgotten), brought to welfare by security, smaller brother completely flips out, has to be restrained on the grass and then given IM sedation, just as he's calmed down the larger one starts doing exactly the same thing, we were knackered by the end of that.”

Participant 13

Participants described the challenges they had faced in relation to medical emergencies following substance use. Providing effective harm reduction intervention is very difficult under the circumstances described, and is often resolved through intensive crisis management techniques which do preserve the safety of the person receiving support but is limited in creating any long-term efficacy in terms of safer substance use (Earl et al., 2004; Lund & Turriss, 2017). These events also required large amounts of time and resources to manage, on occasions where this may be limited for example if insufficient medical staff are available onsite, then this can lead to significant barriers to effective service delivery.

A further aspect of substance related harms and negative outcomes is domestic violence. One participant discussed their experience of working with attendees where domestic violence was a challenge or barrier to effective service delivery:

“Domestic violence cases involving women aged 20-40 attending festival with a partner for first time.”

Participant 2

The participant described this as a factor which can challenge effective harm reduction, as the victim may be unable to seek help should any negative outcomes following substance use occur. It is also likely that if the perpetrator is under the influence of substances, then this may increase the likelihood of violence occurring (Humphreys et al., 2005; Humphreys et al., 2022). Situations where the worker is required to support individuals involved in domestic violence can be challenging and present barrier to effective help.

The safeguarding of children was also identified as a subtheme within substance related harms and negative outcomes. Participants discuss their experiences of working with attendees where the safeguarding of children has been required:

“CSE disclosure ... Underage children teen in charge of other much younger children (not all related) with no parents at the festival. Lots of drink/ drugs and claims of abuse (sexual?). Great support from fellow welfare workers and security to ensure always in 2’s. Swift leadership escalation once age established to social welfare and police on site and full case hand over completed. All children were rounded up - Family were located and collected kids from site. Social services (children’s) were informed, and police took statements.”

Participant 1

“Situations where particularly young (mostly 16-year-old female) attendees had been given unknown drugs by unfamiliar men or had their drinks spiked and suffered dangerous health consequences the following morning - fitting, etc. Most of these situations require the patient to be evacuated to an offsite hospital.”

Participant 18

“The only time I have found this difficult is when dealing with a child safeguarding situation.”

Participants shared their experiences and opinions surrounding the challenges of safeguarding children at music festivals and how the provision of harm reduction can be particularly challenging in these circumstances. Participants also stated that the use of substances can aggravate situations where the safety of children is concerned, often when children or parents are under the influence of substances it can be difficult to ascertain their safety. Situations where children may be at risk of abuse can be particularly difficult to manage due to the nature of music festivals, it is often required that a multiagency approach is adopted to manage the situation and ensure the child's safety even following the event. This can utilise large amount of time and resources which can be a challenge to provide in the context of music festivals. The safeguarding policies during music festivals are often derived from public policy, failing to recognise the environmental and contextual factor that contribute to possible challenges in the provision of effective safeguarding (Bows, King & Measham, 2022; Fileborn, Wadds & Tomsen, 2019).

Sexual assault was also referred to repeatedly by participants when reporting specific barriers and challenges to intervention:

“a number of people who either themselves or another person has reported have been sexually assaulted/ raped whilst under the influence ... The handling of these incidents have varied depending primarily upon the individual. The police on site and medical teams have only been involved in a small number of these. Most have just wanted to leave the festival and we have supported them to do so.”

Participant 9

Sexual violence is a well-known issue at music festivals with rates of reported assaults being higher than within the community (Fileborn, Wadds & Barnes, 2019; McCarry et al., 2023; Williams & Murray, 2022). It is likely that sexual offenders' frequent music festivals to target individuals who are young, under the influence of substances and unfamiliar with their surroundings (Wrightson-Hester, Allan & Allan, 2022). The social and environmental contexts of music festivals often allows for dark and busy environments where offenders can easily escape and where victims can easily find themselves vulnerable or alone (Quigg et al., 2022).

Working with the victims of sexual violence within a festival context can present unique challenges; it is often difficult to provide a safe and comfortable place for people who have experienced sexual violence (Fileborn, 2017; Quigg & Bigland, 2020). Individuals often want to leave the festival as a result of these experiences, and this can be a complex safeguarding situation. Some festivals have recently included services for the victims of sexual violence, offering safe spaces for people to attend and offering support to report offences. Safer Spaces are an organisation working with some UK festivals which not only provide safe and supportive spaces within the festival, but also offer roaming interventions where information regarding safer spaces for women is shared with festival attendees and inappropriate behaviour is challenged. Festivals which have utilised organisations such as these have seen that the service is widely utilised and has a positive impact in reducing the frequency of sexual offences (Baillie, Fileborn & Wadds, 2022; Hoover et al., 2022).

The final aspect of substance use related harms and negative outcomes is violence. Several participants described how, while working with individuals who have used substances, it is possible that individuals displayed violent or aggressive behaviour which can present significant challenges to the provision of safe and effective intervention:

“Violent behaviour on drugs”.

Participant 15

“They [attendees] can be aggressive”.

Participant 4

Violent or aggressive behaviour can be very challenging to work with especially when induced or heightened by substance use. Often when people attend on site services and display violent behaviour they are in a state of crisis, whether that be due to the substances themselves, mental health difficulties or social problems. Festival contexts regularly result in make-shift facilities to house services which are not generally equipped to manage violent behaviour safely, as a result people are often sedated or restrained should initial de-escalation techniques be ineffective (Cunningham et al., 2021; Friedman et al., 2021). Managing these situations can often be time consuming and require substantial numbers of workers which can in itself reduce the overall effectiveness of the service. In addition to this, people in crisis are not supported most effectively

using the methods above, sedation or restraint can be particularly traumatizing especially while under the influence of substances.

Funding & Stigma

The two final themes within the category of challenges and barriers were funding and stigma. These concepts have been well discussed within the available literature, understanding that a lack of funding and resources can often present a challenge to efficacy within service provision (Anderton, 2019; Polkinghorne et al., 2013; Raineri, 2013). In addition to this, the influence of stigma upon receptiveness to help-seeking and therefore the efficacy of support services is well evidenced (Clement et al., 2015; Gutierrez et al., 2020; Page et al., 2022). While these themes were not as frequently referenced by participants as anticipated; given the associated literature it is likely that they are still important considerations. One participant discussed funding:

“More money to provide services.”

Participant 1

Funding for harm reduction services at music festivals is limited and as such services can struggle to deliver effective support. Local authorities, festival organisers and public health authorities share the responsibility of keeping attendees safe, however funding is often a contended obligation. Services are frequently offered minimal funding to provide facilities which regularly stretch the capacity of workers and present a significant challenge in ensuring the quality of intervention.

As discussed previously it is essential that harm reduction services strive to provide a space where people can seek support without judgement or fear of retribution. Stigma was specifically discussed by two participants:

“People scared to get help if they’re in a bad way...being scared to get help from services.”

Participant 6

“Stigma of using substances, family finding out.”

Participant 5

The stigma associated with substance use can often present a significant barrier to effective intervention. Workers frequently experience people who are not honest about their substance use or who do not attend services until in crisis due to a fear of judgment or reprisal. This can make effective intervention far more challenging to deliver, as it is vital workers understand the complexities of individual situations, including substance use, in order to provide the most appropriate support. Attendees who do not access services due to a fear of stigma could experience worsening of their condition or situation before they attend which may result in an increased workload and more challenging or intensive intervention.

Worker's Experiences

The final category within this study was *worker experiences*; the research aimed to understand the complexities of working for onsite harm reduction services and recognise the unique role of workers on the front line. Five themes were identified which detailed worker experiences namely, interagency working, risk of harm to workers, policies and procedures, environmental challenges, and heavy service burden.

Interagency Working

Participants described interagency working as a common and vital aspect of their roles which, when done well, can enable more positive outcomes for attendees experiencing crisis situations:

“Linked up working medics/ drug and alcohol services and welfare/needle exchange/ drug testing/ campsite wardens/security so each know what the other is offering.”

Participant 12

“Integration, understanding what the festival structure is and how your team fits into it is key...it's nice to feel like there's good team cohesion between the service providers.”

Participant 13

“The key challenge is finding out what substances are available at a festival, so information sharing across all the agencies involved is well organised...If you have the information we can all be well prepared to deal with whatever is presented.”

Participant 8

It is clear that effective interagency working is vital for workers to ensure that appropriate information is shared and that attendees with multiple needs can be supported holistically. Workers who experience cohesive working between agencies are likely to feel more supported and as such managing crisis situations can be easier. Not all participants reported experiences of effective multi-agency working, with some reporting occasions where ineffective interagency communication has directly impacted the quality of intervention:

“Onsite testing has been great when services have worked together. This has not always happened.”

Participant 9

“The most challenging things is the inter-agency working as this if it isn't working well or trust breaks down leads to a fragmented and poor overall service...with the inter-agency working some agencies (Health and Police) can cause a less than optimum service as they feel their agency is of higher priority rather than seeing all agencies as equal and have a full part to play in a full service”.

Participant 8

Risk of Harm to Workers

The second theme that was identified within the category of worker experiences was risk of harm to workers. Participants described experiences of attendees becoming violent while under the influence of substances:

“I still get anxious with aggressive people under the influence.”

Participant 19

“Occasionally aggressive both verbally and physically”

Participant 14

Participants who are delivering crisis support, medical assistance, security, or event control services are likely to encounter attendees who present with violence and aggression, this can often be exacerbated by the use of substances (Feltmann, Elgán & Gripenberg, 2019; Hoover et al., 2022). Often this can be a challenging experience for healthcare workers, working with violent or aggressive behaviour requires extensive training, which is not always provided to workers, this can lead to workers feeling vulnerable during these experiences (Arbury et al., 2017; Gillespie et al., 2010). The management of violent or aggressive music festival attendees is often escalated to security, police, or medical interventions where de-escalation techniques are infrequent, and the use of physical and chemical restraint is more common (Friedman et al., 2021; Lebin et al., 2019). This is largely due to environmental considerations as to the safe management of these behaviours; the context of a festival space often means the for the safety of all restraint and sedation are the safest and most timely options.

Participants also reported that difficulties with communication often lead to an increased risk of harm to themselves when working within their roles:

“People arriving in welfare or health environments having taken unknown substances and unable to communicate what they had taken ... If you have the information we can all be well prepared to deal with whatever is presented”

Participant 8

“Sometimes I don't feel comfortable talking to people that are clearly distressed...If someone is clearly drunk and doesn't have a friend to answer the questions, you can't really go through a form with them.”

Participant 11

Participants reported that both the environmental and situational contexts of festivals can make effective communication challenging. This can lead to an increased risk of harm to workers as often useful de-escalation techniques cannot be utilised especially when the individuals being supported are intoxicated. Sufficient training for workers and volunteers is critically required to ensure they have the skills and resources to communicate effectively during aggressive situations. Specific mentoring regarding de-escalation when working with individuals under the

influence of substances would likely contribute significantly to the wellbeing of workers on the front line. It is vital that workers feel confident managing aggressive situations with intoxicated attendees; if these are avoided through anxieties this can lead to escalations of behaviour. Confidence regarding multi-agency working, competent radio communication skills, and effective interpersonal communication with attendees will lead to a reduced risk for all.

Policies & Procedures

One participant discussed the challenges of policies and procedures when describing their experiences of working within a front-line role at music festivals:

“Our service is a professional one, we all bound by our professional code of conduct. They are many challenges to this.”

Participant 14

It is important to recognise that the wellbeing and safeguarding of attendees at music festivals is closely monitored, and bound to legislation surrounding the provision of support services, medical treatment, and interventions (Hoover et al., 2022; Packer & Ballantyne, 2011). While these polices often ensure the safety of individuals and the quality of care, the environmental context of a music festival often presents unique situational challenges for which guidance is rarely available. Music festivals are a fast paced and dynamic system where decision making can often be particularly difficult (Friedman et al., 2021; Turriss & Lund, 2017). It is also critical to consider drug policy when discussing these issues recognising that often this does not actively support effective harm reduction services for recreational substance use, often leading to barriers and bureaucratic challenges (Atkinson et al., 2019; Scott & Scott, 2020). Providing relevant safety information regarding the use of substances to attendees is a critical aspect of harm reduction; while current drug policy continues to view this approach as possibly encouraging of substance use, it will present significant challenges for workers delivering services (Ivers, Killeen, & Keenan, 2021).

Environmental Challenges

Music Festivals are a unique experience with thousands of people living outdoors, subject to the elements for a number of days, loud music constantly playing, bustling activity and a lack of sleep can all present challenges to the wellbeing of workers and attendees. Participants described how the environment at music festivals can impact their experiences within their roles:

“And then whilst having to regulate my own emotions I'm having to co-exist with a whole swathe of people I've never met before who are trying to regulate their own emotions with varying degrees of success, having to keep up with the ever moving goalposts, variable conditions, lack of equipment, failures of technology or communication, working odd hours nobody is used to, complete failure to manage expectations and some actual, real life, This Isn't Fun situations and actually it's got the potential to be pretty stressful.”

Participant 13

“Challenges are things like shifts or 14 hours standing near a music speaker.”

Participant 17

“There are many challenges the lack of facilities and equipment are a problem but can be overcome by good practice.”

Participant 14

These additional environmental challenges faced by workers will inherently impact upon their ability to provide a safe and effective service within their roles. It is vital that these contextual challenges are addressed when designing service delivery policies and procedures. Ensuring workers are happy, safe, and confident within their roles is crucial in providing an effective harm reduction service.

Service Capacity & Burden

The final theme identified within the category of worker experiences was service capacity and burden. Several participants indicated that their respective services were generally busy and that often workers are exposed to a situation of chaos control as opposed to effective harm reduction interventions. Some participants even indicate that due to the limited-service capacity and high demand, the safety of attendees can be impacted:

“Getting too many people in at once and not always being able to give enough time to them...Mental disabilities are so often overlooked, and a busy welfare tent is not always ideal when someone needs calm.”

Participant 12

“We are a 24-hour service and there are obviously peak times. Between bands is a busy time for example and when the music ends can also be busy”

Participant 14

“Busy and messy from time to time, and harm reduction is a priority, but it's a priority in between a long list of others. Team building, making lightning-fast assessments (in need of a pause/drink of water, in need of removing from a situation, in need of medical assistance) and putting safety above turnover.”

Participant 16

It is clear from the issues raised within these accounts that onsite harm reduction services are heavily utilised by attendees, with many participants reporting experiences of significant service burden which has impacted upon both effective intervention and individual health outcomes. From this we can infer that an increase in the capacity of these services would be likely to increase the ability of critical services to deliver safe and effective interventions and improve health outcomes. Whilst some participants suggested this could be achieved through the provision of additional funding, this is unlikely to be issued within the current economic climate (Kinnunen & Honkanen, 2021; Orea-Giner et al., 2022). Many festivals dedicate significant proportions of their budget towards the provision of services which promote attendee safety and wellbeing, with this often being a requirement of licence. Despite these provisions services

remain stretched with significantly harmful events occurring more regularly than is acceptable (Black et al., 2020; Measham & Turnbull, 2021). Whilst many attendees who engage in substance use report no harmful experiences as observed within the first study reported in this thesis, those who do present at services are often in need of significant intervention, which require substantial resources and time (Hutton et al., 2014; Munn et al., 2019; Turriss & Lund, 2017). The development of further interventions which target prevention and harm reduction are likely to benefit service capacity, reducing both the prevalence of intensive intervention requirement whilst simultaneously promoting early help-seeking behaviour among attendees. Providing spaces which are inviting and safe is likely to encourage help-seeking behaviour. Ensuring that service delivery models look to promote attendees' awareness of a stigma-free, confidential spaces is critical to the implementation of more effective intervention.

Implications for Future Research, Theory and Practice

The data discussed above provides a valuable initial exploration surrounding the opinions, experiences and perceptions of frontline festival workers who deliver support to attendees experiencing negative outcomes following substance use. Through understanding the common experiences and perceptions surrounding service delivery, intervention methods, challenges, and barriers we are able to identify key potential changes within the development of future interventions. The development of services must utilise clinically evidenced approaches within their framework, however, the lived experiences of frontline workers are likely to provide an expert understanding of practical elements, which are likely to improve overall engagement, efficacy, and positive health outcomes (Eddie et al., 2019; Heggdal et al., 2021). Future development of services should consider the management of the challenges and barriers outlined above, and how these interact with different intervention methods currently provided. Improving engagement frequency, through the promotion of help-seeking behaviour, is critical in ensuring that the efficacy of services are maximised. Given this fundamental need for transformation within the design and delivery of services, future provisions should look to mitigate the areas of concern identified within this study, ensuring that attendees are willing and able to access support without fear of stigma or retribution.

Limitations

As this research was qualitative in nature it should be considered that the research and findings may be subject to researcher bias or subjectivity, understanding that qualitative research often requires the researcher to interpret subjective data (Schonfeld & Mazzola, 2013). Additionally, it should be considered that this form of research is usually not designed to produce results which can be generalised to the population at large (Krahn & Putnam, 2003). As participants within this study were aware of the primary aims within this research it is possible that findings could be biased by a Hawthorne effect (Chiesa & Hobbs, 2008). Finally, it should be considered that qualitative research is often challenging to replicate because it is based on subjective interpretation (Plucker & Makel, 2021). Where possible these limitations have been addressed to some extent within the design and methods of this study, however findings should still be considered as indicative only. The number of participants recruited for the present study did allow for an effective and comprehensive analysis, however, future studies aiming to further the findings reported should look to recruit larger samples while also considering the possible addition of empirical evidence within the research.

Education

It is evident that the role of education will be a key factor in improving receptivity to help seeking among attendees, through the active promotion of available services and delivery of non-judgmental and accurate harm reduction information surrounding safer substance use. The development of future intervention models should focus upon the promotion of harm reduction information surrounding safer substance use; this should specifically discuss popular substances, the risks associated, and how to mitigate these risks as far as possible when engaging in recreational substance use (Day et al., 2019; Jenkins, Slemon, & Haines-Saah, 2017; Toumbourou et al., 2007). Educational material should recognise the differences in risk management for recreational users, specifically within the environmental context of music festivals (Aldridge, Measham & Williams, 2013; Fletcher et al., 2010). Services should also place further efforts in ensuring attendees are aware of where services can be located and what type of support is offered, recognising the acute need to promote early help-seeking behaviour

within this population. Participants within this study identified a common experience of supporting attendees who did not access services early enough, despite displaying significant need, associating this with attendees' fear of how support would be provided and what the consequences could have been. Future services should ensure that information and education which promotes help-seeking behaviour is prioritised, ensuring there is content surrounding the process of accessing support, and how attendees are safeguarded, alongside any interventions they could expect to be available. Directly related to this is the long-standing matter of drug policy and the management of recreational substance use during music festivals, it is repeatedly evidenced within this study and the surrounding literature, that the fear of retribution presents a significant barrier to help-seeking among attendees (Hughes et al., 2019; Page et al., 2022; Ruane, 2018). It is vital that future services prioritise this information, adapting intervention models to foster receptivity to help-seeking within the music festival context.

Reframing the Role of Onsite Law Enforcement

The impact of visible onsite law enforcement upon the delivery of harm reduction services was a key finding within the present study, identifying the presence of security personnel and police officers as a common and significant barrier to providing effective interventions. Attendees are likely to experience cognitive dissonance surrounding the outcomes of accessing support services due to the differences in abstinence-based drug policy and the harm reduction focus of onsite support services (Grigg, Barratt & Lenton, 2018; Gibbs et al., 2023; Hoover et al., 2022). Future development of support structures at music festivals should consider a consistently reassuring message for attendees, ensuring they understand the aims of support services and that these fall in line with the onsite policing and security strategies. An additional focus surrounding the reframing of law enforcement services during music festivals should look to allow for a more significant focus upon customer experiences, which is likely to directly contribute to the overall reduction of risk among attendees (Crampton et al., 2020; Hoover et al., 2022). It is now time to recognise that recreational substance use is simply unavoidable within the music festival context, and actively encouraged when considering substances such as alcohol; once onsite, any attempt to reduce or prevent this through the use of force will ultimately present significantly increased risks to attendees. The current use of law enforcement as an intervention

method to reduce harm following individual substance use is largely viewed as outdated and inadequate (Crampton et al., 2020; Healey et al., 2022; Hughes et al., 2019; Page et al., 2022).. Whilst the presence of these services have the scope offer significant support in reducing the harm associated with attendee substance use, much of the anecdotal evidence within this study suggests that the current approach to policing is often counterproductive, reducing attendees' tendency to help-seeking through the increase of perceived stigma and shame. Future service delivery models for security and police services should recognise their ability to provide an effective and supportive service through the redirection their resources towards other high-risk situations present at music festivals including, serious and organised crime, onsite drug distribution, contaminated substances, county lines, violence, sexual assault, and exploitation (Aborisade, 2021; Bows, King, & Measham, 2022; Fileborn, Wadds & Tomsen, 2020). In addition, if these services were to promote their ability to supporting attendees who are experiencing difficulties following substance use without retribution, then this could lead to a positive shift in both public and interagency reception, directly increasing the likelihood of help-seeking.

Reducing Risks

When discussing challenges and barriers faced by workers, the role of risk within their work is evidently a critical factor in achieving desirable outcomes. Risk amplifiers and substance specific risks both presented significant challenges to workers, with many participants reporting an increase in likelihood of negative outcomes alongside a reduction in the likelihood of effective intervention. The development of future interventions models must focus on the reduction of risk, targeting attendees who present with high-risk substance use or have significant risk amplifiers is likely to improve the efficacy of harm reduction interventions (Measham; 2019; Day et al 2018). Participants reported a multitude of factors which anecdotally increase the risk surrounding attendees' substance use, including demographic factors, behaviours, and psychological variables. These factors should be considered within the design of future interventions, understanding that factors such as age and drug taking behaviour have been seen to influence the likelihood of intervention requirement among festival attendees (Hughes et al., 2019; Turner & Measham, 2019). These finding suggest a critical need for targeted

interventions which not only identify individuals at who may be at a higher risk of harm, but also educate individuals as to their own risk factors and how these impact their likelihood of experiencing negative outcomes. Given the limited research available, alongside the lack of evidence based psychoeducational intervention identified within this thesis, it is likely that many attendees may be unaware of how their behavioural, demographic, or psychological characteristics may impact their risk of experiencing harm. An awareness of individual risk factors among both workers and attendees is paramount in developing transformational, evidenced based intervention models which mitigate harmful health outcomes with efficacy.

Providing Safer Spaces & Reducing Stigmas

Almost all of the participants within this study discussed the importance of providing safer spaces for attendees to seek support surrounding their substance use while onsite. Ensuring that attendees feel safe and able to access services it critical in improving efficacy through the promotion of early help seeking. Future intervention models should actively combat barriers to the provision of safer spaces for attendees. Several stigmas and belief systems exist surrounding the access of onsite harm reduction services, many attendees may feel embarrassed or reluctant to seek support and this can present a significant challenge in delivering effective interventions (Healey et al., 2022; Page et al., 2022). Promoting non-judgmental approaches within service delivery is a key aspect in ensuring attendees feel able to access services. Future intervention models should focus upon increasing service user trust and the delivery of supportive interventions; ensuring attendees who chose to access onsite harm reduction services are protected from any increase in the risk of harm. Service delivery procedures surrounding the safeguarding of attendees at risk should be continuously evaluated, to ensure that those who are most likely to experience significantly harmful outcomes are engaged in timely and appropriate support.

Chapter Seven: An Evaluation of a Technology Delivered Psychoeducational Harm-Reduction Focused Intervention Targeting Music Festival Attendees at Risk of Negative Outcomes Surrounding Recreational Substance Use.

Introduction

The frequency of recreational substance use among young festival attendees is extremely high (Bijlsma et al., 2020; Gjerde et al., 2019; Hughes et al., 2019), with numerous individuals experiencing negative outcomes ranging from unpleasant physical or psychological effects to more serious and significant harmful events, including mental health crisis, physical injury, sexual assault, and violence (Black et al., 2020; Measham & Turnbull, 2021; Palamar & Sönmez, 2022). These outcomes are significantly less likely to occur when those intending to use substance(s) at music festivals choose to engage in safer behaviours and harm reducing strategies (Grigg, Barratt & Lenton, 2018; Kranz, 2020). Promoting these safer choices and providing opportunity to reduce harm has been widely evidenced to improve both individual and public health outcomes (Giulini et al., 2022; Munn et al., 2016). Alongside the current evidence base, there are several additional predictors of harmful outcomes following substance use at music festivals which were identified within the first study in this thesis (e.g. combined use of alcohol, MDMA and ketamine; external locus of control, agreeableness, achievement value, age). Recognising and addressing these could reduce the likelihood of harmful outcomes which in turn could reduce the frequency of individuals requiring assistance (Ivers, Killeen, & Keenan, 2021; Measham 2019).

Psychoeducational Interventions

Psychoeducation originated as a way to teach patients (and concerned others) about their condition whilst providing information about how to communicate, solve problems, and assert themselves in relation to their condition (Anderson, Hogarty & Riess, 1980). In more recent

times, psychoeducation has also attended to health behaviours or choices through providing information, support, and self-management skills (Lopes et al., 2021; Huttunen-Lenz, Song & Poland, 2010) and to inform individuals about health-related risk behaviours (Brooks et al., 2021; Jones et al., 2018).

Psychoeducational interventions of this type largely aim to provide the individual with information surrounding a topic with the intention to promote safer behaviours or reduced risk behaviours (Economou 2015; Kargin & Hicdurmaz, 2020; Srivastava & Panday, 2016). Psychoeducation presupposes that the participant accessing the intervention lacks knowledge or understanding about their condition or the health implications of behaviours such as smoking, exercise, or substance use (Steele et al., 2020; Sugarman et al., 2020). Individuals who are uninformed may be more likely to make choices which impact upon their safety or health, whereas providing individuals with information in a psychologically informed format can improve the likelihood of safer choices (Thylstrup, Schröder & Hesse, 2015; Ugwueze & Ekechukwu, 2021). From a public health perspective, psychoeducational interventions have been shown to improve knowledge and decisions, whilst also mitigating damaging misconceptions or impulsive behaviours rooted within ignorance to risks (Dugdale et al., 2019; Marín-Navarrete et al., 2018; Sarkhel, Singh & Arora, 2020). Within the context of substance use, nine principles and 21 practices have been identified within psychoeducational interventions (Magill, Martino & Wampold, 2021). These include taking a collaborative approach to the delivery of teaching, information, or advice; providing a rationale for the approach, promoting expectancy, goal setting and tailoring the intervention based on learning styles and to cultural worldviews.

Online Delivery of Psychoeducational Interventions

Promoting help seeking and harm reduction amongst festival attendees who use substances can prove particularly challenging (Nemeth et al., 2011; Measham, 2019; Palamar, Acosta & Cleland, 2019; Hughes et al., 2019). Engaging individuals in collaboratively based psychoeducational interventions is challenging yet is essential for effective knowledge sharing and behavioural change (Hughes et al., 2019). However, in the second study of this thesis (Chapter 6), frontline festival workers identified barriers to effective service delivery in the form of a lack of engagement from attendees and perceived a deficiency in education and advice

surrounding substance use. These echo previous research findings and suggest an online delivery method for intervention could moderate these challenges and maximizing reach in a cost-effective manner (Hughes et al., 2019).

Online delivery of psychoeducation offers advantages in terms of wider reach and reduced participant burden compared to in-person methods (White et al., 2010; Rochlen, Zack & Speyer, 2004) with online delivery providing broad reach and engagement, particularly with brief interventions (Schuster et al., 2020). Whilst online delivered psychoeducational interventions have been shown to improve engagement and health outcomes compared to in-person methods (Jiao et al., 2019), higher rates of participant attrition have been found (Dowd et al., 2015). Consequently, addressing potential drop-out rates by promoting engagement throughout the intervention design is crucial (Goldberg et al., 2022; Linardon & Fuller-Tyszkiewicz, 2020; Nicholas et al., 2010). Factors such as the attitudes of participants toward online psychoeducational interventions can influence attrition rates, though assessing these attitudes prior to intervention is uncommon (Ellis & Anderson, 2023; Teles, Ferreira & Paúl, 2021). Adherence to online interventions has been extensively explored, with factors like gender and treatment expectancies predicting adherence (Alfonsson, Olsson & Hursti, 2016; Fuhr et al., 2018; Beatty & Binnion, 2016).

This study aims to provide psychoeducational intervention to festival attendees, with a focus on wider distribution to reach a diverse population, particularly those at increased risk of harm (Hughes et al., 2019; Measham, 2019; Page et al., 2022). Consideration of the distribution method is therefore crucial given findings suggesting harmful experiences are not universal among festival attendees (Hughes et al., 2019). Reaching attendees who may experience harm is challenging, underscoring the importance of reach in determining delivery methods.

Harm Reduction Focus

The concept of substance use harm reduction is firmly established within the evidence base (Hyshka et al., 2019; Merkinaite, Grund & Frimpong, 2010; Stockings et al., 2016), however, integrating harm reduction into drug policy remains challenging (Earnshaw, 2020; Ford et al., 2017; Measham, 2019; Ratuszniak, 2022). Stigma surrounding illicit substance use remains a significant barrier to effective intervention (Appleseth, Zwick & Arndt, 2020; Luoma,

2011; Wogen & Restrepo, 2020) compounded by a misconception that promoting safer substance use could increase prevalence (Scott & Scott, 2020; Williams, 2016).

Whilst excessive alcohol consumption lacks the level of stigma associated with substance use, it is associated with a range of risks (Grace, Moore, & Northcote, 2009; Nemeth et al., 2011; Savic et al., 2016). For example, the first study in this thesis (Chapter 5) identified alcohol use as a significant predictor of harmful experiences among festival attendees. Clearly addressing harmful alcohol use alongside other substances is crucial (Grace, Moore, & Northcote, 2009; Nemeth et al., 2011). Stigma and lack of risk awareness have also been demonstrated to pose barriers to intervention engagement (Page et al., 2022). The present study aims to address these challenges by providing accurate harm reduction information relevant to music festival attendees. The intervention design focuses on informing participants about specific risks associated with substances like alcohol, MDMA, and ketamine, prioritizing honesty, openness, and a non-judgmental approach.

Study Aims & Rationale

The present study aimed to design and pilot a novel psychoeducational harm reduction intervention, in order to ascertain intervention feasibility and to provide initial indications of intervention efficacy. When considering psychoeducation as a format for intervention targeting substance use amongst festival attendees, it was hypothesised that providing participants with information surrounding how their decisions may impact risks of harm will:

- Improve knowledge of protective behaviours.
- Promote recognition of self-vulnerability to harm.
- Promote increased use of protective behaviours.
- Lower risks of harm to health.
- Promote early help-seeking behaviours.

The present study collected evaluative feedback from participants to guide future content design and delivery and to inform a large-scale research study in this area, collecting and interpret data surrounding the evaluation of the intervention design and delivery. The study looked to gather feedback regarding the content and engagement potential of the current intervention in order to suggest future revisions if tested on a wider scale in the future.

Method

Intervention Design

Harm reduction interventions targeting substance use are often designed to target a wide range of individuals or behaviours and can contain a variety of information (Hedrich & Hartnoll, 2021; Marlatt & Witkiewitz, 2010; Jiloha, 2017). However, this breadth may mean that some of the information presented is considered irrelevant by different individuals accessing the intervention (Degan et al., 2021; Roy et al., 2011; Tait & Christensen, 2010) potentially leading to attrition (Van Den Berg et al., 2017). Existing harm reduction information surrounding safer substance use can be found within online resources (e.g., <http://drugwise.org>) and paper resources (Hit, 2023), which can be accessed from services who work with individuals experiencing difficulties surrounding their substance use, or related needs such as mental and physical health services. While these resources provide individuals with information, the onus is on the individual to access this support. It was critical that the intervention designed for the present study (Appendix H) was designed to target a specific population who are at risk of harmful outcomes following substance use at music festivals.

Intervention Delivery - Promoting Reach and Engagement

The second study of this thesis (Chapter 6) identified education delivered before individuals attend festivals as a key element of reducing the risk of harm surrounding substance use at music festivals. This may be especially important as findings from the first study (Chapter 5) within this thesis, showed most attendees make decisions about substance use prior to the event, with impulsive use occurring in approximately one third of the population. Currently *Festival Safe*, appears to be a primary provider of harm reduction focused psychoeducational content for festival goers within the UK. However, the large volume of information within their site and the links to other resources covering all aspects of music festival attendance, requires proactive participation on the part of the festival attendee including filtering information and accessing further linked resources. Therefore, offering attendees psychoeducational content prior to the event which is embedded within festival websites or e-tickets, could promote increased engagement and as such would be likely to lead to increased positive effect.

Study One (Chapter 5) within this thesis, found that individuals who self-report reduced levels of agreeableness traits were shown to be more likely to experience a harmful event in relation to their substance use at a music festival. Given this information it is likely that those who require intervention surrounding their substance use at music festivals may be less likely to proactively seek harm reduction information or advice (Berridge et al., 2018; Page et al., 2022; Wagner et al., 2017). In addition, the first study (Chapter 5) within this thesis found that more frequently reported risk behaviours and polysubstance use were also predictors of experiencing a harmful outcome. This finding demonstrates that those attendees who may be more in need of intervention are likely to engage in escalated or high-risk behaviours surrounding their substance use, which may indicate a lack of early help-seeking in the past (Heerde & Hemphill, 2018; Motta-Ochoa et al., 2017; Schnyder et al., 2017).

The intervention was designed to be short and engaging with lots of opportunities to expand particular areas of information through embedded links to external resources. This provided balance between the length of the core intervention and the information available to participants. The intervention targeted people intending to attend music festivals within the following six months. While the intervention was available to individuals of any age (over eighteen), the intervention was actively designed to be more appealing to young people; recognising their increased risk of harm (Hutton & Jaensch, 2015; Jaensch et al., 2018; Turner & Measham, 2019), alongside their reduced likelihood to help-seek (Heerde & Hemphill, 2018; Page et al., 2022). The psychoeducational content was presented via a video which could be accessed via mobile phones and was designed with the potential to be embedded within websites, apps, or event screens in the future. The video utilised bright colours, images, and popular vocabulary to promote engagement by a younger audience. The pilot study was also distributed through social media platforms including Facebook and Reddit where there is a high population of young people using these platforms (Mellon & Prosser, 2017; Ortiz-Ospina & Roser, 2023; Reid et al., 2016).

Intervention Content – Promoting Safer Behaviours and Help-Seeking

Drawing on the findings from Study One (Chapter 5), the intervention focussed on those groups and factors which were found to increase the risk of experiencing harm or negative outcomes namely, young people; psychological traits (e.g., locus of control, low agreeableness,

and low achievement values); multiple motivations for substance use; and a higher number of intended high risk behaviours. Alcohol use and generalised poly-substance use were also found to be a significant predictor of negative outcomes, while the specific combination of alcohol, MDMA, and ketamine was found to predict a higher likelihood of experiencing serious and significant harm. These findings were used to form the basis of the intervention video content, ensuring that participants were informed of the factors associated with higher risk of experiencing harm or negative outcomes.

A conclusion from the second study (Chapter 6) was that individuals were often unlikely to engage with onsite services due to concerns around stigma and punishment following substance use. In particular, the second study (Chapter 6) revealed that onsite law enforcement often presented a barrier to individuals accessing support, finding that the policies surrounding onsite substance use are often ambiguous, leading to feelings of fear and unhelpful responses in relation to attendee help-seeking. The study also concluded that the role of safer spaces within music festival settings are key in reducing the risk to attendees; while these spaces often exist, they are frequently under advertised and many attendees are unaware of their presence and the safety they provide (Day et al., 2018; Page et al., 2022; Valente et al., 2019). To combat these perceptions of stigma and reluctance to help-seek among attendees the intervention included information surrounding the process of accessing onsite support services following substance use at music festivals, and specific educational content regarding the role of each service type including onsite police officers and security teams.

As revealed in Study Two (Chapter 6) risk amplifiers and substance specific risks are both likely to increase the likelihood of negative health outcomes for attendees, while also reducing the likelihood of engaging with help. Participants in Study Two (Chapter 6) considered increased risk to be associated with factors such as age, gender, and specific substance using behaviours (e.g., polysubstance use, double dropping and certain combinations or substance types). Within the design of the intervention, it was important that these risk amplifiers were also targeted within the content, aiming to reduce the prevalence of these risks through promoting self-recognition of vulnerability to harm; in turn possibly reducing the challenges and resource pressure faced by onsite support services. While it was critical that the intervention was kept short to ensure maximum engagement potential, it was also ensured that participants were directed to further resources surrounding any specific risk amplifiers they identified with. Again,

participants were asked if specific risk amplifiers or substance-specific resonated with them, those who chose to do so were then able to access alternative resources through embedded links which provided more extensive information surrounding these risks and related harm reduction strategies. The video included information about harm reduction and where and when to access harm reduction support (Appendix H). The sections of the video covered the following content:

- Models of predictors for harm (derived from the first study of this thesis; Chapter 5), which were referred to as *risk amplifiers*. Traits and behaviours linked to the likelihood of experiencing harm associated with substance use at music festivals were provided and participants were asked to consider how this information may be relevant to them.
- Harm reduction strategies and safer substance using behaviours which they could adopt in order to reduce the risk of negative outcomes associated with substance use.
- Onsite service provisions at music festivals including medical teams, welfare provisions, onsite security, and police officers as well as volunteers such as event stewards. Information included what support each of these services could offer and what to expect when accessing these services.
- Services' intentions and likely outcomes if they should access these services was included to address stigma and fear which may reduce the likelihood of services being used. This included information surrounding onsite law enforcement and the role of police officers in relation to an individuals' welfare and of supporting them if they were a victim of a crime, even if they were under the influence of substances.
- Encouraging participants to access onsite services as soon as possible if experiencing challenging situations, in order to prevent escalations of harm.

Procedure

This was a longitudinal study comprising three linked survey elements and an embedded video-based psychoeducational intervention (Appendix H). Participants were informed that the study would involve one survey followed by an intervention video and two follow-up surveys. Engagement with each aspect was voluntary and participants could exit the study at any time

with a ‘formalised’ exit point at the end of each survey. Survey 1 (Appendix I iv) gathered information on historical and intended substance using behaviours at music festivals (pre-intervention), survey 2 provided an initial evaluation, and impact of the intervention (immediately post-intervention; Appendix I v); and survey 3 gathered information on actual recreational substance use and perceived impact of the intervention on behaviour at a music festival they had attended (3-6 months post intervention; Appendix J iv). This longitudinal study design allowed of the opportunity to collect data from participants surrounding their historical and intended substance use alongside any associated behaviours prior to intervention; evaluative feedback and perceived efficacy immediately following the delivery of intervention; and data surrounding long-term efficacy, actual substances use, associated behaviours and perceived impact following festival attendance post-intervention.

Participants accessed information documents (Appendix I i & J i) directly via a link on the study advertisement; this document contained information detailing the study aims, participant requirements, ethical considerations, data processing procedures, and their right to withdraw. Participants who chose to engage with the study after reading the information document were invited to provide informed consent (Appendix I ii & J ii) and to confirm their intention to attend one or more music festivals during the summer months of 2022.

Survey 1 (Appendix I iv) gathered sociodemographic information alongside about historical substance use and related behaviours, including risk amplifiers, previous experiences of harmful outcomes and harm reduction strategies they might previously have employed. Participants were also asked about their intentions regarding substance use and high-risk behaviours (e.g. polysubstance use) at the music festival they would be attending. Finally, participants were asked about their receptiveness to accessing onsite services such as medical teams, welfare provisions and police officers. At the end of survey 1, participants were directed to watch the intervention video in full. Participants were able to rewind or replay the intervention video however they were unable to fast-forward or skip the intervention video.

Directly following the intervention video participants were provided with the second survey (Appendix I v). This gathered initial evaluative feedback from participants including how engaging they felt the video was and how memorable or relevant the content was and to say where they felt the intervention could be best distributed. Finally, participants were asked for their perception of the video’s impact including if they intended to change their planned

substance using behaviours at the forthcoming music festival and if their receptiveness to accessing onsite support services such as medical teams, welfare provisions and police officers had changed. This survey also asked for details of the music festival they planned to attend and a contact email for the third survey. Finally, participants were asked to create a unique eight-digit reference code in order to link their future responses, this was achieved through a number of prompts (e.g., first two letters of mothers maiden name etc.). Participants who provided this information were contacted three days following the end date of the music festival they stated they would be attending, in order to invite them to complete the third survey.

The third survey (Appendix J iv) gathered information about the participant's actual substance use and related behaviours at the music festival they had attended post-intervention. This survey also collected further evaluative feedback from participants about how they had remembered the intervention video, and any perceived impact upon their behaviour at the music festival post-intervention.

Participants were given debrief documents (Appendix I iii & J iii) both after survey two and survey three. Both debrief documents contained written information which detailed educational elements of the intervention video in addition to several contact details for agencies supporting with substance use, mental health, and young people. Contact details for the researchers and university were also included within the debrief documents, alongside information surrounding data processing and data storage.

Ethical Considerations

Ethical approval for this study was provided by the Swansea University Ethics Committee prior to the commencement of any research (Appendix K). When considering the ethical implications for this study it was critical they any harm reduction-based information or advice surrounding safer substance use did not incite or encourage further substance use. While the intervention did not aim to promote an abstinence-based approach within its delivery, participants were informed that the safest option would be not to use any substances, as all substance use will incite related risks whether legal or illicit. Participants who were recruited for this study generally reported an intention to engage in some substance use at music festivals prior to intervention. Given these pre-existing intentions, it is likely that any information or advice

provided within the intervention would reduce the likelihood of high-risk substance use, or related harms as opposed to inciting any new high-risk behaviours. In addition, the intervention specifically aimed to promote early help-seeking behaviour among participants, again actively promoting a reduction in risks through the facilitation of self-recognition of vulnerability to harm.

One aspect of the intervention video aimed to provide information and advice surrounding the accessing of onsite services at music festivals such as medical teams, welfare provisions and police officers. Frontline festival workers who participated within Study Two (Chapter 6) within this thesis reported that a key barrier to providing effective onsite support was attendees' perceived stigma surrounding these services and a fear of retribution from onsite law enforcement due to the illicit nature of some substance use. While the intervention aimed to improve participants' receptiveness to accessing these policing services, it was critical that any information surrounding the role of onsite law enforcement was accurate and reflective of differing constabulary policies. Due to the short nature of the intervention video alongside the widespread distribution it was concluded that the information and advice provided surrounding this issue would be fairly brief and generalised. It was decided that reducing the detail within this section would reduce the risk of providing participants with incorrect information.

While the previous research conducted within this thesis studies found that young people are more likely to engage in risky behaviours surrounding their substance use as well as being more likely to experience harm, it was important to carefully consider exclusion criteria surrounding age within this study. It was decided that all participants would be required to confirm they were aged at least 18 years old at the time of participation. While it is likely that individuals aged between 14-18 would also benefit from this intervention it would raise a number of ethical issues surrounding the safeguarding of children and young people who disclose intended use of substances (Allen, 2002; Hewson & Buchanan, 2013). Should this intervention be found to benefit the present participants in reducing the likelihood of exposure to harmful experiences, then future studies should consider its application among younger people.

A final ethical consideration within the present study was the collection of data surrounding intended substance use and associated behaviours. Some participants may have disclosed intentions surrounding unsafe behaviours which may have led to safeguarding concerns (Anderson & DuBois, 2007; Rodham, & Gavin, 2006). Within the study participants

are asked to report their usual substance using behaviours at previous music festivals prior to intervention. Participants had all reported an intent to attend a music festival post-intervention therefore it could be inferred that their usual substance use reported would be likely to represent their pre-intervention intentions at the music festival they would be attending post-intervention. It was hypothesised that the intervention would inform participants of safer substance use strategies and reduce the likelihood of harmful experiences by informing participants of risk amplifiers or predictors of harm. Data surrounding participants intentions directly following the intervention was not collected, this ensured that any continued intention to engage in high-risk behaviour or illicit substance use following the intervention remained unknown. This removed any challenging obligations surrounding a duty of care, ensuring that there were no known intentions which would need to be acted upon immediately post-intervention. Following participants' attendance at their respective music festivals post-intervention participants were asked to report their actual substance use within a follow up survey, to ascertain any changes in substance use and related behaviours.

Participants were offered debrief documents (Appendix I iii & J iii) immediately following the intervention and following the longitudinal survey completed after attending a music festival 3-6 months post intervention. These documents offered useful information and signposting to support agencies and online resources should participants have wished to help-see in relation to the topics covered with this research. In addition, during data collection any qualitative responses were monitored closely, ensuring any data which may have indicated critical safeguarding concerns, or serious and organised crime, could be discussed with research supervisors and reported to relevant agencies if required.

Data Analysis

Prior to analysis, the quantitative data will be subjected to assumption testing (e.g. normality of data distribution; Field & Wilcox, 2017). Where data are found to meet the assumptions for parametric testing. Where data meets the assumptions, parametric methods will be used (e.g. ANOVA), however where assumptions are violated, non-parametric methods such as Mann-Whitney U tests, and McNemar tests will be used to explore differences between

individuals who engaged with the intervention and those who disengaged (Maydeu-Olivares & Millsap, 2009). Further, changes in planned vs actual substance use and experienced harms (i.e. differences between survey 2 and survey 3 data) will be assessed using McNemar tests with Bonferroni adjustments (Adedokun & Burgess, 2012).

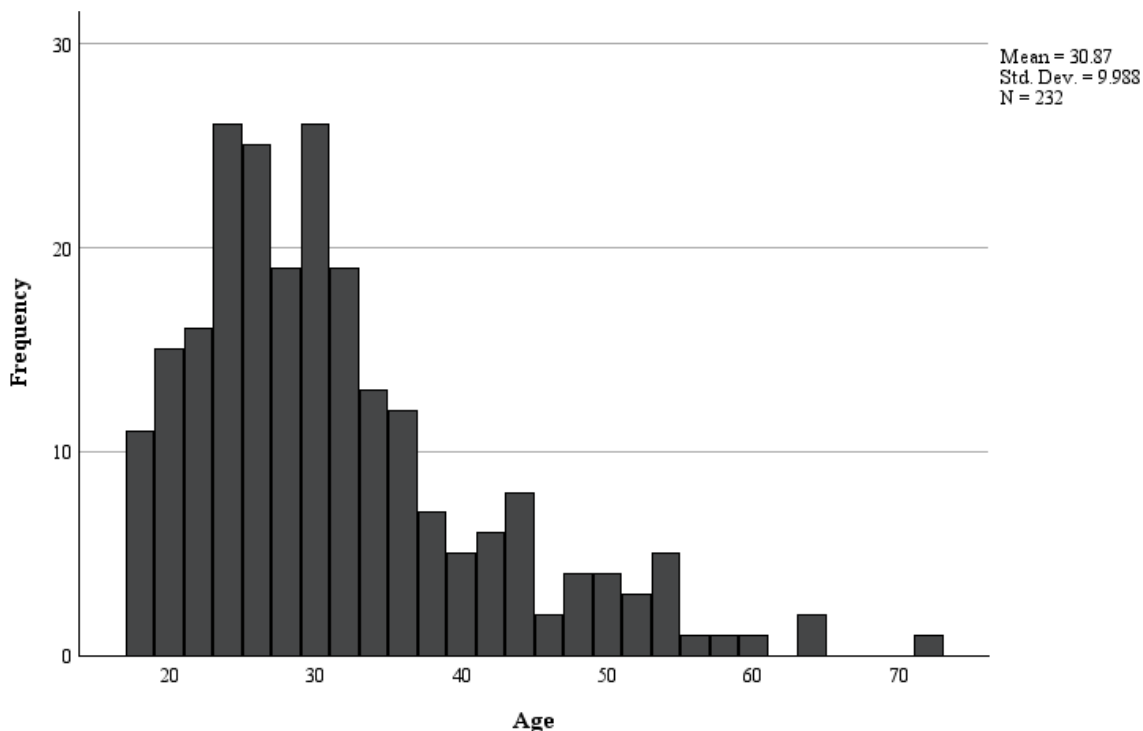
Qualitative text response data about perceived efficacy and evaluation comments about the intervention will be analysed by clustering responses to reveal common themes drawing on descriptive and thematic approaches (Braun & Clarke, 2006; Elliott & Timulak, 2005). Specifically, the data will be analysed in relation to participants views about the memorability, learning, behavioural impact, and appraisal of the intervention content. The quantitative and qualitative data within this study will be analysed concurrently, triangulating findings to gather a holistic understanding of participants' experiences surrounding the piloted intervention (Fielding & Fielding, 2008; Jick, 1979; Restivo & Apostolidis, 2019). The demographic and behavioural information for participants who disengaged between surveys was analysed to consider any factors associated with drop out and whether those who disengaged differed in a systemic way from those who remained in the study.

Participants

During the recruitment of participants, it was concluded that targeting young people would allow for more specific intervention design whilst ensuring that the most significant predicting factor within the model surrounding risk of negative outcomes was targeted. While the advertisement and recruitment of participants was aimed to attract young people, the study remained open to participants of any age in order to allow for engagement, evaluation, and impact comparison between those who were younger or older. Inclusion criteria within the study dictated participants were required to be over the age of eighteen and attending one or more music festivals during the summer of 2022. Recreational substance use was defined as the non-dependant use of alcohol, legal and illicit psychoactive substances intended to enhance or alter the experiences of attendees during an event.

Participants were largely recruited through the use of social media adverts which targeted specific groups, threads, or pages where members were likely to be attending music festivals or using substances at these events. Social media platforms used for advertisement included

Figure 6.1 Histogram displaying the distribution of age within the recruited sample (N=266)



Facebook, Reddit, Twitter, and Instagram. Examples of group, thread or page names include: *Galsto Chat*, *Boomtown Chat*, *r/musicfestivals* and *r/solofestivals*. These pages and threads were populated largely by young attendees, which allowed for the study to be advertised to a large population of potential participants. A total of 57 social media advertisements were placed.

Following data collection, it was found that the study had recruited 468 participants, however only 273 participants completed at least 50% of the initial survey providing self-reported data surrounding their intended festival attendance and related substance use. Of these 273, 144 engaged with the intervention remotely and provided some form of evaluative information immediately following this. Of these 144 participants 68 returned, following their attendance of a music festival post intervention, to complete a follow up survey collecting feedback surrounding the longitudinal impact of the intervention upon participants' actual substance using experiences at the festival they attended post intervention. Distribution tests found that the sample was not normally distributed by age, with significant Kolmogorov-Smirnov and Shapiro-Wilk tests. As expected when examining this population, a right skew was observed; suggesting a higher proportion of young people engaged with the study (Figure 6.1).

The distribution of gender was also slightly skewed towards male participation with 31.0% (N=85) of the sample identifying as female and 4.4% (N=12) of the sample reporting a

non-binary gender identity or similar. Sociodemographic characteristics also were collected from participants including ethnicity, employment, education, and relationship status; finding that the majority of the sample were of white backgrounds (N=226, 83.1%), employed full time (N=179, 67.3%), with undergraduate levels of education (N=113, 41.7%). The reported relationship status of participants appeared to be fairly even between those who were single (N=109; 40.1%) and those in some form of relationship (N=163, 59.9%). Given the lack of normality found within the distribution of the sample, non-parametric tests, robust to the assumptions of normality, were used within the statistical analysis reported for this study.

Results

Factors Associated with Study Engagement

When exploring engagement with the intervention it was found that of the 144 participants who began the intervention, 69.4% stated they had watched the video in its entirety with 30.6% reporting they had skipped some element of the video. A further engagement monitoring question was utilised to ascertain short-term content retention among participants; finding that 81.9% of participants were able to correctly recall new information delivered within the first half of the intervention video (Table 6.2).

Table 6.2 Responses to engagement monitoring question: in the video what did we call the things which increase your chances of having a negative experience?

	Frequency (N)	Proportion (%)
Risk Factors (incorrect response)	16	11.1%
Risk Amplifiers (correct response)	118	81.9%
Risk Increaseers (incorrect response)	2	1.4%
Missing	8	5.6%

Participants were informed of the term *risk amplifiers* in relation to the behaviours, characteristics and cognitions identified within the models of prediction reported earlier within this thesis. This term encompassed items such as polysubstance use, the combined use of

alcohol, ketamine and MDMA, increased numbers of motivators, or lower age. Given this term and the related findings are novel within the related field, this information was a good indicator of recall specified to the intervention delivered. Findings suggest that despite 30.6% (N=44) of the participants reporting they had missed part of the intervention, only 18.1% (N=26) of participants were unable to correctly recall the information provided within the intervention. Although it should be noted that if guessing 33% of participants would be expected to guess correctly. Within the intervention participants were also informed of the findings surrounding particular psychological characteristics, found to be likely predictors of harm in relation to recreational substance use at music festivals. This information was derived from the models of predictors reported earlier within this thesis (study one, Chapter 5), including the influence of locus of control, agreeableness, and achievement values. An optional information sheet describing psychological factors associated with potential harm was provided through an optional link which 23.6% of the respondents accessed.

With the above figures in mind, the following descriptive analysis will be conducted inclusive of all data provided by participants who completed a minimum of 50% of the initial survey, reporting upon their historical and intended substance use pre-intervention (N=273). When analysis considered the evaluative feedback provided by participants post-intervention, the data analysis will compromise only of those who have completed a minimum of 93% of the study; and have therefore engaged with the intervention video to some extent and provided initial feedback in some manner (N=144).

Demographics

When exploring the possible influence of demographics factors upon the likelihood of engagement with the intervention video, analysis considered any significant differences between engagement level groups. When comparing the age of those who engaged with the intervention video (N=144), and those who ended their study participation at the point of intervention (N=127), a Mann-Whitney U test was computed identifying that the distribution of age between these groups was equal ($U = 6479.00$; $p = 0.984$). This suggests that age did not differ significantly between the group which fully engaged and the group which disengaged at the point of intervention.

When comparing gender, education, employment, or relationship status between the two groups it was found that there were minimal differences between the two levels of engagement. Chi-Square tests of independence were computed to determine whether these factors were distributed equally between the engagement groups. The groups did not significantly differ by gender, $X^2(4, 273) = 8.160, p = 0.086$. Similarly, no significant differences were observed between engagement level groups surrounding education ($X^2(5, 273) = 9.253, p = 0.099$); employment ($X^2(5, 273) = 9.369, p = 0.095$); or relationship status ($X^2(4, 273) = 5.223, p = 0.265$).

Behavioural History and Intentions

The following analysis considered the reported intentions surrounding future substance use among participants at future music festivals; finding that most participants reported an intention to engage in some form of recreational substance use at future music festivals. Descriptive analysis observed only six participants reporting intended abstinence and one participant choosing not to disclose this information prior to intervention. The most common substance types reported as *intended to be used* during future music festivals across the entire sample were alcohol (N = 239, 88.2%), MDMA (N = 171, 63.1%), cannabis (N = 153, 56.5%), psychedelics (N= 119, 43.9%), and cocaine (N = 114, 42.1%). The reported intentions surrounding participants' use of substances at future music festivals was also compared across the two-engagement level groups (Table 6.3).

Table 6.3 Proportions of participants who endorsed intended substance use between engagement level groups per substance type.

	Engaged with Full Intervention		Disengaged at Point of Intervention	
	Frequency	Percentage (N=144)	Frequency	Percentage (N=127)
Alcohol	133	92.4	106	83.5
Cannabis	92	63.9	61	48.0
NO ₂	41	28.5	29	22.8
MDMA	93	64.6	78	61.4
Ketamine	56	38.9	35	27.6
Cocaine	64	44.4	50	39.4

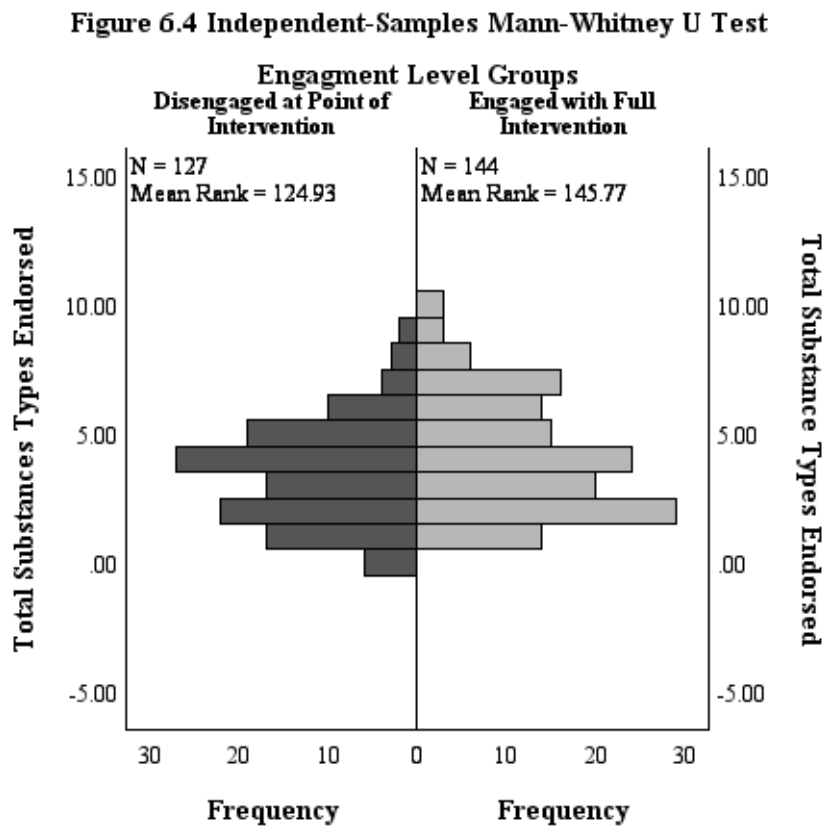
Psychedelics	64	44.4	55	43.3
NPS	18	12.5	9	7.1
Opiates	7	4.9	3	2.4
Amphetamines	27	18.8	14	11.0
Other	9	6.3	5	3.9
Abstinent	2	1.4	4	3.1

As participants were able to endorse more than one substance type, Kruskal-Wallis H tests were used to establish any differences between engagement level groups in relation to substance types endorsed. The tests were computed across all named substance types, as such a Bonferroni adjustment was calculated, establishing a p value of 0.005. The results within this analysis identified no significant differences in the type of substance intended to be used between those who engaged with the intervention and those who did not.

A further variable was then computed to calculate the total number of substance types that participants had reported an intent to use at future music festivals. It was found that among all participants the mean number of substance types intended to be used at future music festivals was 3.87 (SD = 2.193). A Mann-Whitney U test was computed to establish any significant differences in total substance types endorsed between the group who engaged fully with the psychoeducational video, and the group which disengaged at the point of intervention (Figure 6.4). The findings suggest that there was a significant difference in total substance type endorsed

between the engagement level groups ($U = 7737.50, p = 0.027$), although the size of this effect was fairly small.

The findings suggest that participants who engaged with the intervention video had endorsed a higher number of substance types intended to be used at music festivals in the future prior to the intervention, when compared to those who disengaged from the study at the point of intervention. It could be inferred from these findings that those who presented with more



harmful or high-risk substance use were more likely to engage with the intervention than those who did not; suggesting some process of self-selection, in terms of intervention relevance and engagement levels.

Participants also reported upon a number of other previous risk behaviour types that they had undertaken within the previous two years prior to intervention. These additional behaviours were, using more than an average or safe dose; buying substances from an unknown or untrusted source; using substances found or given by an unknown other; and taking more of a substance

before feeling the effects of the initial dose (*double dropping*). A continuous variable was computed from the data which calculated the total number of risk behaviour types that participants had engaged in within the past two years. As expected this variable was not normally distributed with significant Kolmogorov-Smirnov and Shapiro-Wilk tests reported ($p = <.001$). As such, a Mann-Whitney U test was computed to identify any differences in total risk behaviour types reported between participants who engaged with the intervention and those who did not. Findings suggest that the total number of risk behaviour types endorsed was also equal between the engagement level groups ($U = 8774.50, p = 0.525$)

Nearly half of all participants reported no history of experiencing harms (e.g., physical, and sexual assault, medical and mental health emergencies, physical injury, arrest or eviction, and separation from friends) associated with previous substance use at music festivals pre-intervention ($N = 110, 40.6\%$). Where harm was reported, participants have typically experienced one ($N = 79, 29.2\%$) or two ($N = 51, 18.8\%$) types of harm. The most frequently reported types of harm were, unwanted side effects such as paranoia ($N = 109, 40.2\%$), getting lost or separated from friends ($N = 66, 24.4\%$), challenging or bad trips ($N = 51, 18.8\%$), and physical injuries ($N = 20, 7.4\%$). No significant difference was found for the total number of harmful experiences reported between engagement level groups (Mann-Whitney $U = 8672.00, p = 0.440$).

Overall, just over half of all participants reported that they had used harm reduction strategies in the past ($N = 146, 53.9\%$) with an additional portion of the sample responding with “maybe” ($N = 53, 19.6\%$). No significant difference ($X^2(3, 271) = 4.126, p = 0.253$) were found between the engagement level groups for previous harm reduction strategy use. Participants were also asked to report which of the onsite support services (medical teams, welfare services, stewards, police officers and security guards) they would feel safe and comfortable asking for help following substance use at a music festival pre-intervention. Most selected one ($N = 95, 35.1\%$) or two ($N = 103, 38.0\%$) options, with medical ($N = 225, 83.0\%$) and welfare services ($N = 182, 67.2\%$) being the most popular choices (Table 6.5). A Kruskal-Wallis H test with Bonferroni adjustment ($p = 0.008$) suggested that the endorsement rate for each type of service provision was equal between the engagement level groups.

Table 6.5 Participants' self-reported receptiveness to different types of onsite support service prior to intervention.

Receptive to Seeking Help from Onsite Service	Frequency (N)	Proportion (%)
Police	12	4.4
Medical	225	84.0
Welfare	182	67.2
Stewards	75	27.7
Security	28	10.3
None	10	3.5

Predicting Engagement

As identified within the analysis above, the only significant differences identified between those who engaged with the intervention and those who did not was in relation to the total number of substance types intended to be used during future music festivals. A binary logistic regression was computed to ascertain whether the total number of substance types endorsed could predict engagement with the intervention offered. The omnibus tests reported within this analysis suggested a model where *total substance types endorsed* is a predictor of engagement level is a good fit when compared to the null model ($X^2(1) = 6.815, p = 0.009$); finding a non-significant value within the Hosmer and Lemeshow test ($X^2(5) = 7.513, p = 0.185$). However, while the model was significant, the Nagelkerke R^2 suggested that total substance types endorsed only accounted for 3.3% of the variance in engagement levels within the study, with poor model sensitivity (53.9%). Findings suggested that while the predictor variable of *total substance types endorsed* could correctly classify 70.1% cases which had engaged with the intervention, only 35.4% of cases were correctly classified as disengaging at the point of intervention. Despite these findings there is some suggestion within this model that the total number of substance types endorsed does significantly predict engagement level to some extent, suggesting that those who endorsed fewer substance types in relation to intended use prior to intervention were less likely to engage within the intervention ($Exp(B) = 0.862, p = 0.010$)

Perceived Impact Efficacy

Initial Impressions

Following the collection of data surrounding the past experiences and usual intentions relating to participants' recreational substance use at music festivals, participants were asked to watch the psychoeducational harm reduction intervention video developed for this study. Participants were then asked to provide some immediate feedback surrounding their experience of the intervention and their perceived likelihood of behavioural changes following the intervention. Just over half of the participants reported that they thought the video was engaging (N = 78, 56.5%) and just under half of all participants reported that they had learnt new information from the video (N = 81, 58.7%; yes: N = 36, 26.1%; maybe: N = 21, 15.2%).

Participants were then asked if they planned to change their behaviour as a direct result of the psychoeducational video they had watched. Most participants reported that they were not planning to change their behaviour as a result of the intervention (N = 87, 62.6%), with just over a third of participants stating *yes* (N = 13, 9.4%) or *maybe* (N = 39, 28.1%). Participants were also asked if they found the video intervention engaging with analysis finding that just over half of the participants reporting that they thought the video was engaging (N = 78, 56.5%).

Learning Novel Information

Participants were then asked if they felt they had learnt any new information directly from the psychoeducational video they had watched; just over half of the participants reported they had not learnt any new information (N = 81, 58.7%), however the remainder of participants reported *yes* (N = 36, 26.1%) and *maybe* (N = 21, 15.2%).

Participants who stated that they had likely learnt new information from the video were asked to state what this information was within a text response. Three concepts were identified within the analysis of this qualitative data. The first concept identified in relation to newly learnt information was the presence of onsite support services and the provision of help or support following the use of substances. A number of participants reported that they were unaware of the presence of welfare services:

“I didn't know what welfare workers were.”

“I’ve never heard of welfare staff before.”

“Welfare tents’ existence. The fact that you can trust police.”

“Welfare tents sounds cool.”

It appears that the intervention video provided participants with new information surrounding onsite welfare services and what they offer during music festivals. In addition to this, several participants also reported that they had learnt new information surrounding their ability to ask police officers for support following substance use:

“I thought police would arrest me for seeking help after taking drugs.”

“It was good to know that you can approach any staff even police and they will help rather than prosecute.”

“Police won’t arrest you if seeking help apparently.”

“That it’s ok to go to the police for help when on drugs.”

While participants were not informed that police would not arrest them, they were informed that if they sought help following the ingestion of a substance then police officers would be in a position offer help or seek further support on their behalf. It appears that participants receptiveness to seeking police support was impacted following the intervention video, although some adaptations of future models may wish to consider the phrasing of information included within the intervention surrounding the role of onsite police officers.

The second concept identified within the text responses for this question was the impact of *risk amplifiers* upon the likelihood of experiencing associated harms following substance use at music festivals:

“Risk amplifiers, support services”

“Risk amplifiers and stats about drug use”

Participants were able to identify different types of *risk amplifiers* discussed within the intervention video, such as polysubstance use:

“One of the biggest risk amplifiers is mixing alcohol and drugs.”

“The interaction of different drugs. More about risk amplifiers.”

“The term polysubstance.”

In addition, participants described information learnt surrounding age and the use of substances particularly associated with harmful outcomes such as alcohol:

“That alcohol use is a massive risk amplifier as well as age.”

“That younger people are more at risk.”

“Young age is a risk amplifier.”

Participants also reported learning new information surrounding the impact of particular psychological characteristics as *risk amplifiers*:

“Pre-determined psychological risk factors can affect drug experiences.”

“Psychological characteristics influencing having a bad time.”

“That people who blame when something goes wrong are more at risk.”

“The psychological characteristics that make negative outcomes worse.”

This suggests that participants found the information surrounding particular risk amplifiers, identified within Study One (Chapter 5) of this thesis, to be novel and informative. Increasing the awareness of these risk amplifiers allows for individuals to be more aware of particular areas which may make them more susceptible to harmful outcomes, as such they could adopt focused harm reduction strategies to tackle the presence of risk amplifiers.

The final concept identified within the text responses for this question was the information surrounding the statistics reported, which were derived from Study One (Chapter 5), regarding the frequency and prevalence of substance use at music festivals:

“High rates of alcohol and substance use at festivals.”

“I was surprised by the high proportion (68%) of festival goers using drugs.”

“Stats about substance use at festivals.”

“The percentage of people that take drugs at festivals.”

The psychoeducational video reported the average percentage of attendees who reported using substances at music festivals within the descriptive study at the beginning of this thesis, along with the frequency of polysubstance use and illicit substance use. One participant also reported that the video was *“Very informative and useful”*.

Promoting Help Seeking

Participants then reported on whether they would feel safe and comfortable in seeking support following substance use from particular onsite services, following the intervention, in order to compare this with their receptiveness prior to the intervention video. It was found that more participants reported that they would seek support from police and security guards following the intervention suggesting some movement in perceptions of onsite services (Table 6.6).

Table 6.6 Differences in reported receptivity to help-seeking pre and post intervention per service provision type.

Receptive to Seeking Help from Onsite Service	Pre-Intervention (N=144)		Post-Intervention (N=144)	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Police	6	4.2	20	13.9
Medical	121	84.0	127	88.2
Welfare	105	72.9	121	84.0
Stewards	42	29.2	64	44.4
Security	13	9.0	26	18.1
None	5	3.5	7	4.9

McNemar tests (with Bonferroni adjustment: $p < 0.001$) revealed that the increases in receptiveness towards help seeking with police, welfare, stewarding, and security services were significant (Table 6.7). These findings suggest that significant changes occurred pre and post intervention surrounding the reported receptivity to help-seeking within these services. For each of these services a greater proportion of participants endorsed receptivity to accessing, post-intervention, when compared to pre-intervention. This suggests that the intervention was likely effective in promoting and improving the receptivity among participants to help-seek within these onsite service provisions.

Table 6.7 McNemar tests exploring differences between pre and post intervention to onsite service provision types.

McNemar Test	Police	Medical	Welfare	Stewards	Security
Cases (N)	20	127	121	64	26
Significance (p)	<.001	.016	<.001	<.001	<.001

Reducing Risks

Participants reported feeling more aware of the possible risks relating to their substance use at music festivals immediately post-intervention (yes: $N = 66, 45.8\%$; maybe: $N = 33, 22.9\%$). In addition, most reported an intention to use harm reduction strategies when using substances at music festivals as a result of the intervention video they had watched (yes: $N = 102, 70.8\%$; maybe: $N = 20, 13.9\%$). When comparing participants intention to use harm

reduction strategies pre to and post intervention a Chi-Square test of independence found a significant difference, $\chi^2(4, 139) = 49.17, p < 0.001$. The findings suggested a substantial shift towards responses of yes and maybe post intervention, inferring a likely efficacy in the intervention's aim to increase the prevalence of use surrounding harm reduction strategies in relation to substance use among music festival attendees.

Intervention Evaluation

Participants who had engaged with the intervention were asked to provide some evaluative feedback immediately following completion. These questions collected qualitative responses regarding the delivery methods, content, and memorability of the intervention video.

Delivery Method Evaluation

Immediately following the intervention video participants were asked where they felt the best place to show attendees the psychoeducational video would be. Participants were offered options and were able to select the best option in their opinion. Participants reported the following perceptions in relation to the most effective delivery methods for the video: *in an email with festival tickets* (N = 33, 24.3%); *in an email a few days before the festival starts* (N = 34, 25.0%); *on screens at the festival gates* (N = 45, 33.1%); *on the festival website* (N = 8, 5.9%); and *other* (N = 16, 11.8%). Results suggested that participants felt an email either with ticket purchases or close to the start of the event would be the best method of distribution alongside displaying the video on screens at the entrance to a music festival. Other methods suggested by participants within text responses were: *“all of the above”* or *“a month before festival commencement to allow sufficient time for people to think logically.”*

Although listed as an option within the multiple choice question a number of participants suggested delivering the intervention video to attendees while queuing to enter the event within their text responses:

“At the festival while lining up.”

“Given the length most people wouldn't watch it through so while they are queuing is best.”

“Waiting in line can take HOURS! Play in the queue at the gates.”

These findings further suggest that participants feel the captive audience within entry queues may allow for better engagement, and therefore behavioural change, if used as a delivery method for the psychoeducational video piloted.

Content Evaluation

At the end of part one in the present study, participants were asked three text response questions to obtain some further evaluative, qualitative feedback surrounding their experience of the intervention and any perceived effects.

Firstly, participants were asked to evaluate the content of the intervention video they had watched; describing what information they would be likely to take away from the video to implement during future music festivals. When analysed four concepts were identified within the qualitative responses. Alongside these four concepts, it was identified that some participants did report that they were already aware of the information provided within the psychoeducational video:

“A lot of it consists of things I already know and what to look out for.”

“Nothing particularly new. Know your limits, know what you are taking, know what to do when something goes wrong.”

“After years of going to festivals and a few difficult experiences I've already done a fair share of studying/practicing harm reduction, so I had already acquired most of this knowledge but it's definitely important to get this kind of info out to people who haven't done so!”

While these participants may feel they did not learn any new information it does suggest that the information provided within the video is valid, accurate, and will likely be of use to those less experienced in attending festivals or using substances. It is also likely that the video serves as a

good reminder to those who may have already been informed of information that is similar to this video.

The first concept identified, in relation to participants responses regarding what they would take away from the video, was *risk amplifiers*. These were discussed in the video as behaviours or characteristics which would be likely to increase the risk of harm associated with substance use at music festivals:

“Alcohol is the biggest risk amplifier when mixing with other drugs.”

“Risk amplifiers

“Risk amplifiers as there were some I was not aware of before watching this video.”

“The concept of amplifying my risks of harm.”

“The different risk amplifiers for me.”

“Talked about drug use, risk amplifiers, conditions which make your prone to negative experiences.”

“The information about risk enhancers primarily age based...”

This finding suggests that several participants were likely to remember that particular behaviours or characteristics can increase their risk of experiencing harms associated with their substance use. By creating awareness of these risk amplifiers, it is hoped that participants could then look to mitigate or reduce these through the self-recognition of vulnerability to harm.

Again, participants were able to identify specific risk amplifiers from the video such as generalised polysubstance use, particularly risky combinations of polysubstance use, and predisposing psychological factors:

“Poly substance use.”

“Combining drugs increases chance of bad outcomes and your psychological risk factors...”

“Don't do drugs and drink.”

“Ketamine + MDMA is a dangerous combination.”

“Mixing makes it more dangerous...”

“Mixing substances can cause more harm...”

“...Avoid polysubstance use...”

“That single use is safest.”

“Psychological characteristics influencing having a bad time.”

Psychological factors.”

The frequency of polysubstance use as a specifically memorable aspect of the video suggests that this was not only relatable, but also useful and memorable information for participants in improving their awareness of behaviours which may increase risks of harm.

The second major concept identified, within the qualitative data collected surrounding memorable information, was the presence of available onsite services and where to seek help following substance use at a music festival. Several participants reported that they would remember the presence and location of onsite services, and that establishing where to seek assistance was particularly memorable:

“...Also, to approach any members of staff if help is needed.”

“Available services.”

“...Get to know surroundings...”

“I can get help from anyone working at the festival.”

“Locating places to find assistance ahead of time.”

“Reducing risks by knowing what I’m taking, figure out where I can potentially get help ahead of time.”

“...and what to do at a festival if you're having issues.”

“The availability of more welfare services.”

“The part about getting help from stewards, security etc...”

“The point about making sure you know where the relevant facilities are was useful to me personally.”

“...who to talk to.”

“What support services can offer.”

“To make a note of welfare tent locations.”

“How the welfare tents are setup at festivals.”

“...u can seek support from any member of staff.”

This finding suggests that participants found the information surrounding who and where to seek help from at music festivals, to be useful and memorable. It has been established throughout this thesis that is critical that festival attendees feel safe, comfortable, and confident in seeking support from onsite services should they encounter problems associated with their substance use. This finding suggests a likely efficacy in this intervention supporting the promotion of early help-seeking during events.

The final major concept identified within this text response, surrounding what participants would be likely to remember from the intervention video, was *harm reduction strategies*. Participants were informed of a range of harm reduction strategies which they could adopt to reduce the risk of harm associated with their substance use at music festivals:

“... make sure you are well hydrated, rested etc...”

“Clear guidance on what to at a festival and how to prepare.”

“Water and food are key.”

“Engage in harm reduction practices...Eat, drink and sleep.”

“Harm min.”

“Harm minimisation strategies.”

“Harm reduction.”

“Harm reduction.”

“Switch to water when taking other substances.”

“Taking care of yourself and others.”

“Ideas for harm reduction, such as staying hydrated, eating food and getting sleep, don't take more than the average amount for any substance.”

This finding suggests that participants found the information provided surrounding harm reduction strategies as useful, relevant, and memorable. It is important that festival attendees are aware of measures they can take to reduce the likelihood of harm associated with their substance use. As found in the descriptive study at the beginning of this thesis (Study One, Chapter 5), most people do not encounter any harm as a result of their recreational substance use at music festivals; therefore, the adoption of additional harm reduction strategies may have a significantly protective impact on the risk of harm to those identified as most susceptible.

Improving Memorability

The next text response question asked participants if they could suggest any adaptations which may improve the memorability of the intervention video, should it be revised in the future. Participants offered a number of suggestions for improving the video. In relation to the voiceover, participants suggested having *“a more engaging narrator.”* and *“using a real person's voice.”* Software limitations resulted in the use of a voiceover program where the only available accents were computerised, American and cooperate in style, however, this could readily be addressed within future revisions. Secondly, participants reported that the video would have been more memorable *“if it was filmed with real people and not animation”*; *“the information was great and easy to remember; however I would find it more engaging listening to real life experience and case studies”*. Building on this, participants suggested using *“Famous DJ's, artists speaking about harm reduction and risk amplifiers in the videos”*. Whilst these suggestions would have a financial cost, this approach may create a more engaging and

memorable experience which could have additional impact effects upon substance use related risk and harms.

Some participants suggested that the video should be “*shorter if possible.*” With suggestions such as “*I think a lot could be cut from the beginning of the video - the bit about what can happen when you take drugs is common sense.*” and “*increase text to speech speed by 25%.*” as ways to achieve this. If a future version of the video were made, with actors and filmed content, the length of the video could also be reviewed. Participants also suggested using of interactive elements by “*showing the video in increments and then having viewers answer questions*” or by “*provide[ing] an alternative interactive version for more intimate environments*”. Inevitably it would only be possible to use such approaches within certain delivery methods. Finally, participants provided suggestions for additional content within the video. These included drug checking services (“*could have had a section on testing substances*”), images of different support services (“*I’d like to see what a welfare tent would actually look like at a festival, so I knew what to expect if I needed to go there*”) and specific advice or links to drug specific information:

“It’d make it a lot longer to have to focus on individual substances but maybe link other videos or articles with more information on harm reduction practices for individual substances, Psychonautwiki has a good chart that lists pretty much all substances and how they synergies and whether it’s dangerous/high risk or not.”

“The UK drug population takes some pretty high doses of MDMA compared to other countries. I think it could be very beneficial to focus some harm reduction efforts on the question of dose. At Unity (in the Netherlands) we advise 1.0-1.5mg/kg as a dose. This would be more helpful if there is a drug checking service available. In the absence of that, advising people to start with about half a pill and redosing with half of their initial dose, and not re-dose more than once, will help prevent adverse effects from occurring.”

“Maybe that people should do their own research on what drugs do, talk with friends, set up buddy systems etc.”

Overall, participants provided positive feedback surrounding the informational content of the video: “*good video really knowledgeable and informative*”, and the wider ambition of reducing harms: “*good idea and I hope you continue to spread awareness*”; “*I'm glad you're out here trying to improve the world, especially UK club/festival culture. Thanks for doing this*”. Participants also noted that the video felt non-judgmental and understanding:

“Good video, very understandable. Not showing only the bad sides of taking substances, or with a good point of view that does not make feel afraid of substances.”

“I liked that the video was accepting of the fact that people use illegal substances, it didn't come across as “preachy.” I like that it focused on harm reduction. perhaps some more concerning facts could be included but I also see that you don't want to be just scaremongering.”

“It was nicely written and non-condescending.”

Longitudinal Follow Up Survey Results

Intended and Actual Substance Use Pre- and Post Intervention

Within the follow up survey, participants were asked if they perceived their substance use at the post-intervention music festival to be *increased*, *similar* or *reduced* to their substance use at festivals pre-intervention. Most participants reported that their substance use had remained similar both pre and post intervention (N = 27, 52.9%); however, a significant proportion of participants also reported that their substance use had decreased compared to festivals pre-intervention (N = 15, 29.4%).

Participants who completed the secondary survey (N=53) were asked which substances they had used at the music festival they had recently returned from post-intervention. As

expected, alcohol remained the most frequently reported substance type used alongside cannabis, MDMA, psychedelics, cocaine, and ketamine (Table 6.8).

Table 6.8 The proportion of participants reporting use of substance types during music festival post intervention

	Frequency	Percentage (N=53)
Alcohol	43	81.1
Cannabis	28	52.8
NO ₂	5	9.4
MDMA	24	45.3
Ketamine	11	20.8
Cocaine	16	30.2
Psychedelics	18	34.0
NPS	2	3.8
Opiates	1	1.9
Amphetamines	5	9.4
Other	1	1.9
Abstinent	2	3.8

As participants had provided information surrounding which substances they had intended to use at the music festival pre-intervention in part one of the study, it was possible to compare intended and actual substance use among the participants where data could be linked (N=31).

As participants were able to endorse more than one substance type in relation to these questions a number of McNemar tests with Bonferroni adjustment were computed to establish if a significant difference in endorsement rates existed between each substance type pre and post intervention. No significant differences were found for the endorsement rates of any substance type between pre and post intervention responses (N=31). While this result is expected as the intervention did not aim to promote abstinence or reduced substance use prevalence, this finding does suggest that the rates of endorsement for all substance types remained stable. This is encouraging, in providing some evidence as to the intervention’s ability to provide harm reduction information without increasing the prevalence or normalisation of substance use.

Following this, participants were asked to report if they had engaged in any substance use related risk behaviours during the festival they had recently attended. These behaviours were

using more than the average dose of a substance, buying a substance from an untrusted source, using more of a substance before feeling the effects of an initial dose and polysubstance use.

Participants were also asked to provide information surrounding their history of engaging in these behaviours pre-intervention, which enabled some further repeated measures analysis to ascertain whether there was any difference between participants history of engaging in risk behaviours pre- and post-intervention. McNemar tests were computed for each risk behaviour type, finding no significant differences in the reported prevalence of these behaviour pre- and post-intervention among the participants where data could be linked (N=31).

Participants were also asked if they had utilised any of the harm reduction strategies discussed within the intervention video post-intervention. Of the participants who completed the longitudinal follow up survey (N=53), most responded 'yes' (N = 21, 39.6%) or 'maybe' (N = 18, 34.0%). Of the participants where data could be linked between part one and part two of the study, responses were compared surrounding the use of harm reduction strategies pre- and post-intervention. In part one of the study participants were asked if they usually adopt harm reduction strategies in relation to their substance use at music festivals prior to the delivery of intervention, these answers were compared to the longitudinal responses from part two. A Chi-Square test of independence was computed to determine whether the distribution was equal between pre- and post-intervention responses, however no significant difference in the responses was identified. While this intervention did aim to improve the rate of harm reduction strategy use, the participants within this study largely reported already using these strategies pre-intervention.

Experiences of Harm and Help Seeking Pre- and Post Intervention

Participants were also asked to report if they had experienced any associated harms in relation to the festival they had attended post-intervention, these included medical or mental health difficulties, assault, altercations, bad trips, and unwanted effects. Participants had also reported which of these harms they had experienced pre-intervention (N=31) with analysis finding a significant difference in the total number harms reported pre-intervention (M = 0.87, SD = 0.99) and post-intervention (M = 0.35, SD = 0.61); $Z=26.00$, $p = 0.013$. This finding

suggests that the intervention may have impacted the likelihood of participants experiencing harms associated with their substance use at music festivals.

Participants who completed the longitudinal follow up survey were also asked to report if they had sought help from particular onsite services during the festival they had attended post-intervention; these were medical teams, welfare services, stewards, police officers and security guards, participants were also given an option to detail any other agencies they had engaged with. Most participants reported that they had not required any support from onsite services (N = 50), however two participants reported that they had accessed welfare services and one participant reported using medical services.

Perceived Longitudinal Video Use

In addition to the repeated measures discussed above, participants were also asked if they had used any of the information that they had recalled from the intervention video at the post-intervention music festival they had attended. Just under half of the participants responded ‘yes’ (N = 21, 42.9%) with the remainder of participants stating ‘no’. All participants were asked to provide a text response in relation to their selected answer for this question. When analysing the text response data from participants who answered ‘yes’ (N = 21, 42.9%), two major concepts were identified. The first being an increased awareness of onsite services which could be accessed for support in the event of substance use related harm:

“I was aware of who I could ask if I needed help.”

“Aware of safety tents.”

“Went to welfare for support.”

“I Knew where help was.”

“I was mindful of the fact I could go to any staff for help if necessary.”

Participants indicated that they had retained and recalled information about which services could be accessed should they require support surrounding any negative outcomes following substance use at music festivals. One participant also stated that they had attended a welfare service to seek support at the music festival, which if considered as an outcome associated with the intervention, displays promising insight in terms of tangible effects upon help-seeking and health outcomes.

The second concept identified within the qualitative data from participants who stated they had used information retained from the intervention video, was the use of harm reduction strategies. Participants recalled a number of particular strategies which were discussed within the intervention video and described how they adopted these at the music festival they had attended post-intervention:

“I did keep in mind safe practices, especially when it came to not mixing substances.”

“I made sure I had eaten well and was well hydrated.”

“I minimised alcohol consumption.”

“I tried to mix a lot less.”

“In a way to describe it would be more self-aware of the things I was taking and actually waiting to feel the effects before double dosing etc.”

“Set & settings advice.”

“Take small amounts to begin with.”

“Waited before taking more, drunk water.”

These results suggest that participants recalled information surrounding specific strategies to reduce the likelihood of experiencing harm associated with their substance use at music festivals. It is also a positive indicator of effect that participants related these behaviours to the intervention video they had watched prior to attending the music festival. In some instances, participants attended the music festival up to six months following the delivery of intervention which suggests the possibility of some significant longitudinal effect.

For those who answered ‘no’ (N = 22, 57.1%), some stated that they didn’t need the advice in the video (“*didn't need it*”, “*I’m not a drug taker and monitor my alcohol intake*”), or that they already had pre-intervention knowledge which provided them with a good understanding of harm reduction strategies and safer substance use practices:

“As I am quite experienced with the drugs do use I know my routine on taking and tend to have everything figured out with timings and preplanning.”

“I already am quite careful.”

“I already knew the risks associated.”

“There was no new information in the video that I don't already use.”

However, some also reported forgetting the intervention video either prior to or during the music festival that they had attended:

“I don't even really remember the video.”

“I was too drunk by the time I got to the point of using drugs. Also, I had forgotten about the video while in the context of the festival as it was taking up all of my attention as I'd waited so long to attend, and I was excited to have such a good time.”

“Forgot it existed.”

These participants stated that they had forgotten the intervention video which is to be expected in some instances. Should this study be replicated some consideration surrounding the timing of delivery should increase the likelihood of effect where the amount of time between intervention and attendance can be reduced.

Perceived Longitudinal Behavioural Changes

Finally, participants were asked if they felt the intervention video had impacted their substance use practices or behaviours at the festival they had attended post-intervention. Almost half ('yes': N = 11, 22.4%; 'maybe': N = 13, 26.5%) of the participants felt that the intervention video had impacted their substance use practices or behaviours at the festival they had attended ('no': N = 25, 51.1%). Again, reasons for a lack of impact included having forgotten the intervention video ("*I don't even really remember the video*"), and a lack of need ("*none specifically from the video as there wasn't anything in there that I didn't already know*").

Review of the text responses from participants who responded 'maybe' (N = 13, 26.5%) revealed that this group contained those who were already cautious ("*I am already more cautious than the average person, but I did think about mixing and the usage more*"; "*I try to be careful about my drug use - the video helped me with this*"); while others experienced the video as reinforcing existing ideas:

"Made me think a bit more, but I guess I have a pattern that works for me and so I go with that. I never feel out of control. I maybe didn't take as much codeine just before sleep in case it interacted and knocked me out."

"Minimised alcohol consumption since mixing with MDMA but I usually do this anyway."

or that, while still aware of the content, the information hadn't directly impacted their behaviour:

"I was aware of the advice, but I don't think it stopped me doing what I wanted."

"It was probably subconsciously affecting my decisions at points. But for the most part, once I was drunk it wasn't really something I was thinking about."

These findings suggest that some participants may have recalled and understood the information and advice delivered in the video; however, some state that this was disregarded intentionally.

Additionally, individuals with a wide knowledge surrounding harm reduction practices are likely to adopt these practices regardless of the present intervention, recognising that this model targets inexperienced individuals specifically.

The final analysis considered the text responses from participants who had responded ‘yes,’ in relation to perceived behavioural changes post intervention; three major concepts were identified within this qualitative data. The first being an increased awareness of risk and self-identification of vulnerability to harm; participants reported that they had considered the risks surrounding their substance use more closely and what may increase the likelihood of harmful outcomes:

“Helped me to consider risk more when taking substances. I felt I took less risks.”

“I definitely was more nervous about using substances. Usually, I just take drugs without thinking of the potential risks involved.”

“I was more thoughtful about the risks; they were more part of my plan than before.”

This finding suggest that some participants experienced cognitive changes surrounding the way they perceived risks in relation to their recreational substance use at music festivals post-intervention. Given that the intervention aimed to promote the self-recognition of vulnerability to harm among participants, this finding is encouraging in terms of efficacy within the model.

The second concept identified within the text response data, from participants who stated the intervention video had impacted their substance use practices, was an understanding of the availability of onsite services at music festivals; and how accessing them when required can reduce the risk of harm associated with substance use:

“It definitely helped me when I was feeling a bit anxious to know there were people who could help.”

“Remembered where to find help if needed and waited before taking more.”

Again, this finding is a strong indicator of possible impact efficacy within the intervention model, which aimed to improve awareness and receptiveness to help-seeking within onsite services in the event of substance use related harm.

The final concept identified within this text response data was the use of specific harm reduction strategies and safer substance use practices. Some participants who stated the video had impacted their substance using behaviour at the music festival post intervention detailed specific changes to their substance use practices:

“I ordered my substances from a trusted source before I used to buy them from untrusted sources in the festival.”

“Way less mixing and if I was mixing alcohol with MDMA it would be with 1/2 cans instead of like 10.”

This finding is a further addition to the confidence in efficacy for the intervention model piloted. Participants recalled specific information surrounding safer substance use practices at music festivals post-intervention and reported that this advice had directly impacted their behaviour. Given that participants attended these music festivals a number of months post-intervention, the findings surrounding the perceived efficacy, behavioural and cognitive changes reported by participants are extremely encouraging.

Discussion

The findings within this pilot study are highly encouraging, the majority of the analysis supports the likely efficacy of this intervention, warranting a large-scale replication study in the future, looking to adapt the intervention model based on the evaluative findings reported within the present study. Despite engagement with the intervention being fairly limited, approximately 80% of participants, who did engage with the intervention, were able to recall correct information from the video immediately post intervention. These findings surrounding engagement are indicative of the delivery method chosen, recognising that online

psychoeducational interventions are widely subject to significant attrition, particularly where information may appear irrelevant or uninteresting to the user (Linardon & Fuller-Tyszkiewicz, 2020; Paiva Azevedo et al., 2019; Wade et al., 2019). Despite this high rate of attrition, individuals who did engage with the intervention (N=144), were consistently able to recognise and correctly recall novel information derived from the video immediately following intervention and longitudinal, suggesting that the content was appropriate and interesting to the users who remained engaged (Borghouts et al., 2021; Garrido et al., 2019). The short-term recall question posed to participants immediately post intervention, also enabled the present study to further evidence adherence to the intervention beyond that of self-reports (Flett et al., 2019).

When exploring the differences between those who chose to engage with the intervention and those who disengaged at the point of intervention the populations appeared equal in respect of demographics and most behavioural variables. One significant difference was identified between those who engaged and those who did not, which was the total number of substance types intended to be used at future festivals pre-intervention. The findings suggested that individuals who reported an intention to use a higher number of substances pre-intervention were more likely to engage. It could be inferred that some self-selection in terms of relevance or need occurred within the sample with those presenting fewer intentions surrounding future substance use could be more likely to disengage with the intervention (Bertholet et al., 2020; Keiding & Louis, 2018). While these findings are encouraging in that individuals presenting with higher risk substance use may be more likely to engage with the intervention model piloted, it should be considered that some music festival attendees do use substances impulsively during events with no previous intentions of doing so. In these instances, individuals could perceive the intervention model within the present study as irrelevant leading to disengagement through a process of self-exclusion (Tuithof et al., 2016). Future models should consider how best to effectively engage prospective music festival attendees who do not intend on engaging in substance use during events, recognising that these individuals may still need preventative intervention.

Intervention Impact

Perceived impact feedback collected immediately post-intervention suggested that one in three participants anticipated a behavioural change surrounding their substance use as a direct

result on the intervention video they had watched. Additionally, during longitudinal follow up approximately half of the participants stated that they believed the intervention video had directly impacted their substance use practices during the music festival they had attended post-intervention. Qualitative data surrounding this response suggested that participants had perceived their substance using practices to have changed following an increased self-recognition of vulnerability to harm through increased awareness of risk amplifiers relevant to them. While these findings must be generalised cautiously, they do offer some promising indication of impact and effect, in terms of promoting individuals' awareness of factors which are likely to increase the risk of harm associated with recreational substance use at music festivals. Previous research has indicated that a key attribute of successful psychoeducational health interventions is an ability to promote behavioural changes which lead to an increased likelihood of positive health outcomes (Ebert et al., 2018; Milne-Ives et al., 2020; Sagar-Ouriaghli et al., 2019). The findings within the present study indicate a strong likelihood for efficacy in this area.

In addition, participants commonly reported adopting the specific harm reduction strategies described within the intervention video, alongside an increased receptivity to seeking help within onsite services at music festivals where required. When discussing the perceived efficacy of the intervention model following the attendance of a festival post-intervention, approximately one in three participants reported a perceived reduction in the frequency or quantity of their substance use. While this intervention model did not specifically aim to reduce substance use the observation suggests that the model did have some impact in area. Previous literature has identified the risk of harm associated with highly increased frequencies or quantities of substance use, particularly among young people within recreational settings (Black et al., 2020; Ivers, Killeen & Keenan, 2021; Nordfjærn et al., 2016; Wolfe et al., 2019; Zuckermann et al., 2019). Several of the current approaches to reducing the prevalence of substance use within these contexts aim to promote abstinence through the use of restrictive policies or imposing law enforcement strategies, often with little evidence as to their efficacy (Hughes et al., 2019; Leslie et al., 2018; Murphy, Bright & Dear, 2021; Palamar & Sönmez, 2022; Scott & Scott, 2020). The findings within this research support the notion that a non-judgmental, accurate, and relevant psychoeducational approach is likely to have tangible impacts upon reducing the prevalence of substance use among music festival attendees. The findings within the present study do suggest that the intervention model piloted may be substantially

beneficial in facilitating behavioural change; reducing high-risk behaviours surrounding substance use at music festivals. As previously discussed within this thesis, agencies and providers who offer support to music festival attendees both onsite during the event, and within the wider community, often face challenges surrounding resource availability and funding (Chhabra et al., 2018; McQueen & Davies, 2012; Measham, 2019; Valente et al., 2019). Future service providers should consider the cost and resource effectiveness in providing an intervention model such as the one piloted within the present study. Recognising that the low financial and service level burden of such interventions, coupled with the likely significant impact upon positive behavioural change, strongly supports the usability and efficacy of this design in improving public health outcomes.

Almost half of the participants also stated that they had recalled some information from the intervention video during the festival that they had attended post-intervention. This is extremely promising, as several participants attended the post-intervention festival some months after the intervention delivery indicating some long-term recall. Psychoeducational interventions which are able to deliver memorable information which is retained over longer periods of time are likely to be more effective in terms of impact (Taylor et al., 2021; Tzelepis et al., 2021; Wang et al., 2020; Xu et al., 2018). Participants who had stated that they had recalled information from the intervention video during the music festival post-intervention, reported that they had recalled an awareness of the onsite services available, how to access these, and a number of specific harm reduction strategies. Again, this long-term recall of specific content within the intervention model piloted suggests a high likelihood of relevance, applicability, and longitudinal efficacy (Giroux et al., 2017; Nesvåg, & McKay, 2018), furthering the assumption of high impact within a very cost and resource effective approach.

Further findings suggested that the intervention had been successful in changing their perceptions towards onsite police, security personnel, stewards, and welfare services. Two thirds of participants also reported that they were now more aware of the possible risks associated with their substance use at music festivals immediately post-intervention. Additionally, a significant increase in the proportion of participants who intended to use harm reduction strategies was observed immediately post-intervention. These findings suggest that the intervention was successful in promoting safe behaviours among festival attendees. As identified within this thesis and additional literature from related areas of mental health, a lack of receptivity to early help-

seeking can often present a significant barrier to the effective delivery of support and the promotion positive health outcomes (Aguirre Velasco et al., 2020; Clement et al., 2015; Hatchel et al., 2019; Heerde & Hemphill, 2018). The findings within the present study suggest that this easily applied intervention model could have substantial benefits in encouraging safer substance use and early help-seeking behaviours among music festival attendees. It could be inferred that through encouraging these behaviours it is likely that attendees could present at onsite support services earlier, at a reduced stage of harm, allowing for less intensive intervention requirements (Black et al., 2020; Hughes et al., 2019; Page et al., 2022). Onsite service providers should look to recognise the benefit in providing preventative interventions such as the model tested, understanding that this could have a direct impact upon onsite service delivery and resource burden.

Evaluation and Future Adaptation

Evaluative feedback was also collected from participants surrounding possible adaptation of the piloted model to improve memorability and engagement value. Almost half of the participants agreed that the intervention was engaging, and over 80% of the participants were able to correctly recall novel information from the intervention video. Participants providing qualitative responses identified areas for improvement; namely the voiceover, length, and animation used within the design. Participants stated that using real actors or celebrities delivering the same content; a design concept supported within surrounding literature (Burnette et al., 2018; Stapleton et al., 2015); would likely have more advantageous effects in terms of both engagement and memorability. Additional comments suggested that future adaptations of this model could improve engagement and memorability through a reduction in the time required to participate with the video.

Participants were asked what content they would be most likely to remember from the psychoeducational video immediately post-intervention. Findings suggested that the subjects of onsite service provision, risk amplifiers surrounding substance use, and the application of harm reduction strategies in relation to safer substance use practices were most commonly identified. These findings further suggest that the intervention was likely to be effective delivering this content, in its aim of promoting receptiveness to early help-seeking within onsite services in the

event of substance use related harm, and in encouraging the self-recognition of vulnerability to harm and the adoption of appropriate harm reduction strategies. Future revisions of this intervention model should consider the current content to be largely efficacious in providing the correct information to participants.

Participants who provided evaluative feedback surrounding the delivery methods of the piloted intervention suggested that future methods of distribution should consider emails prior to the event, embedding the intervention video within websites or apps, and displaying the video on large screens during entry queues. These findings suggest that participants perceived widescale distribution to be important within the delivery of this intervention model; also understanding that engagement could be promoted through the utilisation of captive audiences or the use of active engagement approaches such as personal messaging (Garrido et al., 2019; Levin-Zamir, & Bertschi, 2018).

Further qualitative feedback provided by participants included positive comments surrounding the applicability of this intervention model and the relevance of content within this population. Many participants commented upon their favourable opinion of non-stigmatised harm reduction focused interventions such as the model piloted within this study, displaying agreement surrounding a transformational change in approach from abstinence-based models.

Conclusions

Overall, the findings within this study offer encouraging indications surrounding the efficacy of the intervention model piloted, although adaptation and widescale testing is now required (Hariton & Locascio, 2018). The intervention video primarily aimed to promote safer substance use practices and receptivity to help-seeking among music festival attendees. These primary aims of the intervention were frequently supported within the findings suggesting this pilot was successful in evidencing the likely efficacy of this model. While adaptations and widescale testing is required to robustly evidence the potential of this intervention in achieving tangible behavioural change, the experiences reported by participants were positive and suggest a likely efficacy in promoting long-term behavioural change and reduced risks of harm.

Limitations

While this pilot study offered valuable findings surrounding the current efficacy and possible improvement of the intervention model, there were several limitations which limit the conclusions that can be drawn. This study was subject to significant attrition, particularly within the longitudinal follow-up. While the study recruited over 250 participants initially, it was observed that only 144 completed the intervention and 53 returned to complete the follow-up survey after attending a post-intervention music festival. These findings suggest that a substantial number of participants were willing to engage with the research study and complete a pre-intervention survey, however many then chose to disengage at the point of intervention. While attrition within online intervention studies is common (Bevens et al., 2022; Maher et al., 2014; Murray et al., 2013), future replication should look to address this through the provision of incentives or additional engagement techniques (Cohen & Schleider, 2022; Saul et al., 2016).

Analysis was conducted to explore any factors which may have been related to engagement with the intervention; however, the only significant difference identified suggested that those who use a higher number of substance types may be more likely to engage, suggesting a small self-selection effect in relation to relevance or need. Further exploration, surrounding factors which may influence initial engagement with the intervention model piloted, should be conducted. Future replications of this study may wish to obtain data surrounding receptiveness to help-seeking (Taylor-Rodgers & Batterham, 2014), attitudes to online interventions (Schulze et al., 2019), or social desirability (Crutzen & Göritz, 2010), prior to intervention delivery. Collecting data surrounding these concepts could allow for further investigation into the factors influencing disengagement at the point of intervention (Cantuaria, & Blanes-Vidal, 2019; Kington et al., 2021; Lederman et al., 2014).

The attrition observed in the period between intervention delivery and longitudinal follow up was expected (Barry, 2005; Boys et al., 2003; Eisner et al., 2019). No incentive was offered to participants, and it was often the case that participants attended a post-intervention music festival several months following intervention delivery. These factors were likely to influence the significant attritions observed within the longitudinal data collection. Future replications of this research should consider the addition of incentives to encourage the completion of longitudinal follow-ups (Castiglioni, Pforr & Krieger, 2008; Martin & Loes, 2010). Finally, this study utilised

repeated measures among participants between the pre-intervention survey and the longitudinal follow-up survey post-intervention. In order to link data participants were requested to provide a unique reference code and offered instructions as to how to create this, participants were also informed of the importance in ensuring this code was identical between surveys. Despite this information several participants did not provide linkable reference codes, meaning that their data could not be linked during the repeated measures analysis. As this element of the research offers a robust quantitative assessment of intervention efficacy it is critical that future replications of this research consider more reliable methods of data linkage. The present study utilised self-generated identification codes, based on the findings of a systematic review exploring methodological difficulties in matching anonymous datasets within longitudinal studies (Audette, Hammond & Rochester, 2020). As suggested by this review participants were advised to use birth month, first two initials of first middle name, and first two initials of mother's maiden name to create the self-generated identification code. While this was found to be the most effective method to create reliable codes to facilitate data linkage (Audette, Hammond & Rochester, 2020), many participants within the present did not respond appropriately leading to several unlinked responses. Alternative options identified by Audette, Hammond & Rochester, (2020) include the use of electronic anonymizing systems, pre-existing unique identification codes, and collecting non-anonymised data. Software which is able to direct participants to linked response inputs over time staged follow-ups would allow for more reliability in the data linking process (Murdoch et al., 2014; Ripper et al., 2017; Yurek, Vasey & Sullivan Havens, 2008).

Replication, Randomised Controlled Trial & Focus Groups

As discussed above, the sample sizes observed within the longitudinal data collection were extremely small, particularly in relation to any quantitative analysis conducted. Small sample sizes such as this do increase the risk of a type two error within the results reported (Akobeng, 2016; Freiman et al., 2019; Serdar et al., 2021). This should be considered when inferring from the quantitative findings discussed within this study. Despite these limitations, the qualitative analysis did provide very encouraging findings surrounding the likely efficacy of the piloted intervention model. Future replications of this research should look to obtain a much

larger sample size in relation to the quantitative data collected, perhaps looking to split these from the evaluative elements present within this study to provide a shorter, less intensive survey.

Given the limitations discussed above, it is likely that this research would benefit from future adaptation and replication. The methodological approach within the present study allowed for a valuable triangulation of experiences, gathering a holistic overview of the current efficacy and evaluation of the model piloted. However, future research looking to adapt and replicate this research should consider the application of individual quantitative and qualitative assessment. The use of focus groups to gather further evaluative feedback surrounding the intervention would undoubtedly allow for a richer collection of data, establishing the continued refinement of the intervention design and delivery (Brett et al., 2014; Greenhalgh et al., 2019; Hughes & Duffy, 2018). When this has been effectively completed the robust quantitative testing of the intervention model should be achieved. A randomised controlled trial (RCT) comparing the efficacy of this intervention, in comparison to a wait-list control, would establish a reliable evidence base as to the impact and efficacy of this intervention (Craig et al., 2013; Feeley et al., 2009; Singal, Higgins & Waljee, 2014). Where possible the primary aim of this RCT would be to collect a substantial quantity of data, reducing the likelihood of attrition through the use of incentives and reduced participation burden. By increasing the sample sizes surrounding the repeated measures evidencing intervention efficacy, further reliability could be taken from the findings.

Implications for Future Research, Theory and Practice

The findings reported within this pilot study offer novel understandings surrounding the likely efficacy of psychoeducational harm-reduction interventions targeting music festival attendee substance use. As evidenced throughout this thesis and the surrounding literature, the prevalence of recreational substance use at music festivals alongside the impact of associated harm is becoming a significant issue for public health (Black et al., 2020; Day et al., 2018; Hutton et al., 2014; Luther et al., 2018; Measham, 2019). It is likely that through the promotion of safer substance use practices and early-help seeking behaviours within this population, a substantial benefit could be achieved, both in terms of individual health outcomes and support service efficacy (Ivers, Killeen, & Keenan, 2021; Page et al., 2022). The intervention model

piloted within this study shows some promising evidence as to its efficacy, suggesting that future adaptations and distribution could have significant benefits to reducing the risk of harm within this population.

As this online psychoeducational intervention model was developed with no funding provisions and distributed through freely available online platforms, this pilot demonstrates the substantial cost-savings benefits that could be achieved when using this approach. Public health services both within the community and within onsite festival provisions, are continually challenged by financial constraints and service capacity (Cummins, 2018; Ginter, Duncan, & Swayne, 2018; Ham, 2020). This online approach for intervention allows to the possibility of reducing the costs associated with substance use related harm, through the provision of an intervention model which offers little to no cost, both financially, and in terms of service burden. The findings within this study suggest the useful applicability of online interventions in providing a cost-effective solution to the widespread distribution of harm reduction information and advice.

Participants within this study also reported a consistent affinity to the non-judgmental and unstigmatized approach adopted in delivering accurate relevant harm reduction information. These findings suggest that a consideration of change within drug policy should occur, to encourage the implementation of these types of intervention approaches. These understandings can shape the direction of future research; understanding that individuals require feelings of safety and comfort when help-seeking, and that providing space for these assumptions is key to the future development of effective interventions and support services.

Chapter Eight: Overall Discussion, Implications and Contributions for Health Psychology, Public Health, Harm Reduction Services and Future Research

Overall Findings

This thesis looked to explore the phenomenon of recreational substance use among music festival attendees; understanding that this behaviour is often associated with harmful outcomes for both individuals and wider communities (Day et al., 2018; Hutton et al., 2014; Luther et al., 2018). The wider implications of attendee substance use can be significant, with concerning reports of associated mortality and impact upon critical services becoming commonplace (Black et al., 2020; Chhabra et al., 2018; Turriss & Lund, 2017). Whilst the frequency and prevalence of both attendee substance use and harmful outcomes have been well documented within the associated literature (Bijlsma et al., 2020; Carmo Carvalho et al., 2014), novel understandings of associations between demographic, psychological and behavioural variables in relation to experiences of harm must be identified in order to determine how best to deliver preventative intervention. This thesis recognised the importance of this public health issue, understanding the necessity of intensive research which actively supports the development and delivery of targeted and effective intervention. Efficacy, in terms of both individual and public health outcomes, requires intervention design which is both psychologically informed, and able to target both population and context specific risks, whilst also adopting a wide-reaching delivery method which addresses barriers to help-seeking within this context.

Current Practices and Availability of Harm Reduction Interventions

A systematic literature review was conducted, aiming to identify the prevalence and variety of current harm reduction focused interventions which target music event or nightlife venue attendees. The review identified literature which discussed the efficacy of harm reduction focused interventions, the efficacy of a group or type of harm reduction interventions, or the

efficacy of a design or delivery method for a harm reduction focused intervention. 41 studies were identified following the searches which were synthesised to understand the type of intervention discussed, the delivery methods, target populations and efficacy measures reported. Within the review four key lines of intervention were identified which specifically targeted attendees who use substances at organised music events or nightlife settings; these were medical interventions, drug checking services, psychosocial interventions, and alcohol licencing regulations. The identification of these key lines of intervention suggested that wrap-around packages of interventions are likely to lead to the effective mitigation of risks and harms associated with substance use at organised music events and nightlife settings. It was concluded that a variety of intervention forms and delivery methods can target this population effectively, ensuring that the risks associated with substance use are reduced and where possible the frequency of substance use is also reduced. During the review no interventions were identified which offered a psychoeducational approach in delivering harm reduction information and advice in relation to substance use at music festivals. Many of the interventions discussed demonstrated that a holistic structure of multiple intervention types at differing levels of engagement and process is beneficial for targeting differing risk factors, presentations, and behavioural intents. It was concluded that a brief psychoeducational harm reduction focused intervention, delivered electronically, could enable a large proportion of the population to be reached within a delivery method which supports health economics and provides both short- and long-term efficacy to improve the wraparound approach of intervention types (Copeland, & Martin, 2004; Milward et al., 2018; Ramo & Prochaska, 2012).

Substance use Patterns, Associated Behaviours and Harm

This thesis recognised that understanding the psychological and behavioural circumstances surrounding recreational substance use, and related harms within the music festival context, is critical to the development and delivery of effective harm reduction interventions (Ivers, Killeen & Keenan, 2021; Jenkins, Slemon, & Haines-Saah, 2017; Rigg & Sharp, 2018). The first empirical study within this thesis looked to identify predicting factors in relation to harmful experiences associated with recreational substance use among music festival attendees. The study explored psychological, social, and contextual variables, obtaining self-

reported data surrounding music festival attendees' experiences of recreational substance use, harmful experiences, as well as perceptions towards help seeking, and engagement with current harm reduction services. A wide-reaching survey was designed which collected a significant amount of quantitative data surrounding attendee substance use, related behaviours, and experiences of harm alongside several psychological and demographic items. The survey gathered self-reported data surrounding a number of personality traits and values, alongside cognitive factors such as motivations and perceived benefits surrounding attendee substance use. Participants also reported their previous engagement in risk behaviours as well as their experiences of accessing support services or information. Despite the lengthy survey design, a large number of participants were recruited for the first study (N=1330) with a large proportion providing valid responses to the entire survey (N=773), allowing for a robust empirical analysis of the data. Within the analysis the prevalence of different types of substance use and substance use patterns were identified, alongside the frequency of risk behaviours, motivators, and perceived benefits. This data allowed for a wide understanding of the landscape surrounding substance use among music festival attendees.

Several of the findings within this study offered novel and unique understandings relating to the prevalence, frequency and patterns of substance use among music festival attendees. Although a high prevalence of illicit substance use among festival attendees was identified, this study also recognised the almost constant presence of attendee substance use when considered outside of the spheres of legality and drug policy. Alcohol use was reported by almost all participants (92.8%, N=718), suggesting that a significantly high proportion of the population studied could be at risk of substance use related harms. While illicit substance use carries an inherent belief system surrounding the relationship between illegality and increased risk (Bonomo et al., 2019; Nutt, King & Phillips, 2010; van Amsterdam et al., 2015), the findings reported in this study suggested a strong possibility of legal substance use, namely alcohol use, being a primary factor in predicting an increased likelihood of harmful outcomes among participants.

This study reported a model which identified several factors which are likely to increase the risk of harm relating to music festival attendee substance use. Attendees reported upon a number of events ranging from becoming lost or distressed through to serious and significant events such as medical emergencies, violence, or crime. Alcohol use was found to have the

largest effect and was significant in predicting an increased likelihood of harmful experiences, which is consistent with related literature (Feltmann, Elgán & Gripenberg, 2019; Martinus et al., 2010; Hutton & Jaensch, 2015). In addition, age, locus of control, agreeableness, and achievement were found to significantly predict an increased risk of harm, although the effect sizes for these factors were observed to be much smaller. When considered alongside similar research, these findings suggest the likely influence of individual characteristics upon substance use and related harms among music festival attendees (Gonzalez Ponce et al., 2020; Vreeker et al., 2017).

It was also found that using a polysubstance use combination of alcohol, MDMA and ketamine predicted experiences of serious and significant harm. These findings, in the context of further research documenting the risks associated with this combination of polysubstance use, further suggest the critical need for effective educational intervention (Chaves, Wilffert & Sanchez, 2023; Gable, 2004; Wu, Schlenger & Galvin, 2006). It was also found that those who reported less perceived benefits surrounding their substance use were more likely to experience these outcomes; however, this is likely due to the survey being retrospective and any previously perceived benefits experienced being overlooked by those who have these highly negative experiences. The models were interpreted by assuming that for one unit of change within a predictor variable, the difference in the log counts of negative outcome total was expected to change by the respective regression coefficient, given the other predictor variables in the model were held constant. Whilst the increase in total negative outcomes may appear small within the models reported, it was vital to recognise that the majority of people experience no negative outcomes and that even one additional negative outcome could result in extremely high risks of harm.

The first study within this thesis concluded that the models of prediction identified may provide a useful framework to target influential demographic, psychological and behavioural factors which are likely to predict harmful experiences among attendees, giving a functional insight into attendee profiles which may indicate high risks of harm. Within both models the use of alcohol was a key factor in predicting the likelihood of harm. When this is considered within the context of high alcohol prevalence in music festival settings, it is likely that future interventions which aim to reduce the likelihood of harm will be required to address the prevalence of alcohol use (Feltmann, Elgán & Gripenberg, 2019; Jaensch et al., 2018).

Interventions which can inform and advise festival attendees about the impact of any risk amplifiers are likely to have an extensive impact in reducing the likelihood of harm. Interventions should look to target the profiles identified within this study through the promotion of safer behaviour and awareness surrounding risk.

The Experiences and Challenges of Frontline Festival Workers

The second study within this thesis recognised that the lived and professional experiences of frontline workers should also be a key consideration when establishing effective frameworks and interventions for any public health service. Workers and volunteers within many healthcare settings are often the key to transformational change, expansion, and development due to their first-hand knowledge and experience of challenges face within their roles (Beržanskytė, 2020; Clayton 2014; Earl et al., 2003; Earl et al., 2005; Kranz, 2020). Through the promotion of transformational leadership and progressive change among frontline workers, the efficacy of future intervention designs and delivery methods may be maximised (Kuntz & Gomes, 2012; Munford & Sanders, 2021). When considering harms related to recreational substance use at music festivals, research must consider the experiences of onsite frontline festival workers, understanding their perceptions surrounding the effective and pertinent integration of future harm reduction services.

Front line festival workers and volunteers are likely to interact frequently with attendees who are recreationally using substances during the event (McQueen & Davies, 2012; Measham, 2019; Yates, Hazell, & Schweder, 2001). These workers often respond to, and manage, significant crisis incidents alongside a multitude of harms relating to attendee substance use. By asking these individuals to share their experiences, opinions and perceptions surrounding both current harm reduction interventions, and the development of future interventions, it was possible to determine valid constructs and methodologies which would aid the development of a tailored harm reduction intervention. Twenty-one participants with a variety of experiences within frontline roles at music festivals, including doctors, paramedics, police officers and welfare workers, responded to an open-ended question survey, where they were invited to share their opinions, experiences and perceptions surrounding their work and the public health issue of attendee substance use. The data collected were substantial and rich which allowed for effective

thematic analysis. The themes which emerged from the data were categorised into four topics in line with the survey aims: intervention methods, challenges and barriers, service delivery and worker experiences.

Following the thematic analysis of the qualitative data, several constructive and valuable themes were identified for each subject category. These included discussions surrounding the role of onsite services and law enforcement during music festivals, the provision of safe and stigma-free spaces, the importance of education and the consequences of risky substance use and environmental challenges upon both, service delivery and individual outcomes. Several of the identified barriers to effective service delivery are reflected within the surrounding literature, understanding the critical need for transformational change within law enforcement strategies (Grigg, Barratt & Lenton, 2018; Hoover et al., 2022; Hughes et al., 2017), promoting early help-seeking behaviours (Huges et al., 2019; Page et al., 2022), and reducing the risk of harm through the provision of educational interventions (Day et al., 2018; Jenkinson et al., 2014). The identified themes were interpreted and evaluated, alongside the researchers own lived experiences of working within frontline services at music festivals and relevant academic research. This enabled comprehension and the illumination of opinions among participants with regards to current harm reduction efforts and the future development of interventions. Participants freely discussed the political, social, and environmental contributors to effective and ineffective interventions, as well as offering unique perspectives on the characteristics of good intervention design and implementation. The study concluded that the evidence collected will be of substantial value towards the development of a new, targeted, and psychologically informed harm reduction intervention. The conclusions drawn from this research supported the hypothesis that an educational intervention which delivers accurate information and advice surrounding safer substance use, aiming to mitigate challenges and barriers faced by onsite services, through the promotion of early help-seeking, would be of substantial benefit to both the individual and public health agencies. Participants within this research identified several common experiences which have anecdotally led to an increased frequency of harmful outcomes alongside increased service burden and community impact; by addressing these common experiences through the design and delivery of intervention, it is possible to further mitigate and reduce the likelihood of harm.

The Development and Pilot Testing of a Targeted Harm Reduction Intervention

The final study within this thesis piloted a novel harm reduction focused intervention, which was developed to specifically target music festival attendees who may use substances recreationally during events. Within this thesis the design of this intervention was continually developed ensuring that both the content and the delivery approach would have a tangible impact on the target audience. The aim of this intervention was primarily to educate individuals about recreational substance use at music festivals, with the goal of reducing the likelihood of associated harm by informing participants of factors likely to increase their risk of harm, along with suggestions surrounding harm reduction strategies. It was hypothesised that by encouraging the self-recognition of vulnerability to harm in relation to substance use at music festivals, participants would be more likely to adopt risk mitigating behaviours (Schroeder & Arnason, 2009; Matthews, 2019). A key component within this intervention was derived from the results of Study One (Chapter 5) within this thesis, where models of predictors were computed to understand which individual traits or behaviours could predict who is more likely to experience harm following recreational substance use at music festivals. These predictors were used to form the basis of the intervention video ensuring that participants were informed of what factors place them at higher risk of experiencing negative outcomes. Similar to other psychoeducational interventions, participants were asked if these predictors applied to them with the view that those who identified predictors may be more likely to take onboard the safety information given and adopt the protective behaviours suggested (Brooks et al., 2021; Buedo & Luna; 2021; Ditlefsen et al., 2021).

The second section of the intervention video focused on providing participants with information surrounding onsite service provisions at music festivals; aiming to promote help-seeking behaviour and receptibility to onsite service provisions at music festivals. As identified within the second study within this thesis and supporting literature, many attendees may be unaware of which onsite services they can access should they experience any difficulties following substance use at a music festival (Hughes et al., 2019; Ivers, Killeen & Keenan, 2021; Page et al., 2022;). Participants were provided with information surrounding a range of onsite services such as medical teams, welfare provisions, onsite security, and police officers, as well as volunteers such as event stewards. Information surrounding what each of these services can offer

in terms of support as well as what to expect when accessing these services was discussed, with an aim of reducing any feelings of apprehension or uncertainty that participants may feel. Further poignance was made to the feelings of stigma and fear identified within Study Two (Chapter 6) and other literature (Grigg, Barratt & Lenton, 2018; Hoover et al., 2022; Kranz, 2020), ensuring participants were informed of services' intentions and likely outcomes if they should access these services. This section of the intervention video aimed to deliver information and advice which supports the provision of safe spaces and reduced perceived stigma, which in turn was hypothesised to improve early help-seeking behaviours and receptiveness to poorly received onsite services such as police and security workers at music festivals.

The final study initially recruited 458 participants who provided extensive evaluative feedback surrounding the intervention video both post-intervention and following a music festival they had attended within the following six months post-intervention. This evaluative feedback was considered essential in providing the opportunity for future research to further adapt and test this intervention model (Möhler, Köpke & Meyer, 2015; Moore et al., 2019). This pilot study was subject to significant attrition with approximately half of the participants engaging with the intervention fully and around a third of these participants returning to complete the longitudinal follow-up survey (N=68). Participants who did fully engage with the intervention video were found to report an increased history of high-risk substance use, suggesting that some self-selection surrounding the applicability and usefulness of the intervention may have occurred among participants (Biele et al., 2019; Hamilton, Rosenfeld & Levin, 2018).

The intervention aimed to reduce the likelihood of participants experiencing harm associated with their substance use at music festivals, as well as increasing the frequency of harm reduction practices, help-seeking behaviours and receptibility to accessing onsite services. The findings suggested that the frequency of risk behaviours and harms experienced were significantly reduced among participants who completed the intervention, and where data could be linked pre- and post-intervention. Pre-intervention it was found that many participants were reluctant to seek support from some of the named onsite support services, particularly police officers and security workers. Post-intervention this receptiveness was found to be significantly improved, with many participants stating they would feel safe and comfortable accessing these

services in the future should they encounter difficulties following substance use at music festivals.

Overall, it was found that the intervention showed some promising effect in terms of impact surrounding safer substance using practices and reduced likelihood of harm. While the sample size for this pilot remained small with a very small proportion of participants providing matched data both parts of the study, it is likely that this intervention could promote public health for music festival attendees in an economically advantageous manner. It is likely that if this study was replicated on a larger scale, with some adaptations derived from suggestions within the evaluative feedback collected, then a substantial impact upon the safety of festival attendees could be achieved; reducing the burden upon both internal and external services which provide support to attendees who do experience harm.

Limitations

While this thesis offers valuable insight into the type and patterns of substance use among music festival attendees, the experiences of frontline workers and the probable efficacy of a short harm reduction focussed psychoeducational intervention, it is critical that the limitations within this research are recognised. Throughout this research the risk of self-selection within samples has been apparent, understanding that where participants are informed of the study purpose upon recruitment this is likely to have caused some individuals to decline participation due to a perceived lack of relevance (Biele et al., 2019; Hamilton, Rosenfeld & Levin, 2018; Keiding & Louis, 2018). Similarly, it is likely that individuals who use substances, or have prominent experiences associated with supporting attendees following substance use may have been more likely to participate in the research conducted within this thesis. It is possible that this sampling issue may have led to increased rates of substance use or challenging experiences to be reported when compared to the population of eligible individuals (Smith & VanderWeele, 2019; Infante-Rivard & Cusson, 2018). In addition to this, there was the potential for demand characteristics or social desirability bias which could have influenced findings. The self-reported nature of data collected within this research should also be recognised, understanding that individuals, particularly those at a high risk of harm, may over or under report substance use, related behaviours, and experiences (Jackson et al., 2005; Magura & Kang, 1996; Monte et al., 2015).

Difficulty in reaching populations of music festival attendees who use substances should also be considered. Previous research has evidenced the hard-to-reach nature of this population, particularly in relation to young people who have been identified as being at a higher risk of harm (Measham, 2019; Waldron et al., 2020; Nemeth et al., 2011). Again, the nature of this population introduces the possibility of some sampling errors, understanding that those who engage in high risk or less normalised substance use may perceive more stigma and as such may choose not to participate within research (Gjersing & Bretteville-Jensen, 2018; Ramo & Prochaska, 2012; Western et al., 2016). This is an important consideration as these individuals may be more likely to experience harm and as such it is critical that future research adopts sampling strategies, recruitment and delivery methods which strengthen the ability to reach individuals who may not have participated within the research reported in this thesis.

Finally, it should be considered that there was a significant attrition observed within the final study reported. While a large number of participants began the study approximately half disengaged at the point of intervention and a further two thirds of participants failed to respond to the longitudinal follow-up survey post-festival attendance. This attrition did limit the reliability of empirical findings and should be mitigated as far as possible within future testing and trials of this intervention model (Lee & Choi, 2011; Hertzog, 2008; Page et al., 2016). While this did impact the reliability of empirical findings, a large quantity of qualitative data was obtained which supported the likely efficacy of the intervention piloted. Adaptations derived from the evaluative feedback obtained, alongside further widescale testing of this intervention model is required, ensuring that empirically robust data can be collected to evidence both efficacy and economic value.

Implications for Future Research, Theory and Practice

Within this thesis the use of substances among music festival attendees has been extensively explored, leading to further conceptual understandings surrounding frequency and type of use, cognitions and behaviours surrounding use at music festivals, alongside a wide-ranging investigation of attendees' experiences of harmful outcomes and accessing frontline support services. A robust model of predictors surrounding attendees' likelihood of experiencing harmful outcomes was also developed. These models allowed for the identification of several

demographic, psychological, and behavioural variables which are likely to predict both common experiences of minor to moderate harm, as well as serious and significant harmful outcomes which have a detrimental effect on both individual health and wider service efficacy. By identifying these predictors of harm, alongside the common the barriers faced by frontline festival workers within onsite services, the development of a novel psychoeducational intervention was achieved. Pilot testing of this intervention reported encouraging findings surrounding engagement potential, and effects in reducing substance use related harms among music festival attendees. The development and testing of this intervention model has several implications for future service provisions, practice guidelines and forthcoming research.

The intervention described within this thesis recognised the extremely high prevalence of high-risk substance using behaviours among festivals attendees, aiming to address both the predictors of harm as well as promoting help-seeking behaviours and receptiveness to critical onsite service provisions. The findings within this thesis allow for future service providers, researchers, and clinicians to further their understanding in relation to music festival attendees' substance using behaviour and related experiences of harm. In addition, this research provides a valuable insight into the feasibility and likely efficacy of a psychoeducational intervention, delivered electronically, to target large numbers of music festival attendees who may be at risk of harm surrounding recreational substance use at music festivals. Throughout this thesis the pertinence of alcohol use among festival attendees became increasingly obvious, understanding that almost all attendee participants reported engaging in this type of substance use. Further findings indicate that the use of alcohol is a significant predictor in the likelihood of harmful experiences relating to festival attendee substance use. Given these findings it is critical that future intervention models and service provisions look to target the risks surrounding alcohol use explicitly. Whilst the harm associated with alcohol use is well documented within the literature and this thesis, existing drug policy, service providers and intervention models commonly associate increased risk of harm with illicit substance use. Whilst the use of multiple substances is likely to increase harm, the findings within this thesis suggest that the use of illicit substances independently of alcohol is likely to be associated with a lower the risk of harm when compared to attendees who use do use alcohol.

Additional findings within this thesis indicate an extremely high prevalence of polysubstance use, with over 60% of participants in the descriptive study reporting that they had

used more than one substance in combination during music festivals in 2019. Given the substantially increased risks associated with the combined use of substances, this finding leads to significant concern surrounding the likelihood of harm among these attendees. A very large proportion of the attendees who reported polysubstance use, stated that alcohol was one element of their combined use, with a minimal number of respondents reporting polysubstance use without the presence of alcohol. Given the associated risks of these substance using patterns previously observed within this population, it is critical that support services and intervention designs look to developed more informed responses to this research (Black et al., 2020; Friedman et al., 2021; Morley et al., 2015; Schifano 2008). The development and improvement of both onsite and community-based services who interact with festival attendees is fundamental in ensuring that this public health issue is addressed efficiently and cost-effectively. These services should look to the evidence base, ensuring that attendees who are likely to engage in polysubstance use involving alcohol are targeted effectively, promoting the adoption of relevant harm reduction strategies, and increasing receptivity to help-seeking in relation to any difficulties experienced.

This thesis also gathered novel insights into the experiences, perceptions and opinions of frontline festival workers including doctors, paramedics, welfare workers and police officers. The findings from this research offer a unique perspective as to the common challenges faced by workers when providing these onsite services. Participants within this research offered their professional opinions surrounding the development of future harm reduction models, providing lived experiences which demonstrate the need for changes within current practices and policy. Many of the individuals who shared their experiences demonstrated a clear requirement for services to adopt a harm reduction approach in providing attendees with accurate and relevant information and advice, directly promoting safer substance use and encouraging the use of risk minimising behaviours. The importance of reducing stigma surrounding substance use was also commonly identified, understanding that attendees often seek help later than is ideal due to a fear of judgment or retribution surrounding their substance use. These findings indicate a critical need for the provision of safe spaces both within onsite, community and online contexts. Promoting music festival attendees' receptiveness to help seeking both prior to, during and post substance use should be viewed as a fundamental aim of any future intervention model or service provision. This thesis has demonstrated the likely efficacy in reducing the likelihood of harm

through the provision of a simple easily accessible psychoeducational video, proving that the receptiveness to help seeking among this population remains a critical barrier to success in tackling this significant public health issue.

Implications for Onsite Service Provisions

The findings within this thesis actively support the future provision of onsite support services including medical teams, welfare services and other festival staff. Previous literature has identified the need for events to ensure the provision of effective support services, whilst also ensuring that the cost of these provisions is in line with the budget of the event (Fidacaro, Friedman & Strayer, 2021; Hartman et al., 2009; Milstein et al., 2002; Moore et al., 2011). To handle patient presentations at large gatherings such as music festivals, the types and volumes of medical resources vary significantly depending upon a number of factors, including capacity of the event, weather conditions and duration (DeMott et al., 2018; Locoh-Donou et al., 2016). Although the requirements of different events have so far proven difficult to forecast precisely, the findings within this thesis offer some critical indication as to the types and prevalence of harms experienced by music festival attendees. Participants within the large descriptive study at the beginning of this thesis reported on a number of substances using behaviours and associated experience of harm. These findings can inform future service provisions of the likely presentation needs of attendees who access their services. While access rates of critical onsite services remained low, it was found that individuals were most likely to experience physical injuries, urgent mental health crisis or become lost following substance use at music festivals. This suggests that services should make active provisions to ensure they are able to meet the needs of attendees presenting with these difficulties. The prevalence rates of urgent medical difficulties, violence, and crime were much lower, however still evident within the sample suggesting some provision for these incidents should be made despite the lower frequencies associated. These findings can be used to inform event organisers looking to ascertain which services they should provide onsite whilst ensuring that excessive costs are mitigated.

The models of predictors described within this thesis in relation to increased risks of harm among festival attendees who use substances, allow for awareness to be established among onsite festival service providers and staff members. Previous literature has identified the possible

risk of some festival workers lacking the appropriate knowledge or training to effectively offer support to attendees experiencing substance use related harm (McQueen & Davies, 2012; Stadler, 2019). Recognition of which attendees could be at an increased risk of harm could enable targeted engagement efforts for high-risk individuals. Onsite staff members who engage with festival attendees could identify self-reported risk predictors during interactions which could flag the need for more intensive engagement efforts or intervention. As identified by professionals sharing their experiences within this thesis, onsite services can often become overwhelmed, finding that interactions with attendees become less intense in order to cope with the burden of high access rates. In these incidents the ability of staff members to recognise which individuals may be at higher risk of harm could be improved through knowledge of this prediction model. For example, this thesis identified the combined use of alcohol, ketamine and MDMA as a significant predictor of serious or significant harm; staff members who are aware of this information could identify individuals reporting this combination of use and ensure more intensive support is provided. Additionally, these findings should inform future training for professionals, ensuring that they are aware of the possible risks and effects associated with this combination of substance use, and how best to provide support or treatment to maximise the likelihood of positive health outcomes.

The intervention model piloted within this thesis aimed to engage music festival attendees prior to their attendance of an event, with the findings suggesting that doing so may have some positive impact in promoting safer substance use and help-seeking behaviour. The intervention was primarily derived from the results reported within this thesis, ensuring that the content was accurate and informative, and validated further through the addition of evidence-based information (Grigg, Barratt & Lenton, 2018; Healey et al., 2022; Saleemi et al., 2017). The piloting of this targeted intervention, within this thesis, has suggested that providing future festival attendees with accurate information and advice, surrounding any intended recreational substance use, is expected to have substantial value in promoting attendee safety, service efficiency and public health. Future onsite services should recognise the probable advantages of providing intervention prior to festival attendance. While this thesis delivered the piloted intervention some time before participants attended events, some participants did suggest within their evaluative feedback responses that the video could be shown to attendees while in entry queues. As music festival attendees are often retained in queue for some time prior to event

entry, this delivery method would provide a captive audience, possibly promoting the likelihood of engagement (Lehtimaki et al., 2021; Saleem et al., 2021). The likelihood of the intervention being recalled during the event would also be likely to be improved given the reduced time period between intervention and behaviours. Implementing relatively cost-effective methods of intervention delivery such as this could lead to substantial benefits in terms of improving both individual and public health outcomes.

Further findings within this thesis identified the lack of help-seeking behaviour within this population with many individuals reporting a fear of stigma and retribution associated with accessing critical onsite services. The effects of perceived stigma and fear of retribution in reducing the likelihood of help-seeking are well documented within many contexts (Engel et al., 2021; Gutierrez et al., 2020; Page et al., 2022); with the findings within this thesis further supporting the essential demand for proactive engagement strategies within the context of music festivals. A lack of help-seeking behaviour is known to increase the risk of harm within many contexts (Aguirre Velasco et al., 2020; Pretorius, Chambers & Coyle, 2019); with this phenomenon commented upon frequently among the frontline festival workers who shared their experiences within this thesis. Future service provisions should consider these findings; ensuring that services are transparent and approachable, offering safe space with stigma free and non-judgemental approaches. Adopting these ideologies surrounding safer spaces and stigma free environments within future onsite services will be likely to increase receptiveness among festival attendees (Bows, King & Measham, 2022; Hill, Hesmondhalgh & Megson, 2020). As identified by professionals working within onsite services, late help-seeking can often be associated with increased service burden and increased risk of harm; promoting early help-seeking through the design of service provisions is likely to reduce both overall service burden as well as improving outcomes for attendees.

Although music festivals are usually seen as spaces for carefree relaxation and fun, they are also environments which are increasingly policed to deter illicit substance use, sexual assault, theft, and violence (Crampton et al., 2020; Garius et al., 2020). The conflict between event organisers who want to ensure safe operating conditions and attendee welfare, and festival goers who state the high police presence negatively affects their ability to feel comfortable and connect with others, naturally develops. Frontline festival workers within critical onsite services shared their experiences and professional opinions within this thesis, remarking upon the challenges

faced by current practices, identifying several concepts surrounding the transformational improvement of service provisions. A key theme identified within the data also concerned the presence on onsite police officers and security staff, often associating this presence with an increase in fear and a reduction in help-seeking behaviour among attendees. Existing literature has identified the possible risks associated with the visible presence of law enforcement during music festivals (Hoover et al., 2022); recognising that this can be observed to lead to an increase in risk behaviours such as *preloading*, as well as a reduction in receptiveness to help-seeking following the use of illicit substances (Grigg, Barratt & Lenton, 2022; Page et al., 2022). Many of the professionals who were surveyed within this thesis linked this reduction in help-seeking behaviour to feelings of stigma and fear of retribution among attendees. Future policy should consider the benefits of reframing the delivery of onsite law enforcement, ensuring the provision of safe and non-judgmental spaces. Through the improvement and adaptation of onsite law enforcement, we can recognise that this is likely to improve rates of early help-seeking, and in so, reduce service burden while improving health outcomes. Given the extensive literature supporting the concept that certain characteristics of police uniforms and equipment can influence how the public perceives police officers, festival organisers, local constabularies and local authorities could consider the implementation of plain-clothed police officers during festivals (Blaskovits et al., 2022; Thielgen, Schade & Rohr, 2020). Whilst this does not change the role or power of police officers, it would be likely to reduce the likelihood of visible police presence impacting help-seeking behaviour among attendees. Further consideration could include the removal of any police officers or security guards from medical or welfare area where possible, in addition security staff could consider wearing uniforms which are not fluorescent yellow, a colour commonly associated with police officers (Simpson, 2020). Whilst it is important that security staff are easily identifiable in the event of an emergency or in order for attendees to seek support, the use of uniforms with a less triggering colour, such as purple, is likely to reduce the risk of security professionals impacting help-seeking rates among attendees.

In 2019, the Deputy State Coroner for New South Wales, Magistrate Harriet Grahame, reported her findings in relation to the death of six music festival attendees (Grahame, 2019; Brennan, 2020). The report represents a comprehensive effort to understand the predisposing factors and circumstances surrounding these tragic events, finding compelling evidence to support transformational change the way festivals are policed, including ending the use of drug

detection dogs, and enhancing the overall safety of music festival attendees. These findings also questioned whether there is a fundamental need to rethink contemporary approaches to managing substance use among festival attendees. The methods of entry searches, onsite stop and search incidents, and the prevalence of strip searching must be addressed when implanting law enforcement strategies at future music festivals. Previous literature has identified the potential for serious harm surrounding the use of invasive searches and drug detection dogs (Grewcock & Sentas, 2021; Malins, 2019; Price & Evans, 2019). A person's right to bodily integrity is inherently violated by the invasive use of drug detection dogs or strip searches, which are by their very nature humiliating and degrading (Lancaster, Hughes & Ritter, 2017; Nabben, 2009). Strip searches are known to produce major psycho-social consequences and have also been recognised to lead sexual assault victims to experience new trauma, with children and young people being particularly prone to serious injury from strip searches (Quinton, 2014; Shiner, & Delsol, 2015). The body of research surrounding this method of policing supports the notion that strip searches should only be used as a last resort and under extraordinary circumstances after all other options have been exhausted. Further evidence has also suggested that the invasive use of drug detection dogs can lead to high-risk behaviours among attendees (Gibbs et al., 2023; Hughes et al., 2017). Research has also identified the lack of success found when using drug detection dogs to prevent attendees from consuming illicit substances; instead, finding that these invasive forms of search encourage a number of behavioural adaptations which raise the risk of overdose and other health issues (Agnew-Pauley & Hughes, 2019; Dilkes-Frayne, 2014; Measham 2019). Given these findings and the associated findings within this thesis, festival organisers and local constabularies should ensure that all reasonable methods are taken to ensure that the methods of searching and policing during these elements of the event are proportionate and reasonable. Overall, these findings suggest that increasing the trust and respect exhibited between festival attendees and onsite law enforcement will almost certainly lead an increase in help-seeking, and a reduction in the risk of harm both to music festival attendees.

Implications for Community Based Services

Community based services targeting individuals at risk of substance use related harms will always be valuable in providing face-to-face support for individuals who are seeking this

form of support or who may be unable to access online platforms (Ehrlich et al., 2019; Shakeshaft, Bowman, & Sanson-Fisher, 2002; Shalaby & Agyapong, 2020). Despite the value of these services, the findings within this thesis suggest that access rates among individuals who report high-risk substance use at music festivals is very low. The findings reported throughout this thesis have key implications of the future design and delivery of community-based support services, suggesting that at present there is a very limited opportunity to engage this population within community-based services prior to festival attendance. Professionals who work within critical onsite services during music festivals shared their experience of working with attendees who have experienced substance use related harms at music festivals within this thesis, with several commenting upon the critical need for intervention to be delivered prior to attendance at music festivals. Community-based services have a substantial opportunity to target this population, enabling early engagement and the potential for behavioural change prior to festival attendance (Eddie et al., 2019; Ivers, Killeem & Keenan, 2021; Marchand et al., 2019). With this in mind it is critical that community-based services look to specifically engage these individuals where possible, providing crucial support and advice prior to the attendance of music festivals. Previous literature has identified a low rate of access and lack of early help-seeking within a variety of community service contexts, often finding feelings of stigma, shame and fear are commonly associated with this reluctance to access community-based services (Hippel, Brener & Horwitz, 2018; Muncan et al., 2020; Paquette, Syvertsen & Pollini, 2018). Future service provision should employ active engagement strategies, including the provision of safe and non-judgmental spaces, which are inviting and comfortable (Bielenberg et al., 2021; Dunne, Avery & Darcy, 2017; Hock et al., 2015). In doing so, future services can hope to improve the rate of access across all population types, including possible festival attendees who can then be identified and offered appropriate support and intervention.

Many community-based substance use support agencies offer specific services for young people, aiming to promote behavioural change through the use of generalised harm reduction information and intensive support where individuals are identified to be at higher risk of harm (Das et al., 2016; Degenhardt et al., 2016; Witkiewitz, Pfund, & Tucker, 2022). The findings within this thesis support the notion that these community-based young persons' services should look to implement interventions which specifically target potential music festival attendees. It was identified within the models reported in this thesis, that a lower age was a significant

predictor for an increased risk of harm following recreational substance use at music festivals. Given these findings, and the supporting literature (Day et al., 2018; Douglass et al., 2022; Jaensch et al., 2018), community-based substance use support services for young people should recognise the likelihood of festival attendance, recreational substance use and the associated risks of harm within this population. The intervention model piloted within this thesis gives some encouraging support as the effectiveness of a non-judgmental harm reduction focused response to recreational substance use among festival attendees. The offer of accurate and relevant information and advice surrounding safer substance use and help-seeking in relation to harm following recreational substance use is likely to be of substantial benefit in reducing the risk of harm. Such community-based substance use support services could look to engage young people through established pathways such as schools and youth centres (Bond et al., 2007; Lardier et al., 2018; Oesterle, Hawkins, & Hill, 2011), aiming to deliver specific psychoeducational content which promotes safer substance use and help-seeking behaviour among possible music festival attendees.

Community-based mental health support services can also benefit from applying the findings within this thesis to inform service development and future efficacy of provision. As has been well established within the associated literature, the use of substances recreationally or otherwise can have substantial consequences in terms of negative affect, loneliness, and an increase in the prevalence or severity of mental health disorders such as anxiety or depression (Ingram et al., 2020; Mojtabai, Olfson, & Han, 2016; Rieselbach et al., 2022). The findings within this thesis recognise the higher rates of urgent mental health difficulties among festival attendees who have used substances when compared to other forms of serious or significant harm. Recognising the prevalence of these experiences offers a unique opportunity to deliver targeted intervention for this population within the community. Again, mental health services which offer specific support for young people should recognise the likelihood of music festival attendance and the associated risks of mental health difficulties in relation to substance use (McGorry, et al., 2022; Fusar-Poli et al., 2021). Individuals with existing mental health difficulties are more likely to experience an intensification in symptoms following the use of substances, and the stigma associated with both mental health disorders and substances use can often lead to a rapid reduction in the rate of help-seeking behaviour (Birtel, Wood & Kempa, 2017; Priester et al., 2016). The findings within this thesis support the efficacy of targeted

interventions which aim to reduce the risks surrounding recreational substance use at music festivals and increase receptiveness to help seeking. Therefore, it is likely that community-based mental health services which offer this type of intervention, for individuals with predisposing mental health difficulties prior to festival attendance, are likely to have considerably positive impacts. These types of service provision within the community are likely to reduce service burden at music festivals, as well as improving individual and public health outcomes.

As previously discussed, many of the findings within this thesis support the hypothesis that younger festival attendees are more likely to experience harm in relation to recreational substance use. Community-based services for young people, alongside schools, colleges, and universities, should recognise their responsibility and opportunity to provide tangible support in reducing the risk of harm within this population. Educational providers and community based young people's services have a unique opportunity to engage young people, who are potential festival attendees, prior to attendance, allowing for the opportunity to provide effective preventative intervention (Delany-Moretlwe et al., 2015; Kimmel et al., 2021; Moore et al., 2018). The findings within this thesis support the efficacy of a psychoeducational intervention, which delivers accurate and non-judgmental harm reduction information and advice, surrounding recreational substance use at music festivals. While the intervention model discussed does inform participants of the safety in abstinence, it also recognises the prevalence of use and pragmatically discusses the methods in which those who choose to use substances can reduce their risk of experiencing harm. Current policy within educational settings often prevents the provision of effective harm reduction-based intervention, often through a fear of increasing acceptability, or even encouraging the use of illicit substances (MacMaster, Holleran & Chaffi, 2005; Santelli et al., 2006; Stockings et al., 2016). This thesis recognises the reality of festival attendees' substance use, understanding that the use of alcohol is an almost constant condition of festival attendance, and that the use of alcohol alone is a significant predictor of substance use related harm. Further findings suggest that the use of illicit substances, polysubstance use, and the combined use of alcohol, MDMA and ketamine, are all significant predictors of serious harm; factors which were all most prevalent among young people at music festivals. Targeting the specific predictors of serious harm through the provision of relevant and accurate information surrounding safer substance use is likely to be impactful in reducing the risk of harm among festival attendees. In identifying these conceptualisations surrounding substance use among

young people at music festivals, we can encourage educational providers and community-based services to adopt these strategies within intervention. Educational providers and young people's support services should be informed by these findings, recognising the critical requirement for a transformational approach in the way future engagement and intervention models are designed and delivered within these settings.

Online Delivery Methods for Interventions

This thesis demonstrated the value of providing intervention models which are delivered through the use of online formats. Participants within the large quantitative study at the beginning of this thesis demonstrated the reduced frequency of access among community and face-to-face based services. The highest endorsement rates for lifetime access were seen within online forms of intervention model including websites and apps. Participants also highlighted the desire for lived experiences to feature within intervention models, with the highest prevalence of access observed within online pill or trip reports which provide the user with detailed reports about another person's substance use experience. By reducing the need for formal help-seeking and promoting ease of use then the rate of engagement for interventions is likely to be substantially improved (Fleming et al., 2018; Holmes, Agteren & Dorstyn, 2019).

As previously discussed, this thesis has evidenced that the risk of harm among young people in relation to recreational substance use at music festivals is higher when compared to older attendees. Given these findings it is essential that the delivery of intervention models considers how best to engage this hard-to-reach sub-population. Young people frequently utilise the internet and mobile phones for daily tasks, socialising, and valuable micro-learning (Al-Marroof et al., 2021; Harari et al., 2020 Khlaif & Salha, 2021; Sohn et al., 2019); surrounding literature has identified that this has also affected how young people approach asking for help (Kornfield et al., 2022; Kretzschmar et al., 2019; Wong et al., 2021). It is generally well established within previous research, that numerous barriers, including shame and a desire for independence and informality, can inhibit offline help-seeking (Aguirre Velasco et al., 2020; Pretorius et al., 2020; Yonemoto & Kawashima, 2022). Online help-seeking may offer young people an alternative environment where they can receive support for mental health difficulties or substance use without having to face the same challenges (Stunden et al., 2020). Approaches

seeking to enhance young people's help-seeking behaviour, should consider the role of online resources as a beneficial addition to traditional help-seeking methods (Pretorius, Chambers & Coyle, 2019).

Digital health technologies are thought to hold promise for effectively addressing a multitude of public health concerns, particularly amongst young people (Bergin et al., 2020; Garrido et al., 2019; Liverpool et al., 2020). More than 2 million web-based mental health apps and other digital health interventions have been created in recent years to address a variety of public health issues (Lehtimaki et al., 2021). Just a minority of the currently available digital platforms are evidence-based, despite the fact that digital interventions for mental health can be useful for both enhancing and replacing conventional mental health care (Philippe et al., 2022). Additionally, very little research has been carried out regarding their effectiveness and cost-effectiveness, particularly in low- and middle-income nations (Bell et al., 2022; Rudd & Beidas, 2020). It is clear from the related literature that more extensive and consistent proof of effectiveness and cost-effectiveness will be required in contrast to the type of service given, target population, and current standard of care through the widescale adoption of digital mental health interventions (De Witte et al., 2021; Harrer et al., 2019; Lattie et al., 2019). This is especially true in environments with limited resources for health, ensuring that engagement is maximised while efficacy remains robust (Carter et al., 2021; Fu et al., 2020). This thesis has demonstrated the probable efficacy of the intervention model piloted which targets music festival attendees, aiming to reduce the risk of substance use related harm and improve the likelihood of onsite help-seeking behaviour. The widescale and robust testing of this model must be considered to ensure its efficacy and applicability within the population. The integration of large randomised controlled trials for intervention models, such as the design discussed within this thesis, will not only improve the reliability surrounding its function, but also further justification of a transition away from traditional forms of help-seeking.

Future interventions aiming to reduce the risks surrounding music festival attendee substance use should consider the merit in adopting online or electronic forms of delivery which reduce the requirement for human interaction. While individuals with complex or particularly challenging needs will continue to require more intensive support, the provision of online tools which aim to capture a larger audience will undoubtedly add to the efficacy of harm reduction services (Braitman et al., 2021; Fiskaali et al., 2023; Teesson et al., 2020). While this thesis

identified possible predictors of increased risks of harm among festival attendees who use substances, the potential for harm remains a possibility across the population regardless of predictive characteristics. Understanding the considerable span of this public health issue enables a recognition for the necessity of accurate and accessible information or advice surrounding safer substance use and the availability of help at music festivals. By implementing the use of online delivery methods, intervention designs can look to capture a wider audience, in particular an increased number of individuals who may be reluctant to formally help seek within face-to face settings.

The accessibility of online intervention models inherently increases the likelihood of engagement reducing the burden upon participants and increasing the flexibility of delivery. Given that the intervention model piloted within this thesis aimed to improve the receptiveness to help-seeking among participants with some indication as to the efficacy of this, it could be inferred that engagement with more intensive service provisions could be supported by the implementation of online intervention models. Within the evaluative feedback collected surrounding this intervention, participants identified that delivery could occur within a variety of online settings. These included embedding the video into festival websites, apps, substance use support websites and social media to enable the widespread delivery of this intervention model. By promoting the reach of these types of intervention we can influence the prevalence of harm among music festival attendees who use substances, understanding that even a visibly small reduction in risk can lead to significant increases in the regularity of positive health outcomes and overall public health.

Public Health Implications and Economics

While the frequency of significant or serious harmful outcomes associated with attendee substance use is relatively low when compared to the prevalence of use within this population, the impact of these events upon both individual and public health can be substantial (Bullock, Ranse & Hutton, 2018; Palamar et al., 2019; Reddi & Friedman, 2022; Ridpath et al., 2014). The wider implications of festival attendee substance use related harm is well documented within the literature, recognising that this public health issue can impact nearby communities and place significant burden upon critical services including emergency departments and mental health

services (Fidacaro, Friedman & Strayer, 2021; Koski, Kouvonen & Sumanen, 2020; Turrís et al., 2019). It is important to recognise that the ratio of harm frequency to resource use can be large with small numbers of individuals requiring intensive and costly intervention (Black et al., 2020; FitzGibbon et al., 2017; Westrol et al., 2017). Whilst this has been addressed to some extent with the implementation of experienced and specifically trained onsite medical and welfare services (Friedman et al., 2019; Maleczek et al., 2022), frontline workers commonly reported substantial challenges and barriers in delivering effective support and promoting positive health outcomes within this thesis. In addition to challenges surrounding receptiveness to help-seeking, perceived stigma and service burden were commonly discussed throughout this thesis, suggesting the critical need for further preventative measures in reducing the risk of harm. This thesis pilot tested an easily accessible, online intervention video which provides critical information and advice surrounding safer substance use and accessing onsite support services. By engaging music festival attendees prior to festival attendance, the results reported within this thesis suggest that it is possible to promote safer behaviours through the provision of online psychoeducational content within this population. The intervention designed within this thesis did not require any funding within its design, production, or delivery, and was delivered widely via freely available online platforms. While revisions of this intervention design could be improved through the application of some funding, the cost remains significantly low when compared to the substantial financial outlays found to be encountered by both onsite and community services when supporting individuals who have experienced serious incidents of harm (Chan & Friedman, 2017; FitzGibbon et al., 2017; Krul et al., 2012; Turrís, Jones & Lund, 2018; Wing, Johnson, & Fowler, 2020).

In addition to the prevention of serious or significant experience of harm, public health authorities should also look to promote the wellbeing of all individuals (Das et al., 2020; Trudel-Fitzgerald et al., 2019), understanding that even minor incidents of substance use related harm can have negative implications for overall health and wellbeing (Erskine et al., 2015; Nawi et al., 2021; Wogen & Restrepo, 2020). Current literature is continually acknowledging the importance of general wellbeing both in terms of physical and mental health (Anglim et al., 2020; Jebb et al., 2020; Topp et al., 2015), inferring that even minor reductions in overall wellbeing can have substantial implications upon service burden and cost within health services (Nikolova & Graham, 2021; Rath & Harter, 2010; Weimann, Knabe & Schob, 2015). Literature surrounding

the harms associated with substance use within a variety of contexts has exhaustively concluded that packages of integrated harm reduction strategies will be more efficient and cost-effective than isolated actions. Research has identified that there remains a worldwide and glaring lack of coverage and potential reach within established harm reduction initiatives (Fairley et al., 2021; Kolla & Strike, 2019; Sharma et al., 2017). Research surrounding some established harm reduction initiatives targeting opioid users has recognised that the overall yearly costs of scaling up to meet WHO guideline coverage targets would be substantial (Vearrier, 2019; Wilson et al., 2015). Despite these findings the researchers concluded that most cost-effectiveness thresholds could be met in the short term, and long-term cost savings were likely to be achieved through the reduction of critical service burden and the efficient management of significant incidents of harm.

The critical need for empirical research to evidence the effectiveness and cost-efficiency of internet interventions to promote help-seeking behaviour for substance use or poor mental health in young people has been recognised. A study conducted by Le et al., (2019), explored the cost effectiveness of an online intervention aiming to facilitate help-seeking behaviour among young adults experiencing mental health difficulties. Quality-adjusted life years (QALYs), and a self-reported resource use questionnaire were used by the researchers to determine costs. Intention-to-treat primary analyses were performed, and incremental cost-effectiveness ratios were provided. The study reported findings to suggest that the online youth mental health help-seeking intervention was robustly cost-effective when compared to usual engagement strategies. While these findings are extremely encouraging, further research must seek to quantify the cost-saving elements of online interventions aiming to reduce the risk of harm among music festival attendees who use substances (Vargas-Martínez, Lima-Serrano & Trapero-Bertran, 2023), understanding that policy and practice will inevitably be directed by the economic value of interventions in equal favour to intervention efficacy (Lin et al., 2019). The surrounding literature has identified a considerable increase in economic evaluations of online interventions which aim to provide preventative or early-help-seeking to improve mental health and well-being (Dunlap et al., 2019; Mihalopoulos & Chatterton, 2015; Zhang et al., 2021). Despite the evidence to suggest that a significant proportion of these intervention types offer good value for money, the reported cost-effectiveness cannot be generalised between research due to the varying quality and techniques employed within economic evaluations (Le et al., 2021).

Finally, we should consider the economic implications of the findings within this thesis in relation to the current provisions of onsite law enforcement during music festivals. As previously discussed, the current model of law enforcement intervention during music festivals is largely ineffective and can lead to an increase in the risk of harm among attendees. Further research has identified the financial burden both to public services and event organisers in the provision of personnel, drug detection dogs and surveillance measures (Crampton et al., 2020; Grigg, Barratt & Lenton, 2018; Ritter & Stevens, 2017). While considerable changes are required within current policy and regulations in order to facilitate an evolution of onsite law enforcement, is likely that in doing so there could be a substantial financial saving when compared to the outlays surrounding resource use and health outcomes. The findings within this thesis suggest that a radical transformation of onsite policing, drug policy and regulations would be very likely to improve rates of help-seeking; reducing feelings of stigma and fear among attendees. In addition, this restructuring of policy and policing to facilitate the provision of safe and non-judgment spaces would be likely to reduce the risk of significant substance use related harm, through the promotion of proactive and relevant preventive interventions alongside early-help seeking among attendees.

Future Research, Intervention Development & Replication Trial

Within this thesis the findings reported, surrounding music festival attendee's substance use and related experiences of harm, strongly suggest that the majority of individuals are able to use substances recreationally at music festivals without experiencing any harm. Despite the prevalence of high-risk behaviour and increased frequencies of use it remains a minority of individuals who report experiences of significant and traumatic events in relation to their substance use. While these incidents of harm can have substantial and long-term effects upon both the individual and associated services, it does appear that the majority of music festival attendees who use substances are likely to exhibit protective behaviours which mitigate their risk of harm (Hollett & Gately, 2019; Ivers, Killeen & Keenan, 2021; Measham & Turnbull, 2021). While this research has looked to gather an understanding of why certain individuals may be at a higher predisposition to experiences of substance use related harm within this population, future research may look to further understanding of the opposite effect. By gathering a more robust

understanding of both protective factors and vulnerabilities to harm, future intervention models and service designs can look to target both elements within the delivery of support. Research aiming to explore and analyse protective factors within this population would be extremely beneficial in understanding why some individuals engaging in high-risk substance use at music festivals are able to do so without experiencing any associated harm.

The intervention piloted within this thesis showed some promising effect in terms of both reducing the likelihood of harm among festival attendees who use substances, but also in improving the rate of early help-seeking behaviours and receptiveness to accessing onsite services. Although these findings are encouraging, further development and testing is required to ensure that efficacy and engagement is maximised. The pilot study conducted within this thesis provided a substantial quantity of evaluative feedback which should be considered within further adaptation of the intervention design and delivery methods. By including the evaluative feedback provided within revisions of the intervention model it is likely that efficacy and engagement rates could be significantly improved (Fonteyn & Bauer-Wu, 2005; Linnan & Steckler, 2002; Lobo, Petrich & Burns, 2014). Further testing of future revisions of this intervention should look to gather a larger sample size; offering incentives for the completion of longitudinal matched datasets would be likely to improve engagement. In addition, the testing of this intervention in its finalised form should be conducted through the implementation of a randomised controlled trial. While this may present ethical considerations where harm could befall control group participants, a festival-based design comparing two similar events would be extremely beneficial to the further evidencing of efficacy for the intervention model piloted within this thesis. Such a design could offer intervention to the attendees of one event, downloadable with tickets and played on screens during event entry, while the other is considered a control event implementing normal procedures with regard to harm reduction. Data surrounding self-reported experiences of harm, frontline workers' perceptions, resource usage, and hospital transfer rates could be collected for both events enabling a comparison between events. This form of study would allow for further inferences as to the efficacy of the intervention in reducing harm among music festival attendees, while also offering robust empirical evidence as the cost-effectiveness in relation to resource usage, health outcomes and individual impact.

Conclusions

Given the prevalence of high-risk substance use among music festival attendees identified within this thesis, it is critical that future service providers and professionals recognise the widescale impact of this public health issue, understanding that the traditional use of exclusive abstinence promotion is unlikely to have any tangible impact upon the risk of harm within this setting, particularly among young people (Dennis, Rhodes & Harris, 2020; Narasimha et al., 2019; Schwebel & Orban, 2022; Winer et al., 2022). The findings within this thesis collectively establish a critical need for recognition of the value in easily accessible, relevant, and non-judgmental harm reduction focused interventions. Whilst the promotion of safer substance use has historically been perceived by some as inferring acceptability or encouraging normalisation surrounding the behaviour (Schneider et al., 2016; Scott & Scott, 2020; Wiedermann, Niggli & Frick, 2014); the evidence within this thesis suggests an almost constant presence of substance use among music festival attendees. Given the extremely high prevalence of substance use at present there is a minimal likelihood of intervention models such as the one described within this thesis leading to further occurrence or increased normalisation of substance use. Equally, the significant prevalence rates observed within this population also imply that, if prompt and effective intervention is not implemented, the process of social normalisation and acceptance will likely spread rapidly within social constructs (Kender-Jeziorska, 2020; McCormack, Measham & Wignall, 2021; Turner & Measham, 2019). This understanding suggests that these models would be very unlikely to encourage any increase in the frequency or quantity of substance use within this population.

This thesis has consistently recognised the critical need for intervention design and delivery to consider both widespread reach and economic value, understanding that festival attendees are generally a widely spread population with very low help-seeking attributes. By ensuring that intervention delivery encourages high rates of engagement, whilst also promoting economic value, uptake rates amongst event organisers and service providers are likely to improve. The budgets within both service provisions and event production organisations are often limited with very little scope to implement widescale intervention; the provision of low-cost internet-based interventions are likely to provide a holistic solution. This thesis concludes

that providing web-based intervention, which both informs attendees of risk amplifiers and safer substance use, whilst also promoting help-seeking behaviour, is likely to both reduce the likelihood of individual harm, and to reduce critical service burden and wider community impact. By providing music festival attendees with the knowledge, they need to help keep themselves safe we can reduce the physical and economical cost associated with substance use related harm.

This thesis concludes that the provision of easily accessible, relevant, and non-judgmental psychoeducational harm reduction focused interventions, targeting music festival attendees, is likely to reduce the prevalence of harm within this population. The overall impact of recreational substance use at music festivals upon both individual and public health has been well evidenced, understanding the significant impact this has upon both critical service availability and wider communities (Barratt et al., 2019; Miles et al., 2021; Varshney & Friend, 2023). The research within this thesis demonstrates the viability of identifying and utilising both quantitative and qualitative data surrounding harmful experiences and service challenges to provide specific targets for intervention design and delivery. Through the evidence-based design and delivery of interventions we can promote efficacy, ensuring that critical elements specific to the population of festival attendees are addressed to promote both engagement and positive health outcome. The economic advantage of this type of intervention provision has been evidenced to be extremely likely within this thesis; however, the robust empirical analysis of the actual cost-savings potential in terms of resource usage and overall public health should be further explored. Critical and transformational change within both drug policy and service delivery will likely be most impactfully established through the provision of widescale evidence as to the cost effectiveness of this intervention model, alongside further evidence as to the model's efficacy in improving positive health outcomes for both individuals and the wider community.

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Appendices

Appendix A – Extended Abstract

This thesis explores recreational substance use among music festival attendees alongside their experiences of harmful outcomes, with an overarching aim to develop a novel preventative intervention rooted within harm-reduction principles. The rationale behind this thesis understands that many individuals experiencing harmful outcomes following the use of substances during music festivals are often found to have consumed substances impulsively and were uninformed of the associated risks (REF). This thesis aims to gather an understanding of the factors associated to an increased risk of harm among music festival attendees who choose to engage in substance use alongside the common challenges and barriers faced by frontline workers who deliver support and intervention to this population within the music festival context. The evidence collected within this thesis was used alongside the existing literature to develop a novel preventative intervention which aimed to inform individuals about the risks associated with substance use within the context of music festivals alongside harm reduction strategies which could be implemented and information surrounding help-seeking and the provision of onsite services.

The integrative systematic literature review identified current harm-reduction interventions targeting substance use at music festivals and similar settings. This review included descriptive and experimental studies which included reports of efficacy in order to establish the successes and limitations of current efforts within this field of research. Four key lines of intervention types were identified including medical interventions, drug checking provisions, psychosocial interventions, and alcohol licencing. The psychosocial intervention models reported highlighted the lack of psychoeducational formats within this type of intervention suggesting a

significant gap in the provision of preventive harm reduction intervention targeting substance use among music festival attendees.

An exploratory quantitative study (N=773) collecting data surrounding substance use during music festivals was conducted. The study collected data surrounding a variety of substance use related variables including motivations, perceived benefits, risk behaviours and harm reduction strategies employed to gather a current understanding of the landscape among music festival attendees who use substances. Participants also reported upon their experiences of a number of different types of harm including minor impacts to general wellbeing as well as serious and significant incidents of harm. From this and a range of sociodemographic, behavioural, and psychological variables, models of predictors associated with harm were identified, highlighting the impact of age, alcohol use, and polysubstance use.

A further qualitative study was also conducted to explore the experiences of 21 frontline festival workers, investigating perceived barriers to effective service delivery. Workers ranged in professional experiences from police officers, welfare workers and medical professionals offering a range of understandings and opinions. An open-ended question survey was designed to collate information surrounding worker's experiences and their perceptions and opinions surrounding current service delivery and existing barriers to positive health outcomes for individuals being supported. Several barriers were identified in relation to effective service delivery namely, low rates of early help-seeking, current law enforcement strategies, perceived stigma among attendees, environmental factors, and a lack of educational provisions for music festival attendees who choose to use substances.

Finally, the piloting of a novel, online video promoting harm-reduction through a psychoeducational format is reported, aiming to a) inform of risk-amplifiers, facilitating self-recognition of vulnerability to harm, and b) reduce perceived stigma associated with help-seeking aiming to promote an increased frequency of early help-seeking among this population. Individuals planning festival attendance (N = 468) participated in a two-part longitudinal study. Pre-intervention, data on intended substance use and behaviours were recorded. Following festival attendance, recalled substance use was reported. Data from participants who completed both study components (N=68) supported efficacy in both reducing harm and increasing receptiveness to help-seeking. Ways to improve engagement and efficacy were also identified.

The research presented within this thesis demonstrates the both the need for and the potential effectiveness of a short psychoeducational preventative intervention rooted within harm reduction principles targeting music festivals attendees who choose to use substances. This approach will likely benefit the both the individual and public health agencies, and is also economically advantageous, able to reach large numbers of people, reducing harm with low financial and resource costs. This approach now requires widescale testing to confirm its potential public health impact.

Appendix B - Study One (Chapter 5) – Information Sheet, Consent Form, Survey & Debrief

Including, participant information sheet; participant informed consent form; survey and survey flow/logic; and participant debrief sheet.

Start of Block: Information Sheet

i) Participant Information Sheet

EXPLORING THE USE OF SUBSTANCES AND HARM REDUCTION SERVICES AT UK MUSIC FESTIVALS

You are being invited to take part in some research. Before you decide whether or not to participate, it is important for you to understand why the research is being conducted and what it will involve. Please read the following information carefully. **What is the purpose of the research?**

We are conducting research to understand peoples experiences of alcohol and substance use at UK Festivals. If you haven't used alcohol or substances while at a festival we would still like to hear from you. We are interested in understanding why people make certain decisions in this area. We are also looking to understand people's experiences of harm reduction services which target festival attendees who use alcohol or substances recreationally. The purpose of the study is to understand what substances people use at festivals, why they use them and what the outcomes of this recreational substance use may be. We will ask you some questions about your experiences with alcohol and substances as well as some questions related to particular personality traits.

We are also looking to understand which harm reduction services people have engaged with, why they have engaged with them and the impact of these service interactions on behaviour. Your participation in this study will take approximately twenty minutes however depending on your experiences this may be shorter or longer.

Inclusion Criteria We are looking to gather information from a particular group of people therefore this study may not be applicable to you. You will only be able to participate in this study if you meet all of the following criteria:

You are aged 18 years or older. You have attended a music festival in the UK within the last twelve months.

You are not currently under the influence of alcohol or substances.

Who is carrying out the research?

The data is being collected by Chloe Rayner, under the supervision of Professor Jason Davies and Dr Ceri Bradshaw in the Department of Psychology at Swansea University. The research has been approved by the departmental Research Ethics Committee. This research is being completed as part of a PhD in Health Psychology.

What happens if I agree to take part?

If you decide to take part in this research you will be asked to complete a questionnaire which will include questions about your alcohol and substance use at UK Music Festivals along with questions about your experiences of harm reduction services. Your data will be completely anonymous and you will not be asked to provide any personal information such as your name or location. If you decide to take part in the research it is very important that you feel comfortable answering these questions openly and honestly. Although some of the questions you will be asked may discuss behaviours which are considered illegal within the UK your information will not be identifiable.

Additionally, we will ask for some background information including your level of education, your age and gender.

If you decide to participate you will be given a participant number. Only you will have access to this number. Your data will only be identifiable if you share your participant number with the researcher for the purposes of withdrawing your data.

Are there any risks associated with taking part?

There are no significant risks associated with participation. Discussing your use of alcohol or substances may result in you wanting to seek further information in terms of harm reduction or help with addiction difficulties. For further advice you can visit the following websites:

<https://dancesafe.org/>

<https://www.nhs.uk/live-well/healthy-body/addiction-what-is-it/>

Data Protection and Confidentiality.

Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR). All information collected about you will be kept strictly confidential. Your data will only be viewed by the research team. All electronic data will be stored on a password-protected

computer file at the University of Swansea. All paper records will be stored in a locked filing cabinet at the University of Swansea. We will not be collecting identifiable information. Your responses will be linked to a participant number which will be given to you. Please note that the data we will collect for our study will be made anonymous, thus it will not be possible to identify and remove your data unless you provide the researcher with your participant number so please keep this safe. **What will happen to the information I provide?**

An analysis of the information will form part of our report at the end of the study and may be presented to interested parties and published in scientific journals and related media. Note that all information presented in any reports or publications will be anonymous and unidentifiable. **Is participation voluntary and what if I wish to later withdraw?** Your participation is entirely voluntary – you do not have to participate if you do not want to. If you decide to participate, but later wish to withdraw from the study, then you are free to withdraw at any time, without giving a reason and without penalty. Due to the sensitive nature of the data we are collecting it will be anonymised at the point of participation. As such you will be given a participant number which links to your responses.

If you wish to withdraw your data you must give the researcher your participant number in order to identify your data so please keep this safe. **Data Protection Privacy Notice.** The data controller for this project will be Swansea University. The University Data Protection Officer provides oversight of university activities involving the processing of personal data, and can be contacted at the Vice Chancellors Office: VCO@swanseauniversity.com. Swansea University's Data Protection Officer is Bev Buckley and she may be contacted

at: [REDACTED] Your personal data will be processed for the purposes outlined in this information sheet. Standard ethical procedures will involve you providing your consent to participate in this study by completing the consent form that has been provided to you. However, the legal basis on which this task is being performed is public interest, approved by the departmental Research Ethics Committee. If you are concerned about how your personal data is being processed, please contact Swansea University's Data Protection Officer at [REDACTED]

Details of your individual rights are available on the ICO website at: <https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/> **What if I have other questions?** If you have further questions

about this study, please do not hesitate to contact us: Chloe Rayner Department of Psychology Swansea University [REDACTED] Professor Jason Davies Department of Psychology Swansea University

J [REDACTED]

Dr Ceri Bradshaw
Department of Psychology
Swansea University
[REDACTED]

End of Block: Information Sheet

ii) Consent Form

Start of Block: Consent Form

Q286 I have read the Participant Information Sheet.

I agree to participate in the study.

I understand that participation is voluntary, I am free to withdraw from the research, for any reason and without prejudice.

I understand what my role will be in this research, all my questions have been answered to my satisfaction.

I understand that I am free to ask any questions at any time before, during and after the study.

I have been informed that the information I provide will be safeguarded.

I agree to the researchers processing my personal data in accordance with the aims of the study described in the participant information sheet.

Yes (1)

No (2)

Q1 Are you aged 18 years or older?

Yes (1)

No (2)

Q375 Are you currently under the influence of drugs or alcohol? *(Please note we are unable to let you participate in this study whilst under the influence as this may impair your ability to give informed consent)*

Yes (1)

No (2)

End of Block: Consent Form

Start of Block: Consent Form

Q385 I have read the Participant Information Sheet.

I agree to participate in the study.

I understand that participation is voluntary, I am free to withdraw from the research, for any reason and without prejudice.

I understand what my role will be in this research, all my questions have been answered to my satisfaction.

I understand that I am free to ask any questions at any time before, during and after the study.

I have been informed that the information I provide will be safeguarded.

I agree to the researchers processing my personal data in accordance with the aims of the study described in the participant information sheet.

Yes (1)

No (2)

Q386 Are you aged 18 years or older?

Yes (1)

No (2)

Q387 Are you currently under the influence of drugs or alcohol? *(Please note we are unable to let you participate in this study whilst under the influence as this may impair your ability to give informed consent)*

Yes (1)

No (2)

End of Block: Consent Form

iii) Debrief Document

Start of Block: Debrief Sheet

DEBRIEF

Thank you for taking part in our research! Now that we've finished, let us explain the rationale behind this work. We are interested in understanding what substances people use recreationally at Festivals. We want to know why people use these substances, how they use them, and the results of using them. We also want to understand what experiences of harm reduction services festival attendees already have and the impact these have had on their behaviour surrounding recreational alcohol and substance use.

We are hoping to develop a harm reduction intervention in the near future which targets festival attendees. We hope to use the information we have gathered in this study to inform the design of the intervention which will aim to encourage festival attendees to make safer choices when choosing to use alcohol or substances recreationally.

Previous research has shown that people frequently use alcohol and substances at music festivals and that people often engage in high-risk behaviours associated with this use such as double dosing or polysubstance use. Other research suggests that a harm reduction approach when designing intervention is effective in keeping people safer. We want to design a holistic intervention which is accessed by more people and is more effective in keeping you safe.

If you feel affected by issues raised by this research and would like to discuss any concerns, please contact the study Supervisor on the details provided below. If you feel this piece of research may have health implications for you, we advise you to contact your GP or Swansea University's Wellbeing services (Wellbeing Services, Horton Building, Swansea University, Singleton Park, Swansea, SA2 8PP, Tel: 01792 295592, www.swansea.ac.uk/wellbeing/).

If you have any other questions about the research, please do not hesitate to contact us at:

Chloe Rayner

Department of Psychology
Swansea University

[REDACTED]

Professor Jason Davies
Department of Psychology
Swansea University

[REDACTED]

Dr Ceri Bradshaw
Department of Psychology
Swansea University

[REDACTED]

End of Block: Debrief Sheet

iv) Survey

Start of Block: Demographics



Q279 What is your current age?

Q280 Please indicate your gender

- Male (1)
- Female (2)
- Non-Binary (3)
- Prefer not to say (4)

Q281 Please indicate your highest level of qualification

- GCSE or equivalent (1)
- A Level or equivalent (2)
- Diploma or equivalent (3)
- Degree or equivalent (4)
- Masters degree or equivalent (5)
- Doctorate or equivalent (6)

Page Break

Q282 Please indicate your relationship status

- Single (1)
 - In a casual relationship(s) (2)
 - In a long term relationship (3)
 - Cohabiting (4)
 - Married / Civil partnership (5)
-

Q283 What is your ethnic group?

- Welsh / English / Scottish / Northern Irish / British (1)
 - Irish (2)
 - Gypsy or Irish Traveller (3)
 - Any other White background (4)
 - White and Black Caribbean (5)
 - White and Black African (6)
 - White and Asian (7)
 - Any other Mixed / Multiple ethnic background (8)
 - Indian (9)
 - Pakistani (10)
 - Bangladeshi (11)
 - Chinese (12)
 - Any other Asian background (13)
 - African (14)
 - Caribbean (15)
 - Any other Black / African / Caribbean background (16)
 - Arab (17)
 - Any other ethnic group (please describe) (18)
-

Q284 What is your employment status

- Full time employment (1)
- Part time employment (2)
- Full time student (3)
- Part time student (4)
- Part time work & part time student (5)
- Unemployed (6)
- House wife / husband (7)

End of Block: Demographics

Start of Block: Personality Trait & Values Scales

Q311 I see myself as extraverted, enthusiastic.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q312 I see myself as critical, quarrelsome.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q313 I see myself as dependable, self-disciplined.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q314 I see myself as anxious, easily upset.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q315 I see myself as open to new experiences, complex.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q316 I see myself as reserved, quiet.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q317 I see myself as sympathetic, warm.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q318 I see myself as disorganised, careless.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q319 I see myself as calm, emotionally stable.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q320 I see myself as conventional, uncreative.

- Strongly agree (1)
 - Agree (2)
 - Somewhat agree (3)
 - Neither agree nor disagree (4)
 - Somewhat disagree (5)
 - Disagree (6)
 - Strongly disagree (7)
-

Q321 I believe I should always show respect to my parents and to older people. It is important to me to be obedient

- Describes me extremely well (1)
 - Describes me very well (2)
 - Describes me moderately well (3)
 - Describes me slightly well (4)
 - Does not describe me (5)
-

Q322 Religious belief is important to me. I try hard to do what my religion requires.

- Describes me extremely well (1)
 - Describes me very well (2)
 - Describes me moderately well (3)
 - Describes me slightly well (4)
 - Does not describe me (5)
-

Q323 It's very important to me to help the people around me. I want to care for their well-being

- Describes me extremely well (1)
 - Describes me very well (2)
 - Describes me moderately well (3)
 - Describes me slightly well (4)
 - Does not describe me (5)
-

Q324 I think it is important that every person in the world be treated equally. I believe everyone should have equal opportunities in life.

- Describes me extremely well (1)
- Describes me very well (2)
- Describes me moderately well (3)
- Describes me slightly well (4)
- Does not describe me (5)

Q325 I think it's important to be interested in things. I like to be curious and to try to understand all sorts of things.

- Describes me extremely well (1)
 - Describes me very well (2)
 - Describes me moderately well (3)
 - Describes me slightly well (4)
 - Does not describe me (5)
-

Q326 I like to take risks. I am always looking for adventures.

- Describes me extremely well (1)
 - Describes me very well (2)
 - Describes me moderately well (3)
 - Describes me slightly well (4)
 - Does not describe me (5)
-

Q327 I seek every chance I can to have fun. It is important to me to do things that give me pleasure.

- Describes me extremely well (1)
 - Describes me very well (2)
 - Describes me moderately well (3)
 - Describes me slightly well (4)
 - Does not describe me (5)
-

Q328 Being successful is important to me. I like to impress other people.

- Describes me extremely well (1)
 - Describes me very well (2)
 - Describes me moderately well (3)
 - Describes me slightly well (4)
 - Does not describe me (5)
-

Q329 It is important to me to be in charge and tell others what to do. I want people to do what I say.

- Describes me extremely well (1)
 - Describes me very well (2)
 - Describes me moderately well (3)
 - Describes me slightly well (4)
 - Does not describe me (5)
-

Q330 It is important to me that things be organized and clean. I really do not like things to be a mess.

- Describes me extremely well (1)
- Describes me very well (2)
- Describes me moderately well (3)
- Describes me slightly well (4)
- Does not describe me (5)

End of Block: Personality Trait & Values Scales

Start of Block: Locus of Control Scale

Q369 In my life, good luck is more important than hard work for success

- Strongly agree (1)
 - Somewhat agree (2)
 - Somewhat disagree (3)
 - Strongly disagree (4)
-

Q370 When I make plans, I am almost certain I can make them work

- Strongly agree (1)
 - Somewhat agree (2)
 - Somewhat disagree (3)
 - Strongly disagree (4)
-

Q371 Every time I try to go ahead, something or somebody stops me

- Strongly agree (1)
 - Somewhat agree (2)
 - Somewhat disagree (3)
 - Strongly disagree (4)
-

Q372 My plans hardly ever work out, so planning makes me unhappy

- Strongly agree (1)
 - Somewhat agree (2)
 - Somewhat disagree (3)
 - Strongly disagree (4)
-

Q373 I do not have enough control over the direction my life is taking

- Strongly agree (1)
 - Somewhat agree (2)
 - Somewhat disagree (3)
 - Strongly disagree (4)
-

Q374 Chance and luck are very important for what happens in my life

- Strongly agree (1)
- Somewhat agree (2)
- Somewhat disagree (3)
- Strongly disagree (4)

End of Block: Locus of Control Scale

Start of Block: Fielding Questions

Q2 Have you attended a UK Music Festival in the last 12 months?

Yes (1)

No (2)

Q3 Did you use alcohol or drugs while at the festival(s)?

Yes (1)

No (2)

Q4 Which Festival(s) did you attend? *Select all that apply.*

- Glastonbury (1)
- Boardmasters (2)
- Boomtown (3)
- Reading or/and Leeds (4)
- Isle of Wight (5)
- NASS (6)
- BST Hyde Park (7)
- Kendal Calling (8)
- Park Life (9)
- TRNSMT (10)
- Love Saves the Day (11)
- Latitude (12)
- Lovebox (13)
- Creamfields (14)
- Fusion (15)
- Camp Bestival (16)
- Download (17)

SW4 (18)

Wireless (19)

Other (please list) (20)

Q5 Which substances did you use on one or more occasion(s) while at the festival(s)? *Select all that apply.*

- Alcohol (1)
 - Cannabis (Weed, Marijuana) (2)
 - MDMA Crystals (Molly, Mandy) (3)
 - MDMA Pills (Ecstasy) (4)
 - Cocaine (Charlie, Gear, Snow) (15)
 - 2CB (Bromo, Nexus) (5)
 - Ketamine (Special K, Kit Kat) (6)
 - LSD (Lucy, Acid) (7)
 - Magic Mushrooms (Shrooms, Caps) (8)
 - Benzodiazepines (Benzos, Downers) (9)
 - Novel Psychoactive Substances ("Legal Highs" or "Research Chemicals") (10)
 - Amphetamine (Speed) (11)
 - Mephedrone (Meow-Meow, M-CAT) (12)
 - Opioids (Heroin, Tramadol, Codine etc) (13)
 - Other(s) - Please List (14)
-

Q337 Did you use more than one substance (including alcohol) at the same time (polysubstance use) while at the festival(s)?

Yes (1)

No (2)

End of Block: Fielding Questions

Start of Block: Non-Substance User Questions

Q380 Have you ever used alcohol or substances in the past whilst at any Music Festival?

Yes (1)

No (2)

Q381 Why did you choose not to use alcohol or substances while at a Music Festival in the past 12 months? *Select all that apply.*

- I have stopped using alcohol or substances due to addiction difficulties. (1)
- I have stopped using alcohol or substances due to mental health difficulties. (2)
- I have stopped using alcohol or substances due to physical health difficulties. (3)
- I have stopped using alcohol or substances as I believe it is too risky. (4)
- It was not made available to me. (5)
- I wanted to experience more of the event. (6)
- I was not able to afford alcohol or substances. (7)
- I was working and unable to use alcohol or substances. (8)
- I was with people who disapprove of using alcohol or substances. (9)
- I have never used alcohol or substances. (10)
- My friends encouraged me not to use alcohol or substances (11)
- I accessed a service or information which encouraged me not to use alcohol or substances. (12)
- I had a negative experience while using alcohol or substances. (13)

End of Block: Non-Substance User Questions

Start of Block: Use of Over 4 Substances



Q378 Of the substances you have used please select which two you use most frequently:

- Alcohol (1)
 - Cannabis (2)
 - MDMA (Crystals) (3)
 - MDMA (Pills) (4)
 - 2CB (5)
 - Cocaine (6)
 - Ketamine (7)
 - LSD (8)
 - Magic Mushrooms (9)
 - Benzodiazepines (10)
 - Novel Psychoactive Substances ("Legal Highs") (11)
 - Amphetamine (12)
 - Mephedrone (13)
 - Opioids (14)
 - Other (Please List) (15)
-



Q379 Of the substances you have used please select which two you use least frequently:

- Alcohol (1)
 - Cannabis (2)
 - MDMA (Crystals) (3)
 - MDMA (Pills) (4)
 - 2CB (5)
 - Cocaine (6)
 - Ketamine (7)
 - LSD (8)
 - Magic Mushrooms (9)
 - Benzodiazepines (10)
 - Novel Psychoactive Substances ("Legal Highs") (11)
 - Amphetamine (12)
 - Mephedrone (13)
 - Opioids (14)
 - Other (Please List) (15)
-

End of Block: Use of Over 4 Substances

Start of Block: Alcohol Questions

Q295 How often do you drink alcohol when you are **NOT** at a music festival?

- Every day (1)
 - Most days (2)
 - Some days (3)
 - Occassionally (4)
 - Never (5)
-

Q8 Did you intend to use alcohol at the festival(s) before you arrived?

- Yes (1)
 - No (2)
-

Q339 Were you aware of the likely effects of this substance before you consumed it?

- Yes (1)
 - No (2)
-

Q340 Were you aware of the possible risks associated with this substance before you consumed it?

- Yes (1)
 - No (2)
-

Q9 How often did you consume alcohol while at the festival(s)?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occasionally (4)
 - Only Once (5)
-

Q10

When you consumed alcohol how many units did you drink on average per day?

- 1-5 (1)
 - 6-10 (2)
 - 11-15 (3)
 - 16+ (4)
 - Unsure (5)
-

Q11

Why did you use alcohol at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q12 Following your use of alcohol what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I fell asleep more easily (8)
 - Other - Please State (9)
-

Q13 Did you require any support from onsite medical or welfare services whilst under the influence of alcohol?

- Yes (1)
 - No (2)
-

Q14

Did you experience any of these negative effects when using alcohol? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low mood (10)
 - Other - Please State (11)
-
-

Q15 Did you experience any of the following while under the influence of alcohol?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q16

Did you use any of the following harm reduction strategies when using alcohol? *Select all that apply.*

- Setting a limit on the number of drinks you would drink. (1)
 - Drinking soft drinks or water between alcoholic drinks. (2)
 - Avoiding mixing alcohol with other substances. (3)
 - Setting a meeting point with others should you become lost. (4)
 - Setting a time limit on when to stop drinking alcohol. (5)
 - Carrying a form of contraception/protection i.e. condoms (6)
 - Eating regular meals. (7)
 - Staying with a group of friends. (8)
 - Planning particular times or days where you do not use alcohol. (9)
 - Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (10)
 - Taking regular toilet breaks. (11)
 - Taking regular rest breaks. (12)
-

Q17

Did you do any of the following while using alcohol at the festival(s)? *Select all that apply.*

- Drink more than the recommended allowance. (give unit info) (1)
- Mix alcohol with any other substance (If selected please state which other substance(s)) (2) _____
- Drink a drink that had been left unattended. (3)
- Drink a drink brought by someone you don't know or trust. (4)
- Feel pressured into drinking more than you had planned. (5)

End of Block: Alcohol Questions

Start of Block: Cannabis Questions

Q296 How often do you use Cannabis when you are **NOT** at a music festival?

- Every day (1)
 - Most days (2)
 - Some days (3)
 - Occassionally (4)
 - Never (5)
-

Q40 Did you intend to use Cannabis at the festival(s) before you arrived?

- Yes (1)
 - No (2)
-

Q341 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q342 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q41 How often did you consume Cannabis while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q42 When you consumed Cannabis how many grams did you use on average per day?

0 - 0.5g (1)

0.6 - 1g (2)

1 - 2g (3)

2.1 - 4g (4)

Over 4g (5)

Unsure (6)

Q43

Why did you use Cannabis at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q44 Following your use of Cannabis what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q45 Did you require any support from onsite medical or welfare services whilst under the influence of Cannabis?

- Yes (1)
 - No (2)
-

Q46

Did you experience any of these negative effects after using Cannabis? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Other - Please State (11)
-

Q47 Did you experience any of the following while under the influence of Cannabis?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____



Q48

Did you use any of the following harm reduction strategies when using Cannabis? *Select all that apply.*

- Setting a limit on the number of grams you would consume. (1)
- Drinking soft drinks or water while under the influence of Cannabis (2)
- Avoiding mixing Cannabis with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming Cannabis. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use Cannabis (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance (11)
- Buying your substance from a known or trusted source (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q49

Did you do any of the following while using Cannabis at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
- Mix Cannabis with any other substance or alcohol (If selected please state which other substance(s) (2) _____)
- Take Cannabis which you found. (3)
- Take Cannabis brought by someone you don't know or trust. (4)
- Feel pressured into taking more Cannabis than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: Cannabis Questions

Start of Block: 2CB Questions

Q297 How often do you use 2CB when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q50 Did you intend to use 2CB at the festival(s) before you arrived?

Yes (1)

No (2)

Q343 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q344 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q51 How often did you consume 2CB while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q52

When you consumed 2CB how many milligrams did you use on average per day? *If you used 2CB Pills which were untested, or of unknown quantity, please select unsure.*

- 2 - 5mg (1)
 - 6 - 15mg (2)
 - 16 - 25mg (3)
 - 26 - 50mg (4)
 - Over 50mg (5)
 - Unsure (6)
-

Q53

Why did you use 2CB at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q54 Following your use of 2CB what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q55 Did you require any support from onsite medical or welfare services whilst under the influence of 2CB?

- Yes (1)
 - No (2)
-

Q56

Did you experience any of these negative effects after using 2CB? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
 - Other - Please State (12)
-

Q57 Did you experience any of the following while under the influence of 2CB?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q58

Did you use any of the following harm reduction strategies when using 2CB? *Select all that apply.*

- Setting a limit on the number of milligrams you would consume. (1)
- Drinking soft drinks or water while under the influence of 2CB (2)
- Avoiding mixing 2CB with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming 2CB. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use 2CB. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance (11)
- Buying your substance from a known or trusted source (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q59

Did you do any of the following while using 2CB at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
- Mix 2CB with any other substance or alcohol (If selected please state which other substance(s) (2) _____
- Take 2CB which you found. (3)
- Take 2CB brought by someone you don't know or trust. (4)
- Feel pressured into taking more 2CB than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: 2CB Questions

Start of Block: Opioids Questions

Q278 What type(s) of Opioid did you use at the festival(s)?

Q298 How often do you use opioids when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q268 Did you intend to use Opioids at the festival(s) before you arrived?

- Yes (1)
 - No (2)
-

Q382 When you consumed the Opioid(s) how would you rate your dose?

- Threshold amount (1)
 - Low (2)
 - Medium/Normal (3)
 - Heavy (4)
 - Unsure (5)
-

Q345 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q346 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q269 How often did you consume Opioids while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q271

Why did you use Opioids at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q272 Following your use of Opioids what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q273 Did you require any support from onsite medical or welfare services whilst under the influence of Opioids?

- Yes (1)
 - No (2)
-

Q274

Did you experience any of these negative effects after using Opioids? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Other - Please State (11)
-

Q275 Did you experience any of the following while under the influence of Opioids?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q276

Did you use any of the following harm reduction strategies when using Opioids? *Select all that apply.*

- Setting a limit on the number of milligrams you would consume. (1)
- Drinking soft drinks or water while under the influence of Opioids (2)
- Avoiding mixing Opioids with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming Opioids. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use Opioids. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance (11)
- Buying your substance from a known or trusted source (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q277

Did you do any of the following while using Opioids at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
- Mix Opioids with any other substance or alcohol (If selected please state which other substance(s) (2) _____)
- Take Opioids which you found. (3)
- Take Opioids brought by someone you don't know or trust. (4)
- Feel pressured into taking more Opioids than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: Opioids Questions

Start of Block: Cocaine Questions

Q299 How often do you use Cocaine when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q61 Did you intend to use Cocaine at the festival(s) before you arrived?

Yes (1)

No (2)

Q347 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q348 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q62 How often did you consume Cocaine while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q63

When you consumed Cocaine how many grams did you use on average per day?

- 0 - 0.2g (1)
 - 0.3 -0.5g (2)
 - 0.6 - 1g (3)
 - 1 - 2g (4)
 - Over 2g (5)
 - Unsure (6)
-

Q64

Why did you use Cocaine at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q65 Following your use of Cocaine what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q66 Did you require any support from onsite medical or welfare services whilst under the influence of Cocaine?

- Yes (1)
 - No (2)
-

Q67

Did you experience any of these negative effects after using Cocaine? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q68 Did you experience any of the following while under the influence of Cocaine?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q69

Did you use any of the following harm reduction strategies when using Cocaine? *Select all that apply.*

- Setting a limit on the number of grams you would consume. (1)
- Drinking soft drinks or water while under the influence of Cocaine (2)
- Avoiding mixing Cocaine with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming Cocaine. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use Cocaine. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance (11)
- Buying your substance from a known or trusted source (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q70

Did you do any of the following while using Cocaine at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
- Mix Cocaine with any other substance or alcohol (If selected please state which other substance(s) (2) _____)
- Take Cocaine which you found. (3)
- Take Cocaine brought by someone you don't know or trust. (4)
- Feel pressured into taking more Cocaine than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: Cocaine Questions

Start of Block: MDMA Crystals Questions

Q300 How often do you use MDMA Crystals when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q18 Did you intend to use MDMA Crystals at the festival(s) before you arrived?

Yes (1)

No (2)

Q349 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q350 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q19 How often did you consume MDMA Crystals while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q20

When you consumed MDMA crystals how many milligrams did you take on average per day? *If*

you used capsules or "bombs" containing an unknown amount of MDMA Crystals please select "Unsure"

- 0-50mg (1)
 - 51-100mg (2)
 - 101-150mg (3)
 - 151-200mg (4)
 - 200-300mg (5)
 - Over 300mg (6)
 - Unsure (7)
-

Q23

Why did you use MDMA Crystals at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q24 Following your use of MDMA Crystals what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I fell asleep more easily (8)
 - Other - Please State (9)
-

Q25 Did you require any support from onsite medical or welfare services whilst under the influence of MDMA Crystals?

- Yes (1)
 - No (2)
-

Q26

Did you experience any of these negative effects after using MDMA Crystals? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low mood (10)
 - Other - Please State (11)
-

Q27 Did you experience any of the following while under the influence of MDMA Crystals?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q28

Did you use any of the following harm reduction strategies when using MDMA Crystals? *Select all that apply.*

- Setting a limit on the number of milligrams you would take. (1)
- Drinking soft drinks or water while under the influence of MDMA Crystals. (2)
- Avoiding mixing MDMA Crystals with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop taking MDMA Crystals. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use MDMA Crystals. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance (11)
- Buying your substance from a known or trusted source (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q29 Did you do any of the following while using MDMA Crystals at the festival(s)? Select all that apply.

- Take more than the average adult dose (give calculating info) (1)
 - Mix MDMA Crystals with any other substance or alcohol (If selected please state which other substance(s)) (2)
-

- Take MDMA Crystals which you found. (3)
- Take MDMA Crystals brought by someone you don't know or trust. (4)
- Feel pressured into taking more MDMA than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: MDMA Crystals Questions

Start of Block: MDMA Pills Questions

Q301 How often do you use MDMA / Ecstasy Pills when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q30 Did you intend to use MDMA / Ecstasy Pills at the festival(s) before you arrived?

Yes (1)

No (2)

Q351 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q352 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q31 How often did you consume MDMA / Ecstasy Pills while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q32

When you consumed MDMA / Ecstasy Pills how many pills did you take on average per day?

- 0-0.5 Pills (1)
 - 0.5-1 Pill (2)
 - 1.5-2 Pills (3)
 - 2.5-3 Pills (4)
 - Over 3 Pills (5)
 - Unsure (6)
-

Q33

Why did you use MDMA Pills at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To enhance the effects of another substance(s) (11)
 - To reduce the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q34 Following your use of MDMA Pills what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I fell asleep more easily (8)
 - Other - Please State (9)
-

Q35 Did you require any support from onsite medical or welfare services whilst under the influence of MDMA Pills?

- Yes (1)
 - No (2)
-

Q36

Did you experience any of these negative effects after using MDMA Pills? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Other - Please State (11)
-
-

Q37 Did you experience any of the following while under the influence of MDMA Pills?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q38

Did you use any of the following harm reduction strategies when using MDMA Pills? *Select all that apply.*

- Setting a limit on the number of MDMA Pills you would take. (1)
- Drinking soft drinks or water while under the influence of MDMA Pills. (2)
- Avoiding mixing MDMA Pills with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop taking MDMA Pills. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use MDMA Pills. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance (11)
- Buying your substance from a known or trusted source (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q39

Did you do any of the following while using MDMA Pills at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
 - Mix MDMA Pills with any other substance or alcohol (If selected please state which other substance(s)) (2)
-

- Take MDMA Pills which you found. (3)
- Take MDMA Pills brought by someone you don't know or trust. (4)
- Feel pressured into taking more MDMA than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: MDMA Pills Questions

Start of Block: Ketamine

Q302 How often do you use Ketamine when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q71 Did you intend to use Ketamine at the festival(s) before you arrived?

Yes (1)

No (2)

Q353 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q354 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q72 How often did you consume Ketamine while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q73

When you consumed Ketamine how many milligrams did you use on average per day?

- 0-50mg (1)
 - 51-100mg (2)
 - 100-200mg (3)
 - 200-500mg (4)
 - Over 500mg (5)
 - Unsure (6)
-

Q74

Why did you use Ketamine at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q75 Following your use of Ketamine what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q76 Did you require any support from onsite medical or welfare services whilst under the influence of Ketamine?

- Yes (1)
 - No (2)
-

Q77

Did you experience any of these negative effects after using Ketamine? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q78 Did you experience any of the following while under the influence of Ketamine?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q79

Did you use any of the following harm reduction strategies when using Ketamine? *Select all that apply.*

- Setting a limit on the number of milligrams you would consume. (1)
- Drinking soft drinks or water while under the influence of Ketamine (2)
- Avoiding mixing Ketamine with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming Ketamine. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use Ketamine. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance (11)
- Buying your substance from a known or trusted source (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q80

Did you do any of the following while using Ketamine at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
- Mix Ketamine with any other substance or alcohol (If selected please state which other substance(s) (2) _____)
- Take Ketamine which you found. (3)
- Take Ketamine brought by someone you don't know or trust. (4)
- Feel pressured into taking more Ketamine than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: Ketamine

Start of Block: LSD Questions

Q303 How often do you use LSD when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q81 Did you intend to use LSD at the festival(s) before you arrived?

Yes (1)

No (2)

Q355 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q356 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q82 How often did you consume LSD while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q83

When you consumed LSD how many uG did you use on average per day? *If you used tabs of unknown strength please select "Unsure"*

- 0-50ug (1)
 - 50-100ug (2)
 - 100-200ug (3)
 - Over 200ug (4)
 - Unsure (5)
-

Q84

Why did you use LSD at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q85 Following your use of LSD what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q86 Did you require any support from onsite medical or welfare services whilst under the influence of LSD?

- Yes (1)
 - No (2)
-

Q87

Did you experience any of these negative effects after using LSD? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q88 Did you experience any of the following while under the influence of LSD?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q89

Did you use any of the following harm reduction strategies when using LSD? *Select all that apply.*

- Setting a limit on the number of tabs you would consume. (1)
- Drinking soft drinks or water while under the influence of LSD. (2)
- Avoiding mixing LSD with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming LSD. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use LSD. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance. (11)
- Buying your substance from a known or trusted source. (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q90

Did you do any of the following while using LSD at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
- Mix LSD with any other substance or alcohol (If selected please state which other substance(s) (2) _____
- Take LSD which you found. (3)
- Take LSD brought by someone you don't know or trust. (4)
- Feel pressured into taking more LSD than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: LSD Questions

Start of Block: Magic Mushrooms Questions

Q304 How often do you use Magic Mushrooms when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q91 Did you intend to use Magic Mushrooms at the festival(s) before you arrived?

Yes (1)

No (2)

Q357 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q358 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q92 How often did you consume Magic Mushrooms while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q93

When you consumed Magic Mushrooms how many **dried** grams did you use on average per day? *If you used fresh mushrooms please select unsure.*

- 0-1g (1)
 - 1-2g (2)
 - 2-3g (3)
 - 4-5g (4)
 - Over 5g (5)
 - Unsure (6)
-

Q94

Why did you use Magic Mushrooms at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q95 Following your use of Magic Mushrooms what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q96 Did you require any support from onsite medical or welfare services whilst under the influence of Magic Mushrooms?

- Yes (1)
 - No (2)
-

Q97

Did you experience any of these negative effects after using Magic Mushrooms? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q98 Did you experience any of the following while under the influence of Magic Mushrooms?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q99

Did you use any of the following harm reduction strategies when using Magic Mushrooms? *Select all that apply.*

- Setting a limit on the number of grams you would consume. (1)
- Drinking soft drinks or water while under the influence of Magic Mushrooms. (2)
- Avoiding mixing Magic Mushrooms with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming Magic Mushrooms. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use Magic Mushrooms. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance. (11)
- Buying your substance from a known or trusted source. (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q100

Did you do any of the following while using Magic Mushrooms at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
- Mix Magic Mushrooms with any other substance or alcohol (If selected please state which other substances) (2)

- Take Magic Mushrooms which you found. (3)
- Take Magic Mushrooms brought by someone you don't know or trust. (4)
- Feel pressured into taking more Magic Mushrooms than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: Magic Mushrooms Questions

Start of Block: Benzodiazepines Questions

Q141 Which type(s) of benzodiazepines did you use at the festival(s) *Please list.*

Q305 How often do you use Benzodiazepines when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q101 Did you intend to use benzodiazepines at the festival(s) before you arrived?

- Yes (1)
 - No (2)
-

Q359 Were you aware of the likely effects of this substance before you consumed it?

- Yes (1)
 - No (2)
-

Q360 Were you aware of the possible risks associated with this substance before you consumed it?

- Yes (1)
 - No (2)
-

Q383 When you consumed the Benzodiazopine(s) how would you rate your dose?

- Threshold amount (1)
 - Low (2)
 - Medium/Normal (3)
 - Heavy (4)
 - Unsure (5)
-

Q102 How often did you consume benzodiazepines while at the festival(s)?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occasionally (4)
 - Only Once (5)
-

Q104

Why did you use benzodiazepines at the festival(s)? *Select all that apply.*

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q105 Following your use of benzodiazepines what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q106 Did you require any support from onsite medical or welfare services whilst under the influence of benzodiazepines?

- Yes (1)
 - No (2)
-

Q107

Did you experience any of these negative effects after using benzodiazepines? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q108 Did you experience any of the following while under the influence of benzodiazepines?

- Physical Injury (1)
 - Dental Injury (2)
 - Sexual Assault (3)
 - Domestic Violence (4)
 - Physical Assault (5)
 - Verbal Altercation (6)
 - Getting Lost or Separated (7)
 - Unprotected Sex (8)
 - Committed a Criminal Act (9)
 - Intervention by Security Staff or Police Officers (10)
 - Arrested (11)
 - Removed from Site or Denied Entry (12)
 - Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
 - Mental Health Difficulties (Please State) (14) _____
-

Q109

Did you use any of the following harm reduction strategies when using benzodiazepines? *Select all that apply.*

- Setting a limit on the number of milligrams you would consume. (1)
- Drinking soft drinks or water while under the influence of benzodiazepines. (2)
- Avoiding mixing benzodiazepines with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming benzodiazepines. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use benzodiazepines. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance. (11)
- Buying your substance from a known or trusted source. (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q110

Did you do any of the following while using benzodiazepines at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (give calculating info) (1)
 - Mix benzodiazepines with any other substance or alcohol (If selected please state which other substances) (2)
-
- Take benzodiazepines which you found. (3)
 - Take benzodiazepines brought by someone you don't know or trust. (4)
 - Feel pressured into taking more benzodiazepines than you had planned. (5)
 - Re dose before feeling the effects of an initial dose. (6)
 - Brought your substance from an unknown or untrusted source. (7)

End of Block: Benzodiazepines Questions

Start of Block: NPS Questions

Q160 Which Novel Psychoactive Substances (*Research Chemicals/Legal Highs*) did you use at the festival(s)? *Please List*

Q306 How often do you use Novel Psychoactive Substances when you are not at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q161 Did you intend to use the substance(s) at the festival(s) before you arrived?

- Yes (1)
 - No (2)
-

Q384 When you consumed the Substance(s) how would you rate your dose?

- Threshold amount (1)
 - Low (2)
 - Medium/Normal (3)
 - Heavy (4)
 - Unsure (5)
-

Q162 How often did you consume the substance(s) while at the festival(s)?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occasionally (4)
 - Only Once (5)
-

Q361 Were you aware of the likely effects of this substance before you consumed it?

- Yes (1)
 - No (2)
-

Q362 Were you aware of the possible risks associated with this substance before you consumed it?

- Yes (1)
 - No (2)
-

Q164 Why did you use the substance(s) at the festival(s)? Select all that apply.

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q165 Following your use of the substance(s) what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q166 Did you require any support from onsite medical or welfare services whilst under the influence of the substance(s)?

- Yes (1)
 - No (2)
-

Q167 Did you experience any of these negative effects after using the substance(s)? Select all that apply.

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q168 Did you experience any of the following while under the influence of the substance(s)?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q169 Did you use any of the following harm reduction strategies when using the substance(s)? *Select all that apply.*

- Setting a limit on the amount you would consume. (1)
 - Drinking soft drinks or water while under the influence of the substance(s). (2)
 - Avoiding mixing the substance(s) with other substances or alcohol. (3)
 - Setting a meeting point with others should you become lost. (4)
 - Setting a time limit on when to stop consuming the substance(s). (5)
 - Carrying a form of contraception/protection i.e. condoms (6)
 - Eating regular meals. (7)
 - Staying with a group of friends. (8)
 - Planning particular times or days where you do not use the substance(s). (9)
 - Waiting to feel the initial effects of a dose before redosing. (10)
 - Testing your substance. (11)
 - Buying your substance from a known or trusted source. (12)
 - Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
 - Taking regular toilet breaks. (14)
 - Taking regular rest breaks. (15)
-

Q170

Did you do any of the following while using Magic Mushrooms at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (1)
 - Mix the substance(s) with any other substance or alcohol (If selected please state which other substances) (2)
-
- Take a substance(s) which you found. (3)
 - Take a substance(s) brought by someone you don't know or trust. (4)
 - Feel pressured into taking more of the substance(s) than you had planned. (5)
 - Re dose before feeling the effects of an initial dose. (6)
 - Brought your substance from an unknown or untrusted source. (7)

End of Block: NPS Questions

Start of Block: Amphetamine Questions

Q307 How often do you use Amphetamine when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q111 Did you intend to use Amphetamine at the festival(s) before you arrived?

Yes (1)

No (2)

Q364 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q363 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q112 How often did you consume Amphetamine while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q113 When you consumed Amphetamine how many milligrams did you use on average per day?

- 0-25mg (1)
 - 25-75mg (2)
 - 75-150mg (3)
 - 150-250mg (4)
 - 250-500mg (5)
 - Over 500mg (6)
 - Unsure (7)
-

Q114 Why did you use Amphetamine at the festival(s)? Select all that apply.

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q115 Following your use of Amphetamine what benefits do you feel you gained? Select all that apply.

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q116 Did you require any support from onsite medical or welfare services whilst under the influence of Amphetamine?

- Yes (1)
 - No (2)
-

Q117 Did you experience any of these negative effects after using Amphetamine? Select all that apply.

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q118 Did you experience any of the following while under the influence of Amphetamine?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q119 Did you use any of the following harm reduction strategies when using Amphetamine? Select all that apply.

- Setting a limit on the number of milligrams you would consume. (1)
- Drinking soft drinks or water while under the influence of Amphetamine. (2)
- Avoiding mixing Amphetamine with other substances or alcohol. (3)
- Setting a meeting point with others should you become lost. (4)
- Setting a time limit on when to stop consuming Amphetamine. (5)
- Carrying a form of contraception/protection i.e. condoms (6)
- Eating regular meals. (7)
- Staying with a group of friends. (8)
- Planning particular times or days where you do not use Amphetamine. (9)
- Waiting to feel the initial effects of a dose before redosing. (10)
- Testing your substance. (11)
- Buying your substance from a known or trusted source. (12)
- Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
- Taking regular toilet breaks. (14)
- Taking regular rest breaks. (15)

Q120 Did you do any of the following while using Amphetamine at the festival(s)? Select all that apply.

- Take more than the average adult dose (give calculating info) (1)
- Mix Amphetamine with any other substance or alcohol (If selected please state which other substances) (2) _____
- Take Amphetamine which you found. (3)
- Take Amphetamine brought by someone you don't know or trust. (4)
- Feel pressured into taking more Amphetamine than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: Amphetamine Questions

Start of Block: Mephedrone Questions

Q308 How often do you use Mephedrone when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionaly (4)
 - Never (5)
-

Q142 Did you intend to use Mephedrone at the festival(s) before you arrived?

Yes (1)

No (2)

Q365 Were you aware of the likely effects of this substance before you consumed it?

Yes (1)

No (2)

Q366 Were you aware of the possible risks associated with this substance before you consumed it?

Yes (1)

No (2)

Q143 How often did you consume Mephedrone while at the festival(s)?

Every Day (1)

Most Days (2)

Some Days (3)

Occasionally (4)

Only Once (5)

Q144 When you consumed Mephedrone how many milligrams did you use on average per day?

- 0-50mg (1)
 - 50-150mg (2)
 - 150-250mg (3)
 - 250-500mg (4)
 - Over 500mg (5)
 - Unsure (6)
-

Q145 Why did you use Mephedrone at the festival(s)? Select all that apply.

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q146 Following your use of Mephedrone what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q147 Did you require any support from onsite medical or welfare services whilst under the influence of Mephedrone?

- Yes (1)
 - No (2)
-

Q148 Did you experience any of these negative effects after using Mephedrone? *Select all that apply.*

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q149 Did you experience any of the following while under the influence of Mephedrone? *Select all that apply.*

- Physical Injury (1)
 - Dental Injury (2)
 - Sexual Assault (3)
 - Domestic Violence (4)
 - Physical Assault (5)
 - Verbal Altercation (6)
 - Getting Lost or Separated (7)
 - Unprotected Sex (8)
 - Committed a Criminal Act (9)
 - Intervention by Security Staff or Police Officers (10)
 - Arrested (11)
 - Removed from Site or Denied Entry (12)
 - Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
 - Mental Health Difficulties (Please State) (14)
-

Q150 Did you use any of the following harm reduction strategies when using Mephedrone? Select all that apply.

- Setting a limit on the number of milligrams you would consume. (1)
 - Drinking soft drinks or water while under the influence of Mephedrone. (2)
 - Avoiding mixing Mephedrone with other substances or alcohol. (3)
 - Setting a meeting point with others should you become lost. (4)
 - Setting a time limit on when to stop consuming Mephedrone. (5)
 - Carrying a form of contraception/protection i.e. condoms (6)
 - Eating regular meals. (7)
 - Staying with a group of friends. (8)
 - Planning particular times or days where you do not use Mephedrone. (9)
 - Waiting to feel the initial effects of a dose before redosing. (10)
 - Testing your substance. (11)
 - Buying your substance from a known or trusted source. (12)
 - Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
 - Taking regular toilet breaks. (14)
 - Taking regular rest breaks. (15)
-

Q151 Did you do any of the following while using Mephedrone at the festival(s)? Select all that apply.

- Take more than the average adult dose (give calculating info) (1)
- Mix Mephedrone with any other substance or alcohol (If selected please state which other substances) (2) _____
- Take Mephedrone which you found. (3)
- Take Mephedrone brought by someone you don't know or trust. (4)
- Feel pressured into taking more Amphetamine than you had planned. (5)
- Re dose before feeling the effects of an initial dose. (6)
- Brought your substance from an unknown or untrusted source. (7)

End of Block: Mephedrone Questions

Start of Block: Other Substances Questions

Q152

When asked which substances you used while at the festival(s) you indicated "other".

Please answer these questions in relation to these substances. If you listed multiple additional substances please answer these questions in relation to the substance you used most frequently.

Q338 If you listed multiple additional substances - which substance did you use most frequently?

Q310 How often do you use this substance(s) when you are **NOT** at a music festival?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occassionally (4)
 - Never (5)
-

Q131 Did you intend to use the substance(s) at the festival(s) before you arrived?

- Yes (1)
 - No (2)
-

Q367 Were you aware of the likely effects of this substance before you consumed it?

- Yes (1)
 - No (2)
-

Q368 Were you aware of the possible risks associated with this substance before you consumed it?

- Yes (1)
 - No (2)
-

Q132 How often did you consume the substance(s) while at the festival(s)?

- Every Day (1)
 - Most Days (2)
 - Some Days (3)
 - Occasionally (4)
 - Only Once (5)
-

Q133 When you consumed the substance(s) how would you rate your dose?

- Threshold amount (1)
 - Low (2)
 - Medium/Normal (3)
 - Heavy (4)
 - Unsure (5)
-

Q134 Why did you use the substance(s) at the festival(s)? Select all that apply.

- Out of habit (1)
 - To enjoy the music more (2)
 - To fit in with those around me (3)
 - Other people encouraged me to (4)
 - To experience fewer inhibitions (5)
 - To feel more confident (6)
 - To be more sociable (7)
 - To feel happier (8)
 - Impulsive decision (9)
 - To reduce the symptoms of mental health difficulties (10)
 - To reduce the effects of another substance(s) (11)
 - To enhance the effects of another substance(s) (12)
 - Other - Please State (13)
-

Q135 Following your use of the substance(s) what benefits do you feel you gained? *Select all that apply.*

- I felt happier (1)
 - I felt more confident (2)
 - I felt more alert (3)
 - I experienced better social interactions (4)
 - I enjoyed the music more (5)
 - I stayed awake for longer than I would normally (6)
 - I felt less anxiety (7)
 - I felt more relaxed (8)
 - I fell asleep more easily (9)
 - Other - Please State (10)
-

Q136 Did you require any support from onsite medical or welfare services whilst under the influence of the substance(s)?

- Yes (1)
 - No (2)
-

Q137 Did you experience any of these negative effects after using the substance(s)? Select all that apply.

- Nausea / Vomiting (1)
 - Confusion / Disorientation (2)
 - Loss of consciousness (3)
 - Loss of motor coordination (Difficulty walking or holding things) (4)
 - Loss of memory (5)
 - Inability to sleep (6)
 - Hangover (7)
 - Jaw or Tooth Ache (8)
 - Paranoia (9)
 - Low Mood (10)
 - Bad or Distressing Trip (Hallucinations) (11)
-

Q138 Did you experience any of the following while under the influence of the substance(s)?

- Physical Injury (1)
- Dental Injury (2)
- Sexual Assault (3)
- Domestic Violence (4)
- Physical Assault (5)
- Verbal Altercation (6)
- Getting Lost or Separated (7)
- Unprotected Sex (8)
- Committed a Criminal Act (9)
- Intervention by Security Staff or Police Officers (10)
- Arrested (11)
- Removed from Site or Denied Entry (12)
- Urgent Medical Difficulties e.g. seizures, hypothermia, hyponatremia (Please State) (13) _____
- Mental Health Difficulties (Please State) (14) _____

Q139 Did you use any of the following harm reduction strategies when using the substance(s)? *Select all that apply.*

- Setting a limit on the amount you would consume. (1)
 - Drinking soft drinks or water while under the influence of the substance(s). (2)
 - Avoiding mixing the substance(s) with other substances or alcohol. (3)
 - Setting a meeting point with others should you become lost. (4)
 - Setting a time limit on when to stop consuming the substance(s). (5)
 - Carrying a form of contraception/protection i.e. condoms (6)
 - Eating regular meals. (7)
 - Staying with a group of friends. (8)
 - Planning particular times or days where you do not use the substance(s). (9)
 - Waiting to feel the initial effects of a dose before redosing. (10)
 - Testing your substance. (11)
 - Buying your substance from a known or trusted source. (12)
 - Writing what you have consumed on your hand or mobile phone medical ID in case of an emergency. (13)
 - Taking regular toilet breaks. (14)
 - Taking regular rest breaks. (15)
-

Q140

Did you do any of the following while using Magic Mushrooms at the festival(s)? *Select all that apply.*

- Take more than the average adult dose (1)
 - Mix the substance(s) with any other substance or alcohol (If selected please state which other substances) (2)
-
- Take a substance(s) which you found. (3)
 - Take a substance(s) brought by someone you don't know or trust. (4)
 - Feel pressured into taking more of the substance(s) than you had planned. (5)
 - Re dose before feeling the effects of an initial dose. (6)
 - Brought your substance from an unknown or untrusted source. (7)

End of Block: Other Substances Questions

Start of Block: Harm Reduction Questions

Q153 Have you heard of the term harm-reduction in relation to alcohol/substance use at Festivals?

- Yes (1)
 - No (2)
-

Q154 Have you engaged with any of the following services or information access points?

- Onsite Welfare Services (1)
- Onsite Medical Services (2)
- Onsite Substance Advice,Checking or Testing Services (3)
- Onsite Mental Health Services (4)
- Onsite Addiction Support Services / Charities (5)
- Onsite Trip Sitting Services (6)
- Onsite Needle Exchange (7)
- Onsite Supervised Consumption Areas (8)
- Substance Information Provided by the Festival on their App or Website (9)
- Substance Information / Advice Leaflets (10)
- Online Substance Information / Advice (11)
- Offsite Drug Testing / Postal Drug Testing Services (12)
- DIY Reagent Testing (13)
- Online Pill Reports or Trip Reports (14)
- Community Mental Health Services (15)
- Community Substance Advice Services (16)
- Online Trip Sitting / Advice Services (17)

Q171 Onsite Welfare Services

Q155 How useful did you find this service?

- Extremely useful (1)
 - Very useful (2)
 - Moderately useful (3)
 - Slightly useful (4)
 - Not at all useful (5)
-

Q156 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q157 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q158

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q159 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Onsite Welfare Services

Start of Block: Onsite Medical Services

Q172 Onsite Medical Services

Q173 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q174 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q175 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q176

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q177 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Onsite Medical Services

Start of Block: Onsite Substance Advice, Checking or Testing Services

Q178 Onsite Substance Advice, Checking or Testing Services

Q179 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q180 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q181 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q182

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q183 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Onsite Substance Advice, Checking or Testing Services

Start of Block: Onsite Mental Health Services

Q190 Onsite Mental Health Services

Q191 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q192 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q193 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q194

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q195 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Onsite Mental Health Services

Start of Block: Onsite Addiction Support Services

Q196 Onsite Addiction Support Services

Q197 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q198 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q199 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q200

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q201 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Onsite Addiction Support Services

Start of Block: Onsite Trip Sitting Services

Q244 Onsite Trip Sitting Services

Q245 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q246 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q247 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q248

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q249 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Onsite Trip Sitting Services

Start of Block: Onsite Needle Exchange

Q256 Onsite Needle Exchange

Q257 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q258 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q259 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q260

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q261 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Onsite Needle Exchange

Start of Block: Onsite Supervised Consumption Areas

Q262 Onsite Supervised Consumption Areas

Q263 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q264 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q265 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q266

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q267 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Onsite Supervised Consumption Areas

Start of Block: Substance Information Provided by the Festival on their App or Website

Q184 Substance Information Provided by the Festival on their App or Website

Q185 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q186 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q187 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q188

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q189 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Substance Information Provided by the Festival on their App or Website

Start of Block: Substance Information / Advice Leaflets

Q202 Substance Information / Advice Leaflets

Q203 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q204 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q205 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q206

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q207 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Substance Information / Advice Leaflets

Start of Block: Online Substance Information / Advice

Q208 Online Substance Information / Advice

Q209 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q210 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q211 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q212

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q213 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Online Substance Information / Advice

Start of Block: Offsite / Postal Drug Testing Services

Q214 Offsite / Postal Drug Testing Services

Q215 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q216 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q217 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q218

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q219 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Offsite / Postal Drug Testing Services

Start of Block: DIY Reagent Testing

Q226 DIY Reagent Testing

Q227 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q228 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q229 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q230

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q231 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: DIY Reagent Testing

Start of Block: Online Pill Reports

Q220 Online Pill Reports

Q221 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q222 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q223 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q224

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q225 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Online Pill Reports

Start of Block: Community Mental Health Services

Q232 Online Pill Reports

Q233 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q234 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q235 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q236

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

- Yes (1)
 - No (2)
-

Q237 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

- Yes (1)
- No (2)

End of Block: Community Mental Health Services

Start of Block: Community Substance Advice Services

Q238 Community Substance Advice Services

Q239 How useful did you find this service?

- Extremely useful (1)
 - Very useful (2)
 - Moderately useful (3)
 - Slightly useful (4)
 - Not at all useful (5)
-

Q240 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q241 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q242

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q243 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Community Substance Advice Services

Start of Block: Online Trip Sitting / Advice Services

Q250 Online Trip Sitting / Advice Services

Q251 How useful did you find this service?

Extremely useful (1)

Very useful (2)

Moderately useful (3)

Slightly useful (4)

Not at all useful (5)

Q252 Why did you engage with this service? *Select all that apply.*

- Crisis or need of assistance (1)
 - To gain specific information (2)
 - By chance / walking past (3)
 - Incentives or free gifts (4)
 - To test a substance (5)
 - To get advice about a substance (6)
 - To rest and recuperate (7)
 - For reassurance (8)
 - For supplies of healthcare / harm reduction products (9)
 - Help with addiction or triggers (10)
 - To keep safe and make safer choices (11)
 - To help a friend (12)
 - Other - Please State (13)
-

Q253 Overall did this Service change your behaviour surrounding alcohol or substance use?

- Yes (1)
- No (2)

Q254

Did you choose not to use alcohol or substances you were planning to use as result of using this service?

Yes (1)

No (2)

Q255 Did this service help you to make safer choices surrounding your alcohol or substance use at Festivals?

Yes (1)

No (2)

End of Block: Online Trip Sitting / Advice Services

Start of Block: Polysubstance Use Questions

Q336 POLYSUBSTANCE USE

Q332 Did you use more than one substance (including alcohol) at the same time while at the Festival(s)?

Yes (1)

No (2)

Q333 Please list what substances (including alcohol) you used simultaneously.

Q334

What order did you take these substances (including alcohol) in? *If you are unsure or did not take these substances in any particular order please answer NA*

Q335 Why did you choose to use more than one substance (including alcohol) at the same time? *Please select all that apply.*

- To reduce the effects of another substance. (1)
- To enhance the effects of another substance. (2)
- Impulsive decision. (3)
- By mistake. (4)
- My judgement was affected by an initial substance. (5)
- To fit in with those around me. (6)
- Others encouraged me to do this. (7)
- I thought this would reduce the risks posed to me. (8)
- To have more fun. (9)
- To gain a sensation I could not achieve by taking one substance by itself. (10)

Appendix C - Ethics Approval Letter – Study One (Chapter 5)

– + ↔ | 1 of 1 | 🔍 | 📄

20 May 2020

Dear CHLOE RAYNER, , Professor Jason Davies, Dr Ceri Bradshaw,

Re: 2638 , Recreational Substance Use & Experiences of Harm Reduction at UK Music Festivals

Your application - <https://swansea.ethicalreviewmanager.com/ProjectView/Index/2638> - has been reviewed and approved by the Department of Psychology Ethics Committee.

The list of additional students (if any) are included in the table below:

Other student applicant - first name	Other student applicant - Surname	Other student applicant - email

additional researcher or student - first name	additional researcher or student - surname	additional researcher or student - email

The conditions of this approval are as follows:

1. To conduct your study strictly in accordance with the proposal that has been approved by the committee, including any approved amendments
2. To advise the ethics committee chair of any complaints or other issues that may warrant ethical review of the project
3. To submit for approval any changes to the approved protocol before implementing any such changes
4. To keep any information obtained from your participants absolutely confidential

Please note that failure to comply with these conditions of approval may result in the withdrawal of approval for the project.

To advertise your study on the departmental Participant Pool: You will need to send a request for your study to be made visible, via the link on the Experiment Management System website (see Researcher Documentation for details). Please ensure that you attach this letter to your request. (If you are unable to attach the Ethics approval, send it in a separate email to Dr. Phil Tucker [REDACTED]).

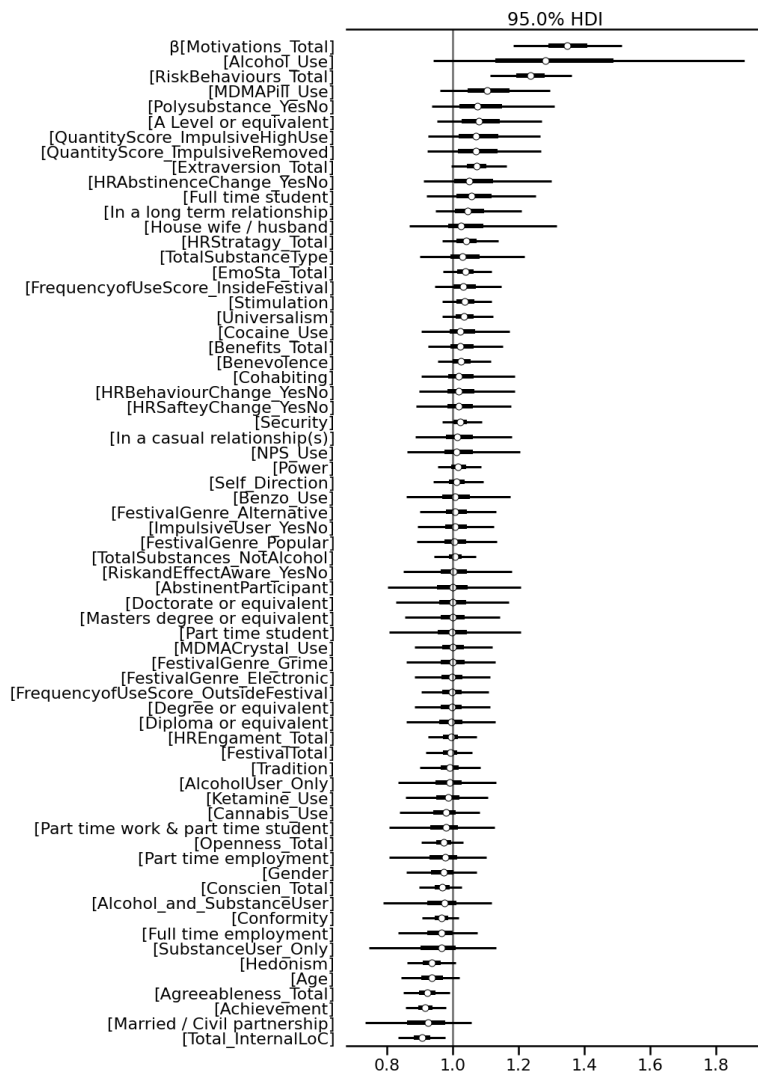
For students: Please ensure that the signed copy of this Ethical Approval, together with any other paperwork associated with your research, is included in your final write up.

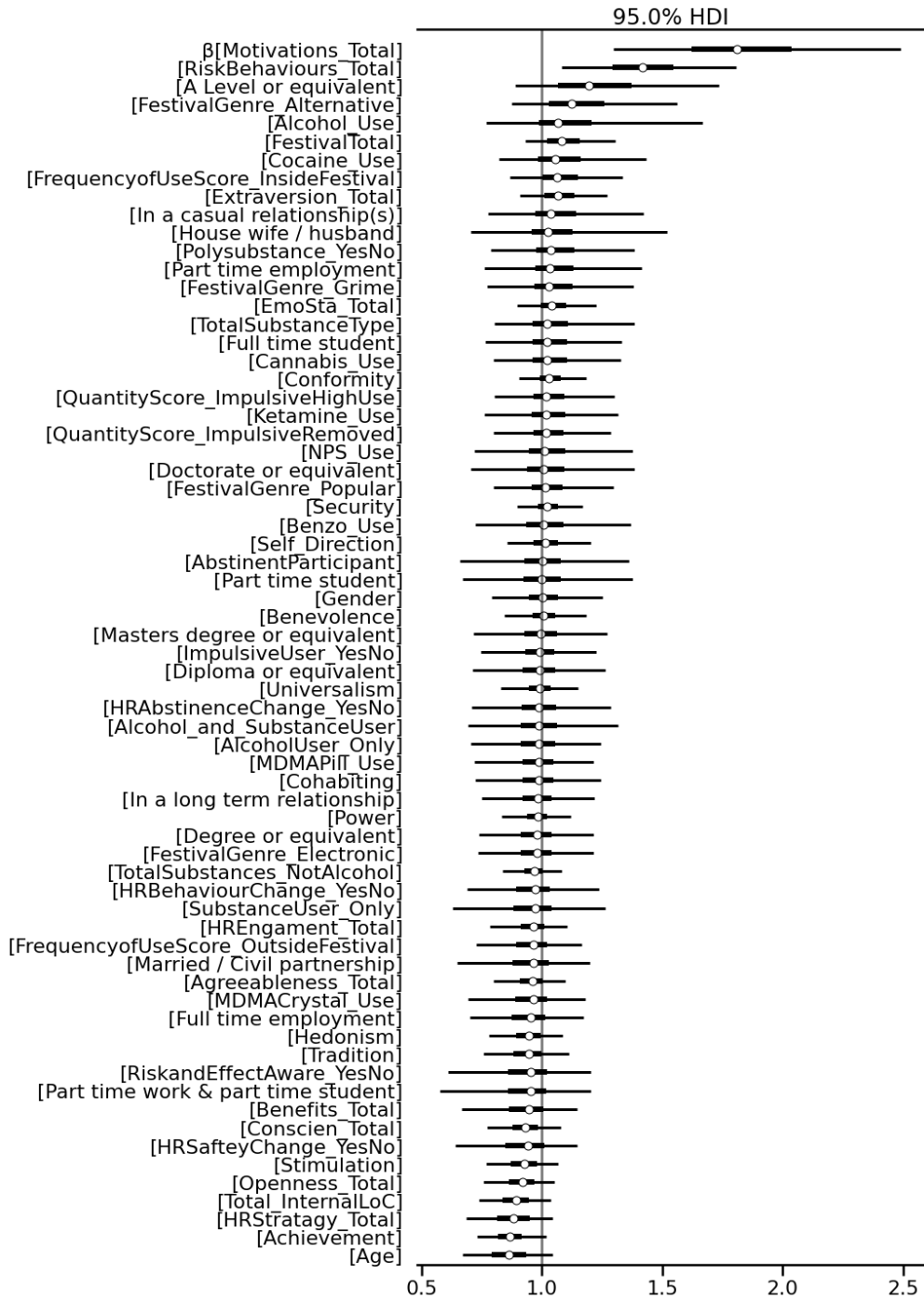
Yours Sincerely,

Associate Professor CRISTINA Izura (Reviewer of Application)

Dr Gabriela Jiga-Boy (Committee Chair)

Appendix D - Examples of Bayesian Models (Chapter 5)





Appendix E - Study 2 (Chapter 6) – Information Document, Consent Form, Survey and Debrief

Experiences of Frontline Workers in Relation to Recreational Substance Use at UK Music Festivals

Including, participant information sheet; participant informed consent form; survey and survey flow/logic; and participant debrief sheet.

i) Information Sheet

Start of Block: Information Sheet

Q1 UNDERSTANDING THE EXPERIENCES OF FRONT-LINE WORKERS IN RELATION TO RECREATIONAL SUBSTANCE USE AT UK MUSIC FESTIVALS PARTICIPANT INFORMATION SHEET You are being invited to take part in some research. Before you decide whether to participate, it is important for you to understand why the research is being conducted and what it will involve. Please read the following information carefully. What is the purpose of the research?

We are conducting research to understand your experiences, opinions and ideas surrounding recreational substance use at UK music festivals. We think your experiences working within a front-line service managing this issue makes your thoughts on the matter very valuable. We are hoping to understand more about what influences people to engage with harm reduction services. We feel if we can understand the psychology of this a little more, we may be able to design and implement interventions which are more effective in reducing risks among recreational substance users within the context of music festivals.

Inclusion Criteria We are looking to gather information from a particular group of people therefore this study may not be applicable to you. You will only be able to participate in this study if you meet all of the following criteria: You are aged 18 years or older You have worked or volunteered for one of the following service types onsite at a UK Music festival within the last two years: Medical Services Welfare Services
Drug & Alcohol Onsite Support Security Event Control
Trip Sitting Services Onsite Safeguarding / Social Work / Local Authority Teams
Onsite Mental Health Services Onsite Emergency Services

Who is carrying out the research?

The data is being collected by Chloe Rayner, under the supervision of Professor Jason Davies and Dr Ceri Bradshaw in the Department of Psychology at Swansea University. The research has been approved by the departmental Research Ethics Committee. This research is being completed as part of a PhD in Psychology.

What happens if I agree to take part?

If you decide to take part in the study, you will be asked to complete a questionnaire. This will consist of twelve questions where you will be asked to write an extended answer of around one to three paragraphs. We really want to collect as much data as possible about your experiences and opinions so the more you are able to write and share with us the better! Of course, you are able to write as much or as little as you are able and you are able to omit questions should you feel you do not wish to answer. The survey should take you approximately 20 minutes to complete however the time is dependent on how much you choose to write.

Additionally, we will ask for some background information including your job role, level of education, your age and gender. If you decide to participate you will be given a participant number. Only you will have access to this number. Your data will only be identifiable if you share your participant number with the researcher for the purposes of withdrawing your data. Are there any risks associated with taking part?

There are no significant risks associated with participation. Discussing your experiences of front-line work surrounding recreational substance users may cover previous experiences which were distressing. If you feel the need to talk about your experiences you can seek further information on the following websites:

<https://dancesafe.org/>

<https://www.mind.co.uk/>

Data Protection and Confidentiality.

Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR). All information collected about you will be kept strictly confidential. Your data will only be viewed by the research team. All electronic data will be stored on a password-protected computer file at the University of Swansea. All paper records will be stored in a locked filing cabinet at the University of Swansea. We will not be collecting identifiable information. Your responses will be linked to a participant number which will be given to you. Please note that the data we will collect for our study will be made anonymous, thus it will not be possible to identify and remove your data unless you provide the researcher with your participant number so please keep this safe. What will happen to the information I provide?

An analysis of the information will form part of our report at the end of the study and may be presented to interested parties and published in scientific journals and related media. Note

that all information presented in any reports or publications will be anonymous and unidentifiable. Is participation voluntary and what if I wish to later withdraw? Your participation is entirely voluntary – you do not have to participate if you do not want to. If you decide to participate, but later wish to withdraw from the study, then you are free to withdraw at any time, without giving a reason and without penalty. Due to the sensitive nature of the data we are collecting it will be anonymised at the point of participation. As such you will be given a participant number which links to your responses.

If you wish to withdraw your data you must give the researcher your participant number in order to identify your data so please keep this safe. Once two weeks have elapsed following your participation data will undergo analysis, at this point data will no longer be retrievable for withdrawal. Data Protection Privacy Notice. The data controller for this project will be Swansea University. The University Data Protection Officer provides oversight of university activities involving the processing of personal data, and can be contacted at the Vice Chancellors Office: VCO@swanseauniversity.com. Swansea University's Data Protection Officer is Bev Buckley and she may be contacted at:

b.y.buckley@swansea.ac.uk. Your personal data will be processed for the purposes outlined in this information sheet. Standard ethical procedures will involve you providing your consent to participate in this study by completing the consent form that has been provided to you. However, the legal basis on which this task is being performed is public interest, approved by the departmental Research Ethics Committee. If you are concerned about how your personal data is being processed, please contact Swansea University's Data Protection Officer at [REDACTED].

Details of your individual rights are available on the ICO website at: <https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/> What if I have other questions? If you have further questions about this study, please do not hesitate to contact us: Chloe Rayner Department of Psychology Swansea University [REDACTED]

Professor Jason Davies
Department of Psychology
Swansea University

[REDACTED]

Dr Ceri Bradshaw
Department of Psychology
Swansea University

[REDACTED]

End of Block: Information Sheet

ii) Consent Form

Start of Block: Consent Form

Q2 Consent Form Please read the following statements carefully. If you agree please select YES. If you no longer wish to participate please select NO. . I have read the

Participant Information Sheet. I agree to participate in the study. I understand that participation is voluntary, I am free to withdraw from the research, for any reason and without prejudice. I understand what my role will be in this research, all my questions have been answered to my satisfaction. I understand that I am free to ask any questions at any time before, during and after the study. I have been informed that the information I provide will be safeguarded. I agree to the researchers processing my personal data in accordance with the aims of the study described in the participant information sheet. I am over the age of 18

- o YES (1)
- o NO (2)

Q27 Please create a unique code below that you will remember. Your data will be anonymised, as such you will need this code should you wish to withdraw your data at a later stage. This code will be referred to as you participant reference. Please note data will be processed two weeks following collection; following this two week period you will be unable to withdraw your data from the study.

Please do not use your name, any identifiable information or any passwords you may use. Please create a code or word unique to this form.

End of Block: Consent Form

iii) Debrief Document

Start of Block: Debrief Form

Q3

Thank you for taking part in our research! Now that we've finished, let us explain the rationale behind this work. We are interested in understanding how best to keep people safe at music festivals. We are specifically interested in recreational substance use and harm reduction. We feel your valuable knowledge and experiences of working within the frontline at Music Festivals will be extremely valuable in understanding who is most at risk and why.

We are hoping to develop a harm reduction intervention in the near future which targets the most high-risk festival attendees. We hope to use the information we have gathered in this study to inform the design of the intervention which will aim to encourage festival attendees

engage with harm reduction services and make safer choices when choosing to use alcohol or substances recreationally.

Previous research has shown that people frequently use alcohol and substances at music festivals and that people often engage in high risk behaviours associated with this use such as double dosing or polysubstance use. Other research suggests that a harm reduction approach when designing intervention is effective in keeping people safer. We want to design a holistic intervention which is accessed by more people and is more effective in keeping them safe.

If you feel affected by issues raised by this research and would like to discuss any concerns, please contact the study Supervisor on the details provided below. If you feel this piece of research may have health implications for you, we advise you to contact your GP or access resources at www.mind.org

If you have any other questions about the research, please do not hesitate to contact us at:

Chloe Rayner
Department of Psychology
Swansea University

████████████████████

Professor Jason Davies
Department of Psychology
Swansea University

████████████████████

Dr Ceri Bradshaw
Department of Psychology
Swansea University

████████████████████k

End of Block: Debrief Form

iv) Survey

Start of Block: Demographics

Q4 Please indicate your gender:

- Male (1)
- Female (2)
- Other (3)

Q5 What is your age?

Q6 What is your highest level of education?

- GCSE (1)
- A-Level (2)
- Undergraduate (3)
- Postgraduate (4)
- Doctorate (5)

Q7 How many years experience do you have working within frontline services at UK Music Festivals?

- 0-1 (1)
- 2-3 (2)
- 4-6 (3)
- 7-10 (4)
- 11+ (5)

Q8 Which of the following services do you have experience working or volunteering within onsite at music festivals?

- Medical Services (1)
 - Welfare Services (2)
 - Drug & Alcohol Onsite Support (3)
 - Security (4)
 - Event Control (5)
 - Trip Sitting Services (6)
 - Onsite Safeguarding / Social Work / Local Authority Teams (7)
 - Onsite Mental Health Services (8)
 - Emergency Services (Police, Fire, Ambulance, Coast Guard) (9)
 - Other (Please State) (10)
-

End of Block: Demographics

Start of Block: Survey

Q9 Please answer the following questions whilst referring to your experiences, opinions and subject knowledge.

There are no right or wrong answers within this survey - we are looking to understand your individual experiences and thoughts on the subject which could be very different from others.

Please write as much or little as you feel able to. We are looking to collect as much data as possible for qualitative analysis so please try to provide extended answers where possible. A recommended length per question is one to three paragraphs however you are of course free to write as much as you like!

Q10 What does harm reduction mean to you?

Q11 What are your most common experiences in relation to substance misuse when working at festivals?

Q12 Please describe the most high risk situations involving substances you have been involved in when working at festivals, and how these were handled

Q13 In which ways do you feel the genre of festival affects the type of substance misuse cases (and type of substances) you deal with?

Q14 Which (if any) substance(s) do you feel results in the most negative incidents? Please explain your answer (We consider alcohol to be a substance in line with all other illicit or legal substances)

Q15 What do you think works well in relation to harm reduction at music festivals?

Q16 What (if any) barriers might discourage or stop people accessing harm reduction services at festivals?

Q17 Please describe how pre-festival harm reduction strategies could be used, and what might be effective?

Q18 If you could change or add something to improve current harm reduction approaches, what would it be?

Q19 Please explain what it is like to work within your role(s) at music festivals, what challenges do you face and how do you overcome these?

Q21 Thinking about service design and delivery, what has made it easier for you to engage with festival attendees within your role(s)? In addition, please discuss any factors which have made it more challenging.

Q22 In your experience are there any specific interventions which you feel are particularly useful in reducing risks?

Q23 During your experiences have you noticed potential relationships between the characteristics or demographics of individuals and typically presented problems? If so, please expand on the links you perceive and any experiences you have.

End of Block: Survey

Appendix F - Ethics Approval Letter – Study 2 (Chapter 6)

5 March 2021

Dear CHLOE RAYNER, , Professor Jason Davies, Dr Ceri Bradshaw,

Re: 4914 , Understanding the Experiences of Front Line Workers at UK Music Festivals

Your application - <https://swansea.ethicalreviewmanager.com/ProjectView/Index/4914> - has been reviewed and approved by the Department of Psychology Ethics Committee.

The list of additional students (if any) are included in the table below:

Other student applicant - first name	Other student applicant - Surname	Other student applicant - email
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additional researcher or student - first name	additional researcher or student - surname	additional researcher or student - email
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The conditions of this approval are as follows:

1. To conduct your study strictly in accordance with the proposal that has been approved by the committee, including any approved amendments
2. To advise the ethics committee chair of any complaints or other issues that may warrant ethical review of the project
3. To submit for approval any changes to the approved protocol before implementing any such changes
4. To keep any information obtained from your participants absolutely confidential

Please note that failure to comply with these conditions of approval may result in the withdrawal of approval for the project.

To advertise your study on the departmental Participant Pool: You will need to send a request for your study to be made visible, via the link on the Experiment Management System website (see Researcher Documentation for details). Please ensure that you attach this letter to your request. (If you are unable to attach the Ethics approval, send it in a separate email to Dr. Phil Tucker [REDACTED]).

For students: Please ensure that the signed copy of this Ethical Approval, together with any other paperwork associated with your research, is included in your final write up.

Yours Sincerely,

Dr John Towler (Reviewer of Application)

Dr Gabriela Jiga-Boy (Committee Chair)

Appendix G - Examples of coding for thematic analysis conducted within Study 2 (Chapter 6).

The screenshot displays a software interface for qualitative data analysis. The top menu bar includes options like Home, Import, Create, Explore, Share, Modules, and Document. Below the menu is a toolbar with various icons for editing and analysis. The main window is titled 'Participant 9' and contains a document with several paragraphs of text. Some text is highlighted in yellow, indicating it has been coded. To the right of the document is a 'CODE STRIPES' visualization, which is a horizontal bar chart where the length of each colored bar represents the frequency of a specific code in the document. The codes are listed on the left side of the visualization, and the bars extend to the right, showing their relative frequency.

Document Text:

Please describe the most high risk situations involving substances you have been involved in when working at festivals, and how these were handled

I have worked directly with the police to support young people under the age of 18 (whom did not have adults at the festive with them) following the death of one of their group and the hospitalisation of two more. I cannot speak for the wider police operation, but was incredibly impressed by the officer I worked with.

Supported a number of people who either themselves or another person has reported have been sexually assaulted/ raped whilst under the influence. The handling of these incidents have varied depending primarily upon the the individual. The police on site and medical teams have only been involved in a small number of these. Most have just wanted to leave the festival and we have supported them to do so. At times some of other services/ individuals have struggled to support this decision and their need to 'help' has become a challenge.

I have supported a small number of people who have suffered with dissociation for for a prolonged period (over 24 hours in one case). To my knowledge all were hospitalised off site. Key to the treatment they received was good joint working with medical teams and security onsite." "Each festival I've volunteered at does appear to have its own personality and although it can vary from year to year depending there is usually a certain level of predictability.

In which ways do you feel the genre of festival affects the type of substance misuse cases (and type of substances) you deal with?

Festivals that attract a younger audience has a tendency towards MDMA, but also people in late teens/ early twenties tend to have better harm reduction skills and knowledge so it is older people using MDMA often after a break of a number of years or for the first time at these festivals, which have negative experiences.

Festivals with older audiences see LSD and mushrooms, which are rare elsewhere.

CODE STRIPES:

- Environmental
- Contaminated Substances
- Polysubstance Use
- Alcohol
- Environmental risks
- Service Design & Delivery
- Safe Space
- Service User Trust
- Onsite Services
- Drug Testing
- Education
- Sexual Assault
- Challenges for Workers
- Festival Genre Risks
- Substance Use
- MDMA
- Psychite
- Law Enforcement
- Intervention Methods
- Negative Outcomes
- Inter-Agency Working
- Challenges & Barriers
- Worker Experiences
- Risk Amplifiers
- All Risk Demographics
- Coding Density

Home Import Create Explore Share Modules Document Log In

Zoom Annotations Quick Coding See-Also Links Layout Relationships Coding Stripes Highlight Code Code In Vivo Autocode Range Code Uncode New Annotation Word Cloud Compare With Explore Diagram Query This Document Find Edit

Participant 6

what does harm reduction mean to you?
 You're never going to stop usage you might as well have the facilities to help people and reduce potential harm to festival goers

What are your most common experiences in relation to substance misuse when working at festivals?
 People scared to get help if they're in a bad way

Please describe the most high risk situations involving substances you have been involved in when working at festivals, and how these were handled
 Overdoses and being scared to get help from services

In which ways do you feel the genre of festival affects the type of substance misuse cases (and type of substances) you deal with?
 Not much people seem to do the most common types at all festivals

Which (if any) substance(s) do you feel results in the most negative incidents? Please explain your answer (We consider alcohol to be a substance in line with all other illicit or legal substances)
 PMA, MD, Alcohol mixed with most drugs.

What do you think works well in relation to harm reduction at music festivals?
 Education, testing facilities and tolerance

What (if any) barriers might discourage or stop people accessing harm reduction services at festivals?
 Police being around the site

Please describe how pre-festival harm reduction strategies could be used, and what might be effective?

CODE STRIPES

- Negative Outcomes
- Service Design & Delivery
- Safe Space
- Non-Judgmental Approach
- Education
- Substance Specific Risks
- Festival Genre Risks
- Risk Amplifiers
- Stigma
- Law Enforcement
- Intervention Methods
- Challenges & Barriers
- Risk Reduction
- Drug Policy
- Worker Experiences
- Substance Use

Appendix H – Private Link to Intervention Video (Chapter 7)

<https://youtu.be/rITSgh9eFKg>

Appendix I - Study 3 (Chapter 7) PART A – Information Sheet, Consent Form, Survey & Debrief

Evaluating the Engagement of a Short Harm Reduction Intervention

Including, participant information sheet; participant informed consent form; survey and survey flow/logic; and participant debrief sheet.

i) Information Sheet

Start of Block: Information Sheet

Q1.1

Evaluating the Efficacy and Engagement of a Short Harm Reduction Intervention Targeting Festival Attendees

PART A

PARTICIPANT INFORMATION SHEET

Version 1 05.05.22

You are being invited to take part in some research. Before you decide whether to participate, it is important for you to understand why the research is being conducted and what it will involve. Please read the following information carefully.

What is the purpose of the research?

We are conducting this research to evaluate and test the effectiveness of a video we have made. The video is designed to educate festival attendees about how to stay safer at festivals if they decide to use substances (alcohol and / or drugs). Previous research has shown that some people are more likely to have a negative experience, following substance use, than others. We have developed this video to educate people about what factors can make their substance use more risky and how they can try to be safer. This research will be looking to gather your thoughts about the video, how you think it may impact your behaviour, and if your behaviour changes in any way from your intentions before the video, to your actions at a music festival this summer!

Inclusion Criteria

We are looking to gather information from a particular group of people therefore this study may not be applicable to you.

You will only be able to participate in this study if you meet all of the following criteria:

You are aged 18 or over. You intend on going to at least one festival in the UK between June and September 2022. You have used alcohol other substances at music festivals in the past.

Who is carrying out the research?

The data is being collected by Chloe Rayner, under the supervision of Professor Jason Davies and Dr Ceri Bradshaw in the Department of Psychology at Swansea University. The research has been approved by the School of Psychology Research Ethics Committee. This research is being completed as part of a PhD in Psychology.

What happens if I agree to take part?

This study contains two parts and we would love you to complete both, however if you only wish to complete Part A of the study this is OK. If you decide to participate you will create a unique participant number. Only you will have access to this number. Your data will only be identifiable if you share your participant number with the researcher for the purposes of withdrawing your data.

Part A

If you decide to take part in the study, you will initially be asked to complete a confidential and anonymous questionnaire. The questionnaire will ask you to provide some details about your previous substance use at festivals. Additionally, we will ask for some background information including your job role, level of education, your age and gender.

After this we will show you a short video - you will not be able to skip the video forwards, however, you will be able to rewind and re-watch this if you would like to. After you have watched the video you will be asked what you thought of the video and if you think you will make any changes as a result of the video.

Part B

Part B of this study consists of a single follow up questionnaire after you attend your next music festival. If you agree to participate in Part B you will be asked to provide a contact email address and the date you will be attending your next festival. This email and date will simply be used to send an automated email to you 3 days after your next festival, inviting you to complete a questionnaire. Your email will not be stored with any data from any of the questionnaires you complete. The Part B questionnaire will ask for information about your substance use at the festival.

Are there any risks associated with taking part?

There are no significant risks associated with participation. Discussing your experiences of substance use and any negative outcomes from this could be upsetting. If you feel that it may be difficult for you to discuss these experiences we suggest you do not participate in this study. If you feel the need to talk about your experiences you can seek further information on the following websites:

<https://dancesafe.org/>

<https://www.mind.co.uk/>

Data Protection and Confidentiality.

Your data will be processed in accordance with the General Data Protection Regulation 2016

(GDPR). All information collected about you will be kept strictly confidential. Your data will only be viewed by the research team. All electronic data will be stored on a password-protected computer file at the University of Swansea. All paper records will be stored in a locked filing cabinet at the University of Swansea. We will not be collecting identifiable information. Your responses will be linked to a participant number which will be given to you. Please note that the data we will collect for our study will be anonymous, thus it will not be possible to identify and remove your data unless you provide the researcher with your participant number so please keep this safe.

-
What will happen to the information I provide?

An analysis of the information will form part of our report at the end of the study and may be presented to interested parties and published in scientific journals and related media. Note that all information presented in any reports or publications will be anonymous and unidentifiable.

Is participation voluntary and what if I wish to later withdraw?

Your participation is entirely voluntary – you do not have to participate if you do not want to. If you decide to participate, but later wish to withdraw from the study, then you are free to withdraw up to 2 weeks after completing the study, without giving a reason and without penalty. Due to the sensitive nature of the data we are collecting it will be anonymised at the point of participation. As such you will be given a participant number which links to your responses.

If you wish to withdraw your data you must give the researcher your participant number in order to identify your data so please keep this safe. Once two weeks have elapsed following your participation data will undergo analysis, at this point data will no longer be retrievable for withdrawal.

Data Protection Privacy Notice.

The data controller for this project will be Swansea University. The University Data Protection Officer provides oversight of university activities involving the processing of personal data, and can be contacted at the Vice Chancellors Office:
VCO@swanseauniversity.com.

Swansea University's Data Protection Officer is Bev Buckley and she may be contacted at:

██████████.

Your personal data will be processed for the purposes outlined in this information sheet. Standard ethical procedures will involve you providing your consent to participate in this study by completing the consent form that has been provided to you. However, the legal basis on which this task is being performed is public interest, approved by the departmental Research Ethics Committee.

If you are concerned about how your personal data is being processed, please contact Swansea University's Data Protection Officer at ██████████.

Details of your individual rights are available on the ICO website at:
<https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/>

What if I have other questions?

If you have further questions about this study, please do not hesitate to contact us:

Chloe Rayner
Department of Psychology
Swansea University

████████████████████

Professor Jason Davies
Department of Psychology
Swansea University

J ████████████████████

Dr Ceri Bradshaw
Department of Psychology
Swansea University

████████████████████

End of Block: Information Sheet

ii) Consent Form

Start of Block: Consent Form

Q2.1 PARTICIPANT CONSENT FORM Version 1 05.05.22

Please complete the consent form below to confirm you agree to participate within this study and the collection/analysis of the data you provide. You may withdraw your consent at any time before two weeks following the completion of this study.

Q2.2 Do you agree with the following statements? I have read the Participant Information Sheet. I agree to participate in the study. I understand that participation is voluntary, I am free to withdraw from the research, for any reason and without prejudice. I understand what my role will be in this research, all my questions have been answered to my satisfaction. I understand that I am free to ask any questions at any time before, during and after the study. I have been informed that the information I provide will be safeguarded.

I agree to the researchers processing my personal data in accordance with the aims of the study described in the participant information sheet.

Yes (1)

No (2)

Q2.3 Are you aged 18 years or older?

Yes (1)

No (2)

Q2.4 Are you currently under the influence of drugs or alcohol? (*Please note we are unable to let you participate in this study whilst under the influence as this may impair your ability to give informed consent*)

Yes (1)

No (2)

Q2.5 Unique Participant Identifier

As your data will be collected anonymously during this study we need you to create a unique participant identifier to enable use to identify your data if you wish to withdraw at a later stage. Please try to remember this code.

To create this number please use the following method as this will help us to remind you of your code if you forget:

	The first three letters of your childhood street	The first two digits of your date of
birth	The first two letters of your mother's maiden name	The last two letters of your surname

End of Block: Consent Form

iii) Debrief Document

Start of Block: PART A DEBRIEF

Q7.1

PILOT STUDY - EVALUATING THE ENGAGEMENT AND EFFICACY OF A SHORT HARM REDUCTION INTERVENTION TARGETTING FESTIVAL ATTENDEES

DEBRIEF

Version 1 05.05.22

Thank you for taking part in our research!

You have now completed the first part of this study.

We are hoping this harm reduction intervention will be developed to help people who attend festivals to stay safer. We hope to use the information we have gathered in this study to inform the design and delivery of the intervention.

Previous research has shown that people frequently use alcohol and substances at music festivals and that people often engage in high risk behaviours associated with this use such as double dosing or polysubstance use. Other research suggest that a harm reduction approach can be effective in keeping people safer. This research is designed to test if the brief information video can have an impact on helping to keep people safe at festivals.

If you have agreed to participate in the second part of this study you will be contacted by email three days after the date you have provided. You can choose to withdraw from this element of the study at any time before two weeks following completion.

If you feel affected by issues raised by this research and would like to discuss any concerns, please contact the study Supervisor on the details provided below. If you feel this piece of research may have health implications for you, we advise you to contact your GP or access web based services detailed below.

<https://www.mind.org.uk/>

<https://www.talktofrank.com/>

<https://dancesafe.org/>

If you have any other questions about the research, please do not hesitate to contact us at:

Chloe Rayner

Department of Psychology

Swansea University

████████████████████

Professor Jason Davies

Department of Psychology

Swansea University

████████████████████

Dr Ceri Bradshaw

Department of Psychology

Swansea University

████████████████████

iv) Survey 1

Start of Block: Survey One - Demographics and Pre-Intervention Intentions



Q3.1 What is your current age?

Q3.2 Please indicate your gender

Male (1)

Female (2)

Non-Binary (3)

Prefer not to say (4)

Other (5) _____

Q3.3 Please indicate your highest level of qualification

GCSE or equivalent (1)

A Level or equivalent (2)

Diploma or equivalent (3)

Degree or equivalent (4)

Masters degree or equivalent (5)

Doctorate or equivalent (6)

Q3.4 Please indicate your relationship status

Single (1)

In a casual relationship(s) (2)

In a long term relationship (3)

Cohabiting (4)

Married / Civil partnership (5)

Q3.5 What is your ethnic group?

- Welsh / English / Scottish / Northern Irish / British (1)
 - Irish (2)
 - Gypsy or Irish Traveller (3)
 - Any other White background (4)
 - White and Black Caribbean (5)
 - White and Black African (6)
 - White and Asian (7)
 - Any other Mixed / Multiple ethnic background (8)
 - Indian (9)
 - Pakistani (10)
 - Bangladeshi (11)
 - Chinese (12)
 - Any other Asian background (13)
 - African (14)
 - Caribbean (15)
 - Any other Black / African / Caribbean background (16)
 - Arab (17)
 - Any other ethnic group (please describe) (18)
-

Q3.6 What is your employment status

- Full time employment (1)
 - Part time employment (2)
 - Full time student (3)
 - Part time student (4)
 - Part time work & student (5)
 - Economically Inactive (6)
 - Homemaker (7)
-

Q3.7 Are you planning to attend a UK music festival(s) this summer? (June-September 2022)

Yes (1)

No (2)

Q3.8 Which substances do you usually use while at a music festival(s)? Select all that apply.

Alcohol (1)

Cannabis (2)

Nitrous Oxide (3)

MDMA (Pills or Crystals) (4)

Ketamine (5)

Cocaine (6)

Psychedelics (7)

Novel Psychoactive Substances (Legal Highs / Research Chemicals) (8)

Opiates (9)

Amphetamines (10)

Other (11) _____

I do not usually use any substances at a festival(s) (12)

I use substances but I prefer not to disclose details (13)

Q3.9 Have you ever experienced any of these negative outcomes following substance use at a festival? Select all that apply.

Medical Emergency (1)

Mental Health Crisis (2)

Physical Injury (3)

Physical Assault (4)

Sexual Assault (5)

Challenging/Bad Trip (6)

Getting Arrested or Removed from Site (7)

Unwanted Side Effects (E.g. Paranoia, Body Aches, Tiredness, Hangovers, Anxiety) (8)

Altercations with Others (9)

Getting Lost or Separated from Friends (10)

I have not experienced any negative outcomes (11)

Other (12) _____

Q3.10 Do you usually adopt any harm reduction strategies surrounding your substance use at festivals?

No (1)

Maybe (2)

Yes (3)

Q3.11 Have you engaged in any of the following behaviours in the past two years?

Using more of a substance than the average dose. (1)

Using substances you might find or get from an untrusted source (2)

Taking a second dose of a substance before feeling the effects of the first (3)

Using more than one substance at a time including alcohol. (E.g alcohol & MDMA) (4)

Q3.12 Which of the following on-site support services would you feel safe and comfortable asking for help following substance use at a festival?

- Police (1)
- Medical (2)
- Welfare (3)
- Stewards (4)
- Security (5)

End of Block: Survey One - Demographics and Pre-Intervention Intentions

Start of Block: Intervention Video

Q4.1 Please click the blank space below or play button to open a short information video. Please watch this video in full You can rewind and re-watch the video as many times as you would like. After the video there will be some more questions.

Q47

End of Block: Intervention Video

v) *Survey 2*

Start of Block: Survey Two - Evaluation of Intervention Video

Q5.1 Did you watch the information video in full?

- No (1)
- Yes (2)

Q5.2 In the video what did we call the things which increase your chances of having a negative experience?

- Risk Factors (1)
 - Risk Amplifiers (2)
 - Risk Increasesers (3)
-

Q5.3 In the video we stated that certain psychological characteristics may increase the chance of negative experiences following substance use. Would you like to read more information about this now?

Yes (1)

No (2)

Q5.4 Would you ever change your behaviour as a result of an information video?

Yes (1)

Maybe (2)

No (3)

Q5.5 Do you plan to change your behaviour as a result of the video you just watched?

No (1)

Maybe (2)

Yes (3)

Q5.6 In your view was the video engaging?

No (1)

Yes (2)

Q5.7 Did you learn new information from the video? If yes, please use the text box to state what you learnt.

No (1)

Maybe (2)

Yes (3) _____

Q5.8 Which of the following on-site support services would you feel safe and comfortable asking for help following substance use at a festival?

- Police (1)
 - Medical (2)
 - Welfare (3)
 - Stewards (4)
 - Security (5)
-

Q5.9 Do you think you are now more aware of risk amplifiers which may affect you?

- No (1)
 - Maybe (2)
 - Yes (3)
-

Q5.10 Do you intend on using harm reduction strategies during your next festival?

- No (1)
 - Maybe (2)
 - Yes (3)
-

Q5.11

In your view, when would be the best time to show people the information video?

- On the festival website. (1)
 - In an email with festival tickets. (2)
 - In an email a few days before the festival starts. (3)
 - On screens at the festival gates. (4)
 - Other (5) _____
-

Q5.12 Please describe what information you will remember from the video:

Q5.13 In your view is there anything which could make the video more memorable?

Q5.14 Please provide any additional feedback about the video:

End of Block: Survey Two - Evaluation of Intervention Video

Start of Block: Psychological Characteristics Information Sheet

Q8.1 Psychological Characteristics as Risk Amplifiers

Psychological characteristics are traits within our personality, values, or behaviour and how these can relate to our social or cultural environment.

Previous research undertaken by the researchers looked at whether certain psychological characteristics affected the likelihood of negative experiences following substance use. The research undertaken asked participants to complete surveys assessing personality traits, personal values, and locus of control. The survey responses were compared to their reports of negative outcomes to see who was more likely to experience these.

You can research more about these characteristics on <https://www.psychology.com>. Our research found that low scores for agreeableness was the personality trait most likely to affect your chances of negative outcomes. Our research found that low scores for achievement was the value most likely to affect your chances of negative outcomes. Our research found having an external locus of control was likely to affect your chances of negative outcomes.

End of Block: Psychological Characteristics Information Sheet

Start of Block: Provision of Contact Details for Part Three

Q6.1 To complete part three of this study we need to contact you a few days after you attend a festival. Please provide an email address for the invite to be sent to. This email address will remain confidential and anonymous. This is an automated system and it will not be possible for the email address to be viewed by the researchers.

Q6.2 Please insert the date you will leave your first festival this summer in the format DD/MM/YY.

End of Block: Provision of Contact Details for Part Three

Appendix J - Study 3 (Chapter 7) PART B – Information Sheet, Consent Form, Survey & Debrief

Evaluating the Efficacy of a Short Harm Reduction Intervention

Including, participant information sheet; participant informed consent form; survey and survey flow/logic; and participant debrief sheet.

i) Information Sheet

Start of Block: PART B Information Sheet

Q1.1

Evaluating the Efficacy and Engagement of a Short Harm Reduction Intervention
Targeting Festival Attendees

PART B

PARTICIPANT INFORMATION SHEET

Version 1 05.05.22

You are being invited to complete Part B of this study. You have already completed Part A of this study and we have included a reminder of what was involved below. Before you decide whether to participate in the second part of this study, it is important we remind you about why the research is being conducted and what it will involve. Please read the following information carefully.

What is the purpose of the research?

We are conducting this research to evaluate and test the effectiveness of a video we have made. The video is an intervention designed to educate festival attendees about how to stay safer at festivals if they decide to use substances (alcohol and / or drugs). Previous research has shown that some people are more likely to have a negative experience, following substance use, than others. We have developed this video to educate people about what factors can make their substance use more risky and how they can try to be safer. This research will be looking to gather your thoughts about the video, how you think it may impact your behaviour, and if your behaviour changes in any way from your intentions before the video, to your actions at a music festival this summer!

Inclusion Criteria

You must have completed Part A of this study in order to complete part B

Who is carrying out the research?

The data is being collected by Chloe Rayner, under the supervision of Professor Jason Davies and Dr Ceri Bradshaw in the Department of Psychology at Swansea University. The research has been approved by the School of Psychology Research Ethics Committee. This research is being completed as part of a PhD in Psychology.

What happens if I agree to take part?

This study contains two parts and we would love you to complete both, however if you only wish to complete Part A of the study this is OK. If you decide to participate you will create a unique participant number. Only you will have access to this number. Your data will only be identifiable if you share your participant number with the researcher for the purposes of withdrawing your data.

Part A - (Completed)

If you decide to take part in the study, you will initially be asked to complete a confidential and anonymous questionnaire. The questionnaire will ask you to provide some details about your previous substance use at festivals. Additionally, we will ask for some background information including your job role, level of education, your age and gender.

After this we will show you a short video - you will not be able to skip the video forwards however you will be able to rewind and re-watch this if you would like to. After you have watched the video you will be asked what you thought of the video and if you think you will make any changes as a result of the video.

Part B

Part B of this study consists of a single follow up questionnaire after you attend your next music festival. If you agree to participate in Part B you will be asked to provide a contact email address and the date you will be attending your next festival. This email and date will simply be used to send an automated email to you 3 days after your next festival, inviting you to complete a questionnaire. Your email will not be stored with any data from any of the questionnaires you complete. The Part B questionnaire will ask for information about your substance use at the festival.

Are there any risks associated with taking part?

There are no significant risks associated with participation. Discussing your experiences of substance use and any negative outcomes from this could be upsetting. If you feel that it may be difficult for you to discuss these experiences we suggest you do not participate in this study. If you feel the need to talk about your experiences you can seek further information on the following websites:

<https://dancesafe.org/>

<https://www.mind.co.uk/>

Data Protection and Confidentiality.

Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR). All information collected about you will be kept strictly confidential. Your data will only be viewed by the research team. All electronic data will be stored on a password-protected computer file at the University of Swansea. All paper records will be stored in a locked filing cabinet at the University of Swansea. We will not be collecting identifiable information. Your responses will be linked to a participant number which will be given to you. Please note that the data we will collect for our study will be anonymous, thus it will not be possible to identify and remove your data unless you provide the researcher with your participant number so please keep this safe.

- What will happen to the information I provide?

An analysis of the information will form part of our report at the end of the study and may be

presented to interested parties and published in scientific journals and related media. Note that all information presented in any reports or publications will be anonymous and unidentifiable.

Is participation voluntary and what if I wish to later withdraw?

Your participation is entirely voluntary – you do not have to participate if you do not want to. If you decide to participate, but later wish to withdraw from the study, then you are free to withdraw up to 2 weeks after completing the study, without giving a reason and without penalty. Due to the sensitive nature of the data we are collecting it will be anonymised at the point of participation. As such you will be given a participant number which links to your responses.

If you wish to withdraw your data you must give the researcher your participant number in order to identify your data so please keep this safe. Once two weeks have elapsed following your participation data will undergo analysis, at this point data will no longer be retrievable for withdrawal.

Data Protection Privacy Notice.

The data controller for this project will be Swansea University. The University Data Protection Officer provides oversight of university activities involving the processing of personal data, and can be contacted at the Vice Chancellors Office:
VCO@swanseauniversity.com.

Swansea University's Data Protection Officer is Bev Buckley and she may be contacted at:

Your personal data will be processed for the purposes outlined in this information sheet. Standard ethical procedures will involve you providing your consent to participate in this study by completing the consent form that has been provided to you. However, the legal basis on which this task is being performed is public interest, approved by the departmental Research Ethics Committee.

If you are concerned about how your personal data is being processed, please contact Swansea University's Data Protection Officer at [REDACTED]

Details of your individual rights are available on the ICO website at:
<https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/>

What if I have other questions?

If you have further questions about this study, please do not hesitate to contact us:

Chloe Rayner
Department of Psychology
Swansea University
[REDACTED]

Professor Jason Davies
Department of Psychology
Swansea University

Dr Ceri Bradshaw
Department of Psychology
Swansea University

End of Block: PART B Information Sheet

ii) Consent Form

Start of Block: PART B Consent Form

Q2.1 PARTICIPANT CONSENT FORM Version 1 05.05.22

Please complete the consent form below to confirm you agree to participate within this study and the collection/analysis of the data you provide. You may withdraw your consent at any time before two weeks following the completion of this study.

Q2.2 Do you agree with the following statements? I have read the Participant Information Sheet. I agree to participate in the study. I understand that participation is voluntary, I am free to withdraw from the research, for any reason and without prejudice. I understand what my role will be in this research, all my questions have been answered to my satisfaction. I understand that I am free to ask any questions at any time before, during and after the study. I have been informed that the information I provide will be safeguarded.

I agree to the researchers processing my personal data in accordance with the aims of the study described in the participant information sheet.

Yes (1)

No (2)

Q2.3 Are you aged 18 years or older?

Yes (1)

No (2)

Q2.4 Are you currently under the influence of drugs or alcohol? (*Please note we are unable to let you participate in this study whilst under the influence as this may impair your ability to give informed consent*)

Yes (1)

No (2)

Q2.5 Unique Participant Identifier

Please enter your unique participant identifier. It is important that this is the same code you used in part A.

To create this number please use the following method:

The first three letters of your childhood street	The first two digits of your date of birth
The first two letters of your mother's maiden name	The last two letters of your surname

End of Block: PART B Consent Form

iii) Debrief Document

Start of Block: PART B Debrief

Q4.1

PILOT STUDY - EVALUATING THE ENGAGEMENT AND EFFICACY OF A SHORT HARM REDUCTION INTERVENTION TARGETTING FESTIVAL ATTENDEES

DEBRIEF

Version 1 05.05.22

Thank you for taking part in our research! You have now completed the second part of this study. We are hoping this harm reduction intervention will be developed to help people who attend festivals to stay safer. We hope to use the information we have gathered in this study to inform the design and delivery of the intervention. Previous research has shown that people frequently use alcohol and substances at music festivals and that people often engage in high-risk behaviours associated with this use such as double dosing or polysubstance use. Other research suggest that a harm reduction approach when designing intervention is effective in keeping people safer. We want to design a holistic intervention which is accessed by more people and is more effective in keeping you safe. If you feel affected by issues raised by this research and would like to discuss any concerns, please contact the study Supervisor on the details provided below. If you feel this piece of research may have health implications for you,

we advise you to contact your GP or access web-based services detailed below. <https://www.mind.org.uk/> <https://www.talktofrank.com/> <https://dancesafe.org/> If you have any other questions about the research, please do not hesitate to contact us

at: Chloe Rayner
Department of Psychology
Swansea University
[REDACTED]

Professor Jason Davies
Department of Psychology
Swansea University
[REDACTED]

Dr Ceri Bradshaw
Department of Psychology
Swansea University
[REDACTED]

End of Block: PART B Debrief

iv) Survey 3

Start of Block: PART B Survey

Q3.1 Did you recently return from attending a UK music festival?

Yes (1)

No (2)

Q3.2 Which substances (if any) did you use at the music festival you recently attended? Select all that apply.

Alcohol (1)

Cannabis (2)

Nitrous Oxide (3)

MDMA (Pills or Crystals) (4)

Ketamine (5)

Cocaine (6)

Psychedelics (7)

Novel Psychoactive Substances (Legal Highs / Research Chemicals) (8)

Opiates (9)

Amphetamines (10)

Other (11)

I did not use any substances at the festival (12)

I used substances at the festival but prefer not to provide details (13)

Q3.3 How did your substance use at this festival compare to your use at festivals you have been to in the past.

My substance use increased compared to previous festivals. (1)

My substance use remained similar compared to previous festivals. (2)

My substance use decreased compared to previous festivals. (3)

Q3.4 During the festival did you use any of the information contained in the video? Please use the text box to explain your answer.

No (1) _____

Yes (2) _____

Q3.5 Did you use any of the harm reduction strategies discussed during the video at the festival?

No (1)

Maybe (2)

Yes (3)

Q3.6 Did you engage in any of the following behaviours at the festival?

Using more of a substance than the average dose. (1)

Using substances you might find or get from an untrusted source (2)

Taking a second dose of a substance before feeling the effects of the first (3)

Using more than one substance at a time including alcohol. (E.g alcohol & MDMA) (4)

Q3.7 Did you experience any of these negative outcomes following substance use at the festival? Select all that apply.

Medical Emergency (1)

Mental Health Crisis (2)

Physical Injury (3)

Physical Assault (4)

Sexual Assault (5)

Challenging/Bad Trip (6)

Getting Arrested or Removed from Site (7)

Unwanted Side Effects (E.g. Paranoia, Body Aches, Tiredness, Hangovers, Anxiety) (8)

Altercations with Others (9)

Getting Lost or Separated from Friends (10)

I did not have any negative experiences (11)

Other (12) _____

Q3.8 Did seek support from any of the following onsite services?

Police (1)

Medical (2)

Welfare (3)

Stewards (4)

Security (5)

Other (6) _____

Q3.9 In your view did the information video you watched impact your substance use at the festival in any way? Please explain your answer.

Yes (1) _____

Maybe (2) _____

No (3) _____

End of Block: PART B Survey

Appendix K - Ethics Approval Letter – Study 3 (Chapter 7)

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28 May 2022

Dear CHLOE RAYNER, , Professor Jason Davies, Dr Ceri Bradshaw,

Re: 5458 , Pilot Study - Evaluating the Engagement and Efficacy of a Short Harm Reduction Intervention Targeting Young Festival Attendees Intending to Engage in Recreational Substance Use

Your application - <https://swansea.ethicalreviewmanager.com/ProjectView/Index/5458> - has been reviewed and approved by the Department of Psychology Ethics Committee.

The list of additional students (if any) are included in the table below:

Other student applicant - first name	Other student applicant - Surname	Other student applicant - email
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additional researcher or student - first name	additional researcher or student - surname	additional researcher or student - email
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The conditions of this approval are as follows:

1. To conduct your study strictly in accordance with the proposal that has been approved by the committee, including any approved amendments
2. To advise the ethics committee chair of any complaints or other issues that may warrant ethical review of the project
3. To submit for approval any changes to the approved protocol before implementing any such changes
4. To keep any information obtained from your participants absolutely confidential

Please note that failure to comply with these conditions of approval may result in the withdrawal of approval for the project.

To advertise your study on the departmental Participant Pool: You will need to send a request for your study to be made visible, via the link on the Experiment Management System website (see Researcher Documentation for details). Please ensure that you attach this letter to your request. (If you are unable to attach the Ethics approval, send it in a separate email to Dr. Phil Tucker [REDACTED]).

For students: Please ensure that the signed copy of this Ethical Approval, together with any other paperwork associated with your research, is included in your final write up.

Yours Sincerely,

Dr Menna Price (Reviewer of Application)

Dr Menna Price (Committee Chair)

