A qualitative examination of choking and clutch experiences among performance referees

Joseph Samuel Greer

Swansea University
Prifysgol Abertawe

Submitted to Swansea University in fulfilment of the requirements for the Degree of Master of Science by Research

Swansea University

2023

Abstract

While much is known about the contexts, mechanisms, moderators, and consequences of excellent (i.e., clutch) and failed (i.e., choke) pressurised performance among athletes, the same cannot be said for officials, who to date, have been largely overlooked within sport psychology literature. This is despite the fact that sporting officials are expected to perform to consistently high standards under pressure, with poor and good performances holding the possibility of significantly affecting the game they are refereeing. Indeed, it is even the case that at the elite level, poor refereeing performances under pressure can impact the career and livelihood of the players, coaches, and managers involved with the game, such are the potential consequences of refereeing errors.

Thus, the current study aimed to investigate the psychological factors responsible for clutch and choking under pressure among sporting referees. To achieve this, the study used an interpretive description methodology (Thorne, 2016), whereby semi-structured interviews were conducted with ten UK-based referees (*Mage* = 28.5, *SD* = 9.52) who were performing regularly under pressure across a range of sports at the elite and competitive level. Data were then analysed using Braun and Clarke's (2013) flexible approach to thematic analysis, with the findings revealing that various psychological factors were perceived by the referees to be associated with their clutch and choke performances. Those officials who experienced clutch performances, perceived games of greater importance, effective preparation, and supportive coach relationships increased their attentional and emotional control, and allowed for the demands of the game to be effectively managed. This resulted in the positive performance outcomes, positive affect, exhaustion, and a stronger rapport with players and coaches. However, in terms of choking, the referees reported that games of greater importance, overload, and unsupportive working environments encouraged over-refereeing (self-focus) or distraction. This brought about the significant drop in performance, as well as negative affect, worries over receiving negative evaluation, and disengagement from task. Such findings inform recommendations that can be offered to support the pressurised performances of competitive referees.

Keywords: referees, choking under pressure, clutch performance.

Declarations and Statements

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

Signed: 

Date: 24/04/2023

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.

Signed: 

Date: 24/04/2023

I hereby give consent for my thesis, if accepted, to be available for photocopying and for inter-library loan, and for the title and summary to be made available to outside organisations.

Signed: 

Date: 24/04/2023

The University's ethical procedures have been followed and, where appropriate, that ethical approval has been granted.

Signed: 

Date: 24/04/2023

Contents Page

Acknowledgments

Firstly, I would like to thank all the officials who kindly shared their experiences with me, without you this research would have not been possible.

I would also like to especially thank my supervisor, Dr Denise Hill, for the ongoing support and guidance you have so willingly given to me during my time at Swansea University. I am incredibly grateful for the challenges you set me to develop as a researcher.

Finally, to my family and friends, thank you for always providing me with encouragement and self-belief when I most need it. It is so reassuring to know that you are there for me and always want the best.

List of Figures

List of Tables

Chapter 1: Introduction

Referees are key personnel within organised sport competitions whose role is multifaceted in enforcing rules, ensuring safety, and remaining impartial and consistent in decision-making (Kittel et al., 2021; Warner et al., 2013). As such, officials are essential to the structure and organisation of sport, and their actions can significantly affect performance outcomes and the overall experience for competitors and spectators alike (Plessner & MacMahon, 2013). Moreover, while officials perform these tasks, they are often faced with increased pressure from fans, players, coaches (Jacobs et al., 2020; Ridinger et al., 2017), media (Webb, 2018), and national governing bodies (Mascarenhas et al., 2006). Previous research has established that such pressures can lead to the experience of many psychological stressors (e.g., Taylor & Daniel, 1987; Rainey, 1995) that must be managed effectively for officials to attain successful performance under pressure (Webb & Hill, 2020). However, if officials manage these stressors ineffectively, it may negatively impact their decision-making and result in unsuccessful performance under pressure (Hill et al., 2016).

Much of the earlier research on sport officials focused on the sources of stress experienced within the role (e.g., Goldsmith & Williams, 1992). Identified stressors include performance concerns, fear of failure, fear of physical harm, interpersonal conflict, verbal abuse, time pressures, and lack of recognition (Anshel & Weinberg, 1996; Taylor et al., 1990). Research predominantly from Rainey and colleagues then began to measure the magnitude of stressors experienced by officials and their association with burnout and consequences such as intentions to quit (see Rainey, 1995; Rainey, 1999; Rainey & Hardy, 1999). As the identification of stressors and their effects on performance continued to develop across various sports and competition levels (e.g., evaluation from stressors, media scrutiny, technological innovations; Neil et al., 2013; Webb, 2018; Webb et al., 2016), further research began exploring the coping strategies adopted by officials to manage such stressors.

With regards to coping strategies employed by referees, initial investigative research by Voight (2009) identified that both emotion-focused (e.g., seeking social support) and problem-focused (e.g., increased effort) coping strategies are utilised in response to specific stressors (e.g., making a wrong decision). Hill et al. (2016) later confirmed the effectiveness of these strategies in managing stressors, however, they reported proactive coping as a more significant approach that effectively managed multiple stressors and increased officials' psychological resources that encourage optimal performance under pressure. In contrast, avoidance coping strategies were identified to be ineffective responses that left the officials increasingly susceptible to failed performances under pressure (Hill et al., 2016).

Traditionally, research has adopted Csikszentmihalyi's conceptualisation of *flow* to explain optimal performance states. *Flow* is an intrinsically rewarding state characterised by everything coming together due to increased concentration and absorption on performance tasks alongside the exclusion of irrelevant thoughts and emotions, even under challenging circumstances (Csikszentmihalyi, 2002). However, recent qualitative research on excellent performance has suggested that a flow state does not fully represent optimal performance. Instead, it has been identified that two distinct psychological states underlie optimal performance (Swann et al., 2017a; 2017b). This second optimal state has colloquially been termed "clutch" performance and is defined by Hibbs (2010) as "when a participant in competitive sport succeeds at a competitive-related, challenging task during a clutch situation" (p. 55).

As outlined within The Integrated Model of Flow and Clutch States (Swann et al., 2017a), the experience of flow and clutch share overlapping characteristics reported as *confidence*, *absorption*, *altered perceptions*, and *automatic skill execution.* However, the characteristics distinguishing clutch from flow states include *increased concentration*; *intense effort*; *analytical thoughts*; *heightened awareness*; *exerting*

control; *feedback towards goals*; *heightened arousal*; and *motivation to accomplish* (Swann et al., 2017a; 2017b). Alongside these experiential differences, Swann et al. (2017b) consider the occurrence of clutch to be triggered by a challenge appraisal, followed by the setting of specific goals that subsequently increase the individual's intensity and effort.

In the context of goal achievement, Schweickle et al. (2022) constructed a new conceptual understanding of clutch performance. Their study generated three themes based on athletes' perceptions of performance level after their experiences, revealing that they assessed clutch performances against multiple self-referenced goals that could emerge and adapt while under pressure. As such, clutch performances were identified based on contextually dependent assessments and subjective interpretations of goal achievement during an appraisal of increased pressure rather than being attributed to a specific performance level.

Choking is often considered the opposite experience to the clutch since it is described as a significant breakdown in skilled performance under pressure (Mesagno et al., 2015). While there continues to be discussions regarding the definition and conceptualisation of choking in sport (see Jackson, 2013; Mesagno & Hill, 2013), the most recent definition formulated by Mesagno & Hill (2013) suggests choking is "an acute and considerable decrease in skill execution and performance, when self-expected standards are normally achievable, which is the result of increased anxiety under pressure" (p. 9). Moreover, research has demonstrated that choking is a consequence of attentional disturbances caused by heightened anxiety and is explained through self-focus and / or distraction theories (see Hill et al., 2010a for reviews).

The distraction-based theories (i.e., Processing Efficiency Theory, Eysenck & Calvo, 1992) indicate that choking occurs due to processing inefficiency, whereby anxiety causes an attentional bias toward threat stimuli. This leads individuals to process task-irrelevant thoughts related to the threat (e.g., worry or self-doubt) alongside task-relevant information, which results in inefficient processing that may cause distraction unless the individual responds with

increased effort (Williams et al., 2002). Conversely, the self-focus theories (i.e., Explicit Monitoring Hypothesis, Beilock & Carr, 2001; Consciousness Processing Hypothesis, Masters, 1992) indicate that choking occurs because increased pressure causes heightened self-consciousness and anxiety, which in turn, increases the likelihood of individuals reinvesting explicit technical information through the working memory. From this, individuals attempt to consciously monitor and / or control automatic skills processed outside the working memory. However, both responses are thought to encourage choking as they disrupt the efficient processing of well-learned skills (Beilock & Carr, 2001).

Extensive research has identified multiple personal and environmental variables that may encourage an athlete's susceptibility to choke and determine the mechanism through which it occurs. These include skill level (Beilock & Carr, 2001); task complexity (Williams et al., 2002); unfamiliarity (Hill et al., 2010a); team cohesion (Adegbesan, 2007); narcissism (Geukes et al., 2012); perfectionism (Gucciardi et al., 2010); obsessive passion (Hill & Shaw, 2013); and coping style (Hill & Hemmings, 2015). However, only recently have the short- and long-term consequences of choking in sport been examined (see Hill et al., 2019). From this research, only negative consequences were reported in the short-term (i.e., collapse in performance standards, limited attention / emotional control, and negative affect). In contrast, long-term consequences could be constructive (through adversity-related growth) or destructive (i.e., loss of self-confidence, withdrawal from sport, and lowered self-worth).

Despite their significance to competitive sport and the plethora of existing empirical evidence regarding clutch and choking phenomena, limited research attention has been directed toward understanding the psychological factors that can be responsible for optimal (i.e., clutch) and failed (i.e., choke) performances among referees. Moreover, while Hill et al.'s (2016) research offers insight and inferences into why officials may choke or clutch, researchers have not yet directly considered choking and clutch experiences among referees.

To address this lack of research, the current study aims to use a qualitative approach to investigate the psychological factors that referees perceive to be associated with clutch and choking under pressure. The findings can then be utilized to inform evidence-based interventions that support the psychological development of referees, enabling them to elicit clutch performance and alleviate choking.

Chapter 2: Literature Review

Within organised sports competitions, referees play a crucial role, as they are responsible for game management, enforcing laws, and ensuring a safe setting for players (Warner et al., 2013), which ultimately means they have a direct impact on the game outcomes (Plessner & MacMahon, 2013). Across elite sports, officials are required to fulfil these vital tasks optimally, within a complex and dynamic environment, where multiple pressures and demands exist (MacMahon et al., 2014), exacerbated by the increasing presence of media, fandom, and commercialisation (Slack, 2004; Webb, 2018). Hence, like athletes, attaining optimal performance under pressure, where psychological demands are managed effectively, is critical for successful refereeing in sport (Mascarenhas et al., 2005; Slack et al., 2013). As such, if referees fail to manage these competitive demands, they can perform poorly and make inaccurate decisions that may not only influence the result, but also the careers of players and coaches involved in the game (Anshel et al., 2014; Mellick et al., 2005).

Despite being such vital agents within competitive sport (Philippe et al., 2009), when compared to their athlete and coach counterparts, there remains an uneven playing field regarding the amount of research attention being directed towards understanding the psychological factors that can be responsible for optimal (i.e., clutch) and failed (i.e., choke) performances among referees (see Avugos et al., 2021). Accordingly, the current study begins to address this gap in the literature, by examining in detail, the experiences of clutch and choke performance among sporting referees.

2.1 Stressors Experienced by Referees

The sports officiating role has been grouped into three categories (i.e., monitors, reactors, and interactors), which are dependently based on the number of cues processed (e.g., prior decisions, type of contact between players, or judgements of other judges), and the amount of interaction with athletes (e.g., verbal or non-verbal; Plessner & MacMahon, 2013).

Specifically, monitors observe and assess the quality of performance (for example gymnastic judges), reactors play a perceptual role in monitoring specific performance cues (such as tennis line judges), and interactors enforce competition rules (such as football officials). Similarly to other sport psychology literature specific to referees (e.g., Hill et al., 2016; Slack et al., 2013), the current study focuses on 'interactor' officials, such as those involved with rugby, basketball, and football, for they process significantly more cues, and have higher levels of athlete interaction and movement demands compared to their monitor and reactor counterparts. As a result, they are (arguably) exposed to greater pressure / demands (Plessner & MacMahon, 2013).

Early research focused on 'interactor' referees (e.g., Goldsmith & Williams, 1992; Taylor & Daniel, 1987) and consistently identified that multiple common sources of stress (i.e., stressors) were experienced across sports, including verbal abuse, fear of physical harm, fear of failure, time pressures, and interpersonal conflict. Indeed, in his large-scale study, of 229 referees, Burke (1991) found that officials perceived disruptive behaviour and verbal abuse from coaches as the greatest stressor. However, while this early work identified the demands / stressors that referees experienced and were required to manage, such empirical research failed to explore whether / how they influenced referee performance.

Later research (e.g., Rainey, 1995; Rainey & Hardy, 1999) then began to examine, through quantitative surveys, the effect of these common stressors on officials' experiences. Despite many of the studies at this time offering rather vague details in terms of the competitive level of the participants, it was broadly identified that performance concerns, interpersonal conflict, and time pressures appeared to predict burnout among officials. Moreover, although each stressor did not predict officials' intentions to quit, burnout was found to act as a mediating variable within a number of studies (e.g., Rainey, 1999; Rainey & Hardy, 1997; 1999).

Later, and through unstructured interview work, Dell et al. (2016) confirmed much of these quantitative findings, concluding that the stressors experienced by referees, increased their likelihood of dropping out of sport, and lowered their psychological well-being. The football referees in this study were experienced, and performed at an intermediate level, and identified that their key stressors could be placed under the overarching themes of organisational, personal and match factors. That is, stressors within the organisational theme included a lack of institutional support, leadership, training, and feedback, which made referees feel undervalued. In turn, this negatively impacted their self-worth and confidence. In terms of the personal theme, the stressor was abuse, which damaged the referee's motivation, and lowered their emotional control. Finally, the stressors within the match theme were physical and psychological intimidation from players, coaches, and spectators, which left the referees feeling threatened, isolated, and vulnerable. Such feelings further damaged the official's self-worth and confidence, and increased their anger, frustration, and anxiety (Dell et al., 2016). Of note, and subsequently, such threatening abuse has proven to be a common stressor experienced by referees, across a range of sports, including ice hockey (Dorsch & Paskevich, 2007), rugby union (Rayner et al., 2016), and rugby league (Webb et al., 2018).

In more recent research, other key stressors have been reported among officials across various sports, which differ depending on level of performance. For example, elite officials have identified the demands of facing scrutiny over decisions, given increased media coverage (Garcia-Santos et al., 2020; Webb, 2018), whereas those referees at grassroots or intermediate level, have reported time conflict as a key stressor, as they are expected to manage their officiating role alongside full-time jobs (Ridinger et al., 2017). However, stressors relating to evaluation from assessors (Neil et al., 2013), committing errors (Gomes et al., 2021), and conflict with family demands (Gillue et al., 2018; Voight, 2009) appear to be experienced by officials across performance standards.

Sport psychology researchers have also begun investigating how stressors can affect female referees specifically. In the limited research to date, female basketball and football officials have reported feeling isolated and unsupported within the male-dominated sporting environment (Tingle et al., 2014; Webb et al., 2021). While stressors that include a lack of respect, mentoring, and opportunities for advancement, alongside sexist derogatory language within these environments, have also been found to negatively affect the performance of female referees, leaving them vulnerable to poor mental health (see Schaerperkoetter, 2017). Ultimately, this has led researchers to call for increased research and resources directed towards female officials (Tingle et al., 2014; Webb et al., 2021).

2.2 Coping Strategies in Response to Pressure

There is a body of research which has demonstrated that referees utilise different coping strategies in an attempt to manage the extant stressors (e.g., Lazarus, 1993; Voight, 2009). Extending their previous research which focused on athletes, Voight (2009) investigated the coping approaches adopted by football referees in response to stressors. Both *emotion-focused* (i.e., reduce emotional distress associated with the stressor) and *problem-focused* coping strategies (i.e., altering the stressor or perceptions of the stressor) were employed by officials throughout performance, particularly in response to specific stressors (e.g., seeking social support was employed in response to verbal and physical abuse; Voight, 2009). Despite such earlier research indicating what strategies were utilised by the officials, no measure existed as to whether the coping responses were effective.

Similarly, in their study of grassroots football referees, Devis-Devis et al. (2021) found that referees often adopted *emotion-focused* strategies in response to abuse from spectators, since they perceived no other response could change spectator reaction. Whereas, when abuse came from players and coaches, *problem-focused* strategies were often employed. The utilisation of such *emotion-* and *problem-focused* coping has also been demonstrated elsewhere

in the literature (see Mathers & Brodie, 2011; Neil et al., 2013; Ruckel et al., 2021), whereby officials adopt strategies like imagery, relaxation, positive self-statements, cognitive restructuring, and simulated practice.

Moreover, at this point in the literature, researchers are identifying the effectiveness of coping strategies. For example, in their study of elite rugby union referees, Hill et al. (2016) confirmed that *problem* and *emotion-focused* coping could effectively manage the range of stressors faced, but highlighted that within their sample, *proactive-coping* strategies were primarily utilised, as they enabled subsequent effective management of multiple, concurrent stressors during the subsequent pressurised performance (e.g., unfamiliarity, interpersonal conflicts). Thus, without proactive coping all referees within the study perceived that their decision-making and performance would have been negatively affected. Hill and colleagues also identified that when employed, *avoidance-coping* strategies were ineffective and negatively impacted performance under pressure since they prevented the referees from self-regulating their thoughts, emotions, and actions. Indeed, earlier research inferred that officials who utilise avoidance-coping are likely to respond to stressors with a threat state (i.e., low self-efficacy, low perceived control, and a focus on avoidance goals; Jones et al., 2009) leaving them susceptible to viewing future performance as harmful to their mental health and well-being (Petracovschi et al., 2011).

2.3 Definition and Conceptualisation of Choking in Sport

Coping ineffectively with stressors can elicit failed performance under pressure which is often referred to as 'choking'. Traditionally, choking (under pressure) in sport was defined predominantly through Baumeister's work (Baumeister, 1984; Baumeister & Showers, 1986), which described choking as any inferior performance under pressure when *striving* for optimal performance. Baumeister's definition was widely adopted by researchers within sport psychology literature (e.g., Englert & Oudejans, 2014; Jordet, 2009; Reeves et al., 2007),

though researchers began challenging it for not distinguishing a choke from other under-performances (Hill et al., 2009). In beginning to move forward from Baumeister's definition, Beilock with Carr (2001) and later Gray (2007) identified choking as performing less-than-optimally expected given the individual's skill level. Importantly, Beilock and Gray (2007) distinguished choking from a slump (i.e., poor performance over a period of time) by also stating that a choke occurs in response to high-pressure situations.

Then, Hill et al. (2009) constructed an operational definition through focus group discussions with four highly experienced sport psychologists, in an attempt to formulate a definition of choking which reflected the experience more accurately; proposing that, "choking in sport is a process whereby the individual perceives that their resources are insufficient to meet the demands of the situation and concludes with a significant drop in performance – a choke" (p. 206). Although this definition progressed to recognising choking as a psychological process that ended in a significant, acute and dramatic decrement in performance, Hill et al. (2009) failed to encapsulate the importance of heightened anxiety within the choking phenomenon, which stimulated further debate (Mesagno & Hill, 2013).

Moreover, following recommendations from their previous work (i.e., Gucciardi & Dimmock, 2008), Gucciardi et al. (2010) further expanded the choking definition(s) by considering its temporal aspects alongside recognising individuals' self-referent expectations of performance. From this, Gucciardi et al. (2010) suggested choking is, "heightened levels of perceived pressure and where incentives for optimal performance are at a maximum, lead to acute or chronic forms of suboptimal performance or performing more poorly than expected given one's skill level and self-set performance expectations" (p. 79). Soon after, Mesagno and Mullane-Grant (2010) critically analysed previous choking definitions (e.g., Beilock & Gray, 2007: Gucciardi et al., 2010; Hill et al., 2009; Mesagno et al., 2008; Wang, 2002), from which they proposed an alternative, which noted the importance of anxiety. That is, "a critical

deterioration in skill execution leading to substandard performance that is caused by an elevation in anxiety levels under perceived pressure at a time when successful outcome is normally attainable by the athlete" (p. 343). Despite the above definitions now including the critical role of heightened anxiety under perceived pressure within choking, the definition has been criticised for returning to allow any substandard performance under stressful conditions to be considered a choke (see Hill et al., 2011; 2017).

Upon further critical analysis and discussion of the definitions, literature, and empirical evidence relating to choking, Mesagno and Hill (2013) collaboratively formulated a new operational definition of choking: "an acute and considerable decrease in skill execution and performance, when self-expected standards are normally achievable, which is the result of increased anxiety under perceived pressure" (p. 9). Although this definition extends previous work by including the key components of choking and has generally been accepted within contemporary sport psychology research (e.g., Hill et al., 2017; Hill & Hemmings, 2015; Hodge & Smith, 2014; Vealey et al., 2014), there remains a debate regarding its limitations (Buszard et al., 2013; Jackson, 2013). Specifically, Jackson (2013) argued that Mesagno and Hill's (2013) definition is difficult to support without a clear operationalised distinction between an underperformance (minor drop in performance) and an acute / considerable decrease in performance (i.e., a choke). Nevertheless, despite these criticisms, and due to the stated inadequacies of previous definitions, Mesagno and Hill's (2013) is generally accepted and shall be used to inform this research.

2.4 Mechanisms of Choking in Sport

Research has demonstrated that choking under pressure is a consequence of attentional disturbances caused by heightened anxiety, and is explained through two theories; namely, distraction and self-focus (Beilock & Gray, 2007). Distraction theories maintain that athletes

choke by attending to task-irrelevant cues, whereas self-focus theories state that individuals experience choking by attending to procedural elements of motor skills.

2.4.1 Choking through Distraction

An established distraction-based explanation for choking is Processing Efficiency Theory (PET; Eysenck & Calvo, 1992), which assumes that the cognitive component of state anxiety, worry (i.e., cognitive anxiety), results from interactions between trait anxiety and perceived threat and / or stress. Eysenck and Calvo identify that worry can be experienced through self-preoccupation, concerns over evaluation, and concerns over the level of performance. Since the working memory system is considered to function at a limited capacity (Baddeley, 1993), an increase in cognitive anxiety utilises available processing and / or storage, which limits the efficient processing of task-relevant information. Such inefficient processing may negatively affect performance unless the individual responds with effective and increased compensatory effort (Eysenck & Calvo, 1992; Murray & Janelle, 2003). Individuals who do not respond or respond with unhelpful compensatory effort (e.g., ineffective avoidance coping strategies; Hill & Shaw, 2013) place themselves at considerable risk of choking. Supporting this, Murray and Janelle's (2003; 2007) research demonstrated that high trait-anxious individuals engage less effectively with taxing compensatory effort, as both their attentional resources and processing efficiency are reduced. Furthermore, if the individual experiences significantly high levels of anxiety and/or cognitively demanding tasks that compensatory effort cannot overcome, thus leaving the working memory overwhelmed (e.g., soccer penalty kick; Hill & Shaw, 2013), then choking will occur (Hill et al., 2010; Williams et al., 2002; Wilson et al., 2007).

Extending upon Eysenck and Calvo's (1992) PET, Attentional Control Theory (ACT; Eysenck et al., 2007) has become the most contemporary distraction-based explanation for choking in sport (Englert & Oudejans, 2014; Wilson, 2008). The central assumption of ACT

is that worry increases the allocation of attentional resources to threat-related stimuli in anxiety-provoking circumstances (Eysenck et al., 2007). Resultantly, attention to task-relevant information becomes impaired, which negatively impacts upon the performer's processing efficiency. Eysenck and colleagues theorise that the impairment of attentional control is due to the disruption of two attentional systems. The first attentional system is goal-directed (top-down) and is influenced by current goals and expectations, whereas the second is stimulus-driven (bottom-up) and responds to salient or conspicuous stimuli (e.g., opposing player/team; Corbetta & Shulman, 2002; Eysenck et al., 2007). ACT theory posits that anxiety, particularly in the presence of threat-related distracting stimuli when task demands are high, disrupts the balance between systems. More specifically, anxiety decreases goal-directed attention (e.g., sending a rugby ball through the goal posts) but increases stimulus-driven attention (e.g., the threat of opposition fans), which ultimately reduces an individual's attentional control, damages skill execution, and leads to choking (Eysenck et al., 2007).

2.4.2 Choking through Self-Focus

Conversely, self-focus theories propose that choking occurs due to heightened performance anxiety increasing athletes' self-consciousness and therefore, focusing their attention inwardly on skill execution (Baumeister, 1984). The two key self-focus theories are the Consciousness Processing Hypothesis (CPH; Masters, 1992) and the Explicit Monitoring Hypothesis (EMH; Beilock & Carr, 2001), with both closely linked to the theoretical stages of learning (Fitts & Posner, 1967). Fitts and Posner's (1967) three-stage model of skill acquisition suggests that to begin with, novice performers cognitively process explicit knowledge *through* the working memory in a step-by-step fashion. This initial stage is coined the *cognitive phase* of skill learning and is considered a slow, demanding process. Following this, individuals enter the *associative phase*, whereby they better understand the nature of the task and establish representations that connect situational cues to actions. After extended

practice, the individual's skill will reach the *autonomous phase*. Here, the skill is well learned and based on a fully automatic task representation that requires no attentional control and is processed procedurally *outside* of the working memory in the form of implicit knowledge (Fitts & Posner, 1967).

Both self-focus theories claim that when under heightened performance anxiety, automatic skills that are normally processed *outside* the working memory (i.e., implicitly) are instead 'reinvested' and processed, in a step-by-step manner *through* the working memory (i.e., explicitly). Consequently, performance is disrupted, resulting in novice-like skill execution (Masters & Maxwell, 2008). The CPH postulates that performance disruption, leading to a distinct breakdown, occurs when athletes regress and reinvest in the effortful earlier stages of skill acquisition in attempts to consciously *control* the explicit components of skill. This overwhelms the working memory, meaning task-relevant information is processed more slowly, and the choke ensues (Masters & Maxwell, 2008).

Similarly, the EMH asserts that performance disruption, potentially resulting in a choke, occurs when individuals effortfully *monitor* the specific step-by-step processes of already well-learned skills. In breaking down the performance and bringing attention to its component processes *through* the working memory, performance is slowed, and the opportunity for error is increased (Beilock & Carr, 2001). Importantly, Jackson et al. (2006) noted that monitoring can occur without conscious control and that a combination of *monitoring* and *controlling* the skill execution can occur among certain athletes and thereby lead to the choke.

2.4.3 Supporting Empirical Evidence for the Self-focus and Distraction Theories

Until recently, self-focus theories were considered the dominant explanation for choking in sport. In first examining and providing support for self-focus as the main choking mechanism, research conducted by Masters (1992) required novice participants to learn a golf-

putting skill either explicitly (i.e., with knowledge of rules / techniques) or implicitly (i.e., without knowledge of rules / technique). To suppress the possible development of explicit knowledge, those selected to learn implicitly also had to engage with a second random letter generation task while putting. From this protocol, and in line with CMH and EMH, Masters demonstrated explicit learner performance deteriorated while under pressure, whereas implicit learners experienced improvement.

Likewise, Lewis and Linder (1997) found that introducing a secondary task to the primary skill (i.e., beginning to count backward from one hundred in intervals of two when golf putting) occupied the working memory and reduced attention to the component parts of their skill execution, thereby improving their performance under pressure. However, it may be possible that both secondary tasks employed to suppress the acquisition of explicit knowledge within these studies (i.e., random letter generation task and counting backwards from one hundred) caused choking through distraction, as participants' working memories could have been overwhelmed (Wilson et al., 2007).

Beilock and colleagues (Beilock et al., 2002; 2004; 2006) completed several studies which utilised similar protocols and found support for self-focus theories among athletes across sports (e.g., golf, football, hockey) at different abilities (e.g., novice or experienced). Specifically, the protocol placed individuals under a distracting 'dual-task' condition that drew their attention away from performance tasks, alongside a 'skill-focused' condition that increased their attention to the task's step-by-step components. Upon comparing these task conditions under pressure, novice performers performed better under the 'skill-focused' condition as it directed their attention toward the mechanic components of the movement. In contrast, experienced athletes performed better under the 'dual-task' condition as it allowed their skills to be processed procedurally outside the working memory, thus preventing explicit monitoring. However, when the experienced athletes attended to specific components of skill

movement, their performance significantly degraded. Despite these findings being supported elsewhere in the literature (e.g., Jackson et al., 2006), concerns were raised about whether the same demands were placed on attentional resources within each dual-focused and skill-focused condition.

To address this concern, in their experimental study, which compared CPH with other attentional theories, Gucciardi and Dimmock (2008) asked participants to perform ten putts in three conditions (explicit, irrelevant, and swing thought) under both high and low anxiety. The explicit condition required performers to focus on three movement areas, while the irrelevant condition focused on three unrelated cues, such as colours. Thirdly, the swing condition asked participants to focus on a single relevant cue while putting. In asking participants to focus on three cues across conditions, Gucciardi and Dimmock attempted to ensure that attentional demands placed on individuals were equal for both self-focus and distraction groups. Through a comparison of results, putting error significantly increased in the explicit condition but decreased for swing thought and irrelevant. As such, this finding was interpreted to support self-focus theories over distraction. Nevertheless, this and previous experimental research has been highly criticised (see Hill et al., 2010a) for the lack of ecological validity, noting that athletes may not 'naturally' self-focus under real-life pressurised circumstances.

Indeed, more recent ecologically valid qualitative research, advocates distraction as the primary mechanism for choking under pressure (see Gucciardi et al., 2010; Hill et al., 2010b; Hill & Shaw, 2013; Oudejans et al., 2011). From the recalled experiences of athletes across sports and studies, choking was perceived to be associated with a focus on task-irrelevant stimuli, rather than the conscious monitoring or control of performance. For example, Gucciardi et al. (2010) interviewed experienced golfers regarding recent choking episodes and found they became distracted towards negative thoughts and outcomes of skill performance instead of attending to processes required for successful skill execution. Similarly, Hill et al.

(2010b) explored the subjective experiences of purposefully selected elite golfers who were either choking-resistant or choking-susceptible. By comparing between groups, Hill and colleagues indicated that participants choked through distraction due to a lack of perceived control and evaluation apprehension. Despite explicit attention to skill execution being reported by golfers within this study, choking only occurred from this process when concurrent with distraction. Oudejans et al. (2011) also examined the recalled thought processes of 70 elite athletes across sports and found that only 4% appeared to choke from focusing their attention on explicit movement execution. Comparatively, 25% of their participants' verbal reports focused on and were distracted by worries. Despite holistically exploring choking among athletes, these qualitative studies (i.e., Gucciardi et al., 2008; Hill et al., 2010b; Oudejans et al., 2011) relied upon retrospective recall of emotions which can lead to inaccuracies as individuals may want to preserve self-beliefs (Oschner & Schacter, 2000). However, Gould et al. (1993) argue that the memories of significant events (e.g., sports success or failure) are resilient to time and, therefore, may remain unaffected.

More current research adopting a mixed method design effectively simulated a high-pressure penalty situation with professional academy footballers and found support for distraction (Ellis & Ward, 2022). Specifically, Ellis and Ward examined participants' physiological responses and psychological experiences from taking five penalty kicks at a goal with four targets and a goalkeeper within high- and low-pressure conditions. Their results showed that the high-pressure condition was reported to increase perceived pressure and respiration rate while decreasing the participants' self-confidence and shooting accuracy. Notably, the high-pressure condition also significantly increased cognitive anxiety, which shifted attention from task-relevant (i.e., enhanced focus experienced within the low-pressure condition) to irrelevant stimuli (i.e., worry), thus evoking the distraction mechanism reported within the participants' semi-structured interviews (Ellis & Ward, 2022).

Additionally, Gawrysiak et al. (2022) investigated the effects of distraction and fatigue on penalty-kick performance among male professional football players. The study employed a repeated measures design with four experimental conditions: baseline, fatigue, distraction, and combined fatigue and distraction. For the distraction condition, participants listened to a pre-recorded audio of an individual counting backwards from 200 in increments of three. In comparison, the fatigue condition involved participants completing a 20-minute football-specific intermittent exercise protocol before the penalty-kick task. From their results, Gawrysiak et al. (2022) reported that all three conditions significantly impaired the participants' penalty-kick performance compared to the baseline condition. While the findings may not generalise to other aspects of football performance and represent all types of distractions (e.g., opponent behaviour), Gawrysiak et al.'s (2022) study offers valuable quantitative evidence for choking through the mechanism of distraction.

2.5 Moderators of Choking in Sport

Multiple personal and environmental factors have been found to moderate the likelihood of choking in sport and determine whether it occurs through distraction or self-focus. For example, skill / sport type moderates the mechanism through which performers are likely to choke. That is, more complex skills that place higher demands on attentional capacity, increase choking susceptibility through distraction (Williams et al., 2002). Comparably, skills with more procedural properties (e.g., golf putt) leave individuals more exposed to choking through self-focus due to reinvesting explicit information through the working memory (Beilock & Carr, 2001).

Environmental moderators, which can increase choking susceptibility include the presence of an audience (Baumesiter & Steinhilber, 1984), unfamiliarity (Hill et al., 2010a), low team cohesion (Adegbesan, 2007), opponents (Hill & Shaw, 2013), and important games/moments (Gomes et al., 2015). Whereas personal moderators include high trait anxiety

(Wilson et al., 2008), low self-confidence (Baumeister et al., 1985), avoidance coping style (Hill & Hemmings, 2015), public status (Jordet et al., 2009), low mental toughness (Hill et al., 2010), high self-presentation concerns (Hill et al., 2017), perfectionism (Gucciardi et al., 2010; Hill & Shaw, 2013), dispositional reinvestment (Masters, 1992; Jackson et al., 2006), high self-consciousness (Baumeister, 1984), stereotype threat (Chalabaev et al., 2008; 2013), obsessive passion (Hill & Shaw, 2013) and narcissism (Geukes et al., 2012).

2.6 Consequences of Choking in Sport

Although there is extensive research that has identified causes and moderators of choking in sport, only recently have Hill et al. (2019) directly examined the short- and long-term consequences of the experience. Through interviewing eight golfers who had regularly choked under pressure, Hill and colleagues reported only negative short-term consequences of choking, which detrimentally impacted athletes' performance and psychological state. Initially, participants experienced a significant collapse in performance and high levels of negative affect (e.g., anger, frustration or embarrassment) which damaged the athletes' attentional and emotional control, meaning they were unable to regain their normal standards of performance during the rest of that game / match. Concerningly, Hill et al. (2019) also noted that for certain participants, the intense negative affect experienced post-choke could be sustained over multiple days because of self-criticism and rumination. From this prolonged self-criticism and rumination, learned helplessness developed in the long-term, damaging engagement and effort during future performances (Hill et al., 2019; Inzlicht & Schmeichel, 2012). Over time, such a destructive appraisal of the choking episode(s) led to some of the golfers withdrawing from all pressurized events, and one golfer resorting to dysfunctional behaviour (e.g., drink driving).

Nevertheless, Hill and colleagues identified that some of the golfers recognised that their choking experience had been constructive in the long-term, through the process of adversity-related growth. These individuals constructively reflected on the experience, were motivated

to learn from it, often sought advice from a coach and / or sport psychologist to inform this learning, and ultimately improved their management of future pressurized performance by increasing perceived control over demands and emotions (Hill et al., 2019).

2.7 Interventions of Choking in Sport

Based on the distraction and self-focus models, researchers and practitioners have sought to develop theory-based interventions that reduce individuals' susceptibility to experiencing choking. Specifically, distraction-based interventions intend to minimise internal and external distractions and increase attention toward task-relevant information. Recent research has focused on interventions aimed at enhancing task-relevant focus and maintaining performance, such as pre-performance routines (PPRs), which have been found to have positive effects on performance (Mesagno et al., 2008). For example, Mesagno and Mullane-Grant (2010) demonstrated that when compared to a control group who experienced choking, the use of deep breathing techniques, cue words, and temporal consistency within the PPR, helped improve the shot accuracy of Australian football players placed under high-state anxiety. Despite their results indicating the prevention of choking within the short-term, no longitudinal effects are known from this or other studies that have examined the impact of PPRs on choking (Mesagno &. Mullane-Grant 2010; Mesagno et al., 2008). Other strategies that are known to alleviate choking through distraction include imagery (Hill et al., 2011), motivational self-talk (Hatzigeorgiadis, 2009), and process goals (Mullen & Hardy, 2010).

The purpose of self-focus-based interventions is to reduce an individual's reinvestment of explicit knowledge and the conscious control of skill execution (Gropel & Mesagno, 2019). Early self-focus interventions adopted implicit and analogy learning (i.e., acquiring knowledge / skills without awareness or effort and using similarities to gain understanding; see Lam et al., 2009) as they were found to limit the accumulation of explicit knowledge during skill acquisition. However, as experienced performers are more likely to have learnt skills while

gaining explicit knowledge, implicit and analogy learning is considered more beneficial for novices (Hill et al., 2011). As such, researchers began developing interventions to redirect individuals' attention away from the conscious control and reinvestment of skills that included the use of music, quiet eye training, and hemispheric priming.

Specifically, Mesagno et al. (2009) demonstrated that listening to music as a dual-task alleviated choking among female basketball players by distracting their attention from the step-by-step components of free-throw shooting. In terms of quiet eye, the final fixation or tracking gaze toward a relevant target before initiating a movement has been demonstrated to underlie higher levels of skill and performance across sports (e.g., golf, basketball, volleyball, ice-hockey; Harle & Vickers, 2001; Martell & Vickers, 2004; McPhersson & Vickers, 2004; Vickers, 2004). As such, quiet eye training (i.e., practicing longer visual fixations on a target before initiating a movement) has been found to alleviate choking under pressure by ensuring that optimal attentional control is maintained (Wood & Wilson, 2012). Beckman et al. (2013) also indicated that the behavioural intervention of 30-second left-handed contractions (i.e., hemispheric priming) can eliminate choking as the analytical processes of the left hemisphere in the brain are suppressed, reducing an athlete's conscious control. Instead, the right hemisphere is activated, which is the part of the brain responsible for visuospatial processes needed for the execution of automated behaviour. Similar findings were later evidenced by Cross-Villasana et al. (2015) and Gropel and Beckman (2017).

2.8 Definition and Conceptualisation of Clutch Performance

In contrast to choking in sport, coping effectively with stressors can elicit optimal or successful performances under pressure (Louvet & Campo, 2019). To understand such optimal performance experiences under pressure, research has widely utilised Csikszentmihalyi's (1975) framework of *flow*. This is an intrinsically rewarding state, characterised by everything coming together due to increased concentration and absorption of performance tasks alongside

the exclusion of irrelevant thoughts and emotions, even under challenging circumstances (Csikszentmihalyi, 2002). Based on qualitative work, Csikszentmihalyi's framework for understanding flow is classified into nine dimensions. More specifically, Nakamura and Csikszentmihalyi (2002) posited that three of these dimensions were necessary conditions for the occurrence of flow states and included: *a dynamic balance between challenge and skill; clear goals; and unambiguous feedback.* The remaining six, which include: *the merging of action and awareness; concentration on the activity; a sense of control over one's actions; loss of self-consciousness; perceived transformation of time; and autotelic experience,* were proposed to characteristically describe the experience of flow.

Recent qualitative research (see Jackman et al., 2017; Swann et al., 2016; 2017a; 2017b) has suggested however, that a second state can underlie optimal performance (Swann et al., 2019), which was labelled as 'clutch'. Swann et al. (2016) were the first to identify these two distinct states through event-based interviews with professional golfers. The first state, referred to as 'letting it happen', was akin to flow and was characterised by an effortless, automatic, and unconscious process where actions felt natural and instinctive. In contrast, the second state, referred to as 'making it happen', was akin to clutch and involved a more deliberate, focused, and conscious approach that increased concentration and determination. These findings were confirmed over several studies across sport by Swann et al. (2017a; 2017b; 2019) and led to the development of the Integrated Model of Flow and Clutch States. Specifically, the integrated model demonstrates that both flow and clutch states cannot simultaneously occur as they are distinct, although each can be experienced within one performance (Swann et al., 2017a).

Contextually, Swann et al. (2016; 2017a; 2017b) outlined clutch states to occur in pressurised situations where an important outcome or achievement is at stake. For clutch to then be experienced, individuals must process positive situational feedback, be in a challenge state, and set fixed goals. Moreover, in chasing these goals, individuals will increase their effort

and intensity (Swann et al., 2017a). When experiencing a clutch state, 12 characteristics are reported, with several 'core' characteristics also experienced within flow state (see figure 1; Swann et al., 2017a). These shared characteristics include *confidence*, *absorption*, *altered perceptions*, and *automatic skill execution*. The characteristics that distinguish clutch performance from flow and peak performance (Anderson et al., 2014; Jackson, 1996) include *increased concentration*; *intense effort*; *analytical thoughts*; *heightened awareness*; *exerting control*; *feedback towards goal*; *heightened arousal*; and *motivation to accomplish* (Swann et al., 2017a; 2017b). As such, the clutch can be described as a state where individuals concentrate intensely on demands, become confident in their abilities to succeed under pressure, effectively regulate their emotions, and demonstrate a strong desire and willingness to succeed. Moreover, while individuals report constructive outcomes following the experience of a clutch state (i.e., a sense of achievement, confidence, and motivation), they also discuss feeling exhausted as a result of the increased effort exerted to achieve specific goals (Swann et al., 2019).

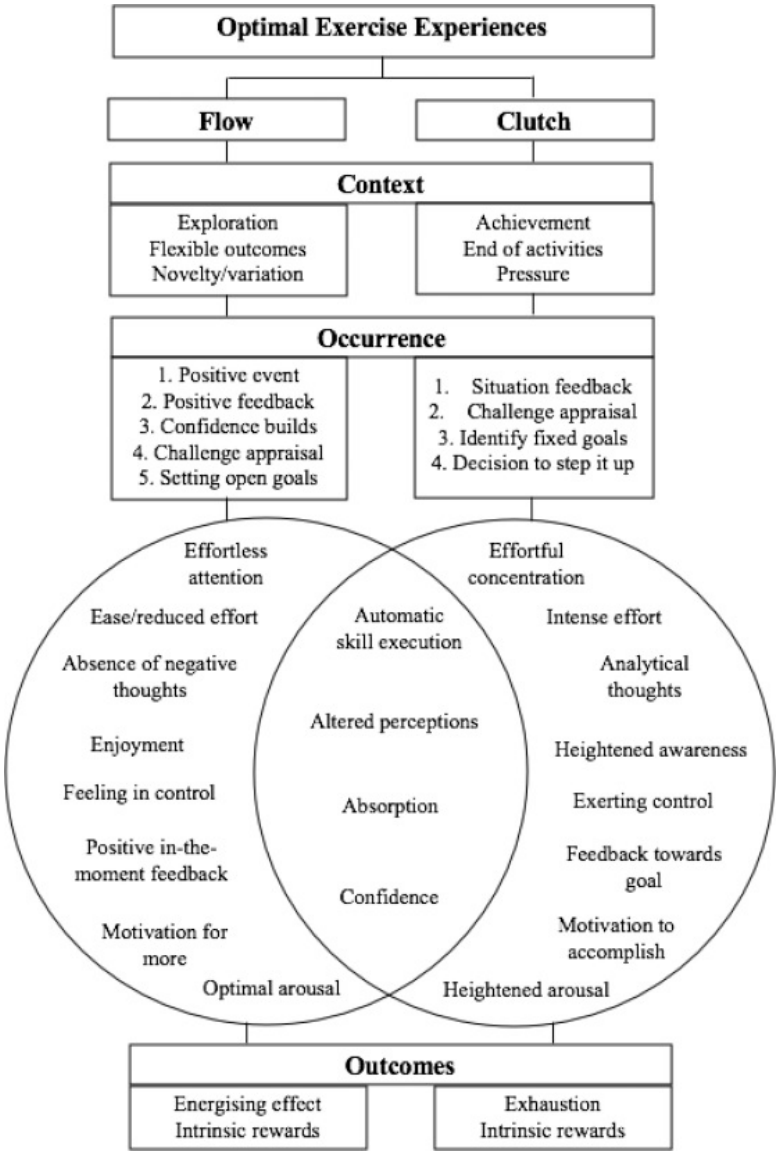

Figure 1.1

The Integrated Model of Flow and Clutch States

Note. This model was produced by Swann et al. in 2017 to demonstrate how each state occurs in specific contexts through separate processes, while sharing certain characteristics with each other.

The integrated model's characteristics for each phenomenon have been demonstrated as consistent across individuals' experiences in both exercise settings and sports (e.g., Boudreau

et al., 2022; Jackman et al., 2021). For example, Jackman et al.'s (2021) study reported that runners experiencing flow described feelings of ease, enjoyment, and motivation to continue. Likewise, Boudreau et al. (2022) noted that during clutch performances, participant rock climbers thought more analytically about technique and gave intense physical effort when completing risky routes that increased pressure. Further, Boudreau and colleagues confirmed Swann et al.'s (2019) proposal that after clutch experiences, performers felt intrinsically rewarded yet exhausted.

In terms of clutch specifically, two definitions are widely used within the sporting literature and are provided by Otten (2009) and Hibbs (2010). Otten (2009) defined clutch performance as "any performance increment or superior performance that occurs under pressure circumstances" (p. 584). While Otten's (2009) definition recognises pressure as the necessary circumstance for clutch performance, it fails to state whether these circumstances are specific to situational variables or subjective appraisals and thus leaves it to the researchers' interpretation. In comparison, Hibbs (2010) defined clutch performance as "when a participant in competitive sport succeeds at a competitive-related, challenging task during a clutch situation" (p. 55) and further proposed an objective, outcome-based requirement by denoting that clutch performances must have "a significant impact on the outcome of the contest" (p. 48).

Such ambiguity in operationalising clutch performance has led to an inconsistent adoption of measures in this research field, as it remains unclear what indicators most robustly identify the phenomenon's occurrence. For example, Kovalchik and Reid (2017) used a set of 11 serve and return performance-based indicators (e.g., aces, breakpoints, double faults) to calculate clutch performances through weighted averages across archival data in professional tennis Grand Slams. Whereas in the final five minutes of close or tied professional basketball games, Solomonov et al. (2015) reported that clutch performers scored a greater number of

points through indicators of increased effort (i.e., field goal attempts, fouls drawn) rather than individual skill (i.e., made field goal percentage). Moreover, qualitative studies have assessed clutch performance based on subjective perceptions of how well athletes perform under pressure. For example, through qualitative methods, Owens et al. (2017) compared the personality characteristics of American university football players who were identified by their head coach as either 'clutch' (i.e., performed consistently well under pressure) or 'non-clutch' players (i.e., did not consistently perform well under pressure). Accordingly, a lack of consensus has existed in the research field over whether clutch performances should be assessed as an objective or subjective phenomenon.

In efforts for research to assess clutch performance more practically and efficiently, recent multi-study research papers (e.g., Swann et al., 2022; Vara et al., 2023) have started to develop validated psychometric measures based on the Integrated Model of Flow and Clutch States. For example, Swann et al. (2022) designed a 22-item flow-clutch scale (FCS) which focuses on key features of flow and clutch states by measuring four conceptual factors: characteristics of flow; characteristics of clutch; effortlessness of flow; and overlapping characteristics. As both the content validity and internal consistency reliability were reported to be acceptable, the FCS offers a promising measure to investigate clutch states within sport and exercise settings (Swann et al., 2022).

Despite this, Schweickle et al. (2021a) argued through a mixed methods study with four professional basketball players, that clutch should be assessed using objective and subjective performance indicators, as both data types are drawn on by athletes when self-identifying clutch performance. That is, an athlete's subjective perception of objective clutch indicators (e.g., field goal percentage) can differ depending on factors such as perceived pressure or situational context. For example, a basketball player shooting a field goal percentage of 90% within a friendly match may only consider their performance level as expected. In contrast,

they might consider shooting a field goal percentage of 30% within a tightly competitive finals game as clutch performance due to increased pressure appraisal and situational context. Hence, it would appear that neither objective nor subjective indicators alone are sufficient in determining clutch performance (Schweickle et al., 2021a).

Within the same study, Schweickle and colleagues emphasised the further need for definitional refinement concerning Hibbs's (2010) notion that *clutch performance* is "a point in competitive sport where the success or failure of the participants has a significant impact on the outcome of the contest" (p. 48). As within similar research (Swann et al. 2017a; 2019), this consideration was found problematic because clutch appeared to be experienced outside of a competitive context (i.e., training and exercise) where no objective outcome may exist (i.e., winning).

For researchers to better understand the conditions in which clutch performances occur and to establish a refined definition, Schweickle et al. (2021b) examined, through qualitative methods, individual episodes of clutch among athletes at varied competitive levels. From their findings, Schweickle and colleagues identified four themes. Firstly, the appraisal of pressure differed depending on situational (e.g., first club appearance) and subjective factors (e.g., internal expectations). Secondly, experiences with clutch appear to fluctuate throughout performance as they occur at different temporal levels. For example, clutch moments may represent the micro-level (i.e., centred on pressure appraisal and performance during a specific competitive moment), whereas clutch performance may represent the meso-level (i.e., centred on pressure appraisal and performance of the overall event). Thirdly, Schweickle et al. (2021b) found that pressure appraisal and performance influenced each other in varying ways. In some cases, pressure either facilitated or had to be actively managed for clutch performance. In other instances, perceived performance standards could positively/negatively affect the subsequent appraisal of pressure. Finally, the experience of anxiety in response to the appraisal of pressure

during clutch was varied. For some individuals, such anxiety was either interpreted facilitatively or managed with coping strategies, whereas, for others, anxiety was not a response to pressure appraisal.

From these findings, Schweickle et al. (2021b) defined the clutch as "an appraisal of increased pressure, which may occur in regard to the overall event, as well as during moments throughout the event" (p. 8). However, since Schweickle et al.'s (2021b) definition fails to appreciate the effects of an increased pressure appraisal on the level of performance (i.e., increased or maintained), Hibbs's (2010) definition shall inform the current study as utilised across other contemporary literature (e.g., Swann et al., 2017a; 2017b; 2019).

Further, Schweickle et al. (2022) adopted a qualitative, event-focused approach to explore what performance level is required for clutch performance. In offering a newer conceptual understanding of clutch performance based on goal achievement, Schweickle and colleagues' research generated three themes from athletes' perceptions of performance level straight after their experiences. Specifically, athletes assessed clutch performances against the achievement of multiple self-referenced goals that could emerge and adapt while under pressure during performance. Dependent on the situational demands and goals experienced by athletes during performance, some clutch states represented increased mental and behavioural effort, whereas others represented performance maintenance. Specific to an individual's interpretation, clutch performances were also identified through either comparisons with previous benchmark performances or based on contextually dependant assessments of the performance itself. Therefore, rather than attributing clutch performance to a specific level (i.e., increased or maintained), Schweickle et al. (2022) suggested individuals assess clutch performance with a subjective and context-dependent view of goal achievement.

2.9 Choking and Clutch among Referees

As can be seen above, there is substantive empirical evidence regarding the clutch and choking phenomena among athletes, and there is a small amount of research which has explored the sources of stress and effective / ineffective coping responses among referees. However, to date, there is a scarcity of research attention regarding specifically, the choke and clutch performances under pressure among referees.

Hill et al. (2016) is the only exception, and even they examined the psychological characteristics of refereeing performance under pressure and *inferred* several factors that *may* encourage a choke or clutch through this work. In their study of seven elite-level rugby union referees, Hill et al. (2016) employed qualitative methods to ascertain that unfamiliarity, performance errors, interpersonal conflict, importance of the game, and self-presentation concerns were the main stressors experienced by their participants. Specifically, stressors relating to the game (i.e., importance and unfamiliarity) were experienced before performances that held significant consequences (e.g., title matches) and during performances when managing inexperienced demands (e.g., using technology). However, the remaining personal stressors (i.e., self-presentation concerns, interpersonal conflict, and performance errors) were experienced during performances where officials feared negative evaluation / criticism from key individuals (e.g., assessors, players, coaches), had to prevent / manage player hostility, and after making mistakes they perceived could damage their career. Nevertheless, Hill et al. (2016) identified that all five stressors elicited a threat state that would cause debilitative anxiety. In turn, this was proposed to encourage choking or poor performance if the referee failed to cope with those stressors and anxiety effectively.

As previously mentioned, the officials within Hill et al.'s research (2016) were identified to employ various proactive, problem, emotion, and avoidance coping strategies in response to certain stressors. Proactive-coping strategies were reported as the most effective approach utilised by Hill et al.'s (2016) referees as they were perceived to increase their

psychological resources (e.g., emotional control, self-confidence). These proactive-coping strategies were relied upon for preparation before the referees' performances and included seeking informational social support from peers and the mental imagery of potential performance situations. As such, the officials within the study were better equipped to prepare and anticipate for performance stressors, reduce unfamiliarity, and place themselves in a position to manage games of importance, which were stressors perceived as holding the potential to overwhelm them, their attentional capacity and thereby affecting performance significantly (leading to a choke).

In the same vein, Hill et al.'s (2016) officials utilised different problem- and emotion-focused strategies in response to the specific stressors they encountered during performance. Specifically, the coping techniques of acceptance, ownership, and post-game reflection were adopted to manage performance errors as they stopped rumination of mistakes, increased task focus, and protected the referee's self-confidence. For preventing / managing the stressor of interpersonal conflict, relaxation, distancing, and motivational self-talk were employed as they regulated the officials' emotional responses while facilitating their decision-making and communication. To manage their self-presentation concerns and the stress associated with important games, officials adopted a task / process focus which improved attention to task-relevant information and increased their perceived control over demands. Like proactive strategies, these problem- and emotion-focused coping techniques were perceived to lower officials' cognitive and somatic anxiety while enhancing the psychological resources necessary for clutch, such as deliberate focus, self-confidence, and perceived control (Hill et al., 2016; Swann et al., 2017a).

In contrast, avoidance-coping strategies employed before, during, and after performance were identified as ineffective techniques that left officials increasingly susceptible to choking under pressure (Hill et al., 2016). These strategies included the utilisation of denial,

withdrawal, and rushing in response to performance errors and interpersonal conflict (to protect the referee's ego and disengage from the stressor), which prevented the referees from self-regulating emotions and cognitions while also stopping the internalisation of errors needed for improvement. Additionally, the employment of reactive control and informal impression management were identified to compromise the officials' attentional and emotional control, which led to negative perceptions and behaviours from players, and so encouraged choking under pressure (Hill et al., 2016).

2.10 The Current Study

Although Hill et al.'s (2016) research offers insight and inferences into why referees may choke or clutch, to date, researchers have not yet considered choking and clutch experiences among referees directly, and in detail. As referees experience different stressors than athletes; namely verbal and physical abuse from players and spectators (Rayner et al., 2016; Webb et al., 2018); complex decision-making (Jameson et al., 2004); lack of organisational support (Cleland et al., 2015); and assessors evaluating performance (Neil et al., 2013), there may be unique causes and moderators of the clutch and choke experience within this population.

As failing to manage these stressors effectively can lead to poor refereeing performance, which can affect the progression of the official, and impact the game, players, and coaches negatively (Mellick et al., 2005; Warner et al., 2013), it is necessary to generate evidence-based interventions that can target the needs of referees and enable them to clutch and / or alleviate the choke.

Accordingly, through a qualitative approach, this study aims to investigate the psychological factors perceived by referees to be associated with the clutch and choking under pressure. This information can then inform applied interventions that support the psychological development of referees to elicit clutch performance more consistently.

Chapter 3: Method

3.1 Methodology and Philosophical Underpinnings

Interpretive description (ID; Thorne, 2016) was employed as the methodology for this study to generate and develop grounded knowledge that can improve applied practice. First designed for, and by, nursing practitioners (see Thorne et al., 1997) to meet the needs of their qualitative inquiries and avoid 'methodological slurring' (Morse, 1989), ID was formulated through adaptations and refinement of traditional social science methods (i.e., ethnography, grounded theory, and phenomenology; Thorne, 2016). These developments freed researchers from singular prescriptive methods, enabling them to move between techniques so long as they could be credibly explained (Thorne, 2016). Such methodological flexibility is well-suited for this study as it can challenge earlier conceptualisations of phenomena, particularly regarding the maturing choking literature, so that a more nuanced and comprehensive conceptual depiction is gained.

Philosophically, ID aligns within the interpretivist paradigm and is underpinned by a relativist ontology and a constructivist epistemology. As such, ID offers researchers an inductive analytical approach that acknowledges and appreciates the co-constructed and contextual nature of human experience, comprised of complex interactions between psychosocial and biological phenomena (Thorne, 2016). The nature of ID, therefore, appreciates that knowledge is relative, socially constructed, and context-dependant (Grant & Giddings, 2002). Hence, shared human experiences are assumed to exist across multiple realities but may only be known through the interplay between participant and researcher when studied holistically. Consequently, ID rejects a single definitive 'truth' but instead a 'tentative truth claim' that better enables sense-making for individuals who may experience different variations in the real world (Thorne et al., 2004). Researchers produced coherent, new knowledge and meanings by exploring the person and socially co-constructed experiences of

choking and clutch (see Hill et al., 2010). Hence, the same aim is sought and is considered appropriate for this study.

3.2 Sampling and Participants

Purposive sampling was adopted when recruiting participants for this study to ensure data were collected from individuals with sufficient experience of choking and clutch phenomena. Following guidance from Sandelowski (1995) and in line with ID (Thorne, 2016), a sample of ten individuals was recruited to the study, which allowed for a deep analysis of perspectives to contribute to a new and rich understanding of the choking and clutch experience. Individuals were asked to participate in this study having perceived they met the following criteria, which were considered feasible and grounded in the research question (Thorne, 2016): (a) if they had (and were willing to discuss) occasions where they believed they experienced excellent (i.e., clutch) and / or very poor (i.e., choke) refereeing performances within the past two years; and (b) were currently officiating competitive team sports that require them to attend to multiple cues and have a high level of interaction with athletes, while striving for professional / elite level status. Hence, they had and were frequently performing under pressure (see further details regarding the recruitment procedure below).

Ten participants were recruited across a range of sports that included basketball (n=4), rugby league (n=2), rugby union (n=2), hockey (n=1), and football (n=1). The sample consisted of one female and nine male officials, whose ages ranged from 21 to 49 (M = 28.5 years). Each referee's level differed depending on the sport officiated; however, all had been involved in refereeing for an average of 8.7 years (range was 2-21 years), all performed at a competitive level (please refer to Table 1.1) at least twice a week and so all refereed regularly under pressure. From the sample, two referees were employed on a full-time basis and the remaining referees were part-time.

Sample diversity was actively sought to ensure heterogeneity; however, it is accepted that including only one female participant and referees associated with team sports may have limited such diversity. Nevertheless, the information-rich sample provided an opportunity to comprehensively explore perceptions of choking / clutch experiences among referees, whereby commonalities and variations of the experience could be identified by comparing individual contextualised accounts (Thorne et al., 2004).

Table 1.1

Participants' pseudonymous name, age, gender, sport, competitive level, and whether they reported to experience choking and/or clutch.

Name	Age	Sport	Level of competition	Gender	State(s) Experienced
Kevin	24	Football	Level 4 - Regional	Male	Choked
David	22	Basketball	Level 2 - Regional	Male	Choked
Matthew	25	Rugby Union	Level 6 - National	Male	Clutched
Christopher	33	Rugby League	Grade 1 - National	Male	Both
Lily	24	Hockey	Grade 7 - International	Female	Both

Aaron	21	Rugby League	Grade 1 - National	Male	Both
Benjamin	41	Basketball	Level 4 - National	Male	Both
Johnathan	21	Basketball	Level 4 - Regional	Male	Both
Frank	25	Rugby Union	Level 6 - National	Male	Both

3.3 Procedure

Once ethical approval had been obtained from the Faculty of Science and Engineering Ethics Committee (Swansea University,) numerous referees were approached (face-to-face or via email) through personal contacts and professional referee networks (i.e., Referee and Match Official Research Network) and briefed about the purpose and nature of the study. Following this, all individuals were sent an information sheet (see Appendix A) and given an opportunity to ask questions. If they perceived that they met the inclusion criteria and were willing to participate in the study, they were then asked to complete / send back written consent (see below for further details) and a mutually agreeable date and time for an interview was confirmed. This ensured the recruitment process was voluntary and confidential / anonymised.

Furthermore, to confirm that choke and clutch performances were being recalled before the start of each interview, participant officials were asked whether their experiences did / did not align with Mesagno and Hill's (2013) definition of choking and Hibbs's (2010) definition of clutch. As shown in Table 1.1, officials confirmed that they had experienced either both psychological states (i.e., choke and clutch) or just the choke in the previous two years.

3.4 Data Collection

Data were collected through individual semi-structured interviews that render experience into a narrative (Thorne, 2004), each taking place via Zoom video call for convenience. To address the concerns of completing online interviews (Smith & Sparkes, 2016), a responsive interviewing style (Rubin & Rubin, 2012) was adopted while following a semi-structured interview guide with open-ended questions to ensure interviews were participant-led discussions and that data were meaningful. As recommended by Thorne et al. (2004), the interview guide aligned with ID principles by acting as a theoretical scaffold developed from a review of existing choking and clutch literature (e.g., Gucciardi et al., 2010; Hill et al., 2010b; Schweickle et al., 2021) and designed to comparatively explore participants' cognitions, emotions, and behaviours, when each phenomenon was experienced. In following ID principles (Thorne, 2016), this comparative process was utilised to inform the development of evidence-based interventions which could be used to alleviate choking and encourage clutch performance.

Initially, the interview guide was piloted with a referee to confirm that questions were relevant and that the data could elucidate, in detail, the clutch and choke performance experiences. Following the pilot interview, it was indicated that the researcher needed to ask questions which better distinguished / compared the choking and clutch experiences. As a result, revisions were made to the interview schedule (see Appendix A for the interview guide) whereby its broad structure consisted of an introductory section, then a main question section focused on eliciting depth and detail of experiences, and then a summary section for clarifying interpretations, as informed by ID guidelines (Thorne, 2016).

Specifically, interviews began with introductory questions aimed at relaxing and building rapport with participants. Introductory questions such as "Tell me about your refereeing career so far?" were asked before moving on to the main questions. The main questions then focused on exploring and comparing the referees' cognitions, emotions, behaviours, and coping

responses at different time frames of their choking and clutch experience (i.e., before, during, and after). For example, “Can you remember the build-up before your superior (clutch) performance experience?”, “Are you able to take me back to just before your bad performance experience?” and “What key comparisons would you make between the build-up to these experiences?”. Given the participant’s response, follow-up questions were asked that aimed to explore in further contextual detail those thoughts, emotions, behaviours, and adopted coping strategies (e.g., “What thoughts were going through your head at this time?”, “How were you left feeling here?”, “Can you remember your behavioural reaction?”, “In what way did you manage these emotional reactions?”). These follow-up questions encouraged participants to explain their experiences as fully and comparatively (against other performance outcomes) as possible. Furthermore, to ensure naïve overemphasis of interview data did not exist and interpretations were contextualised (Sandelowski, 2002), personal reflections following each interview were noted (see methodological rigor).

Concurrent data collection and analysis of the first eight interviews allowed for interview guide revisions to be made before meeting with the final two participants. Like Swann et al. (2017a), this aimed to assess the adequacy, relevance, and meaningfulness of generated themes and subthemes (Onwuegbuzie & Leech, 2007). As such, the main open-ended questions within these two interviews were directed toward confirming and refining the analysed findings (e.g., “Can you remember what preparation you completed before your superior performance?”, “How did your preparation before performance affect your thought processes?”, “In what way did preparing for performance impact your behaviours and / or emotions?”). Reflecting on data collection with the evolving analysis in this way, a point of code saturation was achieved following the two final interviews, as no new analytical information was yielded (Hennink et al., 2017). Overall, interviews lasted between 48 and 86 minutes (M = 66.90 min, SD = 11.84).

3.5 Data Analysis

Interview data were analysed using Braun and Clarke's (2013; 2019) theoretically flexible approach to thematic analysis. The adoption of thematic analysis aligns with analytical suggestions by Thorne (2016) as it reflexively and inductively involves searching for shared patterns of meaning around themes, thus identifying commonalities and differences across an interview and subsequent set of interviews (Braun & Clarke, 2006). Before conducting the analysis, audio recordings of interviews were transcribed verbatim by the author.

Then, the first formal stage of data analysis, conducted by the author, involved reading and rereading transcripts for familiarisation, alongside relistening to audio recordings to remain aware of contexts in which participants experienced the phenomena of interest. The second stage involved producing initial codes by highlighting patterned items of interest when reading transcripts and noting data descriptions for later use in the analysis. Initial codes, which for this study, included *emotional reactions, forms of support from significant others, and game attitudes*, were generic and broad-based to avoid premature and excessive coding, thus ensuring further analysis is an active process (Thorne, 2016). The third stage involved filtering through and re-examining collated descriptions and initial codes to establish relationships between data. These relationships developed potential themes when grouped within a 'central organising concept' (Braun & Clarke, 2013; 2019). For example, data related to *high self-set expectations* were coded under *games of greater importance*.

The fourth stage involved reviewing and refining potential themes to ensure they accurately represented data extracts and the entire data set. For this, a thematic map was generated to identify insubstantial or related / similar themes that could be integrated with others. For example, '*pressures from performance review meetings'* and '*lack of group cohesion'* were combined into *an unsupportive working environment.* The fifth stage involved writing-up thick descriptions in tracing theme development and generating informative definitions representing important patterns of meaning within the data set related to the

research question. Once generated, the themes and their descriptions were categorised under global themes *choke* and / or *clutch* and placed across three dimensions classified as before, during and after performance episodes. The final data analysis stage involved coherently reporting the analysis process while presenting each theme with compelling extract examples. Although described in stages, the analytical process was iterative and recursive, with frequent reviews and constant comparison at each stage to more deeply interpret experiences and confirm they provided an authentic representation, aligning with recommendations from Thorne (2016) and Braun and Clarke (2006).

3.6 Methodological Rigor

As proposed by Sparkes and Smith (2009), a relativist approach that utilises relevant criteria that is dependent on purpose and context was adopted to ensure rigor within this study. Accordingly, four criteria proposed by Thorne (2016) for evaluating ID research were utilised. These general principles that determine the quality of research include epistemological integrity, analytic logic, interpretive authority, and moral defensibility (Thorne, 2016).

Firstly*, epistemological integrity* is considered a requirement for all ID studies, whereby chosen research processes can be explained through a defensible line of reasoning (Thorne, 2016). For this, the author utilised prolonged engagement, whereby participants were encouraged to support their accounts with examples to clarify initial understandings and interpretations (Thorne, 2016). This criterion was also achieved within the present study by remaining consistent with the philosophical assumptions of ID and research question when making decisions about data collection, analysis, and interpretation. As such, purposive sampling was employed to recruit key informants who had perceived themselves to have access to lived experiences of the phenomena in question (Thorne, 2016). Secondly, ID studies are expected to demonstrate *analytic logic* through grounding interpretation and knowledge claims with explicit reasoning. For example, findings within the current study were achieved by

generating thick descriptions of interpretations from the referee's experiences (Thorne, 2016). Such thick descriptions of identified themes illustrate analytical thinking to the reader and uncover meanings that organise experiences, thus aiding the presentation of results. This criterion was further addressed when openly reporting on the stages of analysis by providing verbatim examples to support interpretations.

Thirdly, it is necessary for all ID studies to address *interpretive authority*, which ensures that data interpretations are trustworthy and not subject to researcher bias. For this reason, the research team regularly met to discuss patterns and themes that emerged from data analysis. A research team member also acted as a critical friend throughout the analytical process to challenge and increase confidence regarding interpretations and findings. Further, to establish that interpretations were trustworthy, the two final interviews conducted by the author followed a revised schedule that aimed to strengthen / refine themes that had been grounded in data (Swann et al., 2017a). Finally, ID principles deem it important to judge the *moral defensibility* of studies, as there should be convincing and beneficial justifications for extracting new knowledge from individuals (Thorne, 2016). In this study, *moral defensibility* was attained by gaining informed consent and explaining that the results could inform interventions that would benefit referees performing under pressure.

Chapter 4: Results

The referees perceived various psychological factors associated with their choking and / or clutch experiences under pressure. Specifically, all factors (i.e., themes) were placed across three dimensions: (a) before performance episodes; (b) during performance episodes; and (c) after performance episodes. Within these dimensions, each factor was categorised under the global themes of either choke (i.e., games of greater importance, overload, an unsupportive officiating environment, over-refereeing, distraction, a significant drop in performance, negative affect, receiving negative evaluations from assessors, and going through the motions) and / or clutch (i.e., games of greater importance, effective preparation, a supportive coach relationship, attentional and emotional control, strategically and behaviourally manage demands, increased standard of performance, positive affect, feeling exhausted, a lower amount of pressure and developed a strong rapport with players and coaches) events. To provide an overview of both performance experiences, themes and codes from which they were generated are discussed alongside raw data examples below.

Table 2.1

A summary of the dimensions, global theme, themes, and sub-themes.

Dimension	Global theme	Theme	Sub-theme
	Choking	Games of greater importance	Lack of readiness
			Lowered Self-confidence
		An overload of stressors	Primary and secondary work commitments
		An unsupportive officiating environment	Hostility and negativity from spectators, players, and coaches

Before performance episodes			Fear of negative evaluation
			Fear of embarrassment
	Clutch	Games of greater importance	The presence of social support
			Motivational self-talk
		Effective preparation	Proactive coping strategies
			Problem-focused coping
			Approach-focused coping
		A supportive coach relationship	Social support
			Motivational Language
			Shared Identity
During performance episodes	Choking	Over-refereeing	Irretrievable performance standards
			Detrimental consistency
		Distraction	Self-presentational concerns
			Fears of evaluation from assessors
	Clutch	Emotional and attentional control	Emotion-focused coping
			Acceptance
			Ownership
		Strategically and behaviourally manage demands	Short-term goals

After performance episodes	Choking	A significant drop in performance	Missed obvious decisions
			Made wrong calls
		Negative affect	Emotional breakdown
			Withdrawal
		Receiving negative evaluation from assessors	-
		Going through the motions	Decreased effort
			Reduced motivation to perform
		Verbal abuse from players	-
	Clutch	Increased performance standard	Effective decision-making processes
		Positive affect	Pride
			A sense of achievement
		Feeling exhausted	-
		A lower amount of pressure	-
		Developed a strong rapport with players and coaches	Mutual respect
			Open appreciation

4.1 Before both Choke and Clutch

Regardless of whether participants experienced choking or clutch states, it was recognised that *games of greater importance* considerably heightened the referees' perceptions

of pressure before each choking and / or clutch event. This pressure most often appeared to develop in games with personal value, opportunities for career progression, and when self-set expectations were high, as Johnathan (Basketball) explained: "Before reffing the cup final…I set a standard to perform that was so high…for whatever reason, a flawless performance was a must-have". As the increased levels of pressure from these "big" competitions were perceived to encourage both choking and clutch events, it was ultimately how the referees' appraised and managed this pressure that determined what state would be experienced. For example, two officials who failed to manage this pressure perceived it was beyond their capability and reported entering important games with a lack of readiness and lowered self-confidence. David (Basketball) summarised how this had encouraged a performance choke:

> *The opportunity to ref the semi-final was massive…because there were quite a few games left before it, I thought there would be plenty of time to iron out creases in my performance, as I tended to sit on the fence quite a lot when it came to making decisions…but when the semis came round, I simply wasn't ready for it…I hadn't practiced any areas that needed improvement enough, and in such pressurised events, those areas have to be fine-tuned…otherwise you expect the game to be a crash course on how not to reff, which it was.*

In comparison to the choke, for those who experienced clutch, an increase in pressure was perceived to influence performance positively, especially when family members were present. The presence of this form of social support appeared highly beneficial for the referees as it was suggested to enhance their motivation to perform optimally, thus triggering a challenge appraisal. For example: "My father was watching, which adds a different element… there was a fair bit more pressure, but it gave me more of a reason to perform well because he's not able to make it to most games".

Additionally, an increase in perceived pressure was managed effectively by those who experienced clutch by utilising psychological skills. Using such psychological skills appeared to engage self-regulatory control and enabled officials to avoid negative analytical thoughts that are thought to inhibit clutch. For example, Benjamin (Basketball) indicated how motivational self-talk before a game of importance had encouraged his optimal experience as it helped him to regulate his attention while remaining calm and positive under increased pressure:

> *If someone had been in the car with me, heading to the game, they'd have witnessed a full-blown conversation between me and my steering wheel… I kept telling myself to soak in the moment as much as possible…of course I was excited for the* [150th] *game as head official but I also wanted to keep my cool you know…I didn't want to shift my perspective away from the game itself so I kept reminding myself that yeah, 150 games is a lot and it's a big achievement but there's still another 150 more games in me…having that perspective definitely kept me grounded and relaxed before performing really well.*

4.2 Before the Choke

Upon discussing choking experiences, it became apparent that an *overload of stressors* held the potential to elicit a choke for four of the officials. Before their performance experience, overload, brought about by a number of concurrent stressors (i.e., unresolved personal matters, tension between co-officials, and reviewers assessing performance), was perceived to increase the likelihood of choking by shifting the referee's focus towards the stressors and their potential negative consequences. The inability to cope with this overload was often referred to using a "snowball" analogy by the referees who choked, whereby perceived pressures would build with each stressor, leading in time to overload and deteriorated performance. Christopher (Rugby League) accounted for how an *overload* of stressors before performance was perceived to provoke his choking experience:

There were plenty of pressures present…There was a pressure of performing at a lower grade. In other words, you're expected to nail those games…because you've nailed them before…even though they could be more difficult…so there was also a pressure of dealing with a tougher rugby game…There was a pressure from the reviewer…someone who had been critical of me before, so I felt like I was walking on eggshells in that regard…then with the team, the touch judges…I didn't feel like I'd get the best out of them… so you start to feel isolated…really alone…things begin snowballing and…during the game it all unravels and comes out in the way you talk to players and in the decisions you make. You make reckless decisions…and you completely lose your bearings.

Extending this, three officials perceived that an *overload of stressors* from primary work commitments (for those who were not full-time referees) decreased their emotional control before their experience, as they became overly anxious. As such, it appears that the official's emotional stress responses likely reduced their functional information-processing capacity and indirectly impaired their subsequent performance. For example, Michael (Basketball) summarised that when met with an accumulation of stressors from both primary and secondary job roles, the increased presence of anxiety was perceived to lead to a choking episode:

So before turning up to the game…I wasn't in the best of moods because of my job…overall I'd say I was pretty tired and annoyed before starting…when added to the pressure of refereeing this team, it sent me over the edge. I couldn't handle myself, let alone the players or the game…I didn't want to be there.

It became apparent that *an unsupportive officiating environment* was also a perceived precursor for four of the officials' choking event. This included hostility, negativity, and indirect abuse from spectators, players, and even peers / assessors. Such environments were perceived to cause a negative emotional response as they were considered threatening to the referees and occurred within performance review meetings, social clubhouses, and changing

rooms. The nature of this stressor can be captured through Michael's (Basketball) recollection: "There's nothing worse than going onto a court and being made to feel like your performance has already been evaluated poorly [by assessors] before you've even stepped foot on it… that kind of environment is very hostile… it puts you on edge."

Likewise, Kevin (Football) described:

> *As soon as I drove into the car park, people [spectators] were trying to scare me off…by giving me death stares…I got the exact same look from players in the changing room and even though I was filling in last minute to make sure the game went ahead, I still heard nasty things being said over the [changing room] walls about me…like "I wonder how the wanker in there will be today?"*

Additionally, all four participants perceived that *an unsupportive officiating environment* could stimulate a choking event by drawing attention away from performance-related tasks. Instead, their focus shifted toward previous video review meetings in which peers and coaches would "highlight" and "joke" about errors made within their performances. In all four cases, these negative comments left participants feeling "anxious and apprehensive" for fear of (further) negative evaluation and embarrassment and therefore appeared to adopt protective-agentic self-presentation motives (i.e., a desire to avoid social disapproval from others in terms of physical qualities and task abilities). This sentiment was captured within Benjamin's (Basketball) explanation:

> *I can't remember a lot of what went on in that game because my thinking wasn't focused on the things I needed to perform well…my mind was so flooded with thoughts over how to avoid that humiliation again, I ended up giving them more fuel for the fire…having watched the review footage…from all the low percentage decisions I made…it looked like I was away with the fairies.*

4.3 Before the Clutch

Conversely, all referees who had experienced clutch highlighted the importance of adopting *effective preparation* strategies before their performance. For most referees, *effective preparation* involved utilising proactive coping strategies, such as imagery, to mentally rehearse potential scenarios the referees may encounter during their performance. Specific scenarios included how they would position their body to see foul play and communicate decisions with players and coaches. Upon successfully managing these scenarios within their imagery, four referees described increased "confidence", "readiness to perform", and perceived situational "control". Aaron (Rugby League) emphasised this point:

> *On the way to the game, I'm just trying to prepare myself really, I'm thinking about what kind of situations and scenarios I would have to give fouls in, or how I would speak to a player without giving them a foul, basically warning them. I'm just trying to build on how I would act in those situations...to manage and keep control of the game...which builds up my confidence.*

For three referees, completing checklists or pre-game reviews specific to player behaviour and areas of potential foul play were key *effective preparation* strategies perceived to increase the likelihood of experiencing clutch performance. These reviews and checklists seemingly allowed the officials to become accustomed to game-specific stressors, such as player names, traits (e.g., arousal or communication styles) and each team's respective playing styles. In all three cases, the officials suggested that such proactive coping strategies encouraged them to appraise the subsequent performance demands positively, which increased their effort and their belief that they could effectively referee any game scenario they were about to face. This was expanded upon by Christopher (Rugby League), who stated:

> *It's one of the best moments of refereeing, the anticipation before a game and looking forward to the challenge…I was really happy with what I put in my preview…it set my mind to nailing that game…when I read the preview again before the game…I just knew*

I had an answer to everything that could happen and...everything good about my refereeing would present itself.

Likewise, problem / approach-focused coping techniques were often perceived as effective preparation strategies to manage demands (e.g., resolving relationship conflict) before their game. These strategies appeared to free up attentional resources as the officials could heighten their focus on performance tasks and thus encourage a clutch episode. Aaron (Rugby League) also illustrated this factor by explaining:

Instead of putting other issues you've got outside the game into boxes…leave the boxes out and deal with them…I found that by putting this into practice, its helped…for example, my mum's terminally ill…and…if we've had a difficult week with treatment…by dealing with it and speaking to someone about it or making the extra effort to know I've spent enough time with her, it doesn't play on my mind. It's out of my mind…I felt like going into this game [clutch performance]*, my head was the most free it had been to think and focus about just the game.*

Additionally, among those who had access to coaching, four referees articulated how a *supportive coach relationship* was perceived to enhance their likelihood of experiencing clutch performance. These participants noted that when their coaches offered social support and adopted motivational language, it appeared to elicit a challenge appraisal that heightened their arousal levels. Lily (Hockey) illustrated this point:

Before the game I was pretty chilled, but I knew it was going to be a tough game and so did my coach…she pulled me aside as I got off the bus and said to me "we need you to step up here…I know you've got it in you", as soon as she said that I thought, 'right you've got this'...I started feeling really pumped up…what she said to me was the right kick up the arse I needed.

The development of “trust” within their *supportive coach relationship* was perceived as particularly important for a clutch episode to occur. Participants described trust being formed through “positive”, “regular, and strong dialogue” with their coach, alongside the provision of “emotional support” without judgement. With trust present, officials suggested they listened and responded positively to their coach’s feedback which included technical information on how to reach specific performance goals. This informational support was considered likely to encourage clutch performance, as Johnathan (Basketball) explained:

> *From his* [coach] *Olympic experience and from the relationship we’ve built over the years, I fully believe I’ll get to where I want to be as a referee…during the first and second quarter break, he came and reinforced some technical points we’d been through from the previous game…about anticipating and recognising who initiated contact before calling a foul…after I resumed play, I made more effort to better my court positioning and my eyes began to wire into certain actions and reactions from the players…I had like 20/20 vision for seeing and calling the fouls.*

As expressed through the collective terms of "we" and "us" within the above quotes, there was an indication of a shared social identity between the officials’ close dyadic relationship with their coaches.

4.4 During the Choke

Of those officials who choked, three reported having experienced *over-refereeing* during their choking event. For all three, *over-refereeing* meant strictly “following the rulebook” and inwardly monitoring their decision-making without outwardly attending to the game’s contextual needs or demands. Frank (Rugby Union) acknowledged that by adopting this refereeing style, he had intended to “avoid all potential mistakes for a good match”; however, this paradoxically impacted his performance standard negatively and led to choking. Frank further expanded upon this point:

...my outlook became very narrowminded and self-set toward penalising the slightest of infractions…I was taking all the momentum out of the game…it ended up making the pace of game very stop startey because I had this mentality where if I didn't give things, the game would blow up…I gave the players and game no room to progress from play to play.

It also became apparent that the officials who were *over-refereeing* during their choke perceived they could not retrieve their normal performance standards during that game for fear of adverse reactions from players and coaches. Christopher (Rugby League) explained:

When you start calling everything, you create a level of expectancy…If I'd have reduced how frequent I made decisions, one team would have likely felt hard done by and start to speak up about it…in my head, I had to keep the same sort of consistency.

However, in an effort to maintain such "consistency", it became clear that the officials were also intent on preserving their self-image and avoiding seeming incompetent. In turn, the choke was sustained due to reduced attentional control as Johnathan (Basketball) continued to explain:

...keeping up with the number of fouls I'd given was tough…there were repeated offenses where I thought I should have stepped in more and given a technical but was reluctant because I'd already penalised so many players for the same foul…trying to stay on top of those calls meant I was constantly being reminded of them…it kept the poor decisions coming which was quite disorientating.

Five referees reported choking as a result of *distraction.* Four of these five officials suggested that because of factors like self-doubt, embarrassment, and performance consequences, their focus became directed towards debilitative anxieties, such as self-presentation concerns (e.g., portraying a positive self-image to peers and spectators) and fears

of evaluation from assessors. David (Basketball) emphasized how he became focused on avoiding receiving negative judgement during his choke:

> *In basketball, the fans are a lot closer to the court than other sports. In other sports they're further away and there's a barrier between them. You don't have that in basketball. It's not the screaming down your neck saying, 'foul this, foul that'. It's more the anxiety of not getting it right in front of them, and then seeing their reactions…you start thinking and worrying about what they're saying about you.*

Aaron (Rugby League) outlined that he had experienced choking through distraction after a lead official had gone against their decision during a critical and pressurised moment within a game. Despite Aaron's judgment being the correct decision, they subsequently recalled being "overcome" with negative thoughts (e.g., "the rest of the game I was thinking 'ahhh fucking hell, you've fucked it up'"), which encouraged a threat state followed by a significant drop in performance, as summarised below:

> *…there was probably one try between each team, literally like 4 points…there was quite a bit of pressure…then there was this conversion…I call no goal and the other touch judge next to me called goal...but the main referee…backed his* [the other touch judge] *decision over mine…from then onwards I just felt like I was in thick mud really…my head was absolutely puzzled…you're just replaying that moment over and over whilst the games on…then the next decision I make as the balls gone into touch, I've completely put the wrong hand up… said the completely wrong team as well… and I've just frozen…I wanted the game to be done. If I could have gone home at half time, I would have.*

4.5 During the Clutch

Data revealed that during clutch experiences, participants perceived to maintain or increase their *emotional and attentional control*. In regard to emotional control, three of the referees identified this factor to exist within their positive performance experiences. Each of

the officials described the regulation of their emotional state as being "a conscious effort" to engage in emotion-focused coping techniques, such as breath control and positive self-talk, that help them "remain calm", "composed", and "relaxed". By completing tasks under pressure with a controlled emotional state, those officials indicated their confidence grew further in regulating their behaviour and communication with players. Matthew (Rugby Union) illustrated how such emotional control and confidence led him to manage confrontational players during the clutch state more effectively:

> *Making sure I had this relaxedness meant I didn't add any more strain to an already tense situation…fighting fire with fire so to speak…staying cool and having a relaxed state of mind meant I could read the players dispute better, which gave me the upper hand when I approached it as I could involve myself straight away and say to them 'I'm not shouting at you. My voice is down here. You have two options right now, either you lower your tone, or you go [yellow card] because I'm not going to shout at you.'…as soon as I said that the problem was solved.*

In comparison to the choke, four officials perceived to experience attentional control (rather than distraction) when "being able to stay present" and "capable of moving on from mistakes easily". Through utilising the coping strategies of acceptance and ownership to regulate their attention during the performance, participants avoided ruminating over their mistakes, thus enabling them to focus on task-relevant information, make good decisions, and experience the clutch state. Aaron (Rugby League) expressed this further:

> *What was really satisfying within that game, was a break in play during the first half…a player goes to the floor because he's tackled, but then he stands up and starts running off. I blow the whistle to send him back and as I send him back, he plays the ball…I knew I should have brought him back instead of letting him play on, but because I was so present in the moment, I just moved on from it…I logged it and I didn't become stuck on*

it...If you get stuck on it, it's going to affect the whole performance…I never thought about it throughout the game after that.

During clutch performances, three officials reported to consciously exert an increased effort to *strategically and behaviourally manage demands.* This effortful approach was noted to absorb the officials into their performance and exist in response to the changing situational demands of performance, as Matthew (Rugby Union) depicted:

My thoughts were constantly adapting to the game…one minute I'll be thinking about managing this scrum here, then the next it'll be managing a penalty kick over there…it was just manage, manage, manage and if it became more difficult, I would manage it some more.

Moreover, the officials suggested they had broken up performance demands into manageable, short-term goals. These goals were perceived as specific and directed toward imminent potential decisions, which facilitated participants' transition into clutch states as their confidence and motivation to execute the goals correctly was enhanced. Johnathan (Basketball) briefly reflected on this:

...your main goal as an official is to manage the game and make accurate calls when needed…what drove and helped to reach that expectation was breaking down and targeting certain decisional areas with what to search for…so basically how could I be more successful with my decisions around this area of the game…I intended for it to keep me on top of the subtleties that can be easily missed…say for instance I'm on the ball side of the court, I'd prioritise counting the seconds an offensive players' feet are in the box while looking for signs of hooking or holding around their mid-section.

4.6 After the Choke

Multiple short-term consequences were reported to be experienced following the participants' choking events. All referees identified *a significant drop in performance* whereby

they “constantly missed” or made “distinctly bad calls”. Explaining this, Christopher (Rugby League) stated: “in terms of magnitude of error…and how compounded the errors were…that’s [the choke] been my worst performance”. Benjamin (Basketball) further summarised how this experience differed from other underperformances: “if you make one or two bad decisions, you can normally sweep them under the rug or make up for them in the next few phases, but that’s not possible when you make as many as I had [during the choke]”.

The eight officials who choked also experienced *negative affect* after their event. The primary affect included disappointment, confusion, anger, and frustration. Two officials identified these emotions to be “released” somatically by “breaking down” and “crying”. Other participants chose to manage these emotions through withdrawal, as explained by Michael (Basketball): “I just keep myself to myself…I just isolate myself…I’d lock myself away in a room to be away from people so that I can deal with it on my own”.

Four officials described becoming highly anxious about *receiving negative evaluations from assessors* after their choke. Kevin (Football) stated: “we know when we are getting observed…after I had the shit game, I got pretty anxious waiting for the mark back…I wanted it to come through quickly so I could just put it to bed”. Supporting this, Frank (Rugby Union) explained, “I wasn’t scared…I was just apprehensive…I knew that after I’d had a shower and got changed, I’d have to go sit in a room with 10 assessors and get grilled…I knew they’d absolutely crucify me for it.”

Additionally, four officials acknowledged they became intrinsically “disengaged” from refereeing, having suffered a significant loss of effort and motivation after their choke. Two of these referees described temporarily “switching off” their focus and “*going through the motions*” while continuing to officiate their subsequent game. Consequently, they were not able to recall the rest of their performance, as Aaron (Rugby League) reflects:

[after the choke] I was just going through the motions. I wasn't focused. If you ask me what happened in the second half, I can't remember anything. I can't remember who won the game. To me, the game went quicker because I switched off from it.

Finally, two participants identified experiencing *verbal abuse from players* after their choke. Players would become frustrated and angered in response to the referee's performance standards distinctly dropping, with "clear decisions" being wrongly made or missed. David (Basketball) described how such reactions were directed to both themselves and their opposition: "I was missing loads of calls…[the choke] the boys [players] were getting irate and the game was also getting pretty heated…in terms of verbal abuse."

4.7 After the Clutch

Multiple consequences were reported to follow participants' clutch experiences. Compared to the choke, an *increased performance standard* was associated with clutch episodes (rather than a significant drop in performance). Explaining this, Michael (Basketball) stated:

It's not something I fully realised till after the game…but from being in that state [clutch], albeit briefly, my whole performance had improved…I was better at foreseeing the decisions…I read and understood the players' behaviour and demeanour more and my reactions to decisions became more effective…those factors have a big impact when you look back on the game.

Opposite to the choke, seven officials described *positive affect* as an outcome of their clutch performance. As some of the referees' clutch performances took place in games with opportunities for career progression, it was unsurprising that feelings of pride and achievement were frequently noted. Lily (Hockey) reflected on this by explaining:

When I found out, I ran and I called my mum and said "I've done it! I've got it!"…I was screaming at my brothers…Having that confirmation when the badge came through was

so rewarding…my whole family was buzzed…my brother went and took my tops from the tournament and my officials lanyard, and he put it all in a picture frame and it was put up on one of our walls as the centre piece.

However, five referees also reported *feeling exhausted* or "heavily tired" after their experience, as reaching clutch performance was extremely effortful: "after we'd gone back to the hotel and I'd got changed out of my kit, my body just shut down…I knew I was hydrated…I could have maybe eaten something, but I just felt sick…I just wanted to sleep". Despite feeling exhausted, two officials described *a lower amount of pressure* to be present after their clutch experience. As such, this was perceived to benefit future performances by increasing their self-confidence:

I was in a really good mood and buzzing about it [clutch experience]. To me, I didn't have to worry about the coaches after the game because I knew that it would go well the week after in the preview. Me performing so well made me less stressed…there's less of a pressure there to improve performance when the one you've just done is so good…there's no pressure there to explain to the coaches why I performed badly…either.

Finally, in contrast to those who experienced abuse from players after the choke, four officials were perceived to have *developed a stronger rapport with players and coaches* due to the shared experience of the positive clutch performance. In response to how well the referees performed, communicated, and managed the game, both players and referees openly showed respect and appreciation toward each other. Frank (Rugby Union) elaborated on this:

They [the players] *just responded so well when you did speak to them…the captain…had a quick chat with me and said, "anything from you for us?", so I said to him "don't give away too many penalties in your 22 when you're defending next time." And then…I asked "anything from you guys for me?", he then said…"fair play for asking that…you'd never*

have known this was your first game in this league…you were first class…I really enjoyed having you because the way you were speaking to us was brilliant".

Chapter 5: Discussion

The purpose of the current study was to examine the psychological factors perceived to be associated with choking and clutch performances among competitive referees. As such, the findings of this study broaden previous perspectives on failed and optimal performance experiences (e.g., Hill et al., 2010; Swann et al., 2017), by directing research attention toward an overlooked population in sport. Overall, the current study presents a unique understanding of the contexts, occurrences, and consequences of each psychological state among sporting officials.

Before their performances, participants identified five critical key factors, one of which appeared to encourage both choke and clutch events, but the remaining four only associated with one of the experienced states. Specifically, the first key factor involved *games of greater importance;* whereby participant officials perceived high levels of pressure. This finding supports and extends recent statements by Schweickle et al. (2021b) that pressure appraisal is subjective and can have a "dynamic" and "diverse influence on performance" (p. 8), as the participants' increased perception of pressure elicited both choke and clutch states. Officials who experienced clutch interpreted the increased pressure as facilitative and utilised effective coping strategies to manage their emotions through psychological skills (e.g., self-talk). Whereas for participants who choked, the increased appraisal of pressure was viewed as debilitating and brought about an anxious emotional response that was managed ineffectively. Therefore, it is important for officials to develop psychological strategies, such as self-talk and cognitive restructuring, to shift the appraisal of the pressure to a challenge (i.e., a facilitative appraisal) which enables them to cope more effectively with anxiety, encourage clutch, and prevent choking (Hill et al., 2011).

The second key factor, previously noted within several studies that have examined pressurized performance among athletes (e.g., Hill et al., 2010), was experienced prior to the

referee's choke and identified as an *overload of stressors*. As demonstrated extensively (e.g., Hill et al., 2021; Levy et al., 2009), when an individual's capacity to cope with demands is exceeded, they are likely to experience distress, lowered well-being, and an acute drop in performance, which is seen within referees in the current study. To reduce the likelihood of choking from overload, officials should be encouraged to adopt proactive coping (review and game planning) to remove stressors and approach-focused coping techniques (e.g., process goals) to manage those stressors that cannot be eliminated (Hill & Hemmings, 2015).

The third critical factor identified to precede a choke was an *unsupportive officiating environment,* whereby the referees were subject to threatening behaviour and indirect verbal abuse from players and supporters. This finding reinforces extensive research (e.g., Cuskelly & Hoye, 2013; Hill et al., 2016; Rayner et al., 2016; Webb et al., 2021), which has demonstrated intimidation and abuse from players, supporters, and reviewers as a significant stressor that officials experience across sports and performance levels. In adding a novel contribution to the extant literature, officials within the current study were also subject to highly critical and negative comments from fellow peers within review meetings. This criticism / abuse led officials to experience high levels of anxiety and distress in future performances, which they appeared to manage by adopting protective-agentic self-presentation motives (i.e., trying to avoid looking incompetent). However, as found in the sporting literature (e.g., Hill et al., 2017; Howle et al., 2016) and this current study, such motives may elicit adverse performance outcomes and choking. Accordingly, as abuse is an uncontrollable stressor, officials should seek to learn emotion-focused coping strategies (e.g., centering or seeking social support) that effectively lower debilitating emotions like anxiety (see Hill et al., 2016; Voight et al., 2009). In terms of managing critical reviews, officials and their colleagues should be encouraged to reflect on performance as a constructive learning experience informed by adversity-related growth (Hill et al., 2019; Howells & Fletcher, 2015). Through constructively

searching for meaning from negative events, individuals can formulate new knowledge which greatens their perceived resources and increases confidence for subsequent challenges (Sarkar et al., 2015). Finally, officials should be encouraged to learn and adopt acquisitive-agentic motives (i.e., a desire to gain social approval from others in terms of physical and task ability) that strive to achieve goals rather than avoid them, as this is associated with the clutch experience (Hill et al., 2017).

The second key factor that was perceived to occur before the clutch was *effective preparation,* as officials adopted helpful, proactive coping strategies (i.e., imagery and checklists) that positively impacted their confidence, readiness to perform, and perceived control. This supports a recent case study targeting football referees by Webb and Hill (2020), who implemented a psychological skills intervention that developed proactive coping, which enabled their referees to manage stressors encountered within and outside of competition effectively. Congruent with clutch performance (Schweickle et al., 2022), referees who engage with proactive coping and experience increased confidence and perceived control as a result, appear more likely to make consistent and accurate decisions under pressure (Hill et al., 2016; Webb & Hill, 2020).

A *supportive coach relationship* emerged as the third factor within this study that participants perceived to increase the likelihood of clutch performance. Part of this supportive relationship included the offering of emotional and informational support from coaches, which has been highlighted in the sporting literature to maintain positive coach-athlete relationships (Rhind & Jowett, 2010), enable effective coping under pressure by acting as a 'buffer' to the effects of stress (Tamminem & Holt, 2012), and associate with clutch performance (Schweickle et al., 2021a). Thus, officials should engage with coaches they find supportive, as a lack of perceived social support has been shown to increase the likelihood of choking (Hill & Shaw, 2013). Additionally, the participants' coaches appeared to have developed a shared social

identity (i.e., a sense of 'we' and 'us') by engaging with identity leadership principles (see Haslam et al., 2011). As evidenced within organisational literature (Giessner & van Knippenberg, 2008), such cohesion from leadership likely enhanced trust between the officials and their coaches. It must also be noted that recent evidence from Slater et al. (2018) and Miller et al. (2021) found identity leadership to positively associate with an increased intentional/behavioural mobilisation of effort, alongside greater resource appraisals that encourage challenge states (Jones et al., 2009). It is possible, therefore, that *supportive coach relationships* may have elicited optimal performance as both increased effort and challenge appraisals are identified processes of occurrence for clutch events (Swann et al., 2017a; Swann et al., 2019).

Furthermore, the current study indicated three participant officials choked through self-focus by *over-refereeing* during performance. This finding supports Kinrade et al.'s (2010) extension of the Reinvestment Theory (Masters, 1992), which posits that individuals who reinvest explicit knowledge by consciously monitoring decision-making processes, will, in turn, suffer performance decrements under pressure as they become less able to process task-relevant information. Indeed, empirical evidence from both officials (e.g., Poolton et al., 2015; Burnett et al., 2017) and athletes (e.g., Kinrade et al., 2015; Sherwood et al., 2019) has reported that individuals who are more predisposed to the conscious processing of decisions, experience impaired decision-making while under pressure. In efforts to enhance officials' performance, promising research by Maxwell-Keys et al. (2022) suggests the application of a Rational Emotive Behaviour Therapy (REBT) intervention can reduce officials' propensity to reinvest in decision-making processes as it aims to develop rational beliefs that manage their anxiety. Though further research is required regarding REBT, there are several other interventions known to prevent self-focus more generally that are likely to help those referees who choke through the process of reinvestment (e.g., fluency cues or hemispheric priming, Ashford &

Jackson, 2010; Beckmann et al., 2013). Hemispheric priming, for example, has been demonstrated to maintain or improve performance under pressure through dynamic left-hand contractions, which suppress self-focused attentional processes in the left hemisphere while priming the visuospatial processes of the right hemisphere necessary for motor performance (Cross-Villasana et al., 2015; Gropel & Beckman, 2017).

In addition, this study indicates that the majority of participants choked through *distraction*. Specifically, the officials focused on debilitative anxiety, self-presentational concerns, and negative thoughts. As found in the extant literature pertaining to athletes, such threat stimuli (i.e., debilitative anxiety, self-presentational concerns, and negative thoughts) appear to similarly cause choking through distraction among officials. Accordingly, officials should be encouraged to adopt strategies that will improve their attentional control (e.g., deep breathing, quiet eye, decisive or instructional self-talk; Mesagno & Mullane-Grant, 2010; Wood & Wilson, 2011; Wu et al., 2023).

During clutch performances, participant referees revealed both *emotional and attentional control* to be key aspects of their positive experience by increasing their confidence when managing demands and stopping them from ruminating over mistakes. As found across the extant literature, emotional and attentional control are extensively associated with peak and clutch performance across sports (Swann et al., 2019). The connection between emotional, attentional control, and performance is often explained through Tenenbaum et al.'s (2009) conceptual framework, which links emotions, cognitions, and performance with two self-regulatory assumptions (i.e., *process* and *basic*). Specifically, Tenenbaum and colleagues propose that *basic* regulation stabilises an individual's action system by controlling the emotional levels required to perform a task and so creates the necessary conditions for process regulation. *Process* regulation may then expand and enhance an individual's attentional control by directing their focus toward selective environmental cues for an accurate decision-making

action. As individuals can experience deficits to both regulation types, officials should seek to adopt self-regulation training (e.g., stress-regulation) for improved basic regulation; and preparatory mental skills training (e.g., imagery) for improved process regulation (Tenenbaum et al., 2009).

The current study also found that officials *strategically and behaviourally managed* the changing situational demands of performance during clutch events by setting short-term goals. This finding supports recent qualitative research designed to understand experiences of clutch (e.g., Swann et al., 2017; Schweickle et al., 2022), as participants appeared to adopt similar process goals that focused on executing performance-orientated behaviours and strategies. Given the beneficial impact of process goals on performance and an array of other psychological constructs associated with clutch performance (e.g., self-efficacy, decision-making, attentional and emotional control, motivation, see Williamson et al., 2022), this finding is unsurprising. Thus, while further research is required to explore the role of goal setting among referees, it appears beneficial for referees, who perform under pressure, to adopt process goals in order to achieve a clutch performance.

After their choke, the consequences experienced by officials align with those previously identified within research directed toward athlete populations (see Hill et al., 2019; Hill et al., 2017; Hill et al., 2010a). Specifically, choking for officials was perceived as a significant drop in performance standards, leading to negative short-term affects that include disappointment and confusion, as well as anxiety over receiving negative evaluations from assessors and disengagement from performance. However, due to the context of referees, a unique finding of this study was that participants experienced increased verbal abuse after their performance breakdown. This theme can likely be explained by the established culture of abuse towards referees across sports (e.g., football, rugby league, rugby union, cricket; Webb et al., 2017; Webb et al., 2018; Webb et al., 2019), whereby incorrect decisions are considered an 'ignitor'

for such negative behaviours (Nicholson & Hoye, 2005). For this reason, officials should seek to adopt proactive coping strategies that mentally prepare them for managing verbal abuse, particularly from coaches and players (Hill et al., 2016; Voight, 2009). Additionally, national governing bodies should be more accountable for providing effective training and support programmes, such as mentoring schemes (Kellet & Warner, 2011; Ridinger, 2015).

Regarding consequences experienced after clutch performance, the current study indicates that being exhausted, alongside a sense of achievement and enjoyment, followed an increased performance standard that was perceived to associate with clutch events, which supports previous qualitative findings (Swann et al., 2019). The exhaustion felt is associated with the effort required to achieve a clutch (see Swann et al., 2019), and in this current study, the enjoyment was shared with players and coaches through respectful and appreciative interactions. Given the increased attrition and poor retention rates of officials across sport (see Livingston et al., 2017), clubs and associations should use this information to devise appropriate organisational initiatives, as such forms of socialisation with players and coaches have been demonstrated to positively impact referees' affinity to their sport (Kellet & Warner, 2011).

Finally, it must also be noted that findings in the current study generally support the Integrated Model of Flow and Clutch States (Swann et al., 2017b) and extend the model by providing evidence of its relevance in officiating under pressure. Specifically, several findings parallel those reported in past theoretical research regarding the integrated model (e.g., Jackman et al., 2021; Swann et al., 2019). First, experiences with clutch were considered to occur in pressurised contexts appraised as challenging and facilitated by specific (fixed) goals being set, as well as an increased conscious effort to regulate emotions and attention. Second, multiple characteristics of clutch (see Swann et al. 2017a) were reported as a result of participants drawing upon social support (e.g., from family members or coaches) and

psychological skills (e.g., imagery or self-talk) throughout their experiences. These characteristics include heightened arousal, confidence, effortful concentration, analytical thoughts, absorption, and motivation to achieve goals. Third, participants who experienced clutch associated positive psychological outcomes with their experience, such as feelings of pride and achievement, alongside exhaustive effects related to the increased effort required during clutch performances. Whilst the findings of this study broadly support the integrated model, some contexts (i.e., end of activities) and characteristics (e.g., feedback towards goal, altered perceptions, automatic skill execution) of clutch states were not raised by the officials. Thus, future research may benefit from multiple and / or event focused interviews that allow participants to discuss further, and closer to the event, on the contexts and processes of optimal experiences.

Chapter 6: Conclusion

The present study offers an initial investigation into the psychological factors responsible for choking and clutch performance among competitive referees. Specifically, it has provided a unique insight into the perceived contexts, occurrences, and consequences of choking and clutch performance under pressure within this context. Although perceptions varied, the broad findings indicated that games of greater importance, overload, and an unsupportive working environment were key stressors that encouraged choking through distraction or self-focus, thus causing officials to experience a significant drop in performance, negative affect, worries over negative evaluation, disengagement from performance, and verbal abuse from players. Comparatively, games of greater importance, effective preparation, and a supportive coach relationship were factors perceived to encourage clutch performance as officials experienced increased emotional and attentional control and began to strategically and behaviourally manage demands. From their clutch performances, officials were exhausted, and reported positive affect, and a shared positive experience with players and coaches.

Accordingly, the findings from the current study offer preliminary information for practitioners and coaches working with competitive referees to develop evidence-based and theory-informed psychological interventions that encourage optimal performance and minimise choking under pressure. Before performance, this should include REBT, proactive (such as imagery and game planning), and emotion-focused coping strategies (e.g., self-talk) that help remove stressors and prepare officials to manage negative emotional responses effectively. For during performance, officials should be encouraged to learn and utilise a range of problem- (e.g., instructional self-talk, hemispheric priming, setting process goals) and emotion-focused coping techniques (e.g., deep breathing, centering) techniques that improve focus and concentration, increase perceived control, and regulate emotions. It also appears that

referees should engage in constructive reflection following performance, which enables them to better understand and learn from their errors.

6.1 Limitations

Despite the current study's findings providing a unique insight into the perceived psychological factors that elicit choking and clutch experiences among performance referees, several limitations should be noted. Firstly, as the study relied upon the recall of events within the previous two years, participant experiences may be vulnerable to recall bias (Beilock et al., 2003). Nevertheless, participant officials were able to generate detailed accounts of the choking and clutch phenomena, from which patterns of data relating to their thoughts, feelings, and behaviours were drawn out (i.e., before, during, and after the experiences). However, future studies should consider adopting approaches that collect data closer to the event experience (e.g., event-focused interviews, Jackman et al., 2021; Think Aloud, Eccles & Arsal, 2017) in order to capture cognitive processes as they occur during or immediately after engaging in performance tasks (Ericsson & Simon, 1993; Jackman et al., 2021). Secondly, data were collected from single rather than repeat interviews, so participants may have been able to provide more detail regarding their experiences, if an iterative interview process had been adopted. However, due to time constraint of the referees this was not possible, and as they were information rich participants, and fully engaged in a lengthy interview, the data were credible. Thirdly, as this study's sample only focused on 'interactor' referees who officiate game-based sports (e.g., rugby, hockey, football), it may be the case that a broader understanding of choke and clutch phenomena exists among other types of performance officials (i.e., monitors and reactors). Therefore, future research may benefit from sampling other homogeneous groups of officials. Thirdly, while the current study recruited individuals with a range of experience, participants were predominantly male, so the sampling approach may have missed valuable insights by not actively recruiting a more significant number of female officials, who

experience unique stressors in their role. Finally, while the data have been analysed through ID principles, leading to a detailed understanding of the referees' experience of choking and clutch, it is accepted, that the collection of additional data from the participants (and other sources) may have facilitated further interpretation.

References

Adegbesan, O. A. (2007). Indices of choking under pressure among athletes during competition. *Perceptual and Motor Skills*, *105*(3).

Allen, M. S., Frings, D., & Hunter, S. (2012). Personality, coping, and challenge and threat states in athletes. *International Journal of Sport and Exercise Psychology*, *10*(4), 264-275.

Anderson, R., Hanrahan, S., & Mallett, C. (2014). Investigating the optimal psychological state for peak performance in Australian elite athletes. *Journal of Applied Sport Psychology, 26*(3), 318–333.

Anshel, M. H., & Weinberg, R. S. (1996). Coping with acute stress among American and Australian basketball referees. *Journal of Sport Behaviour*, *19*(3), 180.

Anshel, M. H., Sutarso, T., Ekmekci, R., & Saraswati, I. W. (2014). A model linking sources of stress to approach and avoidance coping styles of Turkish basketball referees. *Journal of Sports Sciences*, *32*(2), 116-128.

Avugos, S., MacMahon, C., Bar-Eli, M., & Raab, M. (2021). Inter-individual differences in sport refereeing: A review of theory and practice. *Psychology of Sport and Exercise*, *55*, 101926.

Baddeley, A. (1993). Short-term phonological memory and long-term learning: A single case study. *European Journal of Cognitive Psychology*, *5*(2), 129-148.

Baumeister, R. F. (1984). Choking under pressure: self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology*, *46*(3), 610.

Baumeister, R. F., & Showers, C. J. (1986). A review of paradoxical performance effects: Choking under pressure in sports and mental tests. *European Journal of Social Psychology*, *16*(4), 361-383.

Baumeister, R. F., & Steinhilber, A. (1984). Paradoxical effects of supportive audiences on performance under pressure: The home field disadvantage in sports championships. *Journal of Personality and Social Psychology*, *47*(1), 85.

Beckmann, J., Gröpel, P., & Ehrlenspiel, F. (2013). Preventing motor skill failure through hemisphere-specific priming: cases from choking under pressure. *Journal of Experimental Psychology: General*, *142*(3), 679.

Beilock, S. L., & Carr, T. H. (2001). On the fragility of skilled performance: What governs choking under pressure?. *Journal of Experimental Psychology: General*, *130*(4), 701.

Beilock, S. L., & Carr, T. H. (2004). From novice to expert performance: Memory, attention, and the control of complex sensory-motor skills. In *Skill Acquisition in Sport* (pp. 333-351). Routledge.

Beilock, S. L., Carr, T. H., MacMahon, C., & Starkes, J. L. (2002). When paying attention becomes counterproductive: impact of divided versus skill-focused attention on novice and experienced performance of sensorimotor skills. *Journal of Experimental Psychology: Applied*, *8*(1), 6.

Beilock, S. L., Jellison, W. A., Rydell, R. J., McConnell, A. R., & Carr, T. H. (2006). On the causal mechanisms of stereotype threat: can skills that don't rely heavily on working memory still be threatened? *Personality and Social Psychology Bulletin*, *32*(8), 1059-1071.

Beilock, S. L., Wierenga, S. A., & Carr, T. H. (2004). Memory and expertise: What do experienced athletes remember. *Expert performance in sports: Advances in Research on Sport Expertise*, 295-320.

Beilock, S.L., & Gray, R. (2007). Why do athletes “choke” under pressure? In G. Tenenbaum & R.C. Eklund (Eds.), *Handbook of Sport Psychology* (pp. 425–444). Hoboken, NJ: Wiley.

Boudreau, P., Mackenzie, S. H., & Hodge, K. (2022). Optimal psychological states in advanced climbers: Antecedents, characteristics, and consequences of flow and clutch states. *Psychology of Sport and Exercise*, *60*, 102155.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in Sport, Exercise and Health*, *11*(4), 589-597.

Braun, V., Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners*. Sage Publications.

Burke, K. L. (1991). Dealing with sport officials. *Sport Psychology Training Bulletin, 2* (6), 1-8.

Burnett, A. M., Bishop, D. T., Ashford, K. J., Williams, A. M., & Kinrade, N. P. (2017). Decision-making of English Netball Superleague umpires: Contextual and dispositional influences. *Psychology of Sport and Exercise*, *31*, 52-60.

Buszard, T., Farrow, D., & Masters, R. S. W. (2013). What is the 'significance' of choking in sport? A commentary on Mesagno and Hill. *International Journal of Sport Psychology, 44*(4), 278–280.

Chalabaev, A., Sarrazin, P., Fontayne, P., Boiché, J., & Clément-Guillotin, C. (2013). The influence of sex stereotypes and gender roles on participation and performance in sport and exercise: Review and future directions. *Psychology of sport and exercise*, *14*(2), 136-144.

Chalabaev, A., Sarrazin, P., Stone, J., & Cury, F. (2008). Do achievement goals mediate stereotype threat?: An investigation on females' soccer performance. *Journal of Sport and Exercise Psychology*, *30*(2), 143-158.

Cleland, J., O'Gorman, J., & Bond, M. (2015). The English football Association's respect campaign: the referees' view. *International Journal of Sport Policy and Politics*, *7*(4), 551-563.

Corbetta, M., & Shulman, G. L. (2002). Control of goal-directed and stimulus-driven attention in the brain. *Nature reviews neuroscience*, *3*(3), 201-215.

Cross-Villasana, F., Gröpel, P., Doppelmayr, M., & Beckmann, J. (2015). Unilateral left-hand contractions produce widespread depression of cortical activity after their execution. *PloS one*, *10*(12).

Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco, CA: Jossey-Bass.

Csikszentmihalyi, M. (2002). *Flow: the classic work on how to achieve happiness*. 2nd ed. London: Rider Books.

Cuskelly, G., & Hoye, R. (2013). Sports officials' intention to continue. *Sport Management Review*, *16*(4), 451-464.

Dell, C., Gervis, M., & Rhind, D. J. (2016). Factors influencing soccer referee's intentions to quit the game. *Soccer & Society*, *17*(1), 109-119.

Devís-Devís, J., Serrano-Durá, J., & Molina, P. (2021). "The referee plays to be insulted!": An exploratory qualitative study on the Spanish football referees' experiences of aggression, violence, and coping. *Frontiers in psychology*, *12*, 656437.

Dorsch, K. D., & Paskevich, D. M. (2007). Stressful experiences among six certification levels of ice hockey officials. *Psychology of Sport and Exercise*, *8*(4), 585-593.

Eccles, D. W., & Arsal, G. (2017). The think aloud method: what is it and how do I use it? *Qualitative Research in Sport, Exercise and Health*, *9*(4), 514-531.

Ellis, L., & Ward, P. (2022). The effect of a high-pressure protocol on penalty shooting performance, psychological, and psychophysiological response in professional football: A mixed methods study. *Journal of Sports Sciences*, *40*(1), 3-15.

Englert, C., & Oudejans, R. R. (2014). Is choking under pressure a consequence of skill-focus or increased distractibility? Results from a tennis serve task. *Psychology*, *5*(9), 1035-1043.

Englert, C., Bertrams, A., Furley, P., & Oudejans, R. R. (2015). Is ego depletion associated with increased distractibility? Results from a basketball free throw task. *Psychology of Sport and Exercise*, *18*, 26-31.

Ericsson, K. A., & Simon, H. A. (1993). *Protocol analysis*. MIT Press.

Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition & Emotion*, *6*(6), 409-434.

Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion*, *7*(2), 336.

Fitts, P. M., & Posner, M. I. (1967) *Human performance*. Belmont, CA: Wadsworth.

García-Santos, D., Gómez-Ruano, M. A., Vaquera, A., & Ibáñez, S. J. (2020). Systematic review of basketball referees' performances. *International Journal of Performance Analysis in Sport*, *20*(3), 495-533.

Gawrysiak, J., Sullivan, K. A., Freeman, A., & Pizzari, T. (2022). The effects of distraction and fatigue on soccer penalty-kick performance. *Journal of Sports Sciences, 40*(1), 16-23.

Geukes, K., Mesagno, C., Hanrahan, S. J., & Kellmann, M. (2012). Testing an interactionist perspective on the relationship between personality traits and performance under public pressure. *Psychology of Sport and Exercise*, *13*(3), 243-250.

Giessner, S. R., & van Knippenberg, D. (2008). "License to fail": Goal definition, leader group prototypicality, and perceptions of leadership effectiveness after leader failure. *Organizational Behaviour and Human Decision Processes*, *105*(1), 14-35.

GilluÉ, G. S., Laloux, Y. R., & ÁLvarez, M. T. (2018). Sources of stress inside and outside the match in football referees. *Apunts Educación Física y Deportes*, *34*(132), 22-31.

Glaser, B., & Strauss, A. (1967). *The Discovery of Grounded Theory*. Aldine Publishing Company, Hawthorne, NY.

Goldsmith, P. A., & Williams, J. M. (1992). Perceived stressors for football and volleyball officials from three rating levels. *Journal of Sport Behavior*, *15*(2), 106.

Gomes, A. R., Fontes, L. M. C., Rodrigues, M., & Dias, B. (2021). Burnout in referees: Relations with stress, cognitive appraisal, and emotions. *International Journal of Psychology and Behaviour Analysis, 7*, 177.

Gómez, M. Á., Lorenzo, A., Jiménez, S., Navarro, R. M., & Sampaio, J. (2015). Examining choking in basketball: effects of game outcome and situational variables during last 5 minutes and overtimes. *Perceptual and Motor Skills*, *120*(1), 111-124.

Gould, D., Eklund, R. C., & Jackson, S. A. (1993). Coping strategies used by US Olympic wrestlers. *Research Quarterly for Exercise and Sport*, *64*(1), 83-93.

Grant, B. M., & Giddings, L. S. (2002). Making sense of methodologies: A paradigm framework for the novice researcher. *Contemporary nurse*, *13*(1), 10-28.

Gröpel, P., & Beckmann, J. (2017). A pre-performance routine to optimize competition performance in artistic gymnastics. *The Sport Psychologist*, *31*(2), 199-207.

Gröpel, P., & Mesagno, C. (2019). Choking interventions in sports: A systematic review. *International Review of Sport and Exercise Psychology*, *12*(1), 176-201.

Gucciardi, D. F., Longbottom, J. L., Jackson, B., & Dimmock, J. A. (2010). Experienced golfers' perspectives on choking under pressure. *Journal of Sport and Exercise Psychology*, *32*(1), 61-83.

Gucciardi, D.F., & Dimmock, J.A. (2008). Choking under pressure in sensorimotor skills: Conscious processing or depleted attentional resources? *Psychology of Sport and Exercise, 9*, 45–59.

Harle, S. K., & Vickers, J. N. (2001). Training quiet eye improves accuracy in the basketball free throw. *The Sport Psychologist*, *15*(3), 289-305.

Haslam, S. A., Reicher, S. D., & Platow, M. J. (2011). T*he New Psychology of Leadership: Identity, Influence, and Power*. Hove: Psychology Press.

Hatzigeorgiadis, A., Zourbanos, N., Mpoumpaki, S., & Theodorakis, Y. (2009). Mechanisms underlying the self-talk–performance relationship: The effects of motivational self-talk on self-confidence and anxiety. *Psychology of Sport and exercise*, *10*(1), 186-192.

Hibbs, D. (2010). A conceptual analysis of clutch performances in competitive sports. *Journal of the Philosophy of Sport, 37*(1), 47–59.

Hill, D. M., & Hemmings, B. (2015). A phenomenological exploration of coping responses associated with choking in sport. *Qualitative Research in Sport, Exercise and Health*, *7*(4), 521-538.

Hill, D. M., & Shaw, G. (2013). A qualitative examination of choking under pressure in team sport. *Psychology of Sport and Exercise*, *14*(1), 103-110.

Hill, D. M., Brown, G., Lambert, T. L., Mackintosh, K., Knight, C., & Gorczynski, P. (2021). Factors perceived to affect the wellbeing and mental health of coaches and practitioners working within elite sport. *Sport, Exercise, and Performance Psychology*, *10*(4), 504.

Hill, D. M., Carvell, S., Matthews, N., Weston, N. J., & Thelwell, R. R. (2017). Exploring choking experiences in elite sport: The role of self-presentation. *Psychology of Sport and Exercise*, *33*, 141-149.

Hill, D. M., Cheesbrough, M., Gorczynski, P., & Matthews, N. (2019). The consequences of choking in sport: A constructive or destructive experience? *The Sport Psychologist*, *33*(1), 12-22.

Hill, D. M., Hanton, S., Matthews, N., & Fleming, S. (2010). A qualitative exploration of choking in elite golf. *Journal of Clinical Sport Psychology*, *4*(3), 221-240.

Hill, D. M., Hanton, S., Matthews, N., & Fleming, S. (2010a). Choking in sport: A review. *International Review of Sport and Exercise Psychology*, *3*(1), 24-39.

Hill, D. M., Hanton, S., Matthews, N., & Fleming, S. (2011). Alleviation of choking under pressure in elite golf: An action research study. *The Sport Psychologist*, *25*(4), 465-488.

Hill, D. M., Matthews, N., & Senior, R. (2016). The psychological characteristics of performance under pressure in professional rugby union referees. *The Sport Psychologist*, *30*(4), 376-387.

Hill, D.M., Hanton, S., Fleming, S., & Matthews, N. (2009). A re-examination of choking in sport. *European Journal of Sport Science, 9*(4), 203–212.

Himma, K. E. (2007). The concept of information overload: A preliminary step in understanding the nature of a harmful information-related condition. *Ethics and information technology*, *9*, 259-272.

Hodge, K., & Smith, W. (2014). Public expectation, pressure, and avoiding the choke: a case study from elite sport. *The Sport Psychologist*, *28*(4), 375-389.

Howells, K., & Fletcher, D. (2015). Sink or swim: Adversity-and growth-related experiences in 23 Olympic swimming champions. *Psychology of Sport & Exercise, 16*, 37-48.

Howle, T. C., Dimmock, J. A., & Jackson, B. (2016). Relations between self-efficacy beliefs, self-presentation motives, personal task goals, and performance on endurance-based physical activity tasks. *Psychology of Sport and Exercise*, *22*, 149-159.

Inzlicht, M., & Schmeichel, B. J. (2012). What is ego depletion? Toward a mechanistic revision of the resource model of self-control. *Perspectives on Psychological Science*, *7*(5), 450-463.

Jackman, P. C., Crust, L., & Swann, C. (2017). Systematically comparing methods used to study flow in sport: A longitudinal multiple-case study. *Psychology of Sport and Exercise, 32*, 113–123.

Jackman, P. C., Hawkins, R. M., Whitehead, A. E., & Brick, N. E. (2021). Integrating models of self-regulation and optimal experiences: A qualitative study into flow and clutch states in recreational distance running. *Psychology of Sport and Exercise*, *57*.

Jackman, P. C., Schweickle, M. J., Goddard, S. G., Vella, S. A., & Swann, C. (2022). The event-focused interview: what is it, why is it useful, and how is it used? *Qualitative Research in Sport, Exercise and Health*, *14*(2), 167-180.

Jackson, R. C. (2013). Babies and bathwater: commentary on Mesagno and Hill's proposed re-definition of 'choking'. *International Journal of Sport Psychology*, *44*(4), 281-284.

Jackson, S. A., & Marsh, H. W. (1996). Development and validation of a scale to measure optimal experience: The Flow State Scale. *Journal of Sport and Exercise Psychology*, *18*(1), 17-35.

Jacobs, B. L., Tingle, J. K., Oja, B. D., & Smith, M. A. (2020). Exploring referee abuse through the lens of the collegiate rugby coach. *Sport Management Review*, *23*(1), 39-51.

Jameson, T. L., Hinson, J. M., & Whitney, P. (2004). Components of working memory and somatic markers in decision making. *Psychonomic Bulletin & Review*, *11*, 515-520.

Jordet, G. (2009). Why do English players fail in soccer penalty shootouts? A study of team status, self-regulation, and choking under pressure. *Journal of Sports Sciences*, *27*(2), 97-106.

Kellett, P., & Warner, S. (2011). Creating communities that lead to retention: The social worlds and communities of umpires. *European Sport Management Quarterly, 11*(5), 471-494.

Kinrade, N. P., Jackson, R. C., & Ashford, K. J. (2015). Reinvestment, task complexity and decision making under pressure in basketball. *Psychology of Sport and Exercise*, *20*, 11-19.

Kinrade, N. P., Jackson, R. C., Ashford, K. J., & Bishop, D. T. (2010). Development and validation of the decision-specific reinvestment scale. *Journal of Sports Sciences*, *28*(10), 1127-1135.

Kittel, A., Cunningham, I., Larkin, P., Hawkey, M., & Rix-Lievre, G. (2021). Decision-making training in sporting officials: Past, present and future. *Psychology of Sport and Exercise*, *56*, 102003.

Kovalchik, S. A., & Reid, M. (2017). Comparing matchplay characteristics and physical demands of junior and professional tennis athletes in the era of big data. *Journal of sports science & medicine*, *16*(4), 489.

Lam, W. K., Maxwell, J. P., & Masters, R. S. W. (2009). Analogy versus explicit learning of a modified basketball shooting task: Performance and kinematic outcomes. *Journal of Sports Sciences*, *27*(2), 179-191.

Lazarus, R. S. (1993). Coping theory and research: past, present, and future. *Psychosomatic medicine*, *55*(3), 234-247.

Levy, A., Nicholls, A., Marchant, D., & Polman, R. (2009). Organizational stressors, coping, and coping effectiveness: A longitudinal study with an elite coach. *International Journal of Sports Science & Coaching, 4,* 31–45.

Levy, D. M. (2008). Information overload. *The handbook of information and computer ethics*, 497-515.

Lewis, B. P., & Linder, D. E. (1997). Thinking about choking? Attentional processes and paradoxical performance. *Personality and social psychology bulletin*, *23*(9), 937-944.

Livingston, L. A., Forbes, S. L., Wattie, N., Pearson, N., Camacho, T., & Varian, P. (2017). Sport officiating recruitment, development, and retention: A call to action. *Current Issues in Sport Science (CISS)*.

Louvet, B., & Campo, M. (2019). Do high emotional intelligent soccer referees better cope with competitive stressors? *Movement & Sport Sciences-Science & Motricité*, (105), 17-26.

MacMahon, C., Mascarenhas, D., Plessner, H., Pizzera, A., Oudejans, R., & Raab, M. (2014). *Sports officials and officiating: Science and practice*. Routledge.

Martell, S. G., & Vickers, J. N. (2004). Gaze characteristics of elite and near-elite athletes in ice hockey defensive tactics. *Human Movement Science*, *22*(6), 689-712.

Mascarenhas, D. R. D., Collins, D., Mortimer, P., & Morris, R. L. (2005). Training accurate and coherent decision making in rugby union referees. *The Sport Psychologist, 19,* 131-147.

Mascarenhas, D., O Hare, D., Plessner, H., & Button, C. (2006). The psychological and performance demands of association football refereeing. *International Journal of Sport Psychology*, *37*, 99.

Masters, R. S. (1992). Knowledge, knerves and know-how: The role of explicit versus implicit knowledge in the breakdown of a complex motor skill under pressure. *British journal of Psychology*, *83*(3), 343-358.

Masters, R., & Maxwell, J. (2008). The theory of reinvestment. *International Review of Sport and Exercise Psychology*, *1*(2), 160-183.

Mathers, J. F., & Brodie, K. (2011). Elite refereeing in professional soccer: A case study of mental skills support. *Journal of Sport Psychology in Action*, *2*(3), 171-182.

Maxwell-Keys, C., Wood, A. G., & Turner, M. J. (2022). Developing decision making in Rugby Union match officials using rational emotive behavior therapy (REBT). *Psychology of Sport and Exercise*, *58*.

McPherson, S. L., & Vickers, J. N. (2004). Cognitive control in motor expertise. *International Journal of Sport and Exercise Psychology*, *2*(3), 274-300.

Mellick, M., Fleming, S., Bull, P., & Laugharne, E. (2005). Identifying best practice for referee decision communication in association and rugby union football. *Football Studies, 8*(1), 42–57.

Mesagno, C., & Hill, D. (2013). Definition of choking in sport: Re-conceptualization and debate. *International journal of sport psychology*, *44*, 267.

Mesagno, C., & Mullane-Grant, T. (2010). A comparison of different pre-performance routines as possible choking interventions. *Journal of applied sport psychology*, *22*(3), 343-360.

Mesagno, C., Marchant, D., & Morris, T. (2008). A pre-performance routine to alleviate choking in "choking-susceptible" athletes. *The sport psychologist*, *22*(4), 439-457.

Mesagno, C., Marchant, D., & Morris, T. (2008). A pre-performance routine to alleviate choking in "choking-susceptible" athletes. *The sport psychologist*, *22*(4), 439-457.

Mesagno, C., Marchant, D., & Morris, T. (2009). Alleviating choking: The sounds of distraction. *Journal of Applied Sport Psychology*, *21*(2), 131-147.

Miller, A. J., Slater, M. J., & Turner, M. J. (2021). The influence of identity leadership principles on followers' challenge and threat states and motor performance. *Psychology of Sport and Exercise*, *54*.

Morse, J. M. (1989). Qualitative nursing research: A free-for-all? In J. Morse (Ed.), *Qualitative nursing research: A contemporary dialogue* (pp. 14-22). Newbury Park, CA: Sage.

Mullen, R., & Hardy, L. (2000). State anxiety and motor performance: Testing the conscious processing hypothesis. *Journal of Sports Sciences*, *18*(10), 785-799.

Murray, N. P., & Janelle, C. M. (2003). Anxiety and performance: A visual search examination of the processing efficiency theory. *Journal of Sport and Exercise psychology*, *25*(2), 171-187.

Murray, N. P., & Janelle, C. M. (2007). Event-related potential evidence for the processing efficiency theory. *Journal of Sports Sciences*, *25*(2), 161-171.

Neil, R., Bayston, P., Hanton, S., & Wilson, K. (2013). The influence of stress and emotions on association football referees' decision-making. *Sport & Exercise Psychology Review*, *9*(2), 22-41.

Nicholson, M., & Hoye, R. (2005). Contextual factors associated with poor sport spectator behaviour. *Managing Leisure*, *10*(2), 94-105.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, *84*(3), 231.

Ochsner, K. N., & Schacter, D. L. (2000). A social cognitive neuroscience approach to emotion and memory. *The Neuropsychology of Emotion*, 163-193

Onwuegbuzie, A., & Leech, N. (2007). Sampling designs in qualitative research: Making the sampling process more public. *The Qualitative Report, 12,* 238–254.

Otten, M. (2009). Choking vs. clutch performance: A study of sport performance under pressure. *Journal of sport and exercise psychology*, *31*(5), 583-601.

Oudejans, R. R., & Pijpers, J. R. (2009). Training with anxiety has a positive effect on expert perceptual–motor performance under pressure. *Quarterly Journal of Experimental Psychology*, *62*(8), 1631-1647.

Oudejans, R. R., & Pijpers, J. R. (2010). Training with mild anxiety may prevent choking under higher levels of anxiety. *Psychology of Sport and Exercise*, *11*(1), 44-50.

Oudejans, R. R., Kuijpers, W., Kooijman, C. C., & Bakker, F. C. (2011). Thoughts and attention of athletes under pressure: skill-focus or performance worries? *Anxiety, Stress, & Coping*, *24*(1), 59-73.

Owens, L., Stewart, C., & Huebner, E. (2017). The clutch athlete, choking and personality. *Sports Coaching Review*, *6*(1), 20-35.

Petracovschi, S., Muresan, H., & Voicu, S. (2011). Refereeing and the perspectives of a career in football. *Timisoara Physical Education and Rehabilitation Journal*, *4*(7), 16.

Philippe, F. L., Vallerand, R. J., Andrianarisoa, J., & Brunel, P. (2009). Passion in referees: Examining their affective and cognitive experiences in sport situations. *Journal of Sport and Exercise Psychology*, *31*(1), 77-96.

Plessner, H., & MacMahon, C. (2013). The sport official in research and practice. *Developing Sport Expertise: Researchers and Coaches put Theory into Practice*, *71*.

Poolton, J., Siu, C. M., & Masters, R. S. W. (2011). The home team advantage gives football referees something to ruminate about. *International Journal of Sports Science and Coaching, 6*(4).

Rainey, D. W. (1995). Stress, burnout, and intention to terminate among umpires. *Journal of Sport Behavior*, *18*(4), 312-324.

Rainey, D. W. (1999). Sources of stress, burnout, and intention to terminate among basketball referees. *Journal of Sport Behavior*, *22*(4), 578-590.

Rainey, D. W., & Hardy, L. (1999). Sources of stress, burnout and intention to terminate among rugby union referees. *Journal of Sports Sciences*, *17*(10), 797-806.

Rayner, M., Webb, T., & Webb, H. (2016). The occurrence of referee abuse in rugby union: Evidence and measures through an online survey. *The International Journal of Sports Management, Recreation and Tourism*, *21*.

Reeves, J. L., Tenenbaum, G., & Lidor, R. (2007). Choking in front of the Goal: The effects of self-consciousness training. *International Journal of Sport and Exercise Psychology*, *5*(3), 240-254.

Rhind, D. J., & Jowett, S. (2010). Relationship maintenance strategies in the coach-athlete relationship: The development of the COMPASS model. *Journal of Applied Sport Psychology*, *22*(1), 106-121.

Ridinger, L. L. (2015). Contributors and constraints to involvement with youth sports officiating. *Journal of Amateur Sport*, *1*(2), 103-127.

Ridinger, L. L., Warner, S., Tingle, J. K., & Kim, K. R. (2017). Why referees stay in the game. *Global Sport Business Journal*, *5*(3), 22.

Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing: The art of hearing data*. sage.

Rückel, L. M., Noël, B., Jungen, A., Brückner, S., Strauss, B., & Klatt, S. (2021). Reflecting on the Game: Situational Stressors, Stress Responses, and Coping in German Elite Volleyball Referees. *Case Studies in Sport and Exercise Psychology*, *5*(1), 124-134.

Sánchez Vara, A., Chamorro, J. L., Moreno Castellanos, R., & Alcaraz, S. (2023). Measuring optimal psychological states: Proposal of two brief versions to measure flow and clutch in athletes. *Frontiers in Psychology*, *14*, 1066494.

Sandelowski, M. (1995). Sample size in qualitative research. *Research in nursing & health*, *18*(2), 179-183.

Sandelowski, M. (2002). Reembodying qualitative inquiry. *Qualitative Health Research, 12*(1), 104-115.

Sarkar, M., Fletcher, D., & Brown, D.J. (2015). What doesn't kill me…: Adversity-related 25 experiences are vital in the development of superior Olympic performance. *Journal of Science & 26 Medicine in Sport*, *18*, 475-479.

Schaeperkoetter, C. C. (2017). Basketball officiating as a gendered arena: An autoethnography. *Sport Management Review*, *20*(1), 128-141.

Schweickle, M. J., Swann, C., & Vella, S. A. (2021a). Objective and subjective performance indicators of clutch performance in basketball: A mixed-methods multiple case study. *Journal of Applied Sport Psychology,* 1–23.

Schweickle, M. J., Vella, S. A., & Swann, C. (2021b). Exploring the "clutch" in clutch performance: A qualitative investigation of the experience of pressure in successful performance. *Psychology of Sport and Exercise, 54*.

Schweickle, M. J., Vella, S. A., & Swann, C. (2022). Was it a clutch performance? A qualitative exploration of the definitional boundaries of clutch performance. *Psychology of Sport and Exercise*, *62*.

Sherwood, S. M., Smith, T. B., & Masters, R. S. (2019). Decision reinvestment, pattern recall and decision making in rugby union. *Psychology of Sport and Exercise*, *43*, 226-232.

Slack, L. A., Maynard, I. W., Butt, J., & Olusoga, P. (2013). Factors underpinning football officiating excellence: Perceptions of English Premier League referees. *Journal of Applied Sport Psychology*, *25*(3), 298-315.

Slack, L. A., Maynard, I. W., Butt, J., & Olusoga, P. (2013). Factors underpinning football officiating excellence: Perceptions of English Premier League referees. *Journal of Applied Sport Psychology*, *25*(3), 298-315.

Slater, M. J., Turner, M. J., Evans, A. L., & Jones, M. V. (2018). Capturing hearts and minds: The influence of relational identification with the leader on followers' mobilization and cardiovascular reactivity. *The Leadership Quarterly*, *29*(3), 379-388.

Smith, B., & Sparkes, A. C. (2016). Interviews: Qualitative interviewing in the sport and exercise sciences. In *Routledge handbook of qualitative research in sport and exercise* (pp. 125-145). Routledge.

Solomonov, Y., Avugos, S., & Bar-Eli, M. (2015). Do clutch players win the game? Testing the validity of the clutch player's reputation in basketball. *Psychology of Sport and Exercise*, *16*, 130-138.

Sparkes, A. C., & Smith, B. (2009). Judging the quality of qualitative inquiry: Criteriology and relativism in action. *Psychology of sport and exercise*, *10*(5), 491-497.

Swann, C., Crust, L., Jackman, P., Vella, S. A., Allen, M. S., & Keegan, R. (2017a). Performing under pressure: Exploring the psychological state underlying clutch performance in sport. *Journal of Sports Sciences, 35*(23), 2272–2280.

Swann, C., Crust, L., Jackman, P., Vella, S. A., Allen, M. S., & Keegan, R. (2017b). Psychological states underlying excellent performance in sport: Toward an integrated model of flow and clutch states. *Journal of Applied Sport Psychology, 29*(4), 375–401.

Swann, C., Driscoll, J., Goddard, S. G., Willis, R., Schweickle, M. J., Ribeiro, I. A. F., & Vella, S. A. (2022). The Flow-Clutch Scale: Development and preliminary validation in sport and exercise. *Psychology of Sport and Exercise*, *58*.

Swann, C., Jackman, P. C., Schweickle, M. J., & Vella, S. A. (2019). Optimal experiences in exercise: A qualitative investigation of flow and clutch states. *Psychology of Sport and Exercise, 40*, 87–98.

Swann, C., Keegan, R., Crust, L., & Piggott, D. (2016). Psychological states underlying excellent performance in professional golfers:“Letting it happen” vs.“making it happen”. *Psychology of Sport and Exercise*, *23*, 101-113

Tamminen, K. A., & Holt, N. L. (2012). Adolescent athletes’ learning about coping and the roles of parents and coaches. *Psychology of sport and exercise*, *13*(1), 69-79.

Taylor, A. H., & Daniel, J. V. (1987). Sources of stress in soccer officiating: An empirical study. *First World Congress of Science and Football,* 538-544.

Taylor, A. H., Daniel, J. V., Leith, L., & Burke, R. J. (1990). Perceived stress, psychological burnout and paths to turnover intentions among sport officials. *Journal of Applied Sport Psychology*, *2*(1), 84-97.

Tenenbaum, G., Hatfield, B. D., Eklund, R. C., Land, W. M., Calmeiro, L., Razon, S., & Schack, T. (2009). A conceptual framework for studying emotions–cognitions–performance linkage under conditions that vary in perceived pressure. *Progress in Brain Research*, *174*, 159-178.

Thorne, S. (2016). *Interpretive description: Qualitative research for applied practice*. Routledge.

Thorne, S., Kirkham, S. R., & MacDonald-Emes, J. (1997). Interpretive description: a noncategorical qualitative alternative for developing nursing knowledge. *Research in Nursing & Health*, *20*(2), 169-177.

Thorne, S., Kirkham, S. R., & O'Flynn-Magee, K. (2004). The analytic challenge in interpretive description. *International Journal of Qualitative Methods*, *3*(1), 1-11.

Tingle, J. K. (2021). Referee management. In *Encyclopedia of Sport Management* (pp. 393-395). Edward Elgar Publishing.

Tingle, J. K., Warner, S., & Sartore-Baldwin, M. L. (2014). The experience of former women officials and the impact on the sporting community. *Sex Roles*, *71*, 7-20.

Vealey, R. S., Low, W., Pierce, S., & Quinones-Paredes, D. (2014). Choking in sport: ACT on it!. *Journal of Sport Psychology in Action*, *5*(3), 156-169.

Vickers, J. N. (2004). The quiet eye. *Golf Digest*, 96-101.

Voight, M. (2009). Sources of stress and coping strategies of US soccer officials. *Stress and Health: Journal of the International Society for the Investigation of Stress*, *25*(1), 91-101.

Wang, J. (2002). *Developing and testing an integrated model of choking in sport* (Doctoral dissertation, Victoria University).

Wang, J., Morris, T., & Marchant, D. (2004). Coping Style and Susceptibility to Choking. *Journal of Sport Behavior*, *27*(1).

Warner, S., Tingle, J. K., & Kellett, P. (2013). Officiating attrition: The experiences of former referees via a sport development lens. *Journal of Sport Management*, *27*(4), 316-328.

Webb, T. (2018). Referees and the media: A difficult relationship but an unavoidable necessity. *Soccer & Society*, *19*(2), 205-221.

Webb, T., & Hill, D. (2020). The psychology of soccer referees. In *The psychology of soccer* (pp. 74-87). Routledge.

Webb, T., Gorczynski, P., Oftadeh-Moghadam, S., & Grubb, L. (2021). Experience and construction of mental health among English female football match officials. *The Sport Psychologist*, *35*(1), 1-10.

Webb, T., Rayner, M., & Thelwell, R. (2018). An explorative investigation of referee abuse in English rugby league. *Journal of Applied Sport Management*, *10*(2), 6.

Webb, T., Wagstaff, C. R., Rayner, M., & Thelwell, R. (2016). Leading elite association football referees: challenges in the cross-cultural organization of a geographically dispersed group. *Managing Sport and Leisure*, *21*(3), 105-123.

Williams, A. M., Vickers, J., & Rodrigues, S. (2002). The effects of anxiety on visual search, movement kinematics, and performance in table tennis: A test of Eysenck and Calvo's processing efficiency theory. *Journal of Sport and Exercise Psychology*, *24*(4), 438-455.

Williamson, O., Swann, C., Bennett, K. J., Bird, M. D., Goddard, S. G., Schweickle, M. J., & Jackman, P. C. (2022). The performance and psychological effects of goal setting in

sport: A systematic review and meta-analysis. *International Review of Sport and Exercise Psychology*, 1-29.

Wilson, M. (2008). From processing efficiency to attentional control: a mechanistic account of the anxiety–performance relationship. *International Review of Sport and Exercise Psychology*, *1*(2), 184-201.

Wilson, M., Chattington, M., Marple-Horvat, D. E., & Smith, N. C. (2007). A comparison of self-focus versus attentional explanations of choking. *Journal of Sport and Exercise Psychology*, *29*(4), 439-456.

Wood, G., & Wilson, M. R. (2011). Quiet-eye training for soccer penalty kicks. *Cognitive processing*, *12*, 257-266.

Appendix A: Interview Guide

Interview Guide

THOUGHTS **FEELINGS** **BEHAVIOURS**

Introductory Questions – PREPERATION before clutch/choke experiences – Rapport

Tell me about your refereeing career so far?

- What have you (not) achieved? What do you want to achieve?

Can you remember the build-up before one of your superior performance experiences?

- What pressures did you perceive to face/facing?
- How did you manage these?

What thoughts were going through your head?

- How did you think you was going to perform?
- What impact do you think these thoughts had on your performance?

How were you feeling at this time?

- What emotions did you experience?

How did these thoughts and feelings affect the way you behaved beforehand?

- How did they affect you or others?

Now, are you able to take me back to just before your distinctly bad performance experience?

What key comparisons would you make between before these experiences?

- Were there different pressures present?
- In what way did you manage these?

What thoughts were at the front of your mind before the performance?

- How did you think you was going to perform?
- Why do you think these thoughts were present?

Was there anything different within the build-up to your very poor performance than your superior regarding your thoughts? If so, what?

How did they make you feel about going to perform?

- What would you say made you feel like this?
- How did this compare to the build-up of your clutch performance? What was different?

What type of behaviours did you notice because of these thoughts and feelings?

- How did these behaviours effect your performance?
- Were these behaviours different to before your superior performance?
- How did this compare to before your superior performance?

Main Questions – During Game

Can you describe for me how the superior performance experience changed from the build-up, to when officiating?

- What pressures were you now experiencing during the game?
- How did you manage these?

What type of thoughts did you have toward them?

- Were any new?
- How did they change?

How did they leave you feeling at that time?

What behaviours came apparent to you during your performance because of these?

- How did this affect your performance?

Are you able to tell me, what was different at this stage in your superior performance, to your distinctly bad performance?

- What role did the pressures you were facing play here?
- How did you manage these?

Was this because of different thought processes?

- What differing thoughts were present?

Can you remember what emotions you felt here?

- In comparison to your superior performance, how were these emotions different?
- Were there any standout reasons for why they were different?

What type of behaviours did you experience at this stage?

- How were these behaviours distinct to your superior performance?
- What made you become aware of these behaviours?

Main questions – Actual event

Can you now recall for me your superior performance experience as it was actually taking place?

- What pressures did you perceive currently, if any?
- How were these coped with?

What were you thinking at this time?

What feelings coincided with these thoughts?

- Can you compare them to anything?

How did you behaviourally react during this experience?

Changing back to your very poor performance, can you reflect upon this experience for me as it was happening?

- What performance pressures were active here?
- How did you try and manage to cope with these pressures?
- How was this management effort different to your superior performance coping efforts?

Can you describe what you were thinking at this time?

- How were these thoughts different to your superior performance experience?
- Were there any similarities?

What emotional reaction did you then have?

- How would you compare this emotional reaction to your superior performance?

How did you behave during this experience?

- What effect did these behaviours have on your/others performance?
- What was different about these behaviours when compared to your superior performance?

Summary Questions – After Event

Can you tell me about after your superior performance?

- Were there any pressures present at this point?
- How did you cope with this experience after?

What thoughts were present after the superior performance experience?

How were you left feeling after?

What behaviours did you exhibit following your superior experience?

Can you describe how you were after your very poor performance?

- What performance pressures existed here for you?
- What mechanisms did you employ after your performance in attempts to cope with your experience?
- What was different about these mechanisms to your previously identified ones during your superior performance?

What type of thoughts were you experiencing after?

- How were these different in comparison to your superior performance?

What were you feeling after the experience?

- How would you compare these feelings to after your superior performance?

How did you behave after the experience?

- How was this distinct to your superior performance behaviours afterwards?