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Facebook, mothers and midwives: the role of social media in breastfeeding support services

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SUMMARY

Many new mothers in the UK are now using social media to access perinatal and parenting support, including for breastfeeding. Research exploring the impact of doing so suggests improved outcomes, but raises questions of reliability, and the role of midwife moderation. Little is understood about *how* Facebook groups aimed at women in specific areas are linked to face-to-face support, to midwives or maternity services. Using a mixed-methods study, comprising three separate studies, this thesis therefore aimed to:

i) explore local Facebook group use by mothers, links to face-to-face support and moderation impacts
ii) identify midwives' perceptions/experiences of engaging with mothers via Facebook groups, and barriers and facilitators to doing so
iii) determine how current services are formatted, assess their sustainability and make recommendations for practice.

The first and second studies used online questionnaires to explore maternal and midwife experiences of breastfeeding support groups on Facebook. The first study explored mothers use and experiences (n = 2028) including how the group was moderated. The second study (n = 709) explored midwives' experiences of providing breastfeeding support via Facebook. The third study used semi-structured interviews with midwife moderators (n=9) to explore experiences, identify group formats and to understand whether these formats are sustainable.

Mothers' highly valued local Facebook groups for breastfeeding support, particularly midwife involvement. Midwives recognised the value of this provision but have a range of personal and professional concerns. Notably, midwives sought support and training to engage on social media safely and effectively. This thesis presents clear and important findings in relation to locally aimed online breastfeeding support. Future development of leadership and infrastructure is needed, with focus on governance processes to support staff and ensure services are safe, effective and of good quality.

DECLARATIONS

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.....25/11/22.....

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.....25/11/22.....

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..... 25/11/22.....

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

Signed.  .....
Date.....25/11/22.....

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ACKNOWLEDGEMENTS

A heartfelt thank you to the overwhelming number of mothers that shared their experiences, and to the midwives who gave up their time to answer my questions during a pandemic where a million other things were a priority. Thank you all for sharing your passions and frustrations.

To the publishing powerhouse Amy Brown: Thank you for the belief that I could do this and your much needed nonchalance at my overthinking. Your support, and the sharing of your knowledge and passion for changing the world is much appreciated.

And finally, to my family: thank you for the love and pride… like everything else, this is for you.

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ABBREVIATIONS

ABM Associations of Breastfeeding Mothers
BAME Black and Minority Ethnicity
BF Breastfeeding
BfN Breastfeeding Network
BSF Breastfeeding Support Facebook
CASP Critical Appraisal Skills Programme UK
CoP Community of Practice
COVID-19 Coronavirus Disease 2019
DHA Docosahexaenoic Acid
EDQ Exploratory-Descriptive Qualitative
FB Facebook
GDPR General Data Protection Regulation
GP General Practitioner
HEE Health Education England
HV Health Visitor
IFS Infant Feeding Survey
IQ Intelligence Quotient
IQR Interquartile range
IMPB Integrated Model of Behaviour Prediction
LLL La Leche League
MANOVA Multivariate analysis of variance
NHS National Health Service
NICE National Institute for Health and Care Excellence
NMC Nursing and Midwifery Council

NQB National Quality Board
OFCOM Office of Communications
ONS Office of National Statistics
PHE Public Health England
PHW Public Health Wales
QuADS Quality assessment with diverse studies
RCM Royal College of Midwives
SCT Social Cognitive Theory
SIDS Sudden Infant Death Syndrome
SM Social Media
UGC User Generated Content
SM Social Media
UNICEF United Nations Children's Fund
US United States
WBTi UK World Breastfeeding Trends Initiative United Kingdom
WHO World Health Organization

PUBLICATIONS RELATING TO THE THESIS

Morse, H., & Brown, A. (2021). Accessing local support online: Mothers' experiences of local Breastfeeding Support Facebook groups. *Maternal & Child Nutrition*, *17*(4), e13227. https://pubmed.ncbi.nlm.nih.gov/34060716/

Morse, H., & Brown, A. (2021). Midwives' perceptions and experiences of using Facebook to support families, *Midwifery Digest (MIDIRS)*, June 2021, 31(2), 176-177

Morse, H., & Brown, A. (2022). The benefits, challenges and impacts of accessing social media group support for breastfeeding: A systematic review. *Maternal & Child Nutrition*, e13399. https://doi.org/10.1111/mcn.13399

Morse, H., & Brown, A. (2022). Mothers' experiences of using Facebook groups for local breastfeeding support: results of an online survey exploring midwife moderation. *PLOS Digital Health,* 1(11): e0000144. https://doi.org/10.1371/journal.pdig.0000144

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PRESENTATIONS RELATING TO THE THESIS

Oral Presentations

Royal College of Midwives Digital Midwifery Seminar (2020), Swansea University, 22nd January 2020

Maternal and Infant Nutrition and Nurture Conference, 9-11th June, 2020, Finland *(Abstract accepted, postponed due to COVID-19)*

Swansea University Postgraduate Research Conference, 12th January 2021

Royal College of Midwives Education and Research Conference, 23rd March 2021

Robert Gordon University Student Midwifery Conference, 11th June 2021

Wales and South West England Maternity and Midwifery Festival, 15 September 2021

Faculty of Medicine, Health & Life Science Postgraduate Research Conference, 11-13 July 2022 (1st place)

Swansea University Student Midwifery Collegiate Digital Midwifery Conference, 28th July 2022

Poster Presentations

Swansea University Postgraduate Research SURES Research Snapshots Event, 12th May 2022

Swansea University Postgraduate Research Festival Poster Competition, 18th May 2022 (2nd place)

Normal Labour and Birth Conference, Aarhus, Denmark, 11-14th September 2022

PRIME Centre Conference (Inclusion in Primary, Unscheduled and Emergency Care Research), Swansea University, 18th October 2022
https://www.primecentre.wales/2022-annual-meeting.php

33rd International Confederation of Midwives Triennial Congress, Bali, 11-14th June 2023 *(Poster accepted for presentation)*

Chapter 1: Introduction

This chapter introduces the context, background, motivation and rationale for the research, setting out the context for the thesis and the research questions it will address. It presents a succinct overview of the context to the research, which will be reviewed in more detail in the next chapters. It explores low breastfeeding rates in the United Kingdom (UK), current inadequacies of face-to-face support for breastfeeding and the possibilities of smart phone use and widespread internet access to fill the gap. It identifies current understanding of online support for breastfeeding and its potential as a source of learning. Finally, it discusses my motivations for conducting this research and the experiences which will inform my approach to, and understanding of, its findings.

1.1 Research context – setting the scene

1.1.1 UK breastfeeding rates

Health and resources currently sit front and centre in the UK public consciousness, against the backdrop of the Coronavirus Disease 2019 (COVID-19) global pandemic, rising inflation and a cost-of-living crisis. Preceded by a decade of austerity and a lack of investment in services, societal changes have affected public health across the lifespan. Life expectancy has stalled and inequalities in health and life expectancy continue to widen (Raleigh, 2022). Breastfeeding is well established as reducing many health inequalities, with positive effects on a wide range of health outcomes. These include maternal physical and emotional wellbeing, reductions in childhood infections, chronic disease and obesity and an increase in population Intelligence Quotient (IQ) – significant both economically and for overall quality of life (Renfrew, et al., 2012). Support for breastfeeding is therefore central to public health, and a priority for action (Welsh Government, 2019; Public Health England, 2021).

Although breastfeeding initiation rates have increased in recent decades, continuation rates in the UK remain amongst the lowest in the world (Victora et al.,

2016). Whilst 81% of women initiate breastfeeding at birth, rates of exclusive breastfeeding have fallen below 50% by the end of the first week, with fewer than a third of women breastfeeding at all by six months (McAndrew et al., 2012). With the majority of women motivated to begin breastfeeding, this sharp drop off occurs as they face multiple challenges within a social, cultural and political context which fails to support them to continue.

Socially, decades of low breastfeeding rates have reduced the information, knowledge and lived experience of practical and emotional aspects of breastfeeding, including access to solutions to any challenges. This reduces the access of women to support within their existing social networks and communities. As a result, a bottle-feeding culture has become the norm, with formula presented as an equal and accessible solution to any issue, entrenched by industry marketing and often upheld or exacerbated by the limited training and experiences of health professionals (Brown, 2021). Women also face attitudes across society that frame breastfeeding as private, inappropriate in public or at a certain age (Grant et al., 2022). Despite laws protecting breastfeeding, women struggle to identify sustainable solutions to avoid judgement or feel safe to feed instinctively (which is also following guidance (World Health Organisation (WHO), 2021)) – as and when the baby needs. A lack of understanding of the physiological processes involved in lactation, including maintaining milk supply through frequent feeding, and therefore the impact on supply of introducing bottle feeds in public, can result in unintended early cessation.

On a wider level, women face challenges maintaining breastfeeding in the face of employer expectations, lack of time, flexibility and facilities to pump or store breastmilk (Brown, 2021). With just 1% of babies exclusively breastfeeding at six months, there is little understanding of the processes of continuing to sustain breastfeeding around a working day, also often resulting in mothers' believing they need to wean onto infant formula, even when they would prefer not to (McAndrew et al., 2012). This presents another barrier to continuing to breastfeed in line with WHO recommendations to two years and beyond, resulting in further breastfeeding

cessation as a result of limited education and support across society, culture and policy. Stopping before a mother is ready can affect her wellbeing, increasing feelings of anger, grief and loss and, subsequently, the risk of depression (Brown, 2018). This has long-term effects on mental health and infant attachment, alongside the wider impacts on physical population health.

1.1.2 Support interventions

Addressing these issues is complex as they are interlinked. Evidence-based interventions are needed which support education, understanding and result in behaviour change across all levels if breastfeeding duration and exclusivity are to increase with improved health outcomes. To be successful, interventions need to address structural determinants including the sociocultural and market context of UK infant feeding, settings including health services, families, communities and workplaces and recognise the importance of the mother-infant relationship and attributes (Rollins et al., 2016). The most successful interventions address these in combination: a systematic review of intervention effects by outcome measures demonstrated a 2.5-fold increase in breastfeeding exclusivity where health systems and community interventions are combined (Rollins et al., 2016).

However, designing and implementing appropriate and effective combinations of interventions is complex. Breastfeeding 'support' occurs in many forms, requiring changes to systems, policies and societal norms and values. Attempts to improve provision is underpinned by evidence which, due to the challenges of comparing approaches, is often mixed in quality and generalisability (Brown, 2021), making recommendations and evaluation to secure investment more difficult. For example, qualitative studies highlight that women value peer support and credit it with longer breastfeeding duration, where large trials have found it ineffective as an intervention (Hunt et al., 2021). However, 'peer support' itself is difficult to qualify and quantify and varies considerably across the UK (Trickey et al., 2018). In a society where lived experience of breastfeeding is limited and community access to this is in short supply, peer support extends beyond friends and family to trained

supporters, trained by the National Health Servuce (NHS) or third sector to offer additional access to breastfeeding information, advice and emotional support (Dykes, 2005). Such services remain subject to isolated areas of funding, motivation and initiative, increasing the heterogeneity of birth interventions and outcomes (Chepkirui, 2020). These are also often targeted at specific demographic groups with low levels of breastfeeding initiation, with limited provision aimed at increasing continuation where there are existing high levels of initiation (Balogun et al., 2016).

As a result, despite the need for support ever increasing, and as experiential learning opportunities of breastfeeding continue to decline, mothers' face sustained reductions in services (UNICEF, 2018), exacerbated by COVID-19 (Brown & Shenker, 2021). Evidence is clear on what mothers seek: support that goes beyond breastfeeding as 'best' to reframe breastfeeding as normal, nuanced rather than 'all or nothing' attitudes and help to individualise solutions to challenges (Brown, 2016). This includes practical, informational, emotional and social support. Systematic reviews have identified the need for such support to be available face-to-face (McFadden et al., 2017), and that combinations of support types delivered concurrently across settings deliver the greatest improvements in breastfeeding outcomes (rates and experiences) (Sinha et al., 2015; Ingram, 2013). However, with consistent under resourcing of these services, mothers are increasingly struggling to access them face-to-face (Davis, 2018). Travel distances, costs and postnatal physical and mental challenges may also present barriers to seeking or attending face-to-face breastfeeding support services (Snyder et al., 2021).

1.1.3 Online support

In an increasingly connected digital society, women are frequently turning to online support from social media groups to fill gaps in service provision, and to overcome barriers to access (Regan & Brown, 2019).More generally, smart phone use and widespread access to social media (SM) platforms in the UK (Aichner et al., 2021)

have increased and normalised the use of online communities for accessing parenting support (Ellis & Roberts, 2018). Seventy five percent of the global population aged over 13 years are social media users, and Facebook currently has 2.9 billion active monthly users (Data Reportal, 2022). Facebook therefore offers a large platform from which to access support and social connection, lending itself to the creation of specialised communities, and is now used by health services (Wong et al., 2020). As a result of this proliferation, most new mothers now use social media to seek advice, and believe social media is a beneficial form of support during the transition to parenthood (Baker & Yang, 2018). Social media provides a platform for sharing experiences, asking for informational, emotional and social support and facilitates the organising of face-to-face activities – all fundamental to creating a 'village' of others sharing in the transition to parenthood that normalises and supports this major life change (Audelo, 2013). The need for this support and connection has been heightened during the COVID-19 pandemic, isolating new parents from their existing physical social networks, and preventing the development of new ones (Brown & Shenker, 2021).

This changing landscape opens a crucial new area for breastfeeding research – we need to understand *how and why* mothers are accessing online support, whether it is effective and what the benefits and challenges are. This evidence is central to improving current service provision, ensuring it is fit for the needs of current (and future) generations of breastfeeding mothers and understanding what investment is needed. Global studies have found that as the provision of social media groups for breastfeeding support has become more widespread, and accessibility has improved, mothers are engaging with it and reporting benefits (Black et al., 2020; Orchard & Nicholls, 2020). These include overcoming geographical boundaries to access support not available locally, or not accessible for a variety of reasons, solutions to issues and normalising breastfeeding challenges and celebrations (Herron et al., 2015; Skelton et al., 2020). Social media is offering mothers access to key forms of breastfeeding support, within supportive communities. Therefore, whilst face-to-face support is important for improving outcomes (McFadden et al., 2017), research is needed to understand if and how this provision can be

complemented online. This has implications for improving experiences, accessibility and ensuring resources are directed where they can make the most difference.

There is currently no published research that explores the significance of who organises and delivers breastfeeding support to mothers within a locally aimed social media group. To ensure future provision is effective we need to understand whether and why this matters – are peers, professionals or a combination best suited to providing this support and why? With this knowledge approaches can be trialled that meet the needs of mothers and evidence of best practice used by services to invest and develop provision, including professional training (Skivington et al., 2021). Evidence suggests that digital support interventions within maternity care may be more effective where health professionals are involved in their development and promotion (Crossland et al., 2019), and that parents value professional input and recommendations regarding online information sources (Frey et al., 2022). Midwife moderated social media support has been piloted offering antenatal and postnatal support with positive evaluation by mothers and midwives (McCarthy et al., 2017). Wider health promotion research also suggests involvement in online communities may also confer personal and professional benefits to health professionals, via social learning processes (Atanasova et al., 2017).

1.1.4 Social learning

Exploring the learning resulting from such participation in social media groups aimed at breastfeeding mothers, evidence suggests that knowledge, motivation and personal identity is shaped by belonging – conceptualising such groups as online communities of practice (CoPs) (Skelton et al., 2020). CoPs are defined as a group of people engaging in a process of collective learning on a shared domain of interest during regular interactions (Wenger, 2010) – learning is ongoing and collective rather than individual. Applied to breastfeeding as a public health behaviour, social learning theory explains the findings of improved knowledge, motivations and breastfeeding outcomes and reciprocity of support within online breastfeeding support communities (Skelton et al., 2020; Black et al., 2020; Zhang et al., 2016).

Interpretation of the findings of this thesis will be informed throughout by the use of this theory as an explanatory framework. This theoretical framework is fundamental to exploring why mothers access and how they engage with online breastfeeding communities and to identify the impacts of situating this within physical communities. CoP theory also underpins knowledge creation in relation to professional engagement and the benefits and challenges of developing this provision. Exploring these is central to addressing the research questions set out below.

1.1.5 Self-efficacy

Self-efficacy, the belief of an individual that they can competently or successfully accomplish a task and producing a positive outcome, is frequently referred to within breastfeeding support literature (Bridges, 2016; Bridges et al., 2018; Robinson et al., 2019a). A woman's belief in their capacity to achieve their goals is well established as a predictor of breastfeeding success and satisfaction (Awaliyah et al., 2019), and the application of self-efficacy theory to support within CoPs offers insight into outcomes.

Bandura hypothesised that self-efficacy is derived from direct mastery of an activity, vicarious experiences, verbal persuasion and physiological states (Bandura, 1977). Personal experiences/ accomplishments are, according to this theory, fundamental to building resilience – achieving success through effort and perseverance. Learning from and being motivated by the sharing of experiences by others also contributes to instilling a belief that an outcome is achievable as others have succeeded. These experiences within the online community are central to exploring the research questions set out below.

Similarly, how written encouragement offered within the group offers positive reinforcement and its impact on confidence, perceived achievement and emotional/physiological outcomes are underpinned by Bandura's self-efficacy

theory throughout this thesis. This will support insight into how goal setting and perceived success are influenced by CoP membership.

1.2 Research motivations

Aside from the research gap identified, developing a knowledge base on the functionality and use of these locally aimed online breastfeeding communities is also important to me, personally and professionally. From a personal perspective, I have fifteen years' experience of working to support women with breastfeeding. First through teaching antenatal classes and running postnatal support groups, and then through training as a midwife, I have supported and listened to hundreds of women discussing their understanding and expectations regarding birth, infant feeding and life with a newborn. I have seen many challenges of unmet expectations, lack of information on or understanding of breastfeeding physiology and widespread societal (and family) pressure to feed less, sleep more and minimise dependency as quickly as possible. During this time the proliferation of online information has impacted my personal and professional experiences of breastfeeding support.

As a mother struggling with breastfeeding my own babies due to tongue-ties, a lack of local support resulted in me seeking information and help from mothers and professionals online. I found incredible support and motivation but also witnessed and experienced the downside, including judgement and a lack of evidence-based information, which I found mirrored in recent research findings (Regan & Brown, 2019). As a midwife supporting other women, I have often signposted online support sources and faced challenges in identifying the most reliable, but I have also seen social media use become ubiquitous amongst expectant and new parents (Bartholomew et al., 2012). These experiences have motivated me to want to understand how a resource as embedded in modern culture as social media can create such benefits and challenges, and how it can be harnessed to offer the most to public health.

Working in midwifery education I bear witness to the extraordinary challenges faced by midwives and maternity services, where debates over safety and the implementation of evidence-based approaches to care increasingly threaten to undermine innovation and improvement (Independent Maternity Review, 2022; Dahlen, 2010). On a local level, I have experienced the development of breastfeeding peer support on and offline in a 'ground up' way, as is common due to lack of evidence, investment and staff (Trickey et al., 2018). Contributing to the literature that attempts to drive change through efficiency, efficacy and a commitment to service improvement for both clinicians and service users is therefore a source of personal and professional pride, as is recognising and development the huge contribution made by volunteers. This drive for change underpins my motivation to undertake PhD research, because understanding how social media support can be offered safely and effectively within maternity services is central to improving support for mothers and meeting expectations for digital transformation (Public Accounts Committee, 2021). Online support is already widely used and popular with breastfeeding mothers, and increased self-efficacy, breastfeeding duration, knowledge and attitudes resulting from it use is established in the literature. To capitalise on its potential a focus is now needed on service delivery.

1.3 Thesis aims

The overall aim of the thesis was to explore whether and how professionally moderated local breastfeeding Facebook groups can be used within maternity services to support women to continue breastfeeding, and to present guidance on the development of this intervention. To explore this, a series of three interconnected studies were undertaken:

1) A questionnaire-based study exploring mothers' experiences of using local BSF groups, including understanding of who moderates the group and perceptions of how this might impact experience
2) A questionnaire-based study establishing midwives' perceptions and/or experiences of using Facebook groups to offer mothers support

3) A study using semi-structured interviews to examine midwives' experiences of offering and delivering breastfeeding support via Facebook

These studies aimed to address four main research questions (RQ):

RQ1. What experiences do women have of locally aimed breastfeeding support Facebook (BSF) groups, and what are their perceptions of midwife moderation of these groups?
RQ2. What are midwives' perceptions of professional social media use, and what are their experiences of offering online support via Facebook communities?
RQ3. Do the experiences of mothers and midwives align with the conceptualisation of BSF groups as online communities of practice?
RQ4. What group formats and logistics are involved in current midwife-led BSF service provision, and what recommendations can be made for further development?

This thesis is presented in seven chapters providing a literature review, three self-contained research study chapters and a general discussion bringing the work together. For ease of reference, a schematic representation of the studies can be found in Chapter Four, section 4.4 (Figure 3).

- **Chapter 2** presents a narrative review of the literature in relation to breastfeeding support and public health, setting the broader context for the thesis. It explores the evidence that underpins the importance of delivering on breastfeeding support as a key public health priority, and the factors which influence breastfeeding decisions.
- **Chapter 3** offers a systematic review of studies relevant to the research questions which aimed to understand the impacts of SM support for breastfeeding, including benefits and challenges, to establish the evidence for wider provision within maternity services.

- **Chapter 4** outlines the methodological approaches taken, providing an overview of the thesis, research methodology, and a discussion of the underpinning philosophical assumptions.
- **Chapter 5** presents the findings of an online survey exploring the phenomenon of local Breastfeeding Support Facebook (BSF) group membership from the perspective of mothers (n=2028).
- **Chapter 6** offers the results of an online survey of the attitudes of midwives (n = 709) towards Facebook use, group provision, and barriers to development of the service.
- **Chapter 7** details a qualitative exploration of the experiences of midwives (n=9) involved in creating, facilitating and/or delivering breastfeeding support via a local BSF group.
- **Chapter 8** brings the findings together to consider how the overall research questions have been answered, presenting conclusions with recommendations for research and practice.

1.4 Terminology used in this thesis

Although there is no definitive definition of social media, for the purposes of this thesis social media refers to platforms which facilitate group support via interactivity, allowing for user-generated content (UGC) and subsequent responses. Facebook (founded in 2004), Twitter (2006), Instagram (2010) and Snapchat (2011) are the four leading platforms (Alhabash & Ma, 2017) offering community functionality, and Facebook remains the most popular (Aichner et al., 2021).

This thesis uses the terms “woman” or “mother” throughout. These are intended to be taken to include people who do not identify as women but are pregnant or have given birth or are breastfeeding, independent of their gender identity, to avoid inappropriately desexing language required for clarity in delivering public health services. This aligns with current best evidence (Gribble, 2022) and the approach adopted by the National Institute for Health and Care Excellence (NICE) (NICE, 2021).

Chapter 2: Narrative Review

This chapter presents a narrative literature review exploring the broader context of infant feeding decisions and experiences. It serves to set the scene for the specific research studies that will follow exploring the topic of social media and breastfeeding support groups. Within this chapter the evidence for breastfeeding as a public health issue will be explored, identifying the short and long-term consequences of ongoing low breastfeeding rates on individuals, communities and for wider society. It also considers the extensive literature that explores influences on infant feeding decisions and the wider psychological, social and cultural factors that affect these. Finally, it introduces the literature on experiences and efficacy relating to face-to-face approaches to breastfeeding support, exploring digital approaches, in context. It is followed in chapter three by a systematic review that specifically explores the role of Facebook breastfeeding groups in supporting and enabling women to breastfeed.

2.1 Breastfeeding as a public health issue

Breastfeeding formed an inherent part of the evolution of mammals, an essential part of the reproductive cycle ensuring the survival of a species at birth and into infancy (Fewtrell et al., 2020). As modern humans this process of nourishing and nurturing at the breast has become socialised and politicised by culture and market factors (Brown, 2016), resulting in breastfeeding as a normative behaviour becoming eroded (Fewtrell et al., 2020). This effect is seen particularly in high-income countries, resulting in a rapid decline in breastfeeding rates that is associated with a range of negative individual and public health impacts (McFadden et al., 2017) that are recognised as significant globally (World Breastfeeding Trends Initiative (WBTi) UK, 2016).

There is a wealth of evidence that concludes human health across the life span is impacted by mode of birth and breastfeeding (Victora et al., 2016; WBTi UK, 2016).

The initial mechanism for health imprinting from mother to baby is the development of the gut microbiome; the synergistic collection of microorganisms whose role and life-long consequences, whilst not yet fully understood, is growing in significance within health research (Mutic et al., 2017). The vaginally born infant is colonised by the fecal microbiome of its mother, providing inoculation with gut microbes that promote beneficial immune responses (Huda et al., 2014), shaped further by maternal skin-to-skin contact and the initiation of breastfeeding (Posthuma et al., 2016).

However, communicating these benefits via public health messaging to influence behaviour change is complex. This is because the impacts are based on population-level statistics: risk, chance and data interpretation can be difficult to interpret – and to act upon, in the face of societal norms and personal, individual level experiences. For example, when presented with the benefits of breastfeeding for infant health, such as reduced infections, many parents will be making decisions in the context of their lived experiences of breastfed babies with reported illnesses, or formula fed babies who were rarely ill. Whilst breastfeeding offers protection, or mitigates severity, it is impossible to completely control for different genetics and contexts. Results of attempts to compare outcomes often present a mixed or contradictory picture, where duration or exclusivity have not been measured, skewing results where breastfeeding may include having received one feed, or exclusively breastfed babies have received some formula (Brown, 2021). To improve messaging and underpin recommendations for service provision, clear representations of data and individual, overall and population impacts are key, supporting informed decision making.

2.1.1 The protective mechanisms of breastmilk

Breastmilk protects and primes the gut, passing on antibodies developed by the mother and acting as a prebiotic (Pacheco et al., 2015), preventing diseases such as necrotising enterocolitis (frequently fatal in premature infants), and reducing the

incidence of respiratory, gastrointestinal and inner ear infections (Grummer-Strawn & Rollins, 2015; Agostoni et al., 2019). These effects persist well into the second year of life, preventing half of deaths caused by infections (Victora et al., 2016). Bioactive molecules in breastmilk also protect against inflammation and support the maturation of the infants own immune system (WBTi UK, 2016). Emerging evidence also suggests the microbiome of breastfed infants hosts higher numbers of antibiotic resistance genes, reducing exposure to resistant microbes and life-long susceptibility to resistant infections (Bäckhed et al., 2015). Sub-optimal colonisation is implicated in a range of diseases that are increasing in prevalence, including atopy and allergy (Rajani et al., 2018), as well as behavioural and mental health problems (Sampson & Mazmanian, 2015). Further research is needed to fully establish the extent of the long-term effect of the microbiome (Bäckhed et al., 2015) and the impact of receiving nutrients not contained in human milk (particularly cow's milk derivatives) on endocrine, metabolic and immune health. Although the understanding of how this nutritional programming affects life-long health is in its infancy, the significance of breastfeeding to infant gut health is now widely accepted (Agostoni et al., 2019).

The continuation of breastfeeding supports development of a robust immune system and organ development as the constituents of breastmilk continue to adapt to physiological changes such as temperature, nutritional need and infection status for as long as the infant continues to be breastfed (Grummer-Strawn & Rollins, 2015). The health impacts are dose-related: for example, exclusively breastfed babies are least likely to undergo infection related hospital admissions, where those fully formula fed are most likely (WBTi, 2016). The percentage of breastmilk received (implicating both exclusivity and duration as a factor) has also been found to directly correlate with verbal IQ, brain volume and cortical thickness (Isaacs et al., 2010).

Victora et al. (2016) also argue in their report for *The Lancet Series* that evidence is growing linking formula feeding with increased adiposity in infancy and that breastfeeding is linked with protection from developing obesity and diabetes in

later life. They also demonstrate a 68% reduction in dental malocclusions associated with exclusive breastfeeding without dummy/pacifier use. Malocclusion is a significant risk factor in adult life for caries, periodontal disease and speech impairment. Breastfeeding is an important function in the correct development of the facial muscles for both function, appearance and physiology, including nasal breathing and speech (Peres et al., 2015). Mouth breathing was reduced by 20% in those breastfed for two years or more, with reductions in facial elongation, sleep apnea, respiratory infections, adenoid and tonsil enlargement (Limeira et al., 2013). Both malocclusion and mouth breathing therefore have the potential to impact health and psychosocial wellbeing into adulthood.

2.1.2 Infant development

Deoni et al. (2013) demonstrated the impact of exclusive breastfeeding on brain development, including cognitive function, reasoning, behaviour and visual and auditory pathways, conferring developmental advantage over formula fed infants. The breastmilk constituent responsible (docosahexaenoic acid (DHA)) for healthy early neuronal growth, repair and myelation (McCann & Ames, 2005), together with an optimal microbiome, contribute to preferential structure and functioning (Deoni et al., 2013). DHA is essential for normal brain development, including maturation of sleep patterns. Infants who died from Sudden Infant Death Syndrome (SIDS) had much lower levels of DHA, linked with reduced arousability (Wang, 2003) and implicating mode of feeding in the pathogenesis of SIDS (Perrone et al., 2021). A systematic review by Drane and Logemann (2000) concluded a detectable neurological affect up to 18 years of age, reinforcing the potentially considerable impact on the child into adulthood. Studies evaluating the attempt to replicate this functional affect via the introduction of fatty acids to infant formulas failed to demonstrate any clear benefit (Agostoni et al., 2019).

Behavioural development associated with breastfeeding was evaluated using the UK Millennium Cohort Study, which concluded that children breastfed for four months or longer had lower odds of behavioural problems at five years of age, even

after adjusting for a wide variety of confounders (Heikkilä et al., 2011). Although it demonstrated that the reduction in behavioural problems seen in breastfed children existed independently of the quality of mother–baby interactions, this research also recognised the significance of the breastfeeding relationship in conferring developmental advantage, in addition to the milk itself. Other studies have identified psychosocial mechanisms involved in infant feeding, suggesting greater sensitivity in breastfeeding mother-baby interactions, predicting more secure attachments and social-emotional development (Britton, 2007).

Although Gibbs et al. (2018) explore the theory that breastfeeding is a proxy behaviour that co-occurs with other kinds of parenting behaviours with positive developmental and attachment promoting effects. They identified an enduring link between breastfeeding for at least six months and attachment security at two years of age. This supports previous evidence (Smith & Ellwood, 2011) that exclusively breastfed infants receive the most emotional care (soothing, cuddling or holding), in addition to time spent breastfeeding, which is positively correlated with secure attachment and optimal development. Social, emotional and perceived competence, attachment and temperament are fundamental to human function within society and family. They are known factors in delinquency, mental health, academic performance as well as physical health (Denham et al., 2009), emphasising the significance to society of establishing robust evidence of the implications of low population rates of breastfeeding and mothering through breastfeeding.

Research in the field of epigenetics is now producing evidence that the breastmilk received during infancy, and the reduced stress levels seen in breastfed infants (Lester et al., 2018), change gene expression, lowering the risk of a range of physical and psychological disorders even where there is a genetic predisposition toward developing them (Verduci et al., 2014). Other studies emphasise that such genetic changes can be heritable. Suboptimal nutrition and increased stress may lead to new phenotypic traits in the next generation, predisposing them to ill-health based on their parents having been formula fed. It is hypothesised that, over time, these

traits that may no longer be modulated even if they are breastfed themselves, with significant implications for human evolution (Indrio et al., 2017; Verduci et al., 2014).

Breastfeeding, and mothering through breastfeeding, are well established as the biological human norm offering optimal health outcomes for the infant. The wealth of literature establishes that it has the most far-reaching impact of health behaviours – the top intervention for reducing mortality of the under 5s and capable of reducing morbidity across the lifespan, enhancing human capital (Vitora et al., 2016), and may impact on gene expression for generations (Verduci et al., 2014).

2.1.3 Impacts on maternal health and wellbeing

Breastfeeding is the biological norm for mammals, including humans. Whilst formula feeding has become the social norm in high-income countries, the hormonal and physiological processes designed to initiate lactation remain (Neville et al., 2001). These are triggered by the delivery of the placenta after a baby is born and primed by the instinctual behaviours of the newborn as it roots for and suckles at the breast (Buckley, 2015). The oxytocin reflex, responsible for milk delivery, is initiated whilst the baby is in close contact with the mother, enhancing affection, emotional bonding and mothering behaviours.

Oxytocin reduces stress in both mother and baby, which has wide ranging impacts on maternal health and wellbeing (Heinrichs et al., 2002). Breastfeeding increases maternal responsivity to a baby's needs, activating greater emotional brain system involvement (limbic responses) in breastfeeding mothers in response to hearing their baby cry, compared to those formula feeding (Kim et al., 2011). In the longer term, maternal sensitivity and secure attachment have the potential to promote improved mental health, relationships and emotional regulation (Krol, 2012). Breastfeeding mothers have reduced blood pressure and heart rate reactivity, associated with a calm physiological state, and a reduced cortisol response to

psychosocial stress (Hahn-Holbrook, 2011). Improved responses to others can improve relationships and facilitate more positive social interactions (Krol et al., 2014). Social interaction and support are key to a positive experience of becoming a parent (De Sousa Machedo et al., 2020), creating support networks and accessing a wider parenting community may be aided by the physiological effects of breastfeeding.

2.1.4 Mental health

Postpartum distress in some form is estimated to affect up to 80% of women with a range of severity (Slomian et al., 2017). The causes are multifactorial, including birth trauma (Beck, 2018), the increased contribution to homelife and childcare experienced by women compared to men (Craig et al., 2012), financial pressures and feelings of guilt or judgement (Evans et al., 2012). The consequences can be severe for infant health, including lessening the likelihood that a mother will follow public health advice (e.g. safe sleep recommendations, correct car seat use) and engage in enrichment practices (such as reading stories and playing games) (Balbierz et al., 2015). Depressive symptoms also impact on mother-child, partner and wider family relationships and general social functioning (Gueron-Sela et al., 2018). Mothers with these symptoms are more likely to bottle feed (Gagliardi et al., 2012), to wean early (Dunn et al., 2006) and to experience breastfeeding problems (Dennis et al., 2006). However, the continuation of breastfeeding is associated with reduced anxiety and improved mood compared to formula feeding mothers, both self-reported and using objective physiological measures (Groër, 2005). A body of evidence suggests symptoms of postpartum depression can be mediated by breastfeeding, but also that these symptoms are predictive of early breastfeeding cessation (Gagliardi et al., 2012).

This relationship is complex: whilst successful breastfeeding supports maternal mental health, and not breastfeeding is associated with poorer wellbeing, difficulty, pain and being unable to breastfeed are also associated with increased rates of

depression (Gregory et al., 2015; Brown, 2019). Mothers who do not get the support they need to meet their breastfeeding goals report grief, anger and loss at ending the breastfeeding relationship before they are ready (Brown, 2019). The experience of breastfeeding, pride and connectedness in achieving this with and for their baby are important to women, and societal failure to create the conditions that support this puts their health and wellbeing at risk (Brown, 2018).

Although findings are subject to confounding factors, as are the risks of formula to infant health, there are a range of reported risks to women's health from not breastfeeding. Evidence suggests breastfeeding permanently impacts breast tissue, mediating the risks of malignancy resulting in breast and ovarian cancer (Stuebe, 2009). There are also positive associations of longer breastfeeding duration with postpartum weight loss (Tahir et al., 2019) and reduced risk of metabolic syndrome, diabetes and cardiovascular disease (Melov et al., 2022). Long-term cognitive benefits of breastfeeding have also been identified, including a reduced risk of dementia (Fox et al., 2021). As such breastfeeding is a key modifiable risk factor for chronic disease and, in a supportive context, physical, emotional and mental wellbeing (Stuebe, 2009).

2.2 UK breastfeeding context

The wealth of evidence on the risks of not breastfeeding or being breastfed underpins the public health recommendation to exclusively breastfeed babies until six months of age, and continuing breastfeeding alongside complementary solids until two years and beyond (WHO, 2021). However, the UK has some of the lowest breastfeeding rates in the world, with stark disparities between demographic groups and eight out of ten mothers stopping before they feel ready (McAndrew et al., 2012).

The UK Infant Feeding Survey (IFS), conducted every five years from 1975, was discontinued in 2015 (NHS Digital, 2018). Despite widespread calls to reinstate it (Fisher, 2019; UNICEF, n.d), and an undefined commitment to do so within the NHS

Long term plan (NHS, 2019), no newer UK wide data collection exists. This has left a large gap in data on a population level, including for parent voices. However, despite an overall increase from 76% mothers initiating breastfeeding at birth in 1976, to 81% in 2010 the prevalence of breastfeeding fell from 81% at birth to 69% at one week, and to 55 per cent at six weeks. At six months, only around a third of mothers (34%) were still breastfeeding (McAndrew et al., 2012). Demographic differences were significant, with 89% of mothers living in the least deprived areas initiating breastfeeding, compared to 73% of those living in the most deprived areas. Being over 30 (87% initiation), from an ethnic minority group (95-97%) and having a managerial or professional occupation (90%) were associated with increased rates. Clearly social and cultural norms and resources to access support matter when it comes to meeting breastfeeding goals.

2.2.1 Factors in breastfeeding cessation

The reasons why so few babies are breastfed, and why so many women are unable to meet the recommendations or the goals they set themselves, are complex. There are physiological conditions such as breast hypoplasia, hypothyroidism, uncontrolled diabetes and polycystic ovary syndrome associated with low milk supply, and rare incidences of maternal or newborn illness where breastfeeding is truly contraindicated (Brown, 2021). How many women are unable to breastfeed no matter how much support they have available is difficult to determine, but is estimated at 0.1-2% (Brown, 2022). More commonly, breastfeeding cessation is a result of a cascading events impacting milk supply, or perceived milk supply, where formula feeding is more accessible as a solution than the support needed to resolve any issues.

Medical intervention for mother and baby during and after birth is now more common than not, and associated with breastfeeding difficulties and cessation (Brown, 2021). Without skilled breastfeeding support accessible around the clock, difficulty with positioning and attachment can quickly become damaged tissue and pain, resulting in breastfeeding cessation – or interrupting the supply and demand

mechanism of breastmilk production by replacing feeds with infant formula to take time to heal, resulting in low milk supply and cessation (McLelland et al., 2015). Without societal and family knowledge and understanding of the physiological processes of lactation, well-meaning attempts to offer a mother support by taking her baby so she can rest, or wanting to share in feeding the baby will often also result in low milk supply (Fallon, 2019). The sexualisation of breasts and feeling embarrassed to feed a baby on demand when in public through fear of exposure or negative responses may also result in a mother feeling she has no choice but to use bottles when she would prefer not to (Grant et al., 2022). Needing to return to work or otherwise be separated from their baby also results in mothers feeling they have no choice than to stop, where skilled support may have supported continuation despite some separation (Brown, 2021). In a society where bottle feeding is the norm, seeking advice from friends, family and even health professionals can often result in a recommendation to 'fix' issues or concerns by buying formula – rarely giving consideration to the longer term physical and emotional health impacts for the woman of stopping before she is ready (Brown, 2021). Similarly, without access to information, knowledge and debriefing services to unpick these issues before or after breastfeeding cessation occurs, misunderstanding and misinformation is perpetuated about breastfeeding issues, ability and physiology, often for generations (Fallon et al., 2019). This is because breastfeeding and breastfeeding decisions take place in a social context (Schafer et al., 2015).

2.2.2 Social context

It is widely accepted that the level of social support a person has for any behaviour is a predictive factor for whether it occurs. Whilst this is fundamental to both breastfeeding initiation and continuation (Brown, 2021), there are caveats. Breastfeeding has not been the social norm in the UK for most of the last century (Stevens et al., 2009) so today's new mothers, and their own mothers, were born into a formula feeding culture and were unlikely to have breastfed or been breastfed themselves. This itself is a predictive factor for breastfeeding success (choosing to breastfeed and meeting self-set goals) (Eckström et al., 2003) and a

large systematic review of breastfeeding interventions by Sinha et al. (2015) found that family support alone had no effect on promoting exclusive breastfeeding against the current social backdrop. More recently Emmott et al. (2020) found that only 13% of mothers reliant solely on family support were still exclusively breastfeeding at two months, compared to 94% women with support that included family, health professionals and friends.

Lack of social and wider collaborative support is significant in understanding the steep decline in breastfeeding rates after initiation. Despite their intention/desire to continue breastfeeding, mothers are faced with a dearth of knowledge and experience amongst their family and wider social network (Brown, 2015). A lack of understanding of lactation, normal physiology and newborn behaviour amongst family and friends and experiences of having formula recommended are frequently reported (Brown, 2021). Breastfeeding mothers find it difficult to recognise normal newborn behaviour (such as frequent feeding and waking) in the current UK social context (Fallon, 2019). Despite the public health emphasis on the promotion of responsive feeding styles in increasing infant attachment, improving breastfeeding duration and reducing obesity (UNICEF, 2016), formula feeding norms and popular parenting literature bombard mothers with cultural messages that prioritise returning to 'normal' and reducing infant dependence as soon as possible, undermining the dyadic, responsive interactions required to sustain a successful breastfeeding relationship (Brown & Arnott, 2014). This has a significant impact on undermining the normalisation of breastfeeding in UK culture and confusing families trying to make informed decisions about the right choice for them (Brown et al., 2020).

In the absence of a physical community of experienced and knowledgeable mothers able to offer peer support for new mothers, recent generations have had to become increasingly reliant on health professionals and trained supporters for advice and expertise. However, with low rates of breastfeeding and effective support in the general population, midwives themselves may have limited personal experience of breastfeeding, may have had negative experiences or chosen not to breastfeed their

own children. These are factors known to impact on the connection with, and commitment to, supporting breastfeeding mothers and to follow practice/policy guidelines in line with public health recommendations (Nelson, 2007).

2.3 Breastfeeding support

The evidence in relation the physical and emotional impacts of breastfeeding on individuals, in infancy and postpartum is significant. Taken together and extrapolated to the population, it is clear that improving breastfeeding rates is a public health responsibility: protecting infant and maternal physical and emotional health has long term implications for society as a whole (Brown, 2017). To achieve this, a systematic review of the evidence highlights that the provision of evidence-based breastfeeding support is key to improving overall breastfeeding rates (McFadden et al., 2017).

NICE (2021) describes breastfeeding support as a service that uses an evidence-based, evaluated, structured programme that is integrated and co-ordinated across sectors, including hospital, primary, community and children's centre settings. The UNICEF Baby Friendly Initiative is defined as the minimum standard to ensure quality care (UNICEF, 2013). The accredited programme is designed to support services through training and support to achieve evidence-based standards for achieving sustainable improvements, and to assess progress against these. Baby Friendly accreditation is being sought by 95% of maternity services and 91% of health visiting services in the UK (UNICEF, 2022), and although there is a lack of clear evidence on its impacts, research suggests improvements in initiation and duration (Fair et al., 2021). However, ongoing breastfeeding support services and access to professional support are needed to support continuation in a social context where without this, many women are stopping before they are ready to (McFadden et al., 2017; Brown, 2018).

Breastfeeding support interventions take many forms – trained peer support, health professional and combinations of face-to-face, telephone and online provision (van Dellen et al., 2019; Chesnel et al., 2021). Support strategies that are weighted towards face-to-face support are more likely to successfully increase rates of continued exclusive breastfeeding (McFadden et al., 2017). The face-to-face observation of a breastfeed in a safe environment by a trusted supporter enables information, reassurance, and advice to flow organically, addressing any issues or concerns and is a standard part of a breastfeeding assessment by a trained lactation specialist or health professional (UNICEF, 2020). The provision of face-to-face groups, whether run by health professionals, lactation specialists or peer supporters, provides access to 'troubleshooting' and practical support alongside the social and emotional benefits of sharing and normalising the experiences of breastfeeding with other mothers. This type of social support is known to improve breastfeeding outcomes, maternal mental health and confidence (Britton et al., 2007; Meadows, 2011).

2.3.1 Health professional support

UK registered midwives are professionally required to provide breastfeeding information during routine antenatal care, to support the initiation of breastfeeding at birth and provide physical and practical support and advice postnatally, including referrals to specialist services where required (Nursing & Midwifery Council (NMC), 2019). They are also required to work with other professionals, agencies, and communities to promote, support and protect breastfeeding and must be proficient in doing so at the point of registration (NMC, 2019). In addition to knowledge acquisition, it is now recognised that practical, communication and problem-solving skills should be included in basic training (UNICEF, 2013). However, the technocratic model of care, dominant in UK maternity services, facilitates the development of midwives as a 'technical expert' in breastfeeding rather than a 'skilled companion' to breastfeeding mothers reducing confidence and expertise in offering the psychosocial support and reassurance known to improve breastfeeding outcomes (Swerts et al., 2016).

Despite midwives preferring to be a 'skilled companion' (Swerts et al., 2016) they, and student midwives, report they are not afforded the time and resources to fulfil this role within current services. The majority of midwives feel they cannot provide support to a standard they are happy with and just 7% of all mothers (regardless of breastfeeding intention) feel they had plenty of support from their midwife (RCM, 2014). UK discharge from midwifery care to health visiting occurs between 10 and 28 days post birth (NMC, 2019). Whilst health visitors should provide ongoing breastfeeding support within the Healthy Child Programme (Public Health England (PHE), 2018; Welsh Government, 2016), this service has also seen cuts which more than halved breastfeeding groups, specialist services and peer support programmes between 2016-18 (Adams, 2018). Health visitor numbers in the NHS dropped by 26% nationwide between 2015 and 2019, leaving remaining staff managing caseloads of over 400 children each, double the number recommended by the Institute of Health Visiting as safe (Launder, 2019). The loss of staff and services and an increased workload has resulted in 28% reporting a loss of capacity to support breastfeeding (Stephenson, 2018; Grant et al., 2018). In addition, studies have demonstrated that deficits in knowledge, counselling skills and negative attitudes amongst health professionals contribute to poor support (Laanterä et al., 2011), and highlighted a lack of good evidence on effective breastfeeding education and training (Gavine et al., 2016).

Reliance on professional support has increased at a time when funding and service provision has been continuously reduced (UNICEF, 2017), despite evidence that collaborative support across community and health services increases breastfeeding rates by 152% (Sinha et al., 2015). As a result, women who choose to breastfeed find themselves doing so in a social context which is unsupportive or lacking in skills and knowledge, with inconsistent access to high quality professional support and at increased risk of emotional and mental distress (Fahlquist, 2016). As such it is important to

establish what support is needed to enable mothers to meet both individual and public health goals.

2.3.2 Peer support

Peer support is based on principles of companionship, empathy, sharing and assistance, provided by those with experiential knowledge – in this case other parents at differing stages of pregnancy and parenting - and can offer a 'buffer' against the stress and challenges being faced (Casey et al., 2013). There is huge power in reducing postnatal social isolation (South et al., 2011), normalising experiences by sharing them with others and relief in the realisation that you are not alone. Perceived self-efficacy and optimism in the face of challenges is gained from gaining the perspective of those who have been there before (Mead et al., 2001; Bandura, 1977). This is particularly important for breastfeeding mothers, normalising experiences and providing solutions to problems and motivation to meet and extend goals (Brown, 2016).

In the UK social context, breastfeeding knowledge and experience is limited by a culture where formula feeding is the norm. This leaves many mothers who would like to breastfeed with limited expertise to draw on from existing social networks, like family and friends. Peer support as an intervention is aimed at bridging this gap, providing or signposting breastfeeding mothers with other who are or have breastfed. The evidence for peer support as a successful intervention is complicated by the wide variations in approaches, recruitment, training and timing/level of contact with mothers. Some are aimed at mothers already motivated to breastfeed, others at those who are unsure (Trickey et al., 2017).

As a result, even systematic reviews can produce differing results: a Cochrane review found improvements with additional peer support (Renfrew et al., 2012) whereas Jolly et al. (2012) analysed peer support based on the effect of setting, intensity and timing of the intervention and found no significant impact on breastfeeding rates in the UK. Nevertheless, when women's experiences are

included as an outcome, the value of peer support is evident, with evidence if increased self-esteem and confidence, and reduced isolation (Chang et al., 2022). Providing this support also has positive outcomes for the peer supporters (Chang et al., 2022), demonstrating the value of social models of support and the opportunity to build reciprocal and trusting relationships (Taylor et al., 2019).

Evidence suggests collaborative approaches have the most positive impact (Ingram et al., 2005), particularly where there is supporter continuity and collaboration with maternity services/healthcare professionals (Ingram, 2013). Access to individualised, convenient and linked support across services is therefore critical to improved outcomes. However, tensions are noted, with hierarchical systems ('us and them' attitudes'), communication and trust between health professionals and peer supporters noted (Ingram, 2013; Chang et al., 2022; Aiken & Thompson, 2013). Systematic reviews of the evidence recommend closer collaboration between peer supporters and healthcare professionals including embedding such interventions within health services to improve communication and relationship building (Chang et al., 2022).

Despite the established evidence on the need for improved collaborative support for breastfeeding mothers, services have been consistently underfunded and under-resourced, with mothers struggling to access the support they need, when they need it (UNICEF, 2016). As social media and smart phones proliferate, mothers are increasingly seeking support online, from peers and professionals, to fill this gap (Regan & Brown, 2019).

2.3.3 Online support interventions

Reviews of the evidence suggest that the impact of 'internet-based interventions' on breastfeeding outcomes (focused on duration) are difficult to determine, and that much of the research lacks rigour (Giglia et al., 2014). However, disparate definitions of online interventions, and the inclusion and exclusion of technologies such as apps, web-based consultation and forums alongside social media platforms

makes generalisations difficult. Populations of mothers may need or prefer different approaches to online support, depending on factors including geography, demographic background, sociocultural and health context, and digital literacy (McArthur et al., 2018).

What is clear from the literature is that interactivity and personalisation are key to successful online support services (Almohanna et al., 2020), as they are to other types of support. Mothers want, and need, rapid access to convenient, evidence-based support from a trustworthy source, and peer validation (McFadden et al., 2017). Research also suggests that online groups have the potential to improve breastfeeding knowledge and attitudes, shaping identity and supporting self-actualisation through community involvement and reciprocity (Orchard & Nicholls, 2020; McArthur et al., 2018). However, whilst online support can offer a range of benefits (Robinson et al., 2019a) it is clear that access to face-to-face support is fundamental for many mothers in continuing to breastfeed (McFadden et al., 2017; Ingram, 2013) and that online services must complement not replace it (Giglia et al., 2014). Solutions to issues of reliability and negative experiences in online groups (Regan & Brown, 2019; Ellis & Roberts, 2019) need to be identified to ensure services available to women are effective at providing evidence-based support.

2.3.4 Communities of practice

Central to the development of services is understanding how online communities work, and what benefits and challenges this presents for the provision of, and access to, breastfeeding support. Social media platforms depend on their ability to enable and motivate users to generate and share content, incentivise interaction and facilitate collaboration (Kaplan & Haenlein, 2010). This supports the creation of online communities – aimed at individuals with a shared interest to share knowledge and discuss ideas, to ask and answer questions and offer social and emotional support (Eysenbech et al., 2004). These communities can now be considered a social support intervention particularly in relation to health

(Atanasova, 2017) and mothers are increasingly turning to them for pregnancy and parenting support (Bartholomew et al., 2018). Much of their value is in promoting social connectedness and participation in social learning, resulting in improved outcomes and experiences (Skelton et al., 2020; Black et al., 2020). As such it can be argued that they form online communities of practice (Skelton et al., 2020, McCarthy, 2018).

Based on seminal work by Lave and Wenger (1991), the concept of communities of practice asserts that learning takes place as a result of social interactions and relationships in a wide variety of contexts (Lave & Wenger, 1991). The theory of social learning suggests that, as human beings, we learn through participating and engaging with those around us. As practices (behaviours) are produced and repeated, communities of practice emerge: the practice becomes organised and collective, supporting the creation of relationships and identities. Through being shared the learning evolves, involves new members and transforms their identities as the community develops (Wenger, 2009). The community of practice refers to the social process through which individual members develop their knowledge, building competence through a 'meaningful way of being' which consequently shapes their identity (Farnsworth et al., 2016).

Social learning theory, as described in Section 1.1.5, set out the notion that ongoing reciprocal interactions between individuals and their environment was responsible for learning (Bandura, 1977). Taking this perspective, Lave and Wenger argued that participation was also fundamental for learning, rather than being a process of transmission and assimilation (Lave & Wenger, 1991). Applied to pregnancy, birth and parenting, their theory explains how learning and knowledge acquisition occurs as a result of interactions and experiences in a social context. Modern parenting is socially and culturally constructed, reliant on exposure to 'practised others' for guidance, knowledge and collaboration (Arendell, 1997). This is noted across the wider parenting literature: knowledge, attitude and parenting practices are shaped by expectations, shared experiences across social networks and cultural systems,

reliant on social learning from others (Gadsen et al., 2016). Lave and Wenger (1991) conceptualise this as situated learning – where individuals learn not just what is actively 'taught' but via peer-based activity and learning within a community.

Lave and Wenger (1991) also propose the concept of 'legitimate peripheral participation' (LPP): as individuals transition from novice to expert, their 'location' and identity within the community transforms with increasing levels of engagement. McCarthy (2018) argues that pregnant women are legitimate peripheral participants in motherhood, where there is no promotional status to 'expert mother', but rather an identity transformation, and shifting perception of this identity. Concepts of motherhood and mothering knowledge and practices are born and shaped within the community, with learning inextricably linked to social practice within this context. The community of practice relies on this knowledge exchange and social participation, adding value to both the group as a resource, and to the individual, constructing and reconstructing meaning (Lave & Wenger, 1991).

Put simply, communities of practice are formed when a group of people with a shared passion or concern come together, improving knowledge and skill through regular and sustained interaction (Wenger, 2020). The creation of online platforms allowing for user generated content (UGC) has facilitated the expansion of communities of practice into the virtual domain, breaking geographical boundaries to bring together individuals with a shared interest or 'practice', wanting to engage in collective learning (Ridings et al., 2002). They are characterised by a number of key activities which generate and cement social ties, including shared problem solving, skills building, information requests, advice seeking and knowledge mapping (Wasko & Faraj, 2005). Significantly, learning and transformation does not rely on active participation, explaining how social learning occurs through exposure to the community, even when 'lurking' in an online community (reading and assimilating without posting/interacting).

Although virtual communities of practice facilitate learning via hosted interaction, these differ from those enabled via face-to-face groups. Whilst evidence is beginning to demonstrate the social support, communication dynamics and impacts on outcomes of belonging to a virtual community for a variety of health domains (Atanasova, 2017; Shaw et al., 2021), more is needed to specifically explore their utilisation for breastfeeding support (Skelton et al., 2020).

2.4 Conclusion

This chapter has explored the significant issues surrounding breastfeeding in the UK. It has highlighted the impacts on individuals, services and on public health of low breastfeeding rates, and the challenges in delivering evidence-based support provision to meet these needs. The chapter discussed the emerging potential of social media solutions to improved support and set the context for this thesis by identifying what is currently known about the use of online communities for breastfeeding support.

To contribute to this evidence, and underpin this thesis, a systematic review of the literature in relation to the experiences and challenges of the use of social media communities for breastfeeding support was conducted. This explored the evidence on the use of social media groups/communities for breastfeeding, identifying any reported benefits, challenges and impacts of accessing social media group/community support for breastfeeding. The systematic review was used to inform the research design of the subsequent studies, and to support the discussion of the findings.

Chapter 3: Systematic Review

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The previous chapter explored the broader context of infant feeding decisions and experiences, setting the scene for the specific research studies that will follow exploring the topic of social media and breastfeeding support groups. Within this chapter the specific evidence in relation to using social media to access breastfeeding support is systematically reviewed.

3.1 Rationale for Systematic Review

This systematic review aims to identify the existing evidence in relation to social media (SM) use for breastfeeding support, and to further explore this evidence to understand its benefits and challenges. The narrative review explored and demonstrated the greater risk of adverse health, outcomes and experiences for mother-baby dyads who do not breastfeed. It has also identified reasons why many women struggle to meet their breastfeeding goals, stop before they are ready, and the wide-ranging impacts this can have. Breastfeeding support is a key component in meeting the public health responsibility of supporting increased breastfeeding rates in the UK (McFadden et al., 2017). This support takes many forms, lay and professional, and formats, groups and one to one.

Integral to this is peer support; support delivered by a social network of other mothers who have breastfed, sometimes with or without formal breastfeeding support training (Dykes, 2005). Although research examining outcomes of peer support upon breastfeeding rates is mixed, often due to heterogeneity in delivery and measurement (Trickey et al., 2018), the research is clear that mothers value peer support (Thomson & Trickey, 2013). It is most effective when delivered in conjunction with professional support across a combination of settings (Ingram,

2013; Sinha et al., 2015). However, due to a combination of funding cuts and COVID-19, many mothers are increasingly struggling to access face-to-face peer support and are frequently turning to online support to fill the gap (Regan & Brown, 2019; Black et al., 2020; Brown & Shenker, 2020).

It is therefore important to understand how and why mothers use SM to access breastfeeding support and which mothers find it useful in order to build on this provision, targeting services effectively. Scoping searches identified several systematic reviews have provided insight into the evidence available in relation to online breastfeeding support. However, these have focused on internet-based 'interventions' in general (Giglia & Binns, 2014; Almohanna et al., 2020), breastfeeding outcomes (Orchard & Nicholls, 2020), or on specific populations e.g. pregnant women only (McArthur et al., 2018). Findings highlight that interactivity and personalisation are key to successful internet-based interventions (Almohanna et al., 2020), that they are a viable option for breastfeeding advocacy (McArthur et al., 2018), particularly if used in combination with and to augment standard care (McArthur et al., 2018; Orchard & Nicholls, 2020). Notably, none focused on the evidence in relation to women's experiences of social media groups as a media for community breastfeeding support.

This systematic review aims to identify the existing evidence in relation to SM group use for breastfeeding support, why mothers' access such support, and who from. The purpose of this systematic review is therefore:

1. To establish the existing evidence on the use of social media groups/communities for breastfeeding support
2. To identify any reported benefits, challenges and impacts of accessing social media group/community support for breastfeeding.

To keep the review focused, the following research question was used: what are the impacts of social media group use for breastfeeding support?

3.2 Methods

To address the research questions through the identification of key terms and synonyms a search strategy (Table 1) and eligibility criteria (Table 2) were designed, modifying the Population, Issue, Context, Outcome (PICO) tool (Fineout-Overholt & Johnson, 2005). This was modified to include both Issue (qualitative) and Intervention (quantitative) terms, to capture the most comprehensive range of results (Aveyard et al., 2016).

Table 1: PICO tool (BOOLEAN operator OR)

	P*opulation*	**I***ssue/**I**ntervention*	**C***ontext*	**O***utcome*
PICO term	Breastfeed*	Social Media	Support	Experience
Alternatives/ synonyms	Infant feeding Postnatal Mother Pregnan*	Facebook Online Social network* Communit*	Continu*	Duration Breastfeed* Perception*

3.2.1 Eligibility Criteria

Published and unpublished studies meeting the inclusion criteria (Table 2) were eligible. No geographical limits were set to ensure as review as broad as possible. Whilst acknowledging any demographic differences which may impact generalisability, it was considered inclusion would reduce bias and unfairly skewed data (Van Aert et al., 2019).

Although there is no definitive definition of social media, for the purposes of this review (and thesis as a whole), social media is limited to platforms which facilitate group support via interactivity, allowing for user-generated content and subsequent responses. This includes online web-based message board communities (e.g Babycenter, Mumsnet) but excludes specific app-only technologies, due to their limited, targeted use. No date limits were set in order to capture all relevant studies, recognising that the definition of social media would apply restrictions to dates in relation to its inception. The broadly agreed date for the inception of these

platforms, using the definition of social media as virtual communities, is 1997 (Aichner et al., 2021). Facebook (founded in 2004, 1.93 billion daily active users), Twitter (2006, 174 million) and Instagram (2010, 500 million) are the three leading platforms (Alhabash & Ma, 2017; Statista, 2021).

Eligibility criteria were developed with a second reviewer to reduce bias, and included studies checked by both reviewers against the criteria set. See Table 2.

Table 2: Eligibility criteria

Inclusion criteria	Original research article Written in English Studies focused on social media (as per chosen definition*) Studies focused on self-directed social media use for support with direct breastfeeding
Exclusion criteria	Written in another language Studies focused on other populations e.g. not those currently breastfeeding Studies focused on social media use for wider parenting support Studies limited to support for exclusive expressing only Studies focused on social media use for breastfeeding promotion rather than support Studies limited to health professional input to the exclusion of peer support Studies focused on technology outside the identified definition of social media Studies focused on social media as a controlled intervention

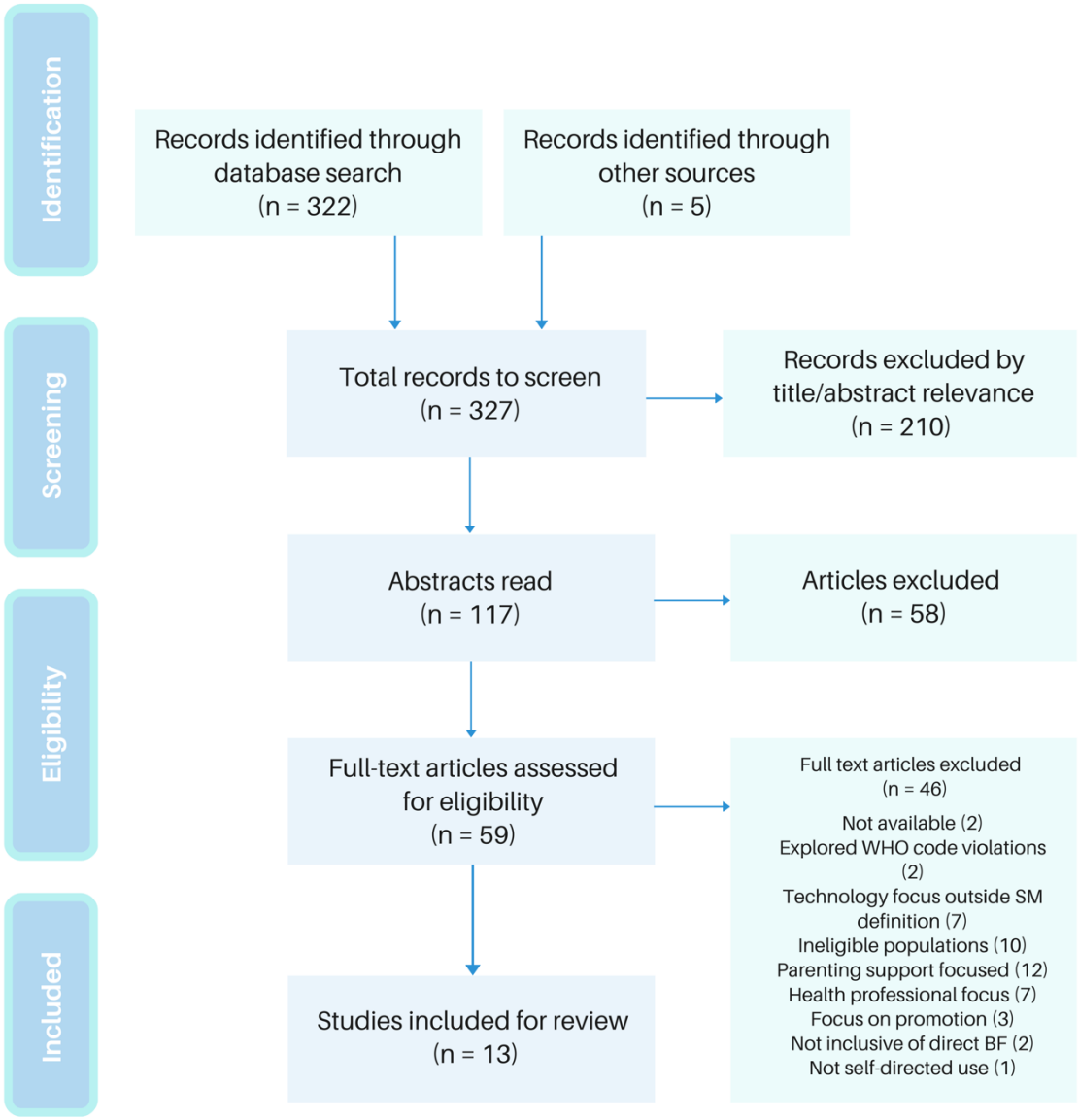
***=** *Platforms which facilitate group support via interactivity, allowing for user-generated content and subsequent responses*

3.2.2 Search strategy and screening

Literature was sought in October to November 2021. Scoping searches highlighted a focus on intervention outcomes rather than experiences in previous reviews and a need to set clearly defined search limits to identify relevant studies. As a result, sixteen search terms were used in various combinations using Boolean operators (Table 1) e.g. (breastfeed* OR infant feeding) AND (social media OR Facebook) AND (Midwi* OR health professional) AND (support OR promot*). Nine databases were searched using these terms: ASSIA, CINAHL, PubMed/Medline, ProQuest, MIDIRS, EBSCOHost, Scopus, Google Scholar and iFind. A total of 322 published and unpublished studies were identified, with an additional five items identified through reference list searching of relevant books and articles to minimise any exclusions.

All records were screened, identifying that despite the presence of relevant search terms, many studies were focused on breastfeeding promotion or the use of specific digital interventions (such as mobile apps). After initial exclusion for relevance, 117 abstracts were read and the eligibility criteria applied, leaving 59 full-text articles. Forty-six articles were excluded. The excluded studies included those which focused on offering SM support as a specific intervention (where results may not be comparable to those who interact with self-directed groups), those which related only to specific populations (e.g. pre-term infants), which focused on exclusive pumping support only. The majority of those excluded were studies where the SM support group was related to parenting in general, rather than primarily being focused on breastfeeding support (see Figure 1 for full list of reasons for exclusion). Thirteen articles remained for review.

Figure 1: PRISMA diagram (Page et al., 2020)



3.2.3 Data extraction

A data extraction form was adapted (Aveyard et al., 2016) to summarise the study characteristics, findings, strengths and limitations, to aid analysis of the 13 included studies (Appendix A). These were also appraised using published critical appraisal checklists. Nine qualitative studies (Table 3) were analysed using the applicable Critical Appraisal Skills Programme UK (CASP UK) checklist (CASP, 2018). The final five studies used mixed-methods approaches and were analysed using the Quality assessment with diverse studies (QuADS) criteria (Harrison et al., 2021). (Table 4).

Table 3: Quality appraisal summary of included qualitative studies *(CASP, 2018)*

CASP criteria	Met the criteria? (yes (Y), cannot tell (?), no (?)							
	Alianmoghaddam et al., 2019	Black et al., 2020	Bridges et al., 2018	Skelton et al., 2018	Robinson et al., 2019b	Bridges, 2016	Regan & Brown, 2019	Herron et al., 2015
Q1: Was there a clear statement of the aims of the research?	Y	Y	Y	Y	Y	Y	Y	Y
Q2: Is a qualitative methodology appropriate?	Y	Y	Y	Y	Y	Y	Y	Y
Q3: Was the research design appropriate to the aims of the research?	Y	?	Y	Y	Y	Y	Y	Y
Q4: Was the recruitment strategy appropriate to the aims of the research?	Y	Y	Y	Y	Y	Y	Y	Y
Q5: Were the data collected in a way that addressed the research issue?	Y	Y	Y	Y	Y	Y	Y	Y
Q6: Has the relationship between researcher and participants been adequately addressed?	N	N	N	N	Y	Y	Y	Y
Q7: Have ethical issues been taken into consideration?	Y	Y	Y	Y	Y	Y	Y	Y
Q8: Was the data analysis sufficiently rigorous?	Y	Y	Y	Y	Y	Y	Y	Y
Q9: Is there a clear statement of findings?	Y	Y	Y	Y	Y	Y	Y	Y
Q10: Is the research valuable?	Y	Y	Y	Y	Y	Y	Y	Y

In total, the 13 studies (8 qualitative and 5 mixed-methods studies) represented a total sample size of 507 mothers, and analysis of 2767 social media posts. They were conducted between 2015 and 2020, reflecting widespread smartphone use. A recent upsurge in research activity in this area was notable, with ten studies clustered between 2019-20. Studies were conducted in New Zealand (1), the United States (6), Australia (2), the UK (2) and Ireland (2). Although comparisons can be drawn demographically between these research locations, care was taken to acknowledge the differing cultural and social contexts (including attitudes and breastfeeding rates) in relation to breastfeeding support. Of the UK studies, both involved small samples (n=12), although one combined these with a large number of group posts (n= 1230) in the analysis. The latter was also six years old, so a lack of current UK literature was notable, particularly in the COVID-19 pandemic context and surge of SM use.

Table 4: Quality assessment with diverse studies (QuADS) appraisal of included mixed-methods studies (Harrison et al., 2021)

QuADS criteria	**No mention (0) General (1) Specific (2) Explicit (3)**					
	Wilson, 2020	Skelton et al., 2020	Lebron et al., 2019	Wagg et al., 2018	Robinson et al., 2019a	
Q1: Theoretical or conceptual underpinning to the research	3	2	1	2	3	
Q2: Statement of research aim/s	3	3	2	3	3	
Q3: Clear description of research setting and target population	3	3	2	3	3	
Q4: The study design is appropriate to address the stated research aim/s	2	3	2	3	3	
Q5: Appropriate sampling to address the research aim/s	1	2	1	3	3	
Q6: Rationale for choice of data collection tools	2	3	2	2	2	
Q7: The format and content of data collection tool is appropriate to address aims	3	3	2	2	2	
Q8: Description of data collection procedure	3	3	3	3	3	
Q9: Recruitment data provided	3	3	1	2	3	
Q10: Justification for analytic method selected	3	3	2	3	3	
Q11: The method of analysis was appropriate to answer research aim/s	2	3	2	3	3	
Q12: Evidence that the research stakeholders have been considered in research design or conduct	0	1	0	0	3	
Q13: Strengths and limitations critically discussed	3	3	3	3	3	

3.2.4 Data Synthesis

To address the research question underpinning this review (What is the impact of social media group use for breastfeeding support?) a modified narrative synthesis approach was undertaken (Popay et al., 2006), using three stages. This approach was considered appropriate to identify common themes across the literature, although these do not all relate directly to the data collected in each study (Braun & Clarke, 2014). First, after familiarisation with the studies initial codes were produced using NVivo v12, identifying themes via inductive thematic analysis. Secondly, themes were reviewed in relation to the coded extracts, which were then defined and named. Thirdly, the robustness of the synthesis was evaluated independently by a second reviewer (Popay et al., 2006).

3.3 Results

Study quality

All the studies explored social media use for breastfeeding support, with seven including analysis of impacts on breastfeeding outcomes/duration (Black et al., 2020; Skelton et al., 2018; Robinson et al., 2019a; Robinson et al., 2019b; Wilson, 2020; Herron et al., 2015) (See Table 5). The studies all had clearly defined aims and recruitment strategies and noted the breastfeeding context (including demographic and socio-cultural background) as confounding factors in drawing conclusions on the impact of social media (SM) group support. Overall, there were few issues with study quality. Although sample sizes were generally small, this was expected for the qualitative methods, generating rich insights from individuals (Braun & Clarke, 2014). These were confirmed by content analyses of large numbers of SM posts, enhancing findings (Snelson, 2016). Most of the studies commented on the potential reflexivity issues arising from research done by those with direct connection to the SM group being studied (in some cases as a midwife or breastfeeding counsellor).

Two papers (Skelton et al., 2020; Skelton et al., 2018) analyse the same data using different methods. Thematic analysis is used to identify themes in relation to mothers' use and experience of accessing support via a single BSF group (Skelton et al., 2018). The subsequent paper (Skelton et al., 2020) uses inductive content analysis to analyse the same interview and focus group data, iteratively guiding a second quantitative phase of the study through a theoretical lens. This approach has strengths and limitations. The mixed-methods, sequential analyses provide detailed insight into the BSF group's function as a community and mothers' perceptions, enabling their conceptualisation as online communities of practice. Despite results relating to the same data, both papers were included to reflect the additional insights.

Similarly, Robinson et al. (2019a; 2019b) present two papers that form part of one larger study, although different data sets are analysed and discussed, avoiding 'double counting'. Robinson et al. (2019a; 2019b) collected and analysed quantitative survey data to explore the relationship between BSF group support, outcomes and self-efficacy and strengthen these findings using thematic analysis of focus group data. Two further papers (Bridges, 2016; Bridges et al., 2018), whilst relating to two separate studies, also involve the same lead author. Whilst this approach provides rich data and triangulation of findings, it should be noted that multiple papers from the same authors may impact the breadth of the review.

Table 5: Summary of strengths and limitations of studies

Authors/ Year	Strengths	Limitations	Sample/ Population	Design
Alianmoghaddam et al., 2019	Discusses wider social contexts influencing breastfeeding practices and focuses on quality Methods employed multiple strategies	Small, homogenous sample (n=30) and research location limits generalisability Sample were highly motivated with intention to	30 mothers breastfeeding babies 0-6mths (New Zealand)	Qualitative

	(survey, face-to-face and monthly telephone interviews) enriching data Several theoretical constructs discussed and applied	breastfeed for at least six months		
Black et al., 2020	Approach explores socioeconomic, cultural and individual factors alongside mothers' perceptions Detailed exploration of theoretical lens (social cognitive theory) and possible value in analysis	Research limited to members of one group in one research location Homogenous, small sample, all partnered/married with one child, limiting generalisability	8 women from one FB group (Ireland)	Qualitative
Bridges et al., 2018	Offers insights into type and usefulness of support, including from whom Adds detail on commonly discussed topics Methods captured large sample of posts and comments, and included shared images	Researcher status as 'insider' may impact reflexivity Focuses on perceptions of supportive community, no data on impacts on breastfeeding No demographic data captured, all groups run and moderated by same organisation, may limit generalisability	778 wall posts with a total of 2,998 comments (Australia)	Online ethnography (Qualitative)
Skelton et al., 2018	Demonstrates clear positive influence of social media support on attitudes,	Research limited to members of one group in one research location	21 women (focus group) & 12 mothers (interviews) from one FB group (US)	Qualitative

	knowledge and behaviour Combination of methods resulting in aggregated data for analysis Adds insight into groups as a resource and a community and impact on outcomes	Homogenous, small sample, limiting generalisability Included reflections from mothers who had stopped breastfeeding up to 3 years prior, so some data was retrospective/ subject to recall bias		
Skelton et al., 2020	Detailed discussion of underpinning theoretical constructs, and identifying clear characteristics of a CoP Relatively large sample drawn over both approaches	Homogenous, highly motivated sample Cross-sectional design limits determination of causality	21 women (focus group) & 12 mothers (interviews) from one FB group (US)	Qualitative
Robinson et al., 2019a	Adds insight into needs of a specific population Detailed discussion of underpinning theoretical constructs Detail is provided on the correlation between independent variables and breastfeeding duration	Potential selection bias, design limits determination of causation Limited generalisability due to demographics and large FB group size	277 African-American mothers from 9 FB groups (US)	Cross-sectional
Bridges, 2016	Both administrators and mothers participated	Researcher status as 'insider' may impact reflexivity	3 FB groups observed, followed by 23 group	Qualitative

	Provides detail on the range of 'added value' of online support alongside traditional formats Details perceptions of information reliability	No demographic data on participants collected Small sample (n=23), specific group formats and moderation by ABA trained supporters may impact generalisability	participants interviewed (Australia)	
Regan & Brown, 2019	Well-designed study meeting all CASP (2018) checklist criteria Highlights drawbacks in addition to benefits Explores support sources/group moderation	Limited (n=14), homogenous and highly motivated sample Most had previous experience of breastfeeding	14 mothers breastfeeding child up to 3 years (UK)	Qualitative
Lebron et al., 2019	Systematic, rigorous analysis using iterative methods Analyses both questions and responses, offering insight into information sharing without constraint	Demographic data largely unknown International forum/message board limits generalisability to other SM platforms No data on behavioural impacts/breastfeeding impacts Limited to one forum and peer-only support	258 posts and 1445 corresponding comments (US)	Content analysis

Wagg et al., 2019	Consideration given to online community context and significance Useful insight into support seeking behaviours Confounding variables discussed	Data collected over small timeframe (7 days) No examination of post quality, experiences or perceptions	501 posts and associated comments. Most from mothers with babies 6wks-6mths. (UK)	Content analysis
Robinson et al., 2019b	Well-designed study meeting all CASP (2018) checklist criteria Adds detailed perspectives for this population of mothers not included elsewhere Detailed discussion of theoretical lens Includes data related to critique of groups in addition to positive perceptions	Potential selection bias Generalisability may be limited to the sample demographics Cross sectional design may impact generalisability	22 Black mothers (US)	Qualitative
Herron, Sinclair, Kernohan & Stockdale, 2015	Phased mixed-methods approach adds to rigour and validity of analysis Includes impacts on outcomes and detailed discussion of factors relating to reciprocity	Demographic data not available Forum/message board limits generalisability to other SM platforms Data collected <10 years ago	1230 online messages, online interviews with 12 women (Ireland)	Mixed-methods concept analysis

Wilson, 2020	Methods enable exploration of social support and modifiable factors over time Includes detailed discussion of theoretical constructs Development of predictive model offers framework for future research	Sample were <1 month postnatal at time of first survey and >6ths for second, so responses subject to endurance, concentration and time factors for large surveys (high attrition rate) No detail on perceived credibility or quality of groupsa	241 women from 17 FB BF groups 1230)(US)	Longitudinal mixed-methods

Study Themes

Six themes were identified from the thirteen included studies: breastfeeding context, including socio-cultural antecedents and individual factors impacting women's decision making; the impact of belonging to an online community, relating to the virtual relationships underpinning the impact online support; increased self-efficacy; critiques of SM support; the nature and types of support commonly sought and received; and breastfeeding duration as an outcome (see Table 6). Seven studies mentioned all six themes and a further two contained five of the six. All the studies recognised the significance of the context in which women breastfeed (Theme 1), and the function of the SM support group as an online community. The nature of support available via SM groups, and on which topics (Theme 5) was discussed by all studies. Self-efficacy was also a prevalent theme, with thirteen studies identifying the impact of access to SM support on women's belief in their own capacity to achieve their breastfeeding goals as a predictor of improved experiences and outcomes.

Table 6: Contribution of each study to themes

Theme 1: Impact of SM group support on the breastfeeding context	Alianmoghaddam et al., 2019 Black et al., 2020 Bridges et al., 2018 Skelton et al., 2018 Skelton et al., 2020 Robinson et al., 2019a Bridges, 2016 Regan & Brown, 2019 Wagg et al., 2019 Robinson et al., 2019b Herron et al., 2015 Wilson, 2020
Theme 2: Impact of belonging to an online community	Alianmoghaddam et al., 2019 Black et al., 2020 Bridges et al., 2018 Skelton et al., 2018 Skelton et al., 2020 Robinson et al., 2019a Bridges, 2016 Regan & Brown, 2019 Lebron et al., 2019 Wagg et al., 2019 Robinson et al., 2019b Herron et al., 2015 Wilson, 2020
Theme 3: Increased self-efficacy	Alianmoghaddam et al., 2019 Black et al., 2020 Bridges et al., 2018 Skelton et al., 2018 Skelton et al., 2020 Robinson et al., 2019a Bridges, 2016 Wagg et al., 2019 Robinson et al., 2019b Herron et al., 2015 Wilson, 2020
Theme 4: Issues arising from social media support for breastfeeding	Alianmoghaddam et al., 2019 Black et al., 2020 Bridges et al., 2018 Skelton et al., 2018 Skelton et al., 2020 Robinson et al., 2019a Bridges, 2016 Regan & Brown, 2019 Robinson et al., 2019b Herron et al., 2015
Theme 5: Nature of support and topics	Alianmoghaddam et al., 2019 Black et al., 2020 Bridges et al., 2018 Skelton et al., 2018 Skelton et al., 2020 Robinson et al., 2019a Bridges, 2016 Regan & Brown, 2019 Lebron et al., 2019 Wagg et al., 2019 Robinson et al., 2019b Herron et al., 2015 Wilson, 2020

Theme 6: Breastfeeding duration	Alianmoghaddam et al., 2019 Black et al., 2020 Skelton et al., 2018 Skelton et al., 2020 Robinson et al., 2019a Robinson et al., 2019b Herron et al., 2015 Wilson, 2020

Theme 1: The impact of SM group support on the breastfeeding context

Women's experiences of breastfeeding within their family and wider socio-cultural context are a significant factor in the initiation and continuation of breastfeeding (Rollins et al., 2016). All, but one study (Lebron et al., 2019), highlighted context as a confounding factor that cannot be controlled for, and findings should be considered in this context, particularly when considering whether there is any association between SM group use and breastfeeding duration. Several theoretical approaches were applied by the studies to understand the significance of women's socio-cultural context on breastfeeding behaviours and whether SM group use mediates this effect.

It is well established that social support for breastfeeding (including 'significant others' or 'strong ties' such as partner, close family members and friends) and living and working within a culture that respects breastfeeding, and a society that facilitates and supports it, are key to women's decision making and success (Tarkka et al., 1999; Brown, 2017). Many women do not have access to adequate or consistent support through their existing networks (Wilson, 2020). Applying Milligan and Wiles' (2010) theory of 'landscapes of care", which argues that social and emotional support can be geographically distant but remain proximate, Alianmoghaddam et al. (2019) highlight the impact of digital communication on the cultural and social contexts of a mother's life. They found that mothers' breastfeeding knowledge and behaviour are influenced by family members, positively and negatively, via social media communication despite not being physically present. However, exclusive breastfeeding is also shaped by the social network of 'weak ties' accessed by mothers via SM support groups, which

promotes, normalises and supports breastfeeding continuation via the circulation of information. As such, the social context in which women breastfed was altered by their membership of the online community (Alianmoghaddam et al., 2019).

Using social cognitive theory (SCT) as a framework, which asserts that behaviour depends on the interplay between women and their environment (Bandura, 1997), Black et al. (2020) found that women who belonged to an SM support group were influenced by its ability to provide social and emotional support. They reported group use incentivised continued breastfeeding compared to reliance on existing social support. Robinson et al. (2019a) applied the integrated model of behaviour predication (IMBP) to SM support group use, focusing on intention as the strongest predictor of outcomes, itself determined by attitude, norms and agency (Montano & Kaspryzk, 2015). They found that in comparison to other support sources, support from a Facebook group was significantly correlated with intended breastfeeding duration. Women reported that they received more support from social media than from family and friends for breastfeeding (Robinson et al., 2019b), strengthening the evidence that the socio-cultural context underpinning women's breastfeeding choices and behaviour can be mediated or reinforced by SM support.
Wagg et al. (2019) also frame their findings (that SM groups effectively facilitate support seeking) within social support theory, highlighting the impact of the collective context, where shared experience and a shared language are fundamental to accomplishing goals. This mediates the effect of a lack of breastfeeding experience, support and knowledge within a woman's existing 'strong tie' network (Herron et al., 2015; Alianmoghaddam et al., 2019). All the studies found that the breastfeeding context played a critical role in women's intentions, experiences and breastfeeding outcomes, and that this could be mediated by SM group support.

Theme 2: The impact of belonging to an online community

Eleven studies focused on Facebook groups, two explored message board platforms (Babycenter and Netmums), and one included all types of social media. Although

both Facebook and online web-based message boards facilitate group support, differences in how they function as communities should be noted. An online community is defined as a social network of interactions between members who come together online with a shared purpose (De Souza & Preece, 2004) and group size, interactivity and responsiveness are antecedents of sustainable online communities (Dover & Kelman, 2018). As interactions within these communities differs across the platforms, with Facebook groups being more widely used and more frequently engaged with (Alianmoghaddam et al., 2019), care should be taken when synthesising findings.

However, all the studies identified the formation and function of an online community as significant to the impact of SM support on women's breastfeeding experiences and outcomes. Their findings noted the positive impact of belonging to a supportive online community on psychosocial factors such as emotional wellbeing and self-efficacy, as well as on breastfeeding outcomes (Robinson et al., 2019a; Black et al., 2020). Women choose to become members of groups that meet their interpersonal and informational needs, seeking practical, social and emotional support from those with shared or lived experience (Bridges et al., 2018, Bridges, 2016; Regan & Brown, 2019). Notably, women choose which groups will meet their needs based on a belief that they belong within the social group it represents. Robinson et al. (2019a; 2019b) found this was particularly important for African American women who did not feel represented elsewhere. Other studies found that their participants were homogenous and highlight the significance of shared culture and goals in creating a cohesive and growing community, alongside the limitations of the medium in reaching other population groups (Bridges et al., 2018, Bridges, 2016; Regan & Brown, 2019).

Mothers felt having access to a supportive community and a sense of belonging had an overall positive impact on them and their breastfeeding goals, emphasising feelings of empowerment, shared experience and solidarity (Wagg et al., 2019; Wilson, 2020). In addition, the community functions as a developing resource,

hosting factual and experiential information, which provides reassurance, increases confidence and influences parenting decisions and behaviours (Bridges et al., 2018).

Skelton et al. (2020) conceptualise SM groups as online communities of practice, identifying key characteristics including skill building and the development of trust through interaction. The development of group norms was a prevalent finding within the community theme, key to developing a sense of belonging that resulted in extended breastfeeding goals (Black et al., 2020; Wagg et al., 2019) validation and a sense of identity (Wagg et al., 2019). The development of a community, creating networks of mothers with shared experiences and purpose has a positive effect on both wellbeing and breastfeeding outcomes. Little data was collected in relation to differences between mother-to-mother, trained peer support and professional support, although Herron et al. (2015) highlighted variations in Netmums thread dynamics, with reduced engagement with posts from professionals. On Facebook groups associated with breastfeeding organisations, trained peer support motivated engagement (Bridges, 2016) and trust, playing a vital role in moderating discussion which positively impacted the community (Bridges et al., 2018).

Theme 3: Increased self-efficacy

Self-efficacy, or women's belief in their capacity to achieve their goals is well established as a predictor of breastfeeding success and satisfaction (Awaliyah et al., 2019). Ten studies noted the impact of SM group use on the sense of agency and empowerment reported by participants. Within the online community breastfeeding is perceived as normal and desirable, and solutions are offered to challenges which reinforces ongoing goals as achievable (Black et al., 2020). For mothers, reading about the successful experiences of others offers encouragement and the sharing of skills offer support to overcome challenges (Robinson et al., 2019b). This is particularly evident within a socio-cultural context of low breastfeeding rates: few women are supported with lived and shared experience by close friends and family and many experience the recommendation to switch to

formula feeding as a solution to practical and emotional challenges. Where family support is available, it may contradict current evidence-based recommendations, and women seek clarification from peers online (Alianmoghaddam et al., 2019). This is particularly important for increasing breastfeeding self-efficacy amongst groups with lower breastfeeding rates and greater perceptions of breastfeeding barriers (Robinson et al., 2019b).

Mothers perceive support from breastfeeding SM groups as empowering, encouraging active participation in decision making through the provision of health information (Bridges, 2016). Access to this information and peer support increases confidence in a woman's ability to manage problems and make decisions, which in turn increases breastfeeding rates (Bridges, 2016); Sheehan et al., 2009). Robinson et al. (2019a), through the IMBP theoretical construct of 'personal agency', describe how self-efficacy and a woman's perception of how much control she has over her ability to breastfeed is positively impacted by the influences of the online community. This aligns with Bandura's self-efficacy theory (Bandura, 1977) (See Section 1.1.5).

The community also plays an important role in increasing self-efficacy and self-esteem by offering the opportunity to help others, and women are keen to share in a sense of community and connectedness through reciprocity (Bridges, 2016; Skelton et al., 2020). This is a critical therapeutic process within support groups (Pagano et al., 2010), increasing self-efficacy through altruistic 'paying forward' of support, and was a key theme across all studies. Herron et al. (2015) identified indirect reciprocity as a pivotal component of the model of online breastfeeding support they propose, highlighting the ways in which women helped and supported one another, returning to the group to share information and support with others. The ability to overcome challenges, and to share solutions with others, generates greater self-efficacy, extending breastfeeding duration (Black et al., 2020) and this is a key function of the SM group as a community of practice.

Wagg (2019) also highlights the role of 'esteem support' within the group in promoting self-efficacy, noting the prevalence of responses offering encouragement, expressions of pride and words of congratulations. Significantly, esteem support was second only to informational support in the type of support requested (Wagg, 2019) providing a 'circle of peer support' with an overall positive effect on confidence and self-esteem (Regan & Brown, 2019).

Theme 4: Issues arising from social media support for breastfeeding

Ten studies highlighted concerns in relation to SM breastfeeding support. The most common of these was the reliability of information available within groups, an issue regularly highlighted in the wider literature (Ellis & Roberts, 2019), although the generation of women widely using SM for health and parenting support generally view it as a reliable source (Wolynn, 2012). The findings of the studies reviewed suggest that women who belong to online breastfeeding support communities felt real-time information from peers with lived experience was a valid and reliable resource, often trusting this over advice from healthcare professionals (Skelton et al., 2018), and that they use it to compensate for poor support elsewhere (Robinson et al., 2019a). However, women are aware that information on social media is unregulated, sometimes impacting their confidence in the advice (Regan & Brown, 2019). Participants acknowledged the need to be discerning, particularly in relation to medical advice (Regan & Brown, 2019), and that this ability develops as they become 'expert' themselves (Herron et al., 2015), but is also dependent on women's general digital and health literacy (Alianmoghaddam et al., 2019). Online self-correction also occurs, where inaccurate postings are promptly corrected through teamwork from the within message threads (Herron et al., 2015) and online communities (Skelton et al., 2020), increasing their reliability as a resource.

Trust in the reliability of information and in the motivations of others exists where connection and rapport develop as a result of empathetic facilitation and support styles (Bridges et al., 2018). Mothers report seeking a wide variety of opinions on an issue to direct their decision making (Robinson et al., 2019b) and this growing trust

in the community, and reliability of the advice is key to the adoption of recommendations and goal setting (Skelton et al., 2018; Black et al., 2020). However, these findings may be impacted by the demographics of those who are self-motivated to seek online support, with over-representation of more affluent and highly educated women within the samples. All studies recognised this as a limitation.

Polarised debate and experiences or fear of judgement were also reported (Regan & Brown, 2019; Herron et al., 2015). On message boards, differentiation was found between 'support' and 'debate' threads, with the latter often expressing negative sentiment reflecting public discourse, rather than positive support. This was largely regarded as an opportunity for discussion, resulting in becoming politically aware and developing confidence in parenting decisions and philosophies (Herron et al., 2015; Bridges, 2016). However, judgement, conflicting advice and polarisation had negative impacts for some, a key finding in developing insight into the wider experiences of women using SM support (Herron et al., 2015; Regan & Brown, 2019).

Theme 5: Nature of support and topics

Four studies used methods that involved the direct analysis of online posts (Bridges et al., 2018; Lebron et al., 2019; Wagg et al., 2019; Herron et al., 2015). Identifying similarities in the content of and motivations for online posts, their findings were consistent: women turn to SM group support both where their access to face-to-face support is inadequate and to complement this support. They seek information most often statistically, but emotional and esteem support (encouragement and reassurance) are significant (Wagg et al., 2019). These findings are supported by the other studies; women value, seek and benefit from online interaction, giving and receiving social and emotional support alongside knowledge sharing (Black et al., 2020; Skelton et al., 2020). Emotional and esteem support result in increased confidence, self-efficacy and empowerment, with positive impacts on breastfeeding outcomes and experience (Bridges, 2016).

Looking at common topics, the studies found that queries generally related to breastfeeding management (including physical and practical management such as positioning, attachment and feeding frequency), health (including mother and baby, physical and mental health) and the breastfeeding journey (including work related queries, feeding in public and parenting philosophies) (Bridges et al., 2018; Wagg et al., 2019; Wilson, 2020). The specific topics women seek support for correlate with the most common breastfeeding problem which lead to early cessation (Bridges et al., 2018). Informational support relating to the physiology and management of breastfeeding is evident as a clear need, not being effectively fulfilled elsewhere, including by professionals (Regan & Brown, 2019; Skelton et al., 2018). It is clear, however, that women are also seeking to fulfil emotional support needs, including reassurance about what is normal and solidarity in the breastfeeding journey, and to reduce social isolation (Skelton et al., 2020; Regan & Brown, 2019). This is achieved via information seeking, sharing and giving, centred on previous knowledge and experience, alongside encouragement to continue (Lebron et al., 2019). Sustained breastfeeding duration was linked to the positive attitude derived from greater knowledge and confidence (Wilson, 2020).

Another key finding was that many of these social and informational benefits can also be derived from 'lurking' (reading posts without interacting). High levels of passive viewing were observed, offering mothers the opportunity to observe and learn at a level of anonymity that suited their needs and circumstances (Herron et al., 2015). This behaviour was also influenced by group dynamics and culture, including how a woman felt her query would be received (Robinson et al., 2019b). This changed over time: with time and breastfeeding experience, women posed fewer questions but answered more (Robinson et al., 2019b), developing a community of practice through joint problem solving and reciprocity (Skelton et al., 2020).

Several studies also commented on the potential impact of group moderators on group function and support, noting their significance for correcting misinformation

(Skelton et al., 2020 Regan & Brown, 2019) and modelling an empathetic approach to providing support (Bridges et al., 2018).

Theme 6: Breastfeeding duration

Breastfeeding duration as an outcome was explored by eight studies. All noted that direct causation cannot be determined due to the complexity of the breastfeeding context and impossibility of controlling for confounding factors. However, they conclude that SM group use is a variable in sustained breastfeeding, through influence on breastfeeding knowledge, attitudes and behaviours (Skelton et al., 2020), increased self-efficacy (Black et al., 2020) and receipt of emotional support (Bridges, 2016) which may result in extended goals (Black et al., 2020) and duration (Robinson et al., 2019a). There were also impacts noted on wider parenting practices (Herron et al., 2015) and philosophies associated with extended breastfeeding duration, such as babywearing or bedsharing (Bridges, 2016).

One study found that seeking online support in SM groups to initiate or sustain breastfeeding is associated with doing so: half of women are still breastfeeding weeks and months later (Herron et al., 2015). This may reflect the motivation of those who seek help, but also suggests a positive impact of group membership. The normalisation of breastfeeding and related behaviours within the online community was also noted, with an impact on the breastfeeding goals women set, extending what they felt was achievable and desirable (Black et al., 2020). Motivation is a key antecedent of breastfeeding success and by seeing others succeed, group members are motivated through increased self-efficacy to extend their goals (Black et al., 2020; Robinson et al., 2019b) beyond wider social norms. Robinson et al. (2019a) found an average intended breastfeeding duration of 18.9 months, and a significant relationship between intended duration and Facebook support. The sample studied by Skelton et al. (2020) also reported higher initiation rates, exclusivity and longer duration than the national average.

Confidence, knowledge and attitude are significant predicators of breastfeeding duration. Wilson (2020) found that these variables can be modified by SM group use, resulting in sustained exclusive breastfeeding at six months. The strength of social support available was also significant, with women continuing to breastfeed beyond six months more likely to describe their social support, including from the SM group, as positive (Wilson, 2020). SM groups extend the reach of breastfeeding support provision beyond standard care from maternity and health services, providing access when needed throughout the breastfeeding journey, which women attribute to longer breastfeeding duration (Skelton et al., 2018).

3.4 Limitations of this review

Although inevitable as part of a PhD study, a major limitation of this review is that it was conducted by a single reviewer. However, the process was made more rigorous by a second reviewer checking the criteria used, enabling both to become familiar with the studies analysed. Both reviewers reviewed and discussed the themes and agreement was reached.

To enable findings to be analysed across comparable self-directed group use, eligibility criteria were narrowed to exclude groups aimed only at specific populations, e.g. those with preterm babies, or exclusively expressing. Although this ensured the findings can be compared and synthesised with greater confidence, it may exclude some further insights. Future reviews could consider specialised groups and groups developed as interventions.

Excluding interventions also limits the sample to those women who are motivated to engage in self-directed SM group use, those who find it beneficial and remain a group member. Content analysis aside, it also limits insights to those willing to take part in studies. It is therefore unknown how impacts of SM support may differ amongst less motivated or less digitally literate/engaged women.

The studies tended to have homogenous samples – predominantly White, married or partnered women with a high level of education. This is representative of higher prevalence of breastfeeding and digital literacy amongst this population (Bartick et al., 2017). Robinson et al. (2019a; 2019b) examine Facebook group support use specifically amongst African American mothers, with a mixed income range and of whom a greater proportion were single or separated than the other studies. However, most still fell into a higher age bracket (mean = 30) and education level was not recorded. A lack of diversity within and across samples does limit the generalisability of findings to the wider population. This is a common issue across many self-selecting health and breastfeeding support studies, which often underrecruit participants from ethnic minority backgrounds.

Women from ethnic minority backgrounds are less likely to join breastfeeding peer support groups than White women (McAndrew et al., 2012), and this may also apply to Facebook groups (La Leche League, 2020). Those that seek support online struggle to find local groups that reflect and share their experiences, with Black British mothers reporting joining American BSF groups solely for Black women to feel part of a relatable breastfeeding community (CIBII UK, 2018). Greater reliance on friends and family, and fewer representative online communities may also have seen COVID related impacts on breastfeeding support being greater for some women (Brown, 2021).

3.5 Discussion

This review aimed to establish the existing body of literature relating to the impact of women's self-directed use of social media groups for breastfeeding support, to identify gaps in knowledge and inform future research. There were some challenges in conducting the search: definitions of social media vary, with care needed not to exclude relevant studies whilst ensuring commonalities in the area being explored. Larger randomised controlled and quantitative studies identified related to interventions or specific populations so were ineligible for inclusion. The studies included rely largely on qualitative findings and smaller samples, which although

providing rich data and common themes, limits generalisability and recommendation for investment: outcomes cannot be definitively proven.

However, six themes were identified from the literature, relating to the impacts on breastfeeding context, self-efficacy and breastfeeding duration, of community membership, the nature of support and common issues. The themes highlight social media support group membership as a strategy for increasing positive breastfeeding experiences, enhancing knowledge, social connections and potentially increasing breastfeeding duration. Most mothers studied perceived belonging to or using a SM group for breastfeeding support as improving their confidence, self-efficacy and empowerment, resulting in extended breastfeeding goals. The online community was viewed as a safe, supportive space where solutions to breastfeeding challenges are available as and when needed, alongside encouragement, and achieving goals can be celebrated. Many women do not have access to, or experience this in a 'real-life' setting.

Strategies to improve breastfeeding continuation rates are needed to support individual women to meet their goals and to enhance public health (Brown, 2017). Self-directed social media group use is viewed as convenient and accessible by the current generation of women, and their use for health-related and parenting support needs is widely seen as both normal and acceptable (Alianmoghaddam et al., 2019), Women are turning to online communities to fill the gap created by geographic family dispersal (Alianmoghaddam et al., 2019), a lack of breastfeeding knowledge in existing social networks (Bridges, 2016) and the under-resourcing of face-to- face services (Regan & Brown, 2019). Those who seek and engage with this form of support find value in a community which normalises and celebrates breastfeeding, providing informational, social and emotional support which they perceive to result in extended goals and duration. As such social media appears to provide an ideal, near universal and cost-effective platform for widening breastfeeding support and improving outcomes (Wilson, 2020).

However, whilst ten studies identified potential issues relating to the reliability and regulation of online breastfeeding support, just three commented on potential impacts of trained peer support and/or health professional input (Bridges, 2016; Bridges et al., 2018; Herron et al., 2015). They conclude there are differences in how information is received, with Bridges et al. (2018) and Bridges (2016) identifying the positive impact on trust and perceptions of reliability when SM groups are facilitated by a breastfeeding organisation comprising of trained supporters/professionals. Herron et al. (2015) found lower engagement on message board with professional posts. Regan and Brown (2019) note variability in group moderation and the concerns and challenges this presents to mothers, but there is a paucity of research in this area, with no specific evidence of the function, types or impact of SM group moderation on online breastfeeding support communities.

Although some comparisons can be made, the studies also span disparate healthcare systems, in the US, Australia, New Zealand and the UK. As reported by the studies, the context in which women breastfeed, medical and socio-cultural, including varying breastfeeding rates, are a significant factor in breastfeeding attitudes and behaviour. There therefore may be global variation that could impact findings and generalisability, including limited or lack of access to social media and technology.

3.6 Conclusions

There is a paucity of UK research, a gap that needs to be addressed to determine the specific impact of SM group use on the UK breastfeeding context. However, this review finds that women across the countries included find SM support beneficial. It identified that the women who seek and engage with self-directed social media support most often are those with high levels of intention and motivation, and that they perceive access to peer and professional support within virtual communities as extending their breastfeeding goals and achieved duration. Currently many of these women stop breastfeeding before they are ready to do so. The results of this review confirm the importance of further research to understand how health professionals

and wider services can draw on the benefits of social media group provision to better support women, and to underpin greater investment.

3.7 Next Steps

SM support for breastfeeding, within virtual communities, is now widespread and has benefits to mothers. Research exploring how UK women are using this type of support, alongside other forms of support for breastfeeding and particularly those provided by health services and/or mediated by health professionals is needed. Midwives are the primary providers of breastfeeding information and support during pregnancy, birth and the immediate postnatal period. Facebook is currently the most popular SM platform providing opportunities to develop specialised online communities, including breastfeeding support. However, no studies have been identified that explore the relationship between Facebook and breastfeeding support provided by maternity services, within local areas. Based on these gaps in the literature, this thesis aimed to address four main research questions (RQ) (See Section 1.3):

RQ1. What experiences do women have of locally aimed breastfeeding support Facebook (BSF) groups, and what are their perceptions of midwife moderation of these groups?

RQ2. What are midwives' perceptions of professional social media use, and what are their experiences of offering online support via Facebook communities?

RQ3. Do the experiences of mothers and midwives align with the conceptualisation of BSF groups as online communities of practice?

RQ4. What group formats and logistics are involved in current midwife-led BSF service provision, and what recommendations can be made for further development?

Chapter 4: Methodology

This chapter outlines the methodological approaches taken to conduct the research that makes up this thesis. Firstly, it provides an overview of the research methodology, and a discussion of the underpinning philosophical assumptions. This is followed by the benefits and challenges of mixed-methods research, and the rationale for the choice of approach, with reference to the design of each study. Finally, approaches to avoid bias and ensure reflexivity are outlined. Methods specific to each study are presented in chapters 5-8.

4.1 Overview of the research approach

The systematic literature review identified a paucity of literature on the phenomenon of local BSF groups, and the associated experiences of all those involved. It was therefore considered that an appropriate methodological approach, to fully explore the research question, must allow exploration and description alongside the generation of new knowledge. This thesis therefore used an exploratory-descriptive qualitative (EDQ) approach and a mixed-methods design.

The exploratory-descriptive approach described by Hunter et al. (2018) provides a flexible theoretical framework based on integration of Sandelowski's descriptive approach (2010) and Stebbins' (2001) exploratory research. This approach involves exploring qualitative data through describing the 'who, what and where' of experiences (Hunter et al., 2018), which is a key aim of this research. Adopting this approach, this thesis identified the perceptions and experiences of mothers, midwives and student midwives as stakeholders in BSF group provision. EDQ is described as suited to the study of healthcare practice and perspectives and meets the objectives of this study to gain insight, to inform practice and to further research. Hunter et al. (2018) suggest the use of research methods for EDQ study should include identification of the gap in the literature, purposeful sampling (to describe the phenomenon and maximise the representativeness of the population

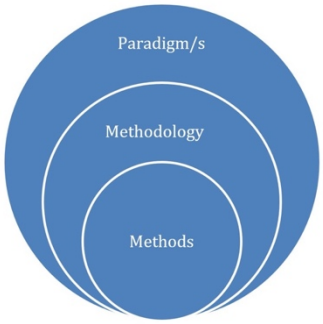
studied) and thematic analysis of qualitative data to identify core experiences and make generalisations (an interpretivist approach was taken to the analysis).

Explorative research enabled the full examination of the phenomenon, with the descriptive element supporting the development of greater insights to inform midwifery practice (Hunter et al., 2018). In addition, the design of the first two studies enabled the research questions to be explored from different perspectives, combining the rich insights generated via the open text questions with validated survey instruments to contextualise experiences. This combined approach in healthcare research enables clinically meaningful conclusions to be drawn, such as the recommendations for future development of BSF provision, a key aim of this thesis (Regnault et al., 2018). A mixed-methods research design was integral to answering the research questions, supplementing scientific data on the prevalence of behaviours and experiences of both mothers and midwives with greater meaning derived from thematic analysis of the qualitative inquiry (Wasti et al., 2022; Bressan et al., 2016). In this way, a holistic understanding of the phenomenon can be arrived at, strengthening the recommendations for changes in practice, which is central to the aim of this thesis.

4.2 Philosophical assumptions underpinning the research

Philosophical assumptions relating to ontology (the nature of existence and reality), epistemology (the origin of knowledge and belief) and methodology (strategy in the choice of methods and links to desired outcomes) shape research processes (Steen & Roberts, 2011; Crotty, 1998). See Figure 2. Broadly, these assumptions are rooted in ideology, and therefore debate, surrounding the merits of positivist, quantitative research methods (concerned with an objective science), or subjectivist, interpretivist ones (concerned with the human experience of reality) (Feilzer, 2010).

*Figure 2: **Situating paradigms (McChesney, 2021)***



I believe that reality does not exist per se, but that it is constructed by human interactions with their world and with one another, and that meaning is constructed by each individual from interpretation of this engagement (Crotty, 1998). Constructionism rejects the idea that any single interpretation is more valid or true than another, asserting that as we make sense of our interactions we do so within our social context, producing different understandings of the same experiences. For example, when the same childbirth and breastfeeding experiences are discussed from the perspectives of different individuals present (Chabbert et al., 2021), each constructs a unique but equally valid understanding of events. For the field of research exploring virtual communities and relationships within a digital space, constructionism asserts the importance of the meaning ascribed by each individual to this 'reality'.

Conversely, much of the evidence base used to support clinical midwifery practice is underpinned by positivist research – that which seeks to present an objective 'truth', determined by the analysis of quantitative data. This stance is rooted in outcomes, seeking to ensure a live mother and baby, linked to a medical model mindset that overlooks the larger part of midwifery – relationships and experiences that extend from women and families to midwives and other professionals. Mortality and morbidity are inextricably linked (maternal suicide remains one of the leading causes of death in the first year after birth) (Knight et al., 2021), highlighting the significance of moving from a position that defines what matters most is a healthy/ fed baby, to include women's experiences of their pregnancy and

transition to parenthood (Downe et al., 2018). As such, positivist research seeking to be value-free, derived from detached observation (Crotty, 1998), only presents a partial account, without insights generated from interpretation of individual social 'realities'. Qualitative and mixed-methods which seek to understand these are therefore also needed to underpin evidence-based, person-centred midwifery care, particularly when these are being constructed through online interactions.

Historically, defining the philosophical assumptions underpinning mixed-methods research has presented a challenge, based on the incommensurability argument. This claims that different paradigms are incompatible based on irreconcilable worldviews, making mixed-methods research either philosophically impossible, meaningless or illogical (McChesney, 2021). Others have disrupted the assumption that paradigms are incompatible, challenging this as simplistic and restrictive and encouraging the use of multiple views (Creswell & Plano Clark, 2018).

Several approaches to paradigmatically situating mixed-methods research have been proposed, including pragmatism. Pragmatism as a paradigm suited to social research, particularly in relation to mixed-methods approaches that combine both quantitative and qualitative data has also been proposed, overcoming opposing positions. Pragmatism offers practical solutions to decision making within mixed-methods research, philosophically focusing on the human experience, sources of belief and meaning of action or event in a social situation (Denzin, 2012). For pragmatists, the positivist claim that the world exists separately from our understanding of it, and the constructionist viewpoint that reality is entirely constructed are equally important, as both arise from the human experience of inquiry (Morgan, 2014).

Pragmatism supports a mix of research methods, approaches and analysis used cyclically to inform meaning, decision making and reasoning and is bound to the premise that the researcher's motivation is the production of socially useful knowledge (Feilzer, 2010). It therefore offers flexibility to move back and forth between methods, and to combine approaches to inform a greater understanding

and to create meaning from the data collected. Pragmatism also offers epistemological justification for mixing methods and approaches, the research question driving the methods rather than the paradigm (McChesney & Aldridge, 2019) .

A single overarching paradigm such as interpretivism can also successfully frame mixed-methods studies (McChesney & Aldridge, 2019). Interpretivism aims to understand the subjective meanings and knowledge created by the individuals studied: that the natural world is meaningless without interpretation, that meaning must be imposed upon it. An interpretivist approach intends to understand participants' views of their social world and their role in it (Goldkuhl, 2012) – the goal is not to present universally applicable theories, but contextually rich understandings (McChesney & Aldridge, 2019). As such, consistent with the epistemology of constructionism, interpretivism aligns with the desired outcomes of the study. However, to coherently reflect this stance across a mixed-methods study, interpretation must be consistent despite the differences in data collection, reflecting a belief that the meanings within both are constructed by both the participants and the researcher, and scientific methods are both fallible and subjective (Bryman, 2007).

This thesis sought to understand the experiences of mothers and midwives as they interacted with one another online using an interpretive approach, exploring at individual actions and interactions, and the meaning created from them. This approach looks for interpretations of the 'social-life world' and the culture it is derived from (Crotty, 1998), in the context of the virtual community. Interpretivism as a theoretical perspective aligns with my view that both the quantitative and qualitative data gathered from mothers and midwives were their constructed reality, and provide a basis for the methodology.

The research aimed to explore a complex phenomenon through the lived experience of those engaging with and providing BSF group support, aligning questions with this focus and targeting a specific sample. Also aligned with an

interpretivist approach, there was no pre-determined hypothesis, and all types of data were interpreted recognising how they inform one another and as constructions of meaning. Findings were integrated but interpreted through the lens of prior research into the area, a body of evidence which is predominantly qualitative. An interpretivist stance and a constructionist epistemology were most appropriate, aligned both to the desired outcomes of this research, and my theoretical perspective as a researcher.

4.3 Strengths and challenges of a mixed-methods approach

A mixed-methods approach (combining both qualitative and quantitative data) can provide a more complete understanding through the integration of findings (Creswell & Hirose, 2019). This approach to research is considered rigorous, contemporary, and capable of offering a deeper insight into the phenomenon (McKim, 2017). The gathering of both quantitative and qualitative data therefore supported in-depth description of both statistical relationships between BSF group provision, use and support needs and participants' perspectives. Mixed-methods data collection can occur within-strategy (gathering both qualitative and quantitative data using the same strategy) or between-strategy (gathered using different strategies) and occur on single or multi-levels (Tashakkori et al., 2020). For study one and study two, mixed-methods data collection was conducted using a within-strategy approach on single level (targeting one group of participants each) to give rich insight into the phenomenon of BSF groups from the perspectives of both mothers and then midwives. Study three was designed to build on this, adding further qualitative data on a single level (midwives). Taken together the three studies achieve the aims of this thesis using a between-strategy, multi-level approach to mixed-methods data collection.

Mixed-methods research is now a common approach to social research, offering ways to define and assess a phenomenon via statistics from a large sample alongside deeper qualitative exploration of experiences from a smaller number of participants. Findings can be triangulated to support each other or explore

anomalies in the different types of data (Aveyard et al., 2016). Data can be captured from large samples using quantitative methods, such as online surveys, and explored in more depth using qualitative methods such as interviews. This provides a richer understanding of the subject, enhancing, clarifying and expanding the depth of the findings (Bryman, 2006).

It is a strength of mixed-methods approaches that a research question can be addressed with conclusions generated by the integration of both types of data. The strengths of qualitative data (rich, contextual insights) can complement the strengths of quantitative data (large sample sizes and more generalisable findings) and offset their respective weaknesses. Each type of data can also be used to support the interpretation of the other (Marrel et al., 2016).

However, mixed-methods approaches include the need for broad skill development and resources for collecting and analysing a large volume of data (Wasti et al., 2022). How data will be 'mixed' must be considered: through integration (concurrent collection, separate analysis and integration during interpretation), connection (using one approach to build on the findings of another) or embedding (using one approach within another) (Zhang & Creswell, 2013). Quantitative and quantitative approaches also have different criteria for assessing rigour, and differences on the ontological (philosophical approach to reality) and epistemological (individual perspectives on knowledge creation) levels (Guba & Lincoln, 2004).

It is argued that a mixed-methods approach should be viewed as best practice in health outcomes research, based on the aim of such studies to contextualise experiences to develop clinically meaningful frameworks (Regnault et al., 2018). Philosophically, taking the 'third path 'of critical realism (rather than constructivism or positivism) can be challenged as irreconcilable by its nature (Denzin, 2010). However, this stance acknowledges and facilitates co-operation between the defined methodological characteristics of both quantitative and qualitative approaches (Regnault et al., 2018), producing greater insights into the research

questions. Taking this path, this thesis has been designed to collect and analyse both types of data and generate conclusions based on the integration of these findings, whilst acknowledging the validity of alternative interpretations.

Despite the strengths of this approach for addressing gaps in knowledge and making practice recommendations, it remains underdeveloped in midwifery research (Wasti et al., 2022). Reviews suggest despite increasing in popularity, inconsistencies in the application of the design and reporting of the results impacted rigour and validity (Bressan et al., 2016). As a result, developing such approaches based on direction set out in previous work presents challenges to midwifery researchers (Bressan et al., 2016). This is compounded by the potential difficulties presented by word limits in academic journals, restricting the potential for publication and furthering of the evidence base and design (Wasti et al., 2022).

4.4 Thesis design

The remaining chapters of this thesis consists of three interconnected studies conducted, analysed and discussed sequentially, to describe and explore the developing findings in increasing depth (Ivankova et al., 2006). A convergent mixed-methods design was used, enabling the comparing of results in the first two studies by collecting both types of data simultaneously. For the overall thesis an explanatory sequential design was decided upon: survey data (comprising both open and closed questions) collected initially, followed by qualitative interviews offering more and richer detail (Ivankova et al., 2006).

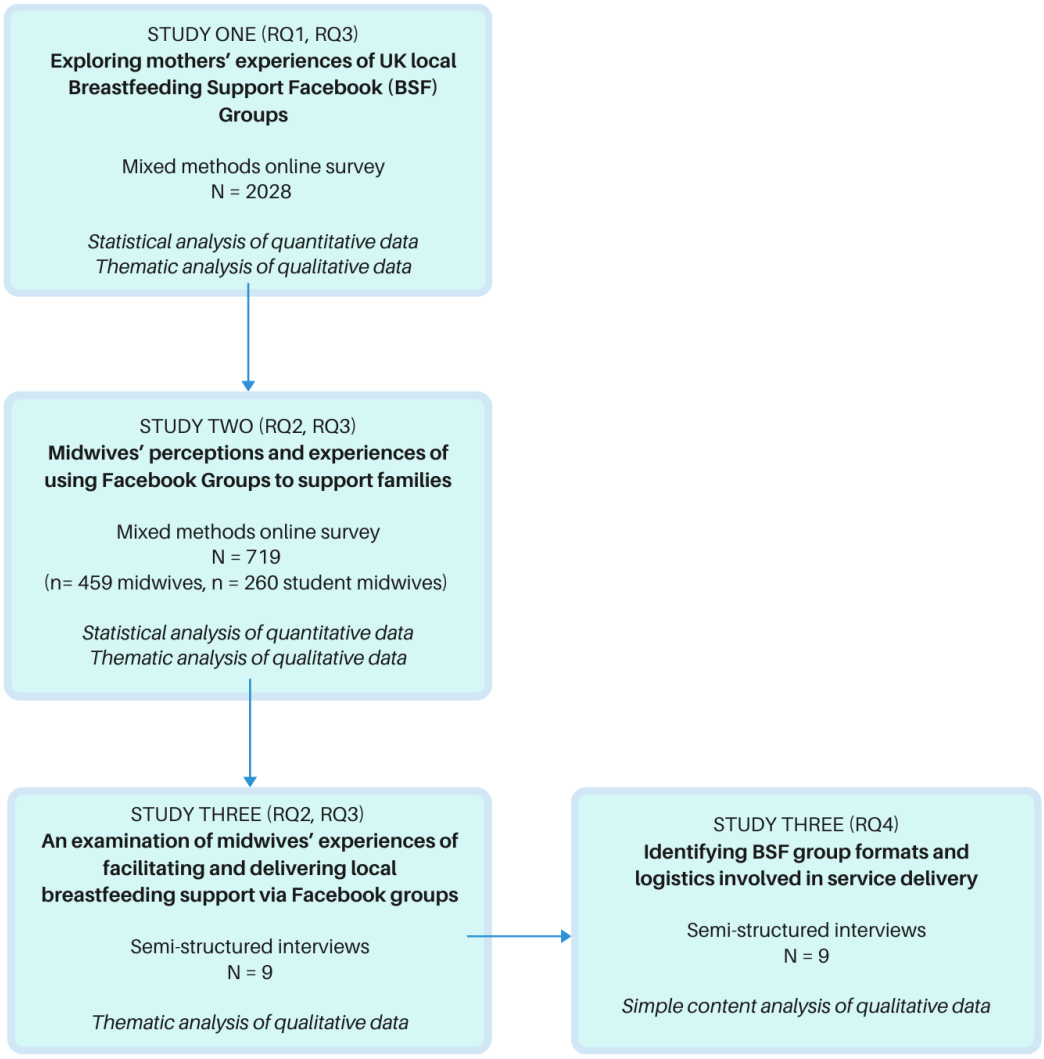
Mixed data were gathered in three distinct phases. In studies one and two, quantitative data were analysed first to give a general understanding of the phenomena of interest, followed by the thematic analysis of the qualitative survey data to explain and offer depth and empirical value to the quantitative findings. The third study used semi-structured interviews with nine midwives to add further insight and detail, using thematic analysis. Simple content analysis of data collected for the final qualitative study was then conducted to identify the group formats

reported by midwives, and sustainability modelling (NHS Improvement, 2018) was applied to the findings (Figure 3).

Data were collected for study one just before the outbreak of COVID-19 (January 2020). Study two was conducted between August and September 2020 (during the first easing of UK Lockdown measures). Interviews with midwives for study 3 were carried out between July-September 2021, after restrictions had been lifted (Insitute for Government (IFG), 2021). No significant impacts on data collection were experienced, with high response rates using internet recruitment, survey methods and video conferencing software. Impacts on findings are discussed in later chapters where relevant.

The thesis presents each study chapter in the order they were conducted, analysed and discussed, as shown in Figure 3.

Figure 3: Schematic of studies within this thesis



Studies One and Two

Study one was designed to explore local BSF group membership from the perspective of mothers, including reasons for joining, support received, moderator and community experiences. These were defined as any Facebook group offering breastfeeding support to mothers residing within any specific geographic area within the UK. Groups aimed at national or international members were excluded, as were Facebook pages (these have different functionality and do not allow member posting like Facebook groups, preventing development of fully interactive communities. No other social media or web-based platforms or apps were included,

in order to ensure comparable functionality. An exploratory-descriptive online survey was developed, and 2028 participants, recruited via a Facebook post, answered questions about their experiences of belonging to a local BSF group.

Study two was designed to collect data on the attitudes of midwives towards Facebook use, the benefits and challenges of developing the midwife's role in Facebook group provision, and barriers to development of the service. 719 participants completed an online questionnaire asking them about their experiences and/or perceptions of the use of Facebook to provide mothers with support.

An online questionnaire was considered the most appropriate data collection tool to meet the objectives of these studies to enable large scale, efficient (fast and low cost), anonymous data collection and to attract higher engagement, particularly as participants were reporting potentially sensitive or personal information (Kreuter et al., 2008). Online surveys are also able to engage a knowledgeable, viewpoint-orientated sample, enriching the data whilst recognising the potential increase in response bias (Couper, 2011). They can also reduce the tendency toward social desirability bias by eliminating any direct contact with the researcher (Duffy et al., 2005). The use of social media recruitment and online hosting also leverage a platform that participants currently engage with, reducing the need for incentives (Buntain et al., 2016), and targeting the intended participants.

However, potential drawbacks to the use of this data collection tool were also considered, including that engagement with the research required participant initiative to complete the questionnaire, possibly increasing non-response bias (Couper, 2011). Some studies suggest that online questionnaires may increase 'don't know' responses and non-differentiation on rating scales (Heerwegh & Loosevelt, 2008), so require careful design and analysis. Open-ended questions included in surveys may produce 'thin description' (Geertz, 1973), lacking depth. However, this was improved by the large sample size and a level of engagement that produced lengthy responses. Anonymous online surveys such as these also

offer no opportunity for follow up questions or responses which may have provided additional detail or clarifications.

Statistical methods of analysis were used to describe and explore the quantitative survey data, including patterns and relationships. Thematic analysis was employed to identify patterns and themes in the qualitative survey data, enabling further insights to be developed (Braun & Clarke, 2014).

Study Three

A third study was needed to collect data on the experiences of midwives involved in creating, facilitating and/or delivering breastfeeding support via a local BSF group. Semi-structured interviews were considered the most appropriate data collection tool to meet the objectives of this study, adding depth and detail to the insights generated by the findings of study two.

Semi-structured interviews enable in-depth data collection as questions are prepared to guide the conversation and keep discussion broadly on topic. The tool allows the researcher flexibility to respond to new issues, using two-way communication and open-ended responses to develop a fuller understanding (Saks & Allsop, 2013). With sufficient skill, trust and rapport can be established during an interview and sufficient time can be given for participants to engage with discussion of sensitive issues. Overall, as well as providing rich data to compare with, and add to, previous and future findings, interviews conducted virtually reduce time and costs involved in travel and transcription (Braun & Clarke, 2014). This was also necessary as data were collected during the COVID-19 pandemic (Roberts et al., 2021).

However, it was also noted that there were drawbacks to the use of this design, including developing researcher interviewing skills to optimise data collection. Potential challenges in recruiting eligible participants and scheduling interviews were also identified, particularly as eligible participants were midwives working

amidst a pandemic and staffing crisis, so ensuring enough participants were interviewed to draw reliable conclusions was key.

After verbatim transcription, the interview data were analysed in two parts. Firstly, thematic analysis was used to investigate midwives' perceptions and experiences of providing BSF groups. Secondly, the group formats and logistics involved in service delivery were identified and analysed for reported strengths and weaknesses using a simple content analysis. This was used to assess the current approaches for sustainability, enabling recommendations to be made for future service improvements.

4.6 Ethical considerations

As service user or patient involvement in healthcare and quality improvement initiatives has become more common, collaborative research approaches have proliferated (Banner et al., 2019). These aim to increase engagement between health professionals, services users and research as active partners in improving health and care. However, this presents new ethical issues, moving beyond simply protecting participants from risk to also consider relational ethics such as protecting the partnership and assuring all are able to make the best contribution (Martineau et al., 2021). The design of this thesis included partnering with BSF group users and midwives to pilot and respond to questionnaires, and with midwives to conduct interviews, with the aim of producing recommendations for practice. It was vital to conduct this research whilst preserving the trust and integrity of the research and researcher, particularly in relation to an area as emotive as breastfeeding. As a registered midwife, this is also a professional requirement for me as a registrant (NMC, 2018).

In conducting online research, particularly in private communities such as local BSF groups, the researcher should offer participants full disclosure: of their presence, affiliations and intentions (Kozinets, 2006; Langer & Beckman, 2005). Doing so ensures public perceptions of online research, including consent, anonymity and

privacy are optimised and concerns addressed (Sugiura et al., 2016). Full disclosure was ensured through declarations in the Facebook posts, participant information sheets and during interview. Alongside relational ethics, it was also important to consider how disclosure may impact responses, depending on participant knowledge, experience and assumptions of midwives, either as a mother or midwife. Findings were analysed and discussed through this lens.

Specific ethical considerations also arose in relation to each study, and these are discussed in detail in each chapter.

4.7 Reflexivity

As highlighted in the introduction, I have personal and professional connections and experiences relating to breastfeeding support, and challenges, including online. However, when the opportunity arose to conduct this research, I was acutely aware of the potential for my own experiences to impact the direction of my investigations. Studying a particular phenomenon out of personal affection by or connection to it ('me-search') enhances a researcher's motivation, understanding and compassion and often brings a high level of expertise (Altenmüller et al., 2021). However, the trustworthiness of the researcher and the credibility of their findings then becomes dependent on the attitude of the reader to the research topic, and this generalises to the entire field of research, impacting the acceptance and implementation of findings (Altenmüller et al., 2021).

This is particularly relevant to breastfeeding related research: despite the wealth of evidence on the health impacts, breastfeeding continues to be a hugely polarising social issue (Mullen, 2015). In fact, UNICEF reports a UK breastfeeding context so fraught that controversy around genetically modified crops, climate change and human-animal hybrids pale in comparison; one in which supportive public figures, mothers and health professionals are accused of being 'breastfeeding Nazis' or the 'breastapo' (Ashmore, 2015). I have learnt through both online engagement and interactions in midwifery practice that this context is complex, anchored in trauma

and grief (Brown, 2019), compounded by a lack of support and reinforced by industry marketing (Hastings et al., 2020). Recognising the impact of my own experiences and beliefs about breastfeeding (see Section 1.2) has therefore been central to providing support and offering evidence-based information.

In this context, it is critical that breastfeeding research is conducted, and findings reported, in ways that support inclusive, factual and non-judgemental conversations. Researcher methods and credibility are key to this, particularly where public engagement is impacted by quickly formed judgements and pre-existing attitudes even prior to findings being presented, and one experience can affect evaluation of the whole field (Altenmüller et al., 2021). In this research, this also extends to midwives' interpretations, whose personal experiences and professional attitudes to breastfeeding are inextricably linked (Battersby, 2014). Findings need to be seen as credible by midwives to support practice and policy change and so openness on motivation and researcher reflexivity is key.

This awareness supported the design and approaches taken in this thesis. A reflexive journal was used to reflect on methodological decisions, my background in relation to breastfeeding support and influences as a health professional (Hunter et al., 2018). Care was taken to avoid leading questions when designing the online surveys, instead offering a range of response options. The quality of the studies was enhanced by evaluating the validity and reliability of the tools to ensure stability and truthfulness in the findings, and to reduce the risk of researcher bias (Heale & Twycross, 2015). This was achieved through evaluation by a second researcher. Interview schedules were also designed with a second researcher, avoiding closed questions. A semi-structured approached enabled open-ended responses and confirmability of interpretations with the participants. A decision was taken to disclose 'insider' status (as a registered midwife) to the midwives interviewed, to enhance interaction, acknowledging the benefits of shared experience whilst recognising the potential impacts on information sharing and shaping of the research process. This was reflected upon during analysis, recognising my

perspectives and the lens through which the data were being interpreted, ensuring critical engagement (Braun & Clarke, 2014).

The next step in the research was study one which aimed to investigate the relationship between the use of local breastfeeding support Facebook groups, mothers' experiences and the role of health professionals.

Chapter 5: Exploring mothers' experiences of UK local Breastfeeding Support Facebook (BSF) Groups

Publications (two papers were produced targeting different aspects of the study due to its size):

Morse, H., & Brown, A. (2021). Accessing local support online: Mothers' experiences of local Breastfeeding Support Facebook groups. *Maternal & child nutrition*, *17*(4), e13227. https://pubmed.ncbi.nlm.nih.gov/34060716/

Morse, H., & Brown, A. (2022). Mothers' experiences of using Facebook groups for local breastfeeding support: results of an online survey exploring midwife moderation. *PLOS Digital Health*, 1(11): e0000144. https://doi.org/10.1371/journal.pdig.0000144

5.1 Background

As considered in depth in the literature review, the provision of and access to high quality breastfeeding support is an established and significant factor in increasing duration and exclusivity of breastfeeding, particularly when this includes combinations of support from trained and lay sources, face-to-face support and predictable access (McFadden et al., 2017). Research is needed to recognise and understand the current role and impact of social-media-based support on breastfeeding knowledge, attitudes and outcomes.

Despite breastfeeding long being recognised as a public health priority, women encounter a variety of barriers to accessing the necessary ongoing professional support (Brown, 2016). The provision of face-to-face support via groups, clinics and home visits by maternity and health visiting services has been impacted by budget cuts, increasing workloads and reduced staffing levels (UNICEF, 2017). With most new mothers in the UK now accessing social media for support (Baker & Yang 2018), breastfeeding support groups on Facebook have increased exponentially, providing free access to information and shared experience around the clock (Wagg et al.,

2019). Research suggests they are a valued form of informational and emotional support with a positive impact on breastfeeding duration (Robinson, et al. 2019a).

The review of the literature has demonstrated that lay peers are providing much of social media support, filling the continuously growing gap in professional service provision, and that this is unregulated and often unmoderated (Regan & Brown, 2019). It has also highlighted the conceptualisation of BSF groups as online communities of practice (CoP) (Skelton et al., 2020), an area which requires further exploration to understand their potential to support social learning. Finally, whilst there are BSF groups aimed at supporting mothers in a specific geographic area or health service, little is yet known about health professional contributions.

Further research that explores the prevalence of locally targeted groups, their value in providing support, developing social networks and perpetuating breastfeeding knowledge is therefore needed. No evidence of the value to mothers of health professionals running or contributing to these groups, or the potential impact of belonging to the CoP on them has been identified through a systematic review of the literature. Establishing whether there is an evidence base for the provision of local BSF groups within health services could inform guidelines for practice and education, improving services for mothers and supporting funding cases for providers.

The aim of this study is therefore, using an online survey, to investigate the relationship between the use of local BSF groups, mothers' experiences and the role of health professionals. This study and data is relevant to Research Question one: What experiences do women have of locally aimed breastfeeding support Facebook (BSF) groups, and what are their perceptions of midwife moderation of these groups? It also explores Research Question three: Do the experiences of mothers align with the conceptualisation of BSF groups as online communities of practice?

Within this four sub-questions were examined:

1. Which mothers are accessing local BSF groups and what motivates them to join?
2. How do local BSF groups function alongside local face-to-face services and what are women's perceptions of any health professional support they provide?
3. Can local BSF groups be characterised as communities of practice, and what role does this play in their value?
4. What are the reported positive and negative aspects of group membership and how should these be addressed within recommendations for service development?

The findings will inform the next stage of research, to explore the experiences of health professionals involved in providing support via Facebook, their contribution to the function of BSF groups as organic communities of practice and the potential impacts, barriers and facilitators of institutional participation.

5.2 Methods

Design

An exploratory-descriptive survey design (as described in Chapter 4) was used to collect data on the use and experience of local BSF group membership from the perspective of mothers and to contribute to the development of further research. Participants, recruited via a Facebook post, completed an online questionnaire asking them about their experiences of belonging to a local BSF group.

The online questionnaire hosted by Qualtrics XM LLC and distributed via social media was the most appropriate data collection tool to meet the objectives of this initial study.

Participants

Participants were mothers based in the UK who were breastfeeding their baby, recruited via Facebook. Participants completed an online questionnaire asking them about their experiences of belonging to a local BSF group (Appendix 2). Two thousand and twenty-eight mothers completed the questionnaire between 17-31 January 2020.

The study's inclusion criteria were:

1) Aged 18 or over.
2) Resident in the UK (identified by UK postcode)
3) Able to complete the questionnaire in English
4) Parent of a baby aged 0 – 24 months (limited to reduce recall bias).
5) Currently a member of a local Facebook group that offers breastfeeding support.
6) Able to give informed consent.

Seventeen responses referring to non-local (national, international or issue-specific) support groups, or incomplete responses were excluded from the analysis.

Measures

Questions were devised based on the literature and responses indicated using a tick box. The questionnaire (Appendix 2) included:

- Demographics including age, ethnicity and measures of socioeconomic status. Participants also indicated baby age and current method of feeding. Postcode data was also collected to determine the geographic spread of responses and of local support groups represented by the participants.
- Measures of local breastfeeding support: including perceptions of support sources,

- Format and function of the BSF group: including group location and indications of awareness/ use of any alongside face-to-face support.
- Measures of perceived health professional support: including experiences of receiving HCP support via a BSF group and/or perception of the value of that input.
- Experiences of accessing support via the BSF group: including how they became aware of the group, perceptions of accessibility and value.
- Awareness of common support issues: indicating what support was sought, received and observed within the group.

Open-ended questions were included to gather qualitative data for thematic analysis, exploring reasons for seeking support, perceived negatives to belonging to the group and reasons for recommendation.

Ethics

Approval for this study was granted by the Swansea University College of Human and Health Sciences Research Ethics Committee. All aspects were carried out in accordance with ethical standards as per the Declaration of Helsinki (1964).

Informed consent was given by participants prior to completing the questionnaire. This was ensured via the participant information sheet and detailed the purpose of the study, who was conducting the research and contact details. Voluntary participation and anonymity procedures were outlined. Processing of all data in accordance with the Data Protection Act 2018 and the General Data Protection Regulation 2016 (GDPR) was detailed along with rights and complaints procedures with relevant processes and contact details.

The questionnaire was only made available for completion once the participant information sheet and inclusion criteria had been read and consent questions agreed. A debrief was loaded at the end of the questionnaire encouraging

participants to contact a health professional if they had any further questions. (Appendix 2).

Procedure

The online questionnaire was formatted for ease of use, with focus on intuitive and logical flow (Aveyard et al., 2016). Participants were shown questions chronologically and only those relevant to their previous responses, reducing cognitive and time burden. Pertinent and relatable issues were identified in the literature to ensure participants identified with questions asked. Quantitative data was collected using tick boxes and Likert-type scales, included to ensure accurate measurement of constructs, frequencies and strength of associations. Open-ended questions collected qualitative data to contextualise the issues with richer, more detailed accounts of perceptions, concerns and experiences.

Participants were recruited to the study via a Facebook post containing a link to the online questionnaire. UK local BSF groups were identified via a Facebook search, with permission sought from group administrators for posting study information to the group. An advertisement was designed to increase visual recognition, appeal and understanding of the purpose of the study (Figure 4).

The link and study advertisement were shared to these groups and related breastfeeding support/maternity Facebook pages and reposted organically by the members and moderators, totalling 449 shares over 14 days. This method of purposive sampling within local BSF groups enabled a large number of participants (2028), although self-selecting, to be recruited. Clicking the link enabled participants to read study information and give informed consent prior to loading and completing the questionnaire.

Figure 4: Study advertisement one

Data analysis

Quantitative questionnaire data were analysed using SPSS v26. Multiple choice answers were analysed for frequency. Likert scale data was recoded for response frequencies and descriptive statistics generated for evidence of consensus. Cross-tabulations, MANOVA and chi square were performed where necessary to identify prevalence of response by group moderation type. Postcode areas were analysed for distribution frequency using Google My Maps (Figure 5).

Thematic analysis using a six-phase approach was conducted to explore patterns and connections (Braun & Clarke, 2014) within the qualitative data. After familiarisation with the data (Phase 1) initial codes were produced using NVivo v12 (Phase 2), identifying themes (Phase 3). Themes were reviewed in relation to the coded extracts (Phase 4), defined and named (Phase 5). A visual thematic map was produced to identify the connections and refine subthemes (Figure 8). Illustrative extract examples were selected to report results within the final analysis. This was related back to the research question and relevant literature in the discussion (Phase 6).

The quality of the study was evaluated using Lincoln and Guba's criteria (1985):

- *Credibility*: confidence in the findings was developed via both prolonged engagement and persistent observation – the researcher is a long-term member of/observer of activity within a variety of UK breastfeeding social media groups facilitating scope of understanding and depth of analysis.
- *Transferability*: the analysis and discussion make explicit the patterns and context of relationships and of the sample involved, facilitating evaluation by the reader of the transferability of findings to other contexts.
- *Dependability*: Via supervision feedback was provided on the adequacy of data, development of findings and the interpretive perspective.
- *Confirmability*: Triangulation established the consistency of findings produced by the different methods, via confirmatory analysis to ensure robust and comprehensive discussion. A reflexive journal was used to reflect on methodological decisions and the researcher's background in midwifery and influences as a health professional, as suggested by Hunter et al. (2018).

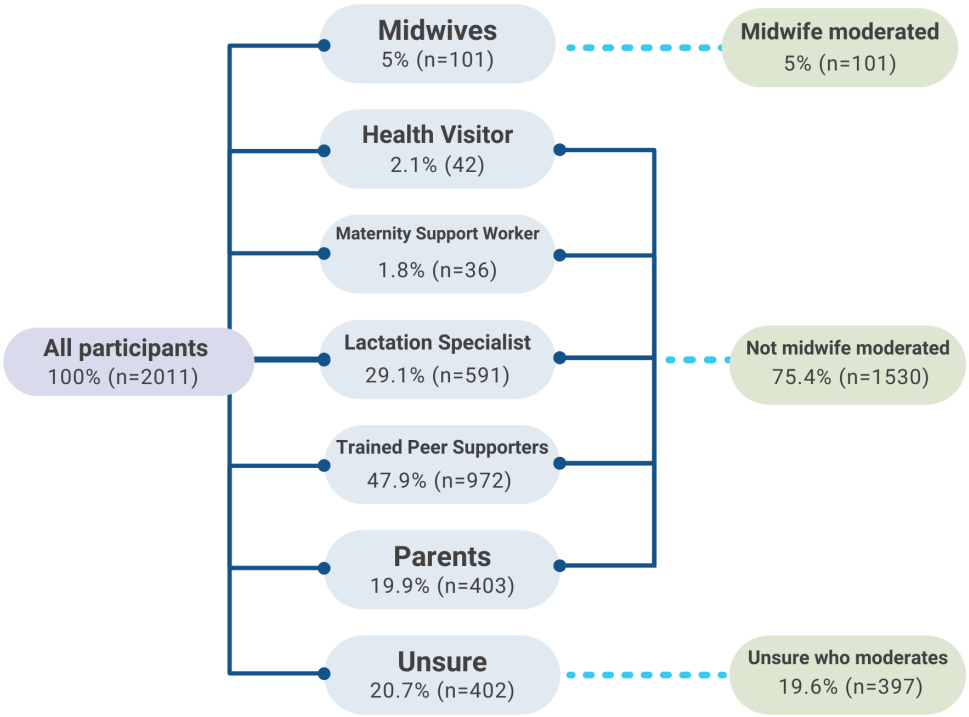
5.3 Quantitative Results

Two thousand and twenty-eight responses to the online questionnaire were received and seventeen were excluded from analysis. Four of those excluded provided incomplete responses (<50%), three were outside the UK and ten belonged to national or issue-specific support groups rather than the locally provided ones this study explores. Two thousand and eleven participants remained in the analysis, members of 227 distinct local BSF groups. The distribution of participants by postcode area indicated widespread BSF group membership and use across the UK (Figure 5).

Figure 5: Distribution of participant/BSF group by postcode

Participants were asked to indicate, via tick box of options (e.g. midwife, peer supporter, parents, lactation specialist), who provided group moderation of their local BSF group, with the option to reply 'unsure'. Moderation was defined as taking responsibility for regulating posts and discussions. Trained peer supporters (47.9%), lactation consultants (29.1%) and parents (19.9%) made up the largest number of moderators. Overall, 5% of mothers reported belonging to a midwife moderated group. Some groups had mixed moderation across those categories (participants ticked all that applied, therefore the denominators are not 100% of the total). However, 20.7% of mothers were unaware of who provided moderation for the group. For the purposes of further analysis of midwife moderation, mothers were split into three main groups: midwife-led (5%, n = 101), not midwife-led (all other support), 75.4%, n = 1530) or unsure (19.6%, n=397). See Figure 6.

Figure 6: Sample breakdown used for analysis by BSF group type



Participants also provided details about their age, ethnicity and socioeconomic status to establish the demography of the sample and potential generalisability of findings. The participants ranged from 19 to 47 (mean age 32.35, median 32 years). 78.3% were educated to graduate or postgraduate level and 82% were in employment. The sample was ethnically homogenous, with the majority of participants identifying as either White or White British (93%) (Table 7).

Table 7: Sample distribution by demographic factors

Indicator	Group	N	%
Age	≤ 20	9	0.4
	21-25	127	6.3
	26-30	546	27.2
	31-35	826	41.1
	36-40	418	20.8
	41 ≥	62	3.1
	Missing	23	1.1
Education	No formal	11	0.6
	GCSE or equivalent	117	5.8
	A-Level or equivalent	307	15.2
	Degree or equivalent	883	43.9
	Postgraduate or equivalent	692	34.4
Ethnicity	Asian or Asian British (Chinese, Indian, Bangladeshi, Pakistani, Other)	47	2.34
	Black or Black British	5	0.25
	Gypsy/Traveller	1	0.05
	Irish	35	1.74
	Mixed or multiple	41	2.04
	Other	12	0.60
	White/White British	1872	93.0
Marital Status	Married/civil partnership	1451	72.2
	Divorced	10	0.50
	Cohabiting	474	23.6
	Single	73	3.6
	Widowed	2	0.10
Employment	Full time	819	40.8
	Part time	828	41.2
	Not working	361	18.0

Participants were also asked to provide details of their baby's age at time of response. The data were explored to produce descriptive statistics prior to recoding to produce age ranges for further analysis (Table 8). Baby's ages ranged from 0-24 months, with a mean of 10.62 months and a median of 10 months.

Table 8: Sample distribution by baby's age range

Baby age range (months)	N	%
0-3	291	14.3
4-6	385	19.0
7-12	590	29.1
12-18	453	22.3
18-24	286	14.1
Missing	66	3.3

Participants also indicated the method they were using to feed their baby at time of response. 29.5% of babies were receiving *only* breastmilk (breastfeeding or pumped breastmilk) and 62.1% were weaned onto food but still receiving breastmilk. Just 8.4% were receiving formula in any combination (Table 9).

Table 9: Sample distribution by baby's current method of feeding

Current feeding method	N	%
Breastfeeding only	574	28.7
Pumped breastmilk	15	0.8
Formula milk	10	0.5
Combination feeding (breastmilk/formula)	118	5.9
Solid food & breastmilk	1240	62.1
Solid food & formula milk	40	2.0

Cross-tabulation was performed to determine the infant feeding profile of the sample by age range. Of babies aged 0-6 months 8.4% (N=81) were receiving any formula and 74.6% (N=504) were exclusively breastfeeding. 1.6% (N=11) were receiving expressed breastmilk only. 97.1% (N= 573) of the babies aged over 6-12 months (N=590) in the sample were continuing to receive some breastmilk (Table 10).

Table 10: Current method of feeding by baby's age range

Baby's age (months)	Breastfeeding		Pumped Breastmilk		Formula milk		Combination breast/ formula		Breastmilk and solids		Formula and solids	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
0-3	250	85.9	5	1.7	2	0.7	29	10.0	5	1.7	0	0.0
4-6	254	66.0	6	1.6	2	0.5	48	12.5	75	19.5	0	0.0
7-12	52	8.8	3	0.5	4	0.7	29	4.9	489	82.9	12	2.0
12-18	0	0.0	1	0.2	1	0.2	10	2.2	425	93.8	16	3.5
18-24	0	0.0	0	0.0	1	0.3	1	0.3	265	92.7	12	4.2

5.3.1 Measures of local breastfeeding support

Participants rated how supported they felt since deciding to breastfeed by a range of community health professionals and personal sources, using a five-point Likert scale [strongly agree to strongly disagree]. The scale was recoded into three variables [agree=1, neutral=2, disagree=3]. The interquartile ranges (IQR) for each support source were calculated to identify spread. Responses indicated a consensus on all sources as supportive (Table 11).

Partners' support was rated most highly (97.4% agree, N=1693), although partners' families were the least rated source with 25.9% (N=451) disagree/neutral responses. Support received from local midwives was also highly regarded, with 1539 (88%) mothers positively rating it (Table 11).

Table 11: Perceptions of local support (offline)

Support source	**Agree**		**Disagree**		**IQR**
	N	**%**	**N**	**%**	
My Family	1595	90.9	82	4.7	0
My partner	1693	97.4	21	1.2	0
My partner's family	1289	74.1	187	10.7	2
Friends	1604	91.6	26	1.5	0
Midwives	1539	88.0	74	4.2	1
Health visitors	1483	84.6	107	6.1	1

Cross-tabulation of perceptions of positive personal support (strongly agree- agree) by baby age range demonstrated that support remained consistent over time for most sources. The largest fall was 10.6% in positive support from friends for breastfeeding past 12 months (Table 12). This reflects societal attitudes to breastfeeding past early infancy and its relative scarcity amongst the UK population. Mothers feeding older babies are less likely to have friends who have done so and may be more likely to encounter negative attitudes. The function of BSF groups in countering this will be further explored.

Table 12: Perceptions of positive support by baby age range

Source	Baby age (months)	Agree N	Agree %
Partner	<3	195	91.1
	>12	578	90.3
Family	<3	195	78.3
	>12	471	72.8
Partner's Family	<3	131	52.6
	>12	328	51.1
Friends	<3	200	80.6
	>12	453	70.0

Mothers who used a BSF group which was midwife-led were more likely to regard the offline support they had received from midwives positively than those in other groups (Table 13), indicating that online interaction increased their perception of midwifery care overall.

Table 13: Perceptions of positive offline midwife support by BSF group type

Source	Agree N	Agree %
Midwife-led	82	81.2
Health Visitor led	10	62.5
Parent led	282	70.3
Lactation specialist/peer support	1083	69.7

Answering in relation to the baby they were breastfeeding at the time of response, participants indicated whether they joined the BSF group during pregnancy, whilst breastfeeding a previous baby or gave baby's age at joining. Responses demonstrated a significant number of women join during pregnancy (23.2%, N=472) or within 3 months of birth (38.7%, N= 784). Notably 14.3% (N= 289) had remained in the BSF group since breastfeeding a previous child, potentially indicative of growing collective knowledge, experience and desire to share consistent with a CoP (Table 8).

Table 14: Stage at which respondent joined the BSF group

Stage at joining	**N**	**%**
During this pregnancy	472	23.2
Baby 0-3 months	784	38.7
Baby <3 months	173	8.5
Existing member (previous child)	289	14.3
Missing	303	15.3
Total	2011	100

Participants rated a number of potential motivations for joining the BSF group, using a five-point Likert-type scale [agree to disagree]. The scale was recoded into three variables [agree=1, neutral=2, disagree=3]. The interquartile ranges for each support source were calculated to identify spread. Responses were scattered with varying IQR (Table 14).

Most participants joined in case of problems (71.1%, N= 1442), indicating a tendency, alongside joining in pregnancy, for members to seek out support in advance. Equal numbers agreed (41.7%, N=721) and disagreed (41.5%, N=717) that they were already experiencing problems. A majority agreed that they were seeking reassurance for breastfeeding (87.1%, N=1521) or baby behaviour (85.7%, N=1497) and almost twice as many (N=890) were seeking face-to-face support than not (N=458). This indicates the supplemental nature of BSF support, rather than as a replacement for face-to-face help. Social and emotional motivations (shared experience and likeminded peers) were also frequently agreed (mean 77.5%, N= 1355). Most participants were not seeking midwifery support via the BSF group

when they joined (62.0%, N=1080) (Table 15), requiring further analysis in relation to the research question.

Table 15: Response distribution by joining motivation

Motivation for joining	Agree		Disagree		IQR
	N	%	N	%	
In case of problems	1442	71.1	107	5.3	0
Already having problems	721	41.7	717	41.5	2
Reassurance about breastfeeding	1521	87.1	86	4.9	0
Reassurance about normal baby behaviour	1497	85.7	98	5.6	0
To share experiences	1366	78.1	141	8.1	0
To find likeminded mothers	1344	77.0	148	8.5	0
To find a face-to-face group or support	890	50.9	458	26.2	2
To access support without attending a face-to-face group	522	50.9	838	48	2
Unable to attend a face-to-face group	392	22.5	990	56.9	1
No other support for breastfeeding	263	13.0	1226	70.2	1
To access midwifery support	251	14.4	1080	62.0	1
To access trained peer support	1223	69.8	242	13.8	1

Participants were asked whether the local aspect of the group was significant by indicating if it was important to them that other members were local. 74.2% (N= 1255) felt it was important to some level, informing further analysis of this type of provision, particularly the perceived benefits of situating online support close to home. 25.4% (N= 430) did not feel it was important.

5.3.2 Format and function of the Breastfeeding Support Facebook (BSF) group

Participants provided information on the BSF group that they belong to, including full name, any known association with a face-to-face group. Responses were received from participants belonging to 227 identified groups, representing a UK-wide spread as previously indicated by postcode. Whilst highly populated areas represented greater numbers of individual groups, and responses from those groups, the spread demonstrates that local BSF groups are a feature across the UK (Figure 5).

Most participants (67%, N= 1054) indicated that they were aware that their BSF group operated alongside a named local face-to-face group (Table 16), demonstrating a tendency for local online support to be offered in conjunction with, not instead of, in person support. 69.8% (N= 734) of those who had F2F group provision attached to their BSF group had attended (Table 17). Reasons for not attending were given in response to a subsequent open-ended question (Table 29) shown to those answering 'No'.

Table 16: Awareness/attendance of face-to-face group associated with BSF group

	Aware of F2F group		Attended F2F group	
Response	**N**	**%**	**N**	**%**
Yes	1054	67.0	734	69.8
No	313	19.9	318	30.2
Unsure	206	13.1	-	-

Participants indicated their awareness of who was offering face-to-face support at the group and who was moderating the online discussion. Registered health

professionals (midwives and health visitors) made up the smallest face-to-face provision (10.7%, N=217) and BSF group moderation (7.1%, N=143). Midwives were equally represented in both types of provision (4.8%-5.0%) but health visitors were more than twice as prevalent providing face-to-face support (5.9%) than online (2.1%). Lactation specialists and trained peer supporters provide the majority of face-to-face support (60.9%, N=809) and online group moderation/support (77.0%, N=1562) as unpaid volunteers (Table 17).

Table 17: Face-to-face (F2F) and BSF group providers

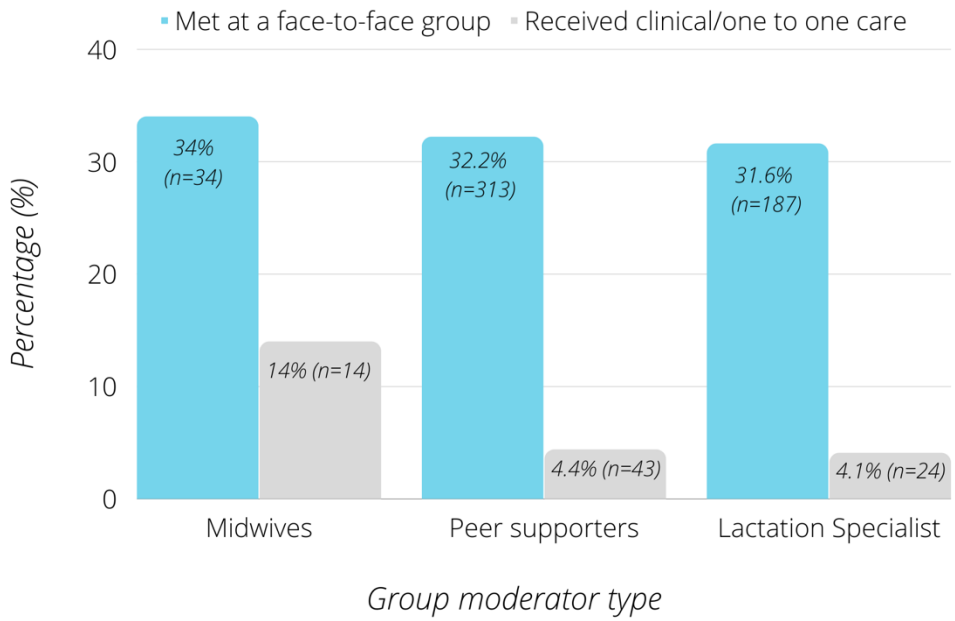
	F2F Group		BSF Group	
Group provider/moderator	**N**	**%**	**N**	**%**
Parents	318	15.7	403	19.9
Midwives	97	4.8	101	5.0
Maternity Support Worker	46	2.3	36	1.8
Health Visitors	120	5.9	42	2.1
Lactation Specialist	471	23.3	591	29.1
Trained Peer Supporters	762	37.6	971	47.9
Unsure	93	4.6	419	20.7

Participants were also asked to indicate how they knew who was moderating the BSF group, ticking all that applied, to determine transparency of the source and recognised ways in which this knowledge is shared to and amongst members. Most members were made aware through written introduction or group description (71.5%, N=1450). There is evidence of some continuity of care/ relationship building within groups with 26.7% (N=541) having met those running the group face-to-face (Figure 7). Significantly 14.9% (N= 302) were receiving support from a group without knowledge of who was providing or moderating the advice/information (Table 18).

Table 18: Source of knowledge of moderator type

Source	N	%
Group description	782	38.6
Written introduction	668	32.9
Personal recommendation	197	9.7
Saw details elsewhere	34	1.7
Worked it out by reading posts	431	21.3
Met moderators face-to-face	472	23.3
Had care from them outside group	69	3.4
Don't know who runs BSF	302	14.9

Figure 7: Frequency of continuity of in person and online support by BSF group moderator type



Participants indicated their frequency of use or online visits to the BSF groups which was cross-tabulated by baby age at time of response. Daily use or greater as a proportion of the sample was most prevalent amongst mothers with babies aged under 3 months (55.4%, N=118), declining to 35% (N= 78) amongst mothers with babies aged 18-24 months (Table 19). This reflects the increased social media use by

new mothers reported in the literature but also demonstrates continued regular visits by those with older babies, significant to the diversity of shared experience and range of knowledge. It also indicates the importance of the safety and familiarity of the community that mothers remain members past the time when intense support or regular advice may be needed.

Common reasons for accessing a BSF were drawn from the literature and participants were asked to use a Likert five-point scale [very often – never] to rate frequency of BSF group use by reason. 77.9% (N=1224) very often or often (variables combined) read posts without commenting, indicating the frequent use of the group as a developing resource accessed without active participation (Table 20). Further analysis was conducted to identify 'Support' categories and inform discussion about BSF groups as communities of practice.

Table 19: Frequency of BSF use/visits by baby age

	Baby age (months)											
	< 3		4-6		7-12		12-18		18-24		**Total**	
Frequency	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Several times a day	34	16	50	17.1	62	13.1	29	8.0	25	11.2	200	12.8
At least once a day	84	39.4	77	26.3	142	30.1	107	29.5	53	23.8	463	29.5
A few times a week	69	32.4	114	38.9	191	40.5	153	42.1	95	42.6	625	39.9
Once a fortnight	15	7.0	21	7.2	43	9.1	40	11.0	27	12.1	146	9.3
Rarely	11	5.2	31	10.6	34	7.2	34	9.4	23	10.3	133	8.5
Total	213	100	293	100	472	100	363	100	223	100	1567	100

Cross tabulation using MANOVA was used to explore differences in frequency of Facebook group use/visits between the three types of Facebook group (midwife-led, not midwife-led or unsure). A significant difference was found between the three groups [F (2, 1564) = 5.376, p = .005]. Post hoc bonferroni tests showed a

significant difference between the midwife-led and unsure groups (p=.0.006]. Mean scores indicate whilst all groups averaged between 'at least once a day' and 'a few times a week', the unsure group visited least.

Table 20: Frequency of BSF groups use by reason

	Often		Never	
Reason	**N**	**%**	**N**	**%**
Ask a breastfeeding question	105	6.7	237	15.1
Ask a baby-related question	54	3.4	508	32.3
Answer a breastfeeding question	300	19.1	163	10.4
Answer a baby-related question	167	10.7	372	23.8
To share information/links	114	7.3	685	43.7
To read without commenting	1224	77.9	10	0.6

5.3.3 Measures of health professional support

Participants were asked to indicate if they had seen or received breastfeeding support from midwives via a local BSF group and to rate the usefulness of his support where applicable. 47.5% (N=802) respondents had seen or received midwifery input and 97.8% (N=784) rated this as useful or very useful. Just 1.1% (N=18) felt it was not (Table 21).

Table 21: Perception of midwifery participation in BSF group

Response	**N**	**%**
Very useful	442	26.2
Useful	342	20.3
Not useful	18	1.1
Not applicable	886	52.5

Participants indicated whether they felt their BSF group without midwife members/moderators would benefit from this type of professional input. 84.3% (N=1125) of those for whom this was applicable (N=1335) felt that midwives would or may be valuable participants to their group. 15.7% (N=210) believed it would not be useful to the group.

Participants were asked to indicate using a five-point Likert scale [very often- never] how frequently they had received support from each type of BSF group member/moderator. Midwives provided the least support across the sample (29.8%, N=464 never or unsure) (Table 22) which is reflective of only 5.0% of groups being identified as midwifery led (Table 17). Other parents provided most support (often/sometimes= 89.3%, N=1395) (Table 22), demonstrating the importance of BSF groups as sources of social support and shared experience.

However, cross-tabulation against support provider demonstrates 87.5% (N=77) had sometimes or often received support from midwives running or participating in the midwife provided BSF groups (Table 23). This finding indicates that where midwives are involved in providing this type of online support, members are aware of receiving a high level of input from them and find this useful. The initial data justify further research into developing the midwifery role, recognising the role of lactation specialists and understanding the barriers to midwives participating in BSF group support.

Table 22: Frequency of support received by BSF group membership type

	Often/Sometimes		**Never**		**Unsure**	
BSF group support source	**N**	**%**	**N**	**%**	**N**	**%**
Midwives	709	45.5	266	17.1	198	12.7
Peer supporters	1192	76.5	80	5.1	90	5.8
Other parents	1395	89.3	38	2.4	29	1.9
Lactation specialists	850	49.3	144	7.1	187	9.2

Table 23: Frequency of support received by source in midwife-moderated BSF groups

BSF group support source	Often/Sometimes		Never		Unsure	
	N	%	N	%	N	%
Midwives	77	87.5	3	3.4	2	2.3
Peer supporters	62	69.6	10	11.2	7	7.9
Other parents	84	94.4	1	1.1	1	1.1
Lactation specialists	50	55.6	9	10	11	12.2

5.3.4 Experiences of accessing support via the BSF group

Participants indicated using a five-point Likert scale [strongly agree to strongly disagree] how they had become aware of the group. The data were explored to identify patterns in how services are promoted, whether mothers find and access this support themselves or receive recommendations. The scale was recoded into three variables [agree=1, neutral=2, disagree=3]. The interquartile ranges for each type of promotion (Table 18) and recommendation (Table 22) were calculated to identify spread across the variables.

Responses indicated that little offline promotion takes place to signpost BSF groups, with more women agreeing that they found the group by conducting a Facebook search themselves (43.8%, N=751) than any other method (Table 24). There was consensus across the sample that BSF groups were not being widely recommended to women by midwives, either in hospital or in community (Table 25). Further research is needed to identify barriers and solutions to the promotion of BSF groups to ensure equitable access.

Table 24: Response distribution by group promotion

Facebook group promotion	Agree		Disagree		IQR
	N	%	N	%	
Leaflet/poster in hospital	199	11.6	1367	79.9	0
Leaflet/poster in community	86	5.0	1478	86.4	0
Facebook search	751	43.8	843	41.6	2
Google search	237	13.8	1312	76.6	0
Group shared on social media	659	38.5	926	54.1	2

Table 25: Response distribution by group recommendation

Facebook group recommendation from	Agree		Disagree		IQR
	N	%	N	%	
Community midwife	370	21.6	1220	71.2	1
Hospital-based midwife	164	9.6	1397	81.6	0
Recommended at the Face-to-face group	659	38.5	926	45.7	2
Friends/family	755	43.9	855	49.8	2

Participants were asked to rate whether they had received support via the BSF group on a range of common areas identified in the literature (Fox et al., 2015; McAndrew et al., 2012) using a five-point Likert scale [agree to disagree]. The scale was recoded into three variables [agree=1, neutral=2, disagree=3]. The interquartile ranges for support on each issue were calculated to identify spread (Table 26). Responses were polarised on almost every issue (IQR=2) with the exception of introducing formula (IQR=1). 69.5% (N=1078) of respondents disagreed that they had sought and/or received support for this issue, which is explored further in the qualitative data generated by later open-ended questions. Although responses were polarised on the other issues, broadly equal numbers of participants agreed and disagreed that they had received support personally for each issue, suggesting that support for all of these was provided via the BSF groups, available to those seeking it. Support for pain (45.4%, N=711) and for breastfeeding older babies/toddlers

(49.1%, N=765) were sought most and private referrals (48.5%, N=753) (Table 26) sought least, informing further discussion and frameworks for provision. Participants were also provided with a free text box and asked to provide information on any specific support they had received of importance to them (Table 29).

Table 26: Distribution of support by type

Issue	Agree		Disagree		IQR
	N	%	N	%	
Breastfeeding older babies/toddlers	765	49.1	515	33.0	2
Pain	711	45.4	569	36.4	2
Feeding in public	665	42.6	579	37.1	2
NHS service/group/clinic recommendations	660	42.4	573	36.8	2
Lack of sleep	626	40.1	598	38.3	2
Baby weight gain/loss	619	39.7	576	36.9	2
Mental/emotional health	606	38.8	608	39.0	2
Safe bedsharing	604	38.7	635	40.7	2
Increasing milk supply	570	36.6	612	39.3	2
Weaning onto solids	557	35.7	615	39.4	2
Unsupportive friends/family	514	33.0	683	43.9	2
Baby development	470	30.1	674	43.2	2
Private tongue tie/osteopathy service recommendations	468	30.1	753	48.5	2
Introducing formula	135	8.7	1078	69.5	1

Experiences of BSF group membership were drawn from the literature. Participants were also asked to rate these using a five-point Likert scale [agree to disagree] and the scale recoded into three variables [agree=1, neutral=2, disagree=3]. The interquartile ranges for support on each issue were calculated to identify tendency and spread. The IQR indicated consensus in most areas, agreeing with positive aspects (improved knowledge, confidence and perception of reliability) and broadly disagreeing with negative ones (judgemental attitudes and privacy concerns) (IQR=1). Most participants did not feel the BSF gave them access to additional midwifery support (46%, N=719), reflecting the low number of midwife-provided BSF groups, although 32.7 % (N=513) agreed that midwifery contributions improved their confidence in the reliability of advice and support offered online (Table 27).

Table 27: Experiences of group membership

Statement	**Agree**		**Disagree**		**IQR**
	N	**%**	**N**	**%**	
Reading others' experiences is helpful	1546	98.5	6	0.4	0
Confidence in reliability of group information	1429	91.2	35	2.2	0
Midwife contributions improve confidence in the advice	513	32.7	395	25.2	2
Group gives emotional support	1191	76.1	105	6.7	0
Aware/experienced judgemental or negative comments	308	19.6	1073	68.4	1
Increased knowledge of breastfeeding physiology/process	1424	90.9	49	3.1	0
Reassured by access to trained support on group	1313	84.0	49	3.1	0
Enjoy offering support to others	1222	78.2	82	5.2	0
Feel connected to other parents on group	971	62.2	214	13.7	1
Facebook confidentiality/privacy concerns	261	16.7	945	60.4	1
Access to midwifery support not available elsewhere	226	14.5	719	46.0	1

A MANOVA was used to explore differences in experiences between the three types of Facebook group (midwife-led, not midwife-led or unsure). A significant difference was found between the three types of groups for:

- *'I feel confident that the information on the group is reliable'* [F (2, 1549) = 15.713, p = .000]. Post hoc bonferroni tests showed a significant difference between the midwife and unsure group (p = .000) and not midwife-led and unsure group (p = .000) but not between the midwife-led or not midwife-led groups (p = .705). Both the midwife-led and not midwife-led groups reported more confidence than the unsure group.

- *'I feel more confident taking advice if midwives add to the discussion'* [F (2, 1549) = 63.339, p = .000]. Post hoc bonferroni tests showed a significant difference between all groups (p = .000). Those in the midwife group felt the most confident, followed by those in the unsure group and finally those in the not midwife-led group. Large differences were seen in mean scores with those in the midwife group on average agreeing or strongly agreeing whilst those in the not midwife group averaging between neutral or disagreeing.

- *'I get emotional support from the group'* [F (2, 1549) = 8.114, p = .000]. Post hoc bonferroni tests showed a significant difference between the unsure and midwife-led groups (p=.000) and the not midwife-led and midwife-led groups (p=.000). Those is the midwife and not midwife-led groups reported more emotional support than those in the unsure group.

- *'I am reassured by having access to trained support'* [F (2, 1549) = 50.720, p = .000]. Post hoc bonferroni tests showed a significant difference between the unsure and not midwife-led groups (p=.000) and the unsure and midwife-led groups (p=.042). Large differences were seen in mean scores with those in the midwife group and not midwife group on average agreeing

or strongly agreeing whilst those in the unsure group averaging between neutral or disagreeing.

- *'I feel I have access to midwifery support not available elsewhere'* [F (2, 1549) = 75.343, p = .000]. Post hoc bonferroni tests showed a significant difference between all groups (p = .000). Large differences were seen in mean scores with those in the midwife group on average agreeing or neutral, the unsure group averaging between neutral or disagreeing and the not midwife-led group averaging between disagreeing and strongly disagreeing.

Participants were asked to indicate whether they perceived negative aspects to belonging to a BSF group. Although the majority (77.9%, N=1204) felt membership was only positive, a free text box asking for details from those who answered there were or could be negatives (22.1%, N= 341) generated a number of themes for later discussion. The overwhelming positive regard for the BSF group format, alongside an understanding of the negative themes identified will be used to underpin later development of frameworks.

5.3.5 Awareness of common support issues

Using a five-point Likert scale [strongly agree – strongly disagree] participants were asked to indicate whether they had seen any of a list of common topics discussed on the BSF group. Variables were recoded to identify consensus at either end of the scale. Responses demonstrate that participants identified with the list of topics as common and recognisable (Mdn=1, IQR=0). There was consensus that all were often or sometimes discussed, from relationships least often (80.9%, N=1272) to frequency of feeding most often (99.3%, 1560) (Table 28). Awareness of a range of issues alongside other data informs and underpins further analysis of the BSF group as a functioning online CoP.

Table 28: Awareness of group discussion topics

Topic	Often/Sometimes		Rarely/Never		IQR
	N	%	N	%	
Positioning/ attachment	1547	98.5	24	1.5	0
Frequency of feeding	1560	99.3	11	0.7	0
Baby weight loss/gain	1537	98.4	30	1.9	0
Increasing milk supply	1546	98.4	25	1.6	0
Sleep	1538	97.9	33	2.1	0
Bed sharing	1499	95.4	72	4.6	0
Expressing breastmilk	1550	98.8	19	1.2	0
Formula feeding	1391	88.6	179	11.4	0
Tongue tie	1535	97.8	35	2.2	0
Complications	1557	99.1	14	0.9	0
Parenting styles	1317	83.8	254	16.2	0
Social events	1381	87.9	190	12.1	0
Baby development	1433	91.3	137	8.7	0
Returning to work	1502	95.6	69	4.4	0
Weaning	1511	96.1	61	3.9	0
Relationships	1272	80.9	300	19.1	0

5.4 Thematic Analysis

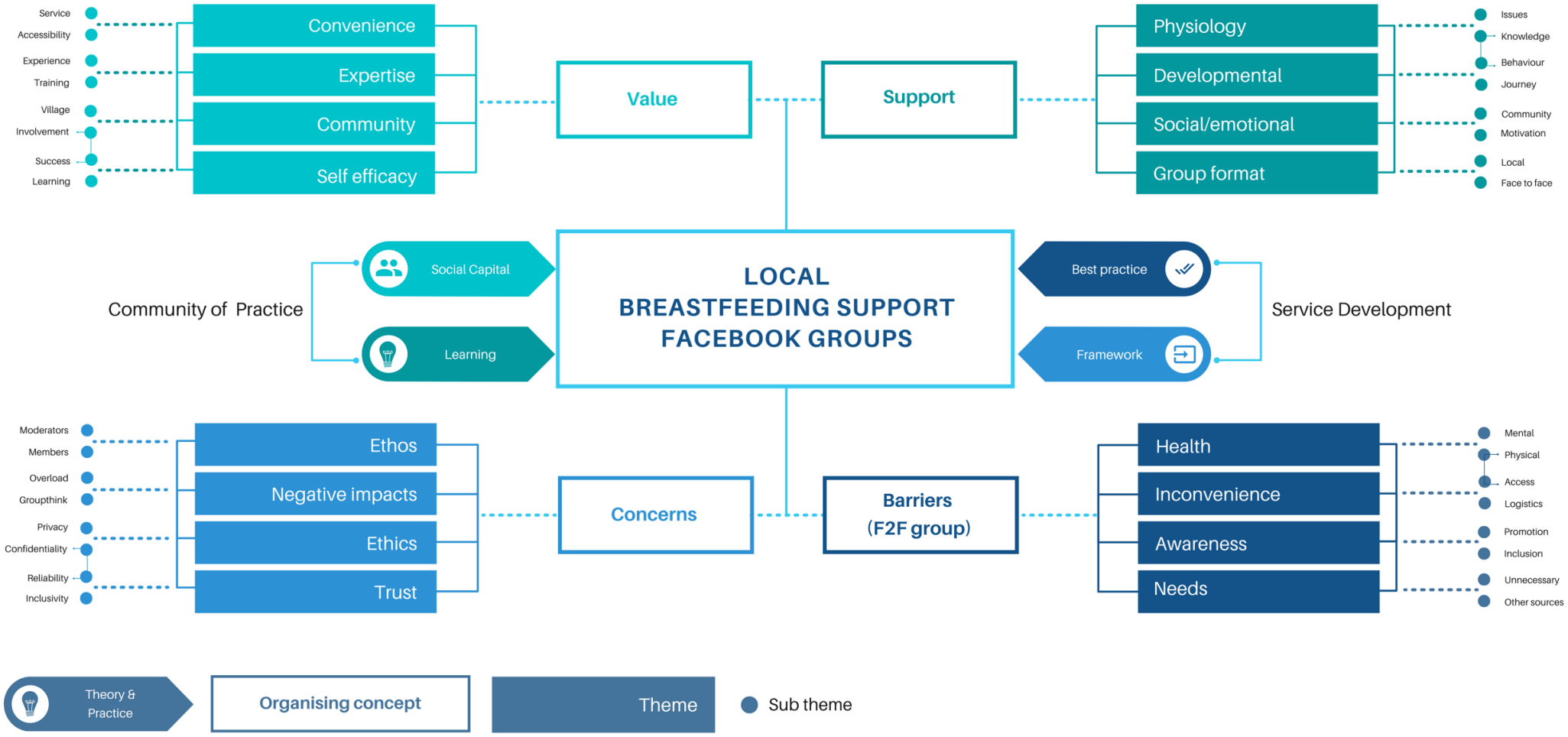
Participants were asked four open ended questions that collected data on barriers to attending face-to-face support groups, areas of support, and any perceived negatives and positives to BSF group membership.

Table 29: Open ended questionnaire items

1. Have you received support from the Breastfeeding Facebook group with any other issue important to you?
2. What do you think the negatives to belonging to the group are?
3. Would you recommend this group to other parents?
4. What are your reasons for recommending or not recommending this group?

Thematic analysis following Braun and Clarke's six phase approach (Braun & Clarke, 2006) was used. NVivo v12 was used to code responses. The thematic analysis generated themes and sub themes which were organised around four central concepts- Value, Support, Concerns and Barriers. A visual map was developed to develop, refine and visualise relationships (Figure 8).
Concepts, themes, subthemes and their relationships are described below using illustrative data extracts and analysed within the discussion. The themes supported social learning as an appropriate theoretical framework for analysis and identified data of use to service development.

Figure 8: Visual Thematic Map (1)



5.4.1 Concept 1: Value

Across the dataset the key to membership and use of the BSF group was its perceived value as a source of support. Four 'Value' themes were identified:

Value theme 1: Convenience

This was the value to mothers of being able to access information, advice and reassurance online at any time of day or night and receiving fast responses.

Sub theme: **Service**

Mothers described how membership of the group extended their access to support either beyond the reach of the standard services, filling a gap in provision or signposting other services:

> *"Local support has almost disappeared. We with my eldest there was a breastfeeding cafe every single day of the week, twice on a Wednesday...Now there is one a week. The helplines have closed. This Facebook group are run by the same people, but without funding, but people with a passion, and who care about children and mums."* (Aged 37, baby 22 months)

> *"When there is so little face-to-face support and funding and what is is subject to a postcode lottery [the BSF group] can be the difference between breastfeeding or formula feeding in many cases as it gives women confidence to continue that they wouldn't otherwise have."* (Aged 39, baby 16 months)

> *"The Facebook group provides a wealth of knowledge and signposting to specialist services I'd otherwise not known about or how to access."* (Aged 33, baby 11 months)

Sub theme: **Accessibility**

Mothers described the value of the group in offering support and reassurance, accessible as and when it was needed most:

> *"If it wasn't for being able to ask a question at any time (even 2am in the morning) I wouldn't be continuing to breastfeed. without this type of group I would not have breastfed my first or second. being able to get support and advice without having to physically go somewhere to meet people in person is exactly what I want. It also allowed me to*

understand wider issues and recognise if I was starting to develop them." (Aged 35, baby 6 months)

"Midwives and health visitors are limited in the amount of time they have to offer support on breastfeeding especially in the early days - the Facebook group is incredibly supportive and accessible at 3am when you need it most and when it's not possible to get to one of the face-to-face groups." (Aged 26, babies 22 months & 1 month old)

"It is a brilliant 24-hour support network - sometimes you needed to be cheered on and told its normal and natural that your baby is cluster feeding even though you are up during the night worrying." (Aged 29, baby 5 months)

Value theme 2: *Expertise*

This theme described the value to mothers of access to trained support, whether professional or peer, increasing confidence, self-efficacy and learning. This theme contained two sub themes:

***Sub theme:* Experience**

Trusted 'real world' lived experience, advice and reassurance from peers was highly valued, particularly where it was lacking within their personal networks/experience. These mothers illustrated this, stating:

"The Facebook group gave me support and suggestions that enabled me to continue, when my husband and family said I should stop. I only had support from the Facebook group, an amazing bunch of ladies." (Aged 30, baby 9 months)

"It is invaluable to have support from such a wide variety of mums on the group. There is almost always someone who has experienced the same problem and can offer advice. I am a midwife myself but had no training on oversupply and breastfeeding was very different experiencing it first-hand as opposed to my midwifery training 5 years ago." (Aged 32, baby 17 months)

"[The BSF group is] …*an amazing local group of mothers and knowledgeable peer supporters who provide evidence-based information that enables me to make an informed choice/decision."* (Aged 30, baby 6 months)

Sub theme: **Training**

Where mothers had access to either trained breastfeeding supporters or health professionals via the group their input was highly valued. This was illustrated by mothers who stated:

> *"Huge amount of support from highly trained, knowledgeable professionals. Much more helpful than information and help received from other services (although some of these have been good too). Extremely fast responses. And people are clearly passionate about breastfeeding and supporting mothers to do so. One of the best resources available."*
> (Aged 28, baby 6 months)

> *"Having an IBCLC qualified person so nearby and actively involved in the group is extremely valuable in my opinion. I have one friend who arranged a face-to-face consultation with her following feeding issues, something she couldn't have done if she hadn't been local to us."* (Aged 36, baby 9 months)

Value theme 3: Community

This theme described the value to mothers of the sense of community built from shared experience, developing knowledge and expertise, within both types of group (peer or HCP run/moderated).

Sub theme: **Village**

Mothers highly valued the community and its impact on them and their breastfeeding, referring frequently to the notion of a 'village'. This was illustrated by these mothers:

> *"It has been a life saver in both sanity and my breastfeeding journey. Always gonna be another mum there 24/7 to comment in solidarity at the ungodly hour feeds and the sleep deprivation. It's the village of women who I know but have never met who have helped raise this mum and her babies."* (Aged 31, baby 7 months)

> *"Sometimes all you need is a sounding board or reassurance that we're not in this alone, many other mums are experiencing the same thing and it's normal. Just to have a bit of guidance, and support, especially in the small hours when you're sleep deprived, hormonal*

and emotional, is wonderful. They're my tribe, we meet at least once a week in person." (Aged 42, baby 12 months)

"The support and availability of information at all hours is vast and immeasurable. I could not have overcome the issues we had without this group. They are my village." (Aged 34, baby 18 months)

Sub theme: **Involvement**

Mothers valued the reciprocity of the BSF group format, many describing how they had gone on to undertake peer support training and/or now felt able to share with and support others:

"It's essential to connect with other mums feeding. It's a real sense of community, I can also contribute and share my experience and knowledge to other new mums, and feel I can help and support others." (Aged 25, baby 4 months)

"I've learned so much and become so passionate about breastfeeding that I'm training to be a peer supporter. Without the group I might not still be breastfeeding at 12 months and we have no intention of stopping anytime soon." (Aged 42, baby 12 months)

"I started as a new mother feeling very supported by other Mums... This has led me to train as a peer supporter myself, I've learned so much more and now provide support to others... Living in a rural location this online resource is invaluable." (Aged 28, baby 5 months)

This sub theme had a close lateral relationship with 'Self-efficacy' sub theme 2, 'Success', highlighting the connection between shared experiences, meeting personal goals and group success.

Value theme 4: ***Self-efficacy***

This theme describes how mothers value the role of the group in increasing their confidence in their ability to troubleshoot problems (for themselves and others), in feeling able and confident in sharing that knowledge within and outside of the group and to meet their own breastfeeding goals. This theme contained two sub themes:

Sub theme: **Learning**

Mothers valued the role of the group in providing opportunities for learning. They felt group membership resulted in greater knowledge/access to the experience of others and increased confidence to meet their breastfeeding goals. This was illustrated by these mothers, who stated:

> *"It is a wealth of information and important support. I am a paediatric doctor and I recommend it to new parents on an almost daily basis as it saved my breastfeeding journey, increased my knowledge exponentially. I value the experience of other mums hugely."*
> (Aged 32, baby 8 months)

> *"I have learnt a lot about cluster feeding in the early days from it and learned it was normal. As no one even the midwives mentioned it to me before so I didn't know it was a thing."* (Aged 33, baby 13 months)

> *"Friendly, supportive advice from real mums with real babies, not textbook ones. Pretty much 24/7 advice / support available. Access to the hive mind and so many more like minded mums / mums going through the same issues you are having than you would normally have access to at a group. Found this hugely reassuring."* (Aged 32, baby 16 months)

Sub theme: **Success**

The success of the group in offering support to meet breastfeeding goals, resulting in improved experiences, longer breastfeeding duration and sharing within the geographical community was valued by mothers. This was illustrated by this mother who stated:

> *"My own peers/ family members have not followed my own experiences with the extended duration of breast feeding their own babies. I feel online I have found like-minded women. Their knowledge and ability to display their hurdles as well as successes has helped to quietly empower my own experience. I will be sharing this group to any new mum."*
> (Aged 31, baby 5 months)

> *"Really useful to have access to as much support as possible. When there are problems with breastfeeding e.g. baby won't feed with cold,*

baby biting, it can feel quite important to get quick support as it's a bit of a nightmare if you can't feed your baby or have to switch feeding type suddenly. My experience of midwife, HV and GP was that they could be hit and miss in terms of availability and knowledge. Having a community of mothers with direct experience, moderated by [lactation] experts very helpful. Also good for increasing my knowledge and not feeling isolated." (Aged 35, baby 19 months)

5.4.2 Concept 2: Support

Mothers described what types of support they had accessed/was available via the BSF group and four 'Support' themes were identified:

Support theme 1: Physiology

The frequent use of the group to seek information/reassurance and to troubleshoot breastfeeding issues relating to the normal physiology of lactation e.g. latching a baby, supply and demand. This theme had two sub themes:

Sub theme: **Knowledge**

Mothers described how open access to the group extended their knowledge of normal physiology, supporting them to breastfeed:

"[The group] …*gave me an understanding what was normal expectations from breastfeeding, gave me the confidence to ignore family that wanted the baby to have formula/constantly feeding baby etc."* (Aged 32, baby 4 months)

"My main concern was cluster feeding and as I'd never really known anyone who BF I didn't know what was normal behaviour. Also family members would say baby was using me for comfort and couldn't still be hungry. I genuinely believe there should be some form of awareness to normalise those behaviours and make people aware." (Aged 33, baby 3 months)

"I have learnt a lot about cluster feeding in the early days from it and learned it was normal. As no one even the midwives mentioned it to me before so I didn't know it was a thing." (Aged 33, baby 13 months)

This sub theme had a close lateral relationship with 'Developmental' sub theme, 'Behaviour', highlighting the connection between the support needs for knowledge of normal physiology and changing behaviour.

Sub theme: **Issues**

Mothers described the role of the group in providing support to identify, solve and/or seek clinical recommendation/guidance with common issues e.g. mastitis, thrush, infection, allergies.

> *"I had huge problems breastfeeding (thrush, tongue tie, abscesses, repeated mastitis) and was frequently told to formula feed by well-meaning friends and family. Without knowing what was 'normal' and getting help with these issues [from the group], I might have given up."* (Aged 32, baby 18 months)

> *"As a first-time mum with few family/friends who are knowledgeable about breastfeeding, the Facebook group has been amazing. I have been able to read advice from midwives and others about all sorts of breastfeeding issues whenever I need it, particularly in the middle of the night when I was starting out and wondering if feeding frequency was normal, learning about cluster feeding and dealing with mastitis."* (Aged 37, baby 14 months)

Support theme 2: Developmental

Support required to recognise normal developmental changes affecting young babies was frequently reported alongside support for developmental changes in the breastfeeding relationship e.g. weaning onto solids, combination feeding, returning to work.

Sub theme: **Behaviour**

Mothers described how support from the BSF group gave them insight into normal developmental behaviour change, supporting continued breastfeeding:

> *"It's so much more complicated than I imagined. It's great to learn more about it. For example - behaviours that show growth spurt or baby "upping supply" rather than, as it would seem, being broken, starving and distraught!"* (Aged 23, baby 4 months)

"It's good to hear other mums' actual experiences and see what they are asking about because it gives you an idea of what to expect down the line. For example, when baby started to get teeth I knew already that this could affect his latch and didn't worry that it was abnormal or that I was doing something wrong - I just went into the face-to-face group to get some help. In a society where you may not have ever seen anyone else breastfeed it's really important to hear other mums' stories and have that bank of knowledge to draw from when you need it." (Aged 27, baby 9 months)

Sub theme: **Journey**

Mothers reported the importance of the group in sharing experiences and offering practical and emotional support for navigating transitions e.g. weaning onto solids/returning to work without ending the breastfeeding relationship, breastfeeding toddlers.

"Not many new mothers know many other breastfeeding mothers, especially those still breastfeeding older toddlers, feeding when pregnant or tandem feeding, so to be able to connect with other mothers who are in the same situation for advice and support is invaluable." (Aged 30, baby 9 months)

"I started work when she was 5/6 months old and they helped me still be able to breastfeed and not lose my supply." (Aged 31, baby 8 months)

"The people these are lovely and I felt welcomed right from the beginning. The leaders are very knowledgeable and it's nice to hear from other mums with older babies who've been through what I'm dealing with already." (Aged 27, baby 8 months)

Support theme 3: Social/Emotional

Mothers emphasised the importance of the relationships built within the BSF group in offering reassurance, solidarity, connection and shared experience/knowledge.

Sub theme: **Community**

Mothers described how the online community provided the social and emotional support they needed:

"The group is great for when you just need to talk to another mum and know what your doing isn't wrong and just hear other ideas. It's supportive that people are always saying the right things for mums." (Aged 32, baby 11 months)

"General support with the difficulties of breastfeeding - i.e. my baby fed every 40 mins for the first 8-9mths and just general "you're doing well" comments really helped." (Aged 32, baby 14 months)

"It's so important to know and feel like you're not alone, and that there is a lot of people that are working towards normalising and encouraging breastfeeding." (Aged 38, 11 months)

***Sub theme*: Motivation**

It was frequently reported that the format of the online community provided motivation for continued breastfeeding. These mothers illustrated this, stating:

"I never struggled physically breastfeeding. It was more that I wanted to read other people's struggles so I didn't dwell on the huge commitment that was breastfeeding. Reading the forum it became clear people had far worse issues than just feeding all the time." (Aged 32, baby 4 months)

"Helps to normalise the breastfeeding experience. Seeing frequent supportive posts helps me stay determined to breastfeed when I am tempted to quit because I am tired." (Aged 26, baby 8 months)

"It is a valuable resource for reassurance and also for support to keep going when needed. Usually the most difficult times are in the early hours of morning and there are like minded mums going through exactly the same thing at that time. It's been a huge help to know I'm not alone and this is normal to feel exhausted and sometimes needing to vent." (Aged 26, baby 7 months)

Support theme 4: Group format

This theme describes how most local BSF groups offer support alongside their face-to-face group, and how mothers perceive this service. The theme has two sub themes:

Sub theme: **Local**

Mothers described the function of the group in conjunction with local, face-to-face support, enabling them to seek support the format appropriate to their need.

> *"As its local, you sometimes recognise other mums from the online group when you then meet them in person at a breastfeeding group / other baby group. Really supportive environment which has made me feel much more confident and able. You are often braver asking things online than face-to-face. Again, as its local there are often invites for play dates / meet ups so you can get to know other mums if you are feeling isolated."*
> (Aged 32, baby 16 months)

> *"Sometimes people underestimate the impact of being home alone in those early days, whilst also not being physically/emotionally able to get out, and possibly not wanted to, but still needing support. Also, with issues with anxiety the idea of going to face-to-face group whether it is social or NHS service etc can feel overwhelming, like you will be judged or you will have to be friendly or have more energy than you do etc whereas the online support takes these potential issues away then helps you feel connected. Whilst giving the opportunity to talk to like-minded people and be able to attend a face-to-face group if/when you feel ready and may know some of them by then."* (Aged 33, baby 12 months)

Sub theme: **Face-to-face**

Mothers described the importance of access/links to alongside face-to-face support in addressing physical breastfeeding concerns, or need for reassurance and social support:

> *"Well moderated group by health visitors and trained peer supporters. Great link to physical group, often people come to group after seeing positive support on fb group. Great way to share up to date articles/videos, peer supporters often post resources and links following discussions at groups. It's a really positive fb group and everyone's really supportive when you post questions, peer supporters or HV team respond to most posts and will encourage face-to-face meets when needed e.g. latching issues."* (Aged 33, baby 14 months)

> *"The support so far has been priceless, solid advice and useful resources, along with regular local meet ups and available face-to-*

face support by trained peers. If not on the group I would have probably given up on bf some time ago." (Aged 33, baby 1 month)

"Friendly, supportive, closely linked to face-to-face groups in the local area to get al.l round support." (Aged 29, baby 15 months)

5.4.3 Concept 3: Concerns

Negative experiences of membership and concerns raised by mothers enabled identification of four 'Concerns' themes.

Concern theme 1: Ethos

This theme describes negative experiences of group interactions that mothers attributed to the attitudes of members and/or moderators and perceptions of the group ethos. Two sub themes were identified:

***Sub theme:* Moderators**

Mothers described moderation that was negative, defensive or unpredictable, undermining trust in the community as a whole and the support available. These mothers illustrated this stating:

"Our local breastfeeding support group is moderated by very biased individuals. They have set a very strict group ethos and will only let you discuss things that suit their parenting style. They often do not use evidence-based advice. There is an awful lot of negative behaviour towards health care professionals from both parents and moderators which increases the risk of mothers not accessing help when/ if needed. The moderators do not actively try to improve the relationship between mothers and HCPs." (Aged 35, baby 9 months)

"Only time I have seen a professional (midwife) use the group it has been only to comment on a post that has been complaining about midwives in order to defend another midwife's actions or explain a local NHS policy for example." (Aged 29, baby 15 months)

"They are ridiculously militant. If you don't follow their thinking you're either kicked out or your comments are deleted. The admin control the comments and what is said and how it is said. There is zero room for personal opinions or personal experiences." (Aged 34, baby 3 months)

Sub theme: **Members**

Mothers described how interactions with other members within an online community could also have negative impacts on their experiences. This was illustrated by mothers who stated:

> *"Sometimes you can feel judged or as though you are making the wrong decision to continue to breastfeed past the age of 12 months by other breastfeeding mothers."* (Aged 35, baby 19 months)

> *"Everyone has an opinion and some don't appreciate all babies are different. There is not always a right answer or the truth is too complex to capture on [Facebook]. (E.g. bedsharing and co-sleeping. Well-meaning parents who don't understand safe co-sleeping and judge). Lots of braggy mums (first timers?!) who wang on about how their baby is doing this can your baby do it too. Infuriating. Hard to find a tribe you relate to."* (Aged 26, baby 20 months)

> *"This isn't frequent but some posts (including those by peer supporters) push a particular style of parenting quite strongly. It's not judgemental exactly, but there is a kind of conviction that only one way is right, and this can be a bit intimidating and upsetting."* (Aged 41, baby 16 months)

Concern theme 2: Impacts

This theme describes psychological impacts arising from membership of the group that result in changes to attitudes and/or wellbeing. Two sub themes were identified:

Sub theme: **Overload**

Mothers described how the use of the group as a source of support could result in receiving overwhelming amounts of information, creating anxiety. These mothers illustrate this stating:

> *"The majority of posts you see are mums worrying about breastfeeding and their babies, whilst reading the comments are reassuring sometimes it can be a bit draining/over-loading seeing so many negative concerns and worries."* (Aged 31, baby 20 months)

"When I first joined it seemed to me that if I had joined earlier, I would have panicked about my baby having all sorts of issues and everything being very hard. I didn't know about the group so just got on with it with some face-to-face support at a group. If you're an overthinker you might read about other people's issues and project them onto your experience." (Aged 38, baby 12 months)

"Because I joined when pregnant, the posts from the breastfeeding support group flooded my Facebook feed, so then when my first daughter was born, I felt overwhelming pressure that I should be breastfeeding but with my daughter having several complications, I couldn't initially, and the pressure that I felt from seeing all these breastfeeding posts made me feel awful. I turned the notifications off and it really helped, now I can search the group (and use the search facility to find relevant discussions using a 'key word') when I choose without it bombarding me. I was able to successfully exclusively breastfeed." (Aged 30, baby 1 week)

***Sub theme*: Groupthink**

Mothers described awareness of a group ethos and shared identity giving rise to expectations of feeding and parenting, or a duty to respond, that become assimilated and perpetuated. These mothers illustrated this:

"I sometimes feel I should breastfeed for longer than I originally planned to and compare myself to others [in the group] who have breastfed past 1 year instead of thinking about what's right for me." (Aged 26, baby 4 months)

"I've become quite anti-formula without realising, which is irrational because for the first 3 weeks of my daughter's life she was combi fed (because we had difficulty establishing feeding and couldn't keep up pumping) and I was formula fed myself. I think formula has kind of become an evil on the group and I've absorbed this sentiment." (Aged 39, baby 15 months)

"It can get a bit addictive, sometimes I wanted to try to answer questions just because no one else had replied or because I might be able to help, but really I was just guessing. My phone started notifying me every time someone posted in the group and I'd end up checking when I should have been interacting with my baby or something else." (Aged 29, baby 8 months)

Concern theme 3: Ethics

This theme described the ethical concerns mothers raised about Facebook as a platform, data collection, privacy and potential for breaches of confidentiality within BSF groups.

***Sub theme*: Privacy**

Mothers described unease at the motives of Facebook as a commercial company and 'profiling' them as breastfeeding mothers as well as reluctance to share openly. These mothers stated:

> *"Facebook is a commercial company which is not just there for the greater good."* (Aged 36, baby 3 weeks)

> *"I also don't like having to use my personal Facebook profile for this sort of thing as it increases what Facebook knows about me/changes my marketing profile. It can also make it difficult to explain if people you are friends with don't know (and you might not want them to know) that you have a baby."* (Aged 33, baby 2 weeks)

> *"The only negative for me is that I'm a teacher in the local area too and I didn't want to post much in the group for fear that a parent of a child I teach could see my problem and find out personal information about me."* (Aged 29, baby 14 months)

> *"I don't post as openly as I would as if I were having a face-to-face 1-1 chat with a midwife. Some people I know also belong to the group and we don't get on. I'm also wary of privacy on Facebook. I'd never post a photo of my baby."* (Aged 26, baby 7 months)

***Sub theme:* Confidentiality**

Mothers described instances of breaches within the group and its wider reaching implications. These mothers stated:

> *"Confidentiality and use of any information given from a privacy perspective. Anyone can anonymously share what I post. One person anonymously contacted my husband about a post I made*." (Aged 29, baby 4 months)

> *"Incidents of other people posting feeding pictures and strangers have weirdly sent messages to mothers advising they could help if*

they sent further pictures of them feeding! They were then blocked and warnings sent out." (Aged 36, baby 15 months)

"I have seen in other groups members of the press copying people's comments and publishing them without consent. It is going to put off people really in need from seeking help. There should be laws preventing this." (Aged 31, baby 3 months)

This sub theme had a close lateral relationship with 'Trust' sub theme 1, 'Reliability', highlighting the connected concerns, trust in the knowledge, behaviour and integrity of others.

Concern theme 4: Trust

This theme describes the notion of trust within the group – the reliability of the information and credentials of those offering support and the inclusivity of the community. It contained two sub themes:

***Sub theme*: Reliability**

Mothers described difficulties in assessing the reliability of information shared, advice given and verifying the credentials of those offering support. These mothers illustrated this in their statements:

"Unqualified advice where many posts are not answered by a trained peer support worker and the responses are not governed by them either. I have never seen members of the group express a concern to a potential breastfeeding problem or suggest the original post author seeks qualified support. Every issue receives the blanket "its normal" response." (Aged 34, baby 18 months)

"Reliability of who is actually part of the group, confidentiality of issues raised and privacy if you know people in the group in the real world." (Aged 32, baby 20 months)

"I am a trained peer supporter and feel some 'advice' which although well-meaning can be wrong, less than tactful and in some cases could be dangerous." (Aged 29, baby 7 weeks)

Sub theme: **Inclusivity**

Mothers described experiences of feeling unable to contribute or concerns that others may be alienated/ left unsupported within the group. These mothers illustrated this stating:

> *"We can get a bit self-congratulatory and smug. Also, a hetero-normative/middle income lifestyle is assumed, which can I have noticed seems to be a bit irritating for some members when the advice they offer is useless (buy silver cups* [for nipple damage] *and get your husband to help to a single mum on benefits for example)."* (Aged 33, baby 9 months)

> *"I wish I could become more actively involved in the local support group but unfortunately my lifestyle choices and parenting choices do not match the moderators so I don't feel I can contribute. I would love for the group to be regulated by midwives or other HCPs."* (Aged 35, baby 9 months)

5.3.4 Concept 4: Barriers

Data describing barriers to accessing face-to-face support is fundamental to assessing the accessibility of conventional services and the complementary role of online support. Four 'Barrier' themes were identified:

Barriers theme 1: Health

This theme described a variety of physical and mental health factors preventing mothers attending a face-to-face group.

Sub theme: **Mental**

Mothers described a variety of mental health factors that impacted on their access to face-to-face support e.g. anxiety, depression, social concerns. These mothers illustrated this, stating:

> *"I suffered with anxiety and was obsessed about routine and scared to leave the house some days. However, the support I received from the FB group was incredible."* (Aged 31, baby 3 months)

> *"I suffered with terrible postnatal depression and never felt I could attend in person but I liked knowing I had support close by."* (Aged 28, baby 6 months)

> *"Not had time yet, is quite a long journey so I need to plan ahead. I want to make sure that I'll get what I need out of the session before traveling the distance with a young baby. I'm nervous about attending a group session, quite shy and a very private person. I do breastfeed in public but I'm very discrete about it, don't like the idea of being scrutinised in a group setting."* (Aged 38, baby 20 months)

Sub theme: **Physical**

Mothers described a variety of physical health factors that impacted on their access to face-to-face support e.g. e.g. recovering from birth, baby unwell. This was illustrated by these mothers:

> *"During the time I really needed face-to-face support I was unable to drive after having c-section. A midwife related to the group came to assist me at my house instead."* (Aged 30, baby 8 months)

> *"I have struggled with some postnatal anxiety and I also have yet to heal from the birth. At the beginning when my son was very small I struggled with moving around and certainly had little inclination to leave the house."* (Aged 35, baby 16 months)

> *"I accessed text support instead as I had a C-section so couldn't drive for 6 weeks so found it difficult to get out to the support group."* (Aged 34, baby 18 months)

This sub theme had a close lateral relationship with 'Inconvenience' sub theme 2, 'Access', highlighting the connection between health and accessibility.

Barriers theme 2: Inconvenience

This theme described how location, distance, transport and other commitments impacted on the ability of mothers to access face-to-face support, and/or to choose online support in its place.

***Sub theme*: Access**

Mothers described how their access to, or choice to access, face-to-face support was impacted by location, distance and transport availability. These mothers stated:

> *"It is too far from where I live and I could not manage it while juggling my work and family responsibilities."* (Aged 39, baby 5 weeks)

> *"There's not one locally to me or that I can reach by public transport within a reasonable time."* (Aged 37, baby 14 months)

> *"I couldn't get to one in the early days of feeding because it was too far away, I don't drive and I had a c-section so wasn't immediately able to walk there or use public transport."* (Aged 42, baby 17 months)

***Sub theme:* Logistics**

Mothers described how the logistics of life with a new baby, including managing other commitments and priorities impacted their decision to attend face-to-face groups for support. These mothers illustrated this, stating:

> *"Defeated by logistics of getting anywhere on time with a young baby, general disorganisation and hecticness."* (Aged 33, 15 months)

> *"I am a working mom with an infant. Breastfeeding is going very well for me so although I'd like to go for social reasons it just hasn't felt worth the effort. Life is pretty limited to what I need right now, not what I want*." (Aged 34, baby 16 months)

Barriers theme 3: Needs

This theme describes how mothers identify the level of support and type of service most appropriate for their needs, recognising the potential for online groups to offer complete support for some mothers, increasing access to more intensive support for those who need it.

***Sub theme:* Unnecessary**

Mothers described how the BSF group provision alone met their need for breastfeeding support. These mothers illustrate this:

"My needs are met by the online interaction." (Aged 43, baby 8 weeks)

"Haven't feel the need to do so. The online group is very efficient and it's easier not having to go somewhere specially with a baby." (Aged 33, baby 2 months)

"I've not felt like I've needed to. The online support has helped reassure and provide techniques, tips etc, so I didn't need further support.' (Aged 29, baby, 12 months)

Sub theme: **Other sources**

Mothers described their use of other face-to-face services alongside the BSF group, including one to one provision, home visits by HCPs and/or private practitioners. This was illustrated by these mothers who stated:

"I had meetings with midwife and lactation consultant." (Aged 38, 5 months)

"I had one to one support from midwife and had peer support visits in early days. After initial problems it all went really smoothly. I also breastfed my elder daughter so wasn't much problem." (Aged 33, twins 23 months)

"I had one to one home visits instead [of attending the group]." (Aged 30, baby 13 months)

Barriers theme 4: **Awareness**

This theme described how decisions to access support on and offline were impacted by promotion of the service, perceptions of what support was available and whether it was inclusive of all circumstances.

Sub theme**: Promotion**

Mothers described a lack of promotion resulting in their not being aware of connected face-to-face groups, or their purpose in offering both breastfeeding support and opportunities for socialising. These was illustrated by these mothers, who stated:

"I was not initially aware of the face-to-face meetings. Moreover, when I had issues with breastfeeding I received help from a lactation

consultant, doula, and our night nurse. So I felt supported and informed enough. Having said that, later on I would have benefited greatly from meeting other mums.' (Aged 31, baby 6 months)

"Wasn't really sure of the purpose of attending as I wasn't having specific problems at the time. Have since learnt people also attend for socialising." (Aged 27, baby 9 months)

"It's not widely advertised as a support group. There's lots of other support groups on Facebook (run by other parents) that tend to be a lot more promoted. Needs more awareness. Shared this group recently with a struggling mum who had no idea this support was available on Facebook. Maybe a leaflet with everything that's given out at the hospital advertising the face-to-face group & the FB group." (Aged 32, baby 4 months)

***Sub theme*: Inclusion**

Mothers described anxieties about whether face-to-face groups would welcome or offer support for their individual circumstances. Mothers illustrated this by stating:

"Because by the time I joined I was into my pumping journey and sitting in a room full of mothers able to successfully direct nurse their babies would have been far too much heartache." (Aged 28, baby 14 months)

"I combination feed my baby because I struggle so much with breastfeeding and some of the posts on the feed are very anti formula feeding it's made me feel like I'm not 100% welcome. Which I won't know is true unless I go but I don't feel confident enough to go, so it's a catch 22." (Aged 31, baby 16 months)

"I have not felt the need for face-to-face support. I'm also breastfeeding twins and feel I've needed support on the twin aspect of feeding rather than actual feeding which I feel this group doesn't necessarily provide." (Aged 34, baby 10 weeks)

5.5 Discussion

The aim of this exploratory descriptive study was to provide insight into the impact of local Facebook breastfeeding support groups on breastfeeding knowledge and experiences and to determine whether mothers perceive contributions from health

professionals to add value, informing provision within health services. A particular objective was to explore descriptively the conceptualisation of local BSF groups as organic communities of practice, providing opportunities for the building of social support networks and social learning.

Findings revealed that all local BSF groups are highly valued by the mothers who use them. Health professional input supports confidence in their reliability and significantly improves perceptions of local midwifery support. The format therefore has potential for development and adoption by maternity services.

Understanding the socioeconomic profile of respondents is fundamental to designing effective services, so it is important to determine who is accessing local BSF groups, and why. The striking associations between socioeconomic variables and UK breastfeeding rates are well documented. Breastfeeding prevalence is associated with increased maternal age and education level and inversely associated with deprivation (Oakley et al., 2013), and this is reflected in the sample. It is therefore those mothers already most likely to initiate breastfeeding who are currently accessing local BSF groups for ongoing support. Existing high levels of breastfeeding initiation are a determinant in the success rate of a support intervention (McFadden et al., 2017) that should be considered when tailoring services and assessing success.

The literature relating to BSF groups demonstrates the positive impact of belonging to a supportive online community on psychosocial factors such as emotional wellbeing and self-efficacy as well as breastfeeding outcomes (Robinson et al., 2019a). The data collected for this study demonstrates the wide-ranging information and resources relating to normal newborn behaviour and evidence-based parenting available within BSF groups, beyond infant feeding. For women from BAME communities and younger mothers, at a higher risk of perinatal mental health disorders, deprivation and social isolation (Prady et al., 2016), appropriately delivered local BSF groups have the potential to improve wider knowledge and outcomes as well as improve relationships with professionals and services. The

participation of a more diverse group of mothers may also enrich the shared experience and knowledge, developing a community of practice as a local resource for families and health professionals.

A community of practice is characterised by the presence of a 'shared domain' (the BSF group), a 'community' (mothers) and a 'practice' (breastfeeding and the development of shared breastfeeding resources) (Skelton et al., 2020). As a CoP the local BSF group facilitates learning by encouraging positive interaction and mutual motivation, dependent on an evolving membership to create a resource for mothers to access on their own terms and in their own time) as well as on 'expert' members to offer reassurance and the benefit of their experience.

The growth of the community and its success is dependent on a number of frequently performed activities, including problem solving, requests for information, seeking experience, reusing assets, coordination and synergy, growing confidence, mapping knowledge and identifying gaps (Wenger, 1998). These were all identified within the data, characterising the BSF group as an organic community of practice, where learning occurs as a by-product of social co-participation (Lave & Wenger, 2002). Previous research has also concluded that BSF groups should be considered organic communities of practice (Skelton et al., 2020).

The notion of 'cultivating' communities of practice, focusing on their knowledge output rather than the investment of social identity has been widely critiqued. It is argued that they should be considered a process rather than an entity and the importance of their spontaneous nature recognised (Pyrko et al., 2017). The organic nature of Facebook use in particular may explain the sociodemographic homogeneity of local BSF group members and potential issues arising from any attempt to 'create' diversity within online communities. Various antecedents of Facebook use have been described including self-efficacy, need for cognition, need to belong and collective self-esteem (Gangadharbatla, 2008). Facebook users choose to become members of groups that meet their interpersonal and informational needs and are rewarded with a sense of increased knowledge and/or

connection, but achieving this involves constructing and managing a complex range of social identities (Lampinen et al., 2009). Individuals choose which groups will meet their needs (and justify their efforts) based on a knowledge or belief that they belong within the social group represented by the [online] community – be this culturally, socially, intellectually or as a result of common life experience. Black British mothers, for example, report using American BSF groups specifically aimed at black women to feel part of a breastfeeding community that is underrepresented in UK groups (CIBII UK, 2018). The significance of this sense of belonging was reflected in the findings.

Conversely, a sense that the group ethos was at odds with their own was also identified by mothers as a reason for not recommending the group to others, or having left other groups, further emphasising the significance of shared culture and goals in creating a cohesive and growing community. Issues of polarised debate and experiences or fear of judgement have been highlighted in the literature (Regan & Brown, 2019). Insight was expressed into how assumptions about the lack of diversity within the group presented issues for mothers from minority backgrounds. Moderation by midwives or other health professionals (HCPs) was suggested by some mothers as a solution to ensuring an inclusive community.

Identifying shared background and experience enables attachment of an emotional and value significance to gaining membership of groups or communities (Tajfel et al. 1979). As such it can be argued that local BSF groups, as online communities of practice, function based on their organic online growth within the physical (geographic) community they serve and are a reflection of the importance of a sense of belonging, shared culture and experience in successful knowledge creation and sharing. There are therefore potential pitfalls in attempting to artificially diversify these communities online, as there are within face-to-face groups. However, women also reported finding value in diversity.

The findings identify that little face-to-face promotion or recommendation of local BSF group provision is occurring within services, with few mothers having received

information from their midwife about the group. Reliance on searches and word of mouth potentially disadvantages minority groups and creates inequality. Some mothers expressed awareness of this and identified possible solutions, including collaboration with maternity services. Careful consideration of how to ensure BSF group support is accessible by all women in a locality is therefore needed when making recommendations for online service provision.

Overall, the socioeconomic profile of the sample identifies local BSF groups as a widely used support source by predominantly white, educated, older and partnered mothers, broadly reflecting those who are most likely to initiate breastfeeding in a given locality (background rates). Whilst high levels of initiation within a population group are a determinant in the success of an intervention, it can also be argued that as an online community of practice, membership by women outside this group may result in improved knowledge, self-efficacy and increased social support increasing overall continuation rates in the wider community. Issues of promotion and ensuring accessibility highlighted by the data require further research to understand how to best offer online support as part of a maternity service that meets the needs of all.

Exploring the infant feeding profile within the sample is also key to understanding which mothers are accessing local BSF groups. The data demonstrated significant differences between the infant feeding profile of the sample compared to national statistics: mothers appeared to be breastfeeding much longer than average (Quigley & Carson, 2016). Mothers who are most motivated to breastfeed are most likely to join a group. However, this data also indicates that mothers who intend to breastfeed often join early and remain members (and continue breastfeeding) for a significant period of time. It should be noted that the sample does not represent those who joined and left after early cessation of breastfeeding, and that further research is needed to collect membership turnover data. This would confirm whether the early joining and mean age of babies is suggestive of the membership of the group being a factor in meeting and exceeding a mother's breastfeeding goals.

However, the evidence within the literature that the BSF group support supports the continuation of breastfeeding (Robinson et al., 2019a) is corroborated by the qualitative data. Mothers frequently referenced the importance of shared experience in normalising breastfeeding, overcoming challenges and continuation as a shared goal within the community, consistent with the characteristics of a CoP. Many mothers felt the group was an instrumental factor in their ongoing breastfeeding relationships, providing of social and emotional support alongside access to information, resulting in longer breastfeeding duration.

Whilst noting the self-selecting sample, the prevalence of breastfeeding beyond 6 months amongst BSF group members, who predominantly joined in pregnancy or with a newborn, also suggests its success in supporting those who initiate breastfeeding to continue. The presence of mothers who have remained in the BSF group since breastfeeding a previous child is significant to the success of the CoP, increasing the variety and depth of knowledge, experience and indicative of a desire to remain in the group to share this with others (Skelton et al., 2020). Normalisation of breastfeeding was noted, with longevity of group membership representing a collective knowledge/experience relating not only to the continuation of breastfeeding past early infancy but extending into other feeding practices, including weaning and expressing milk to return to work, changes in breastfeeding needs and baby behaviour.

Learning occurs within a community of practice not only in the acquisition of knowledge, but in the development of meaning within experience, creating changes in the social formation of the individual and modifying their identity (Pyrko et al., 2017). In the context of local BSF groups this is demonstrated by pregnant or new mothers joining for support and information and subsequently developing insight and depth of experience that enables them to offer this support themselves. They identify as in need of support and progress to feeling able to provide that for others. This is seen both in real time (responding to new posts) but by virtue of the online resource created by the posts remaining permanently searchable within the

group. Whilst some members will leave the group, enough stay to continue to enrich and develop the community. This process is described as a lifecycle, with CoP members progressing through phases of learning/ membership such as visitor, beginner, frequenter/passive, leader/active and senior (Kim, 2000; Sonnenbichler, 2010). Mothers frequently referred to 'contributing', 'giving back' and their desire to share knowledge and experience to benefit others.

It can be argued that the presence of 'leaders' within the group, having progressed through the lifecycle, is indicative of the ability of local BSF groups to successfully support the continuation of breastfeeding amongst members. This exists regardless of whether the group is volunteer or midwife/HCP run. Peers and trained lactation professionals offering lived experience is highly valued, and often described as more reliable than HCP support. This occurs particularly in relation to breastfeeding beyond early infancy which is arguably outside of midwifery scope.

Over time breastfeeding continuation and associated responsive parenting practices become the cultural norm within the CoP, developing a resource for parents currently managing certain aspects of parenting or breastfeeding whilst creating a group ethos and expectations that become assimilated and perpetuated. The development of shared identity and goals occurs alongside processes of individual and group learning as tacit knowledge is captured and becomes explicit knowledge, a growing, organic resource for members to access as their breastfeeding experience progresses and new challenges arise. Mothers recognised this process and reflected that it was not always desirable. However, the majority of mothers felt having access to a supportive community and being assimilated into a group ethos had an overall positive impact on them, emphasising feelings of empowerment, shared experience and solidarity.

Overall, the data suggests that local BSF groups have a positive impact on initiation rates (if joining in pregnancy) and continuation rates, demonstrating that many mothers join early and remain members for many months, often years. Their experiences of continuing to breastfeed past early infancy form a developing body

of tacit knowledge that forms a free, accessible resource. In the UK very few infants are breastfed beyond the first few weeks of life (Rollins et al., 2016) yet local BSF groups represent many thousands of mothers successfully breastfeeding for durations closer to the World Health Organization (WHO) recommendation of two years (WHO, 2017), alongside complementary foods. Local BSF groups, functioning as online communities of practice, striving to support and celebrate continued breastfeeding, therefore have the potential to influence the infant feeding norms in geographic areas. This presents an opportunity for maternity services to provide and promote local BSF groups as a public health priority, within their remit of reducing health inequality.

The findings highlight mothers' experiences of a reduction support from all sources of personal support over time, particularly friends, reflecting negative societal attitudes to breastfeeding, particularly past early infancy, and its relative scarcity amongst the UK population. This demonstrates the critical periods for the function of BSF groups providing additional support to breastfeeding mothers and identifies areas of expertise and training required of those providing the service.

Mothers were aware of reduced services and discussed the negative impact of funding cuts to breastfeeding support to themselves and their local community. It was also evident to them that the local BSF group was in many cases filling the gap left by this reduction, often utilising skills and commitment within the community but often without guidelines, professional support or renumeration. Local access to additional ongoing professional support was viewed by some mothers as a lottery, increasing reliance on highly valued voluntary or online support. Some did not view this as an active choice, but a necessary response to inadequate services. It can be argued that addressing this perception via the provision of NHS online BSF groups may be a solution to regaining trust and improving outcomes in a low-cost way.

Despite reduced services most mothers positively rated the health professional (midwife and health visitor) input that they had received relating to breastfeeding, although they were the lowest rated of all personal/physical support sources

overall. However, given the lack of expertise within the community as a result of consistently low breastfeeding rates in previous generations, it is significant than mothers feel more supported by close family than health professionals, whether they are able to provide practical help and advice to support continuation or not. This suggests that even in the absence of ongoing HCP support, those using local BSF groups (belonging to the CoP) are able to access the support needed for continuation.

Very few of the local BSF groups represented by the sample were being run/moderated by HCPs (midwives and/or health visitors, and most mothers were not seeking HCP support via the BSF group when they joined. However, the majority of those receiving support from volunteer run groups felt additional midwife input would or may be valuable to their local BSF group. Whilst the local BSF group format enables access to a wider network of experienced lay or peer support, it also has the potential to widen and improve perceptions of health professional support, and HCP skills in providing this, where offered. This is a significant resource within the CoP. However, it is important to recognise that the current perceived success of BSF groups by mothers is based on 77% of mothers receiving volunteer/peer support online rather than HCP support, and to explore models of collaboration that respect the expertise and social support they offer.

Mothers felt that the local aspect of the BSF group was important, indicating the additional value of knowledge within the CoP relating to local services and shared social experiences amongst members. Seeking likeminded mothers, shared experiences and face-to-face support, local provision is evidently critical to the efficacy and value of the group. A significant proportion of mothers also reported the use of the group to access local services and face-to-face support, demonstrating the importance and value of collaborative local services.

Findings suggest where HCPs are involved in the delivery of online support for the community residing in the geographical area within which they work that this also offers a continuity of care that is often otherwise absent (26.7% had met or

received face-to-face care from a group moderator). Research widely acknowledges the benefit to mothers and babies of receiving care from a known midwife throughout the perinatal period (Sandall et al., 2016) and this underpins current UK maternity policy (NHS England, 2017). Although most health professionals value their role in providing the breastfeeding education and support expected of them, system constraints have limited the ability of midwives to offer the time and resources to build effective and supportive relationships (Brown, 2021). The provision of midwifery led BSF groups offers a scalable, sustainable format to improve relational continuity (McCarthy, et al., 2017) in breastfeeding support, benefiting both mothers and midwives. As such frameworks supporting HCP input to BSF groups, enabling the development of trust and expertise within the CoP may improve both mothers' perceptions of the support available, breastfeeding outcomes and the satisfaction of HCPs with their role.

The BSF group as a CoP also serves as a resource for women during pregnancy. Facebook use peaks in pregnancy and the early postnatal period (Baker & Yang, 2018) and for new mothers Facebook use at least daily was common in this sample. Wise et al. (2010) suggested that Facebook use serves two primary goals: passive browsing and extractive (active) social searching. Passive browsing provides frequent and organic exposure within Facebook's 'newsfeed' to knowledge and experiences that a new mother may not encounter prior to birth, if at all. This ongoing 'drip feed' creates a knowledge base which can increase confidence and self-efficacy, normalise the breastfeeding process and transition to parenting as a breastfeeding mother as well as ensuring she is aware of how to access support if needed in future, by observing others doing so. Posts remain searchable with the group providing those who prefer to 'extract' with a wealth of information, a choice made often or very often by 77.9% of the sample. This is characteristic of a CoP, identified as 'reusing assets' (Skelton et al., 2020).

Growth of knowledge and confidence continues whilst a mother remains a member of the BSF group and is a prime function of a successful CoP, supporting new members and elevating them from novice to expert over time (Sonnenbichler,

2010). This was evident in the data answering questions being more common than answering them. Mothers did note some negative effects, including the impact of community membership, a perceived need/duty to contribute as well as filtering a potentially overwhelming amount of information. However, awareness and perceived value of increased knowledge acquisition, accessible resources and social ties were clearly evident, along with confidence, knowledge and connection. Whilst there are downsides to be recognised, local BSF groups provide support consistent with interventions demonstrated by the literature to improve continuation rates (McFadden et al., 2017).

Most mothers had social and emotional motivations for joining the group (seeking shared experience and likeminded peers), which is characteristic of a CoP. Facebook use has known negative psychosocial impacts, including higher levels of parenting stress in new mothers (Bartholomew et al., 2012) and poorer body image during pregnancy (Hicks & Brown, 2016), yet parents also report better parental adjustment with increased use (Bartholomew et al., 2012). During pregnancy mothers seek to maintain their existing ('strong tie') social resources to support their adjustment to parenthood, usually increasing contact with family and perceiving them to be increasingly supportive (Gameiro et al., 2010) – referred to as social bonding capital. They also seek to accrue further social resources, joining groups and communicating with other mothers to develop bridging social capital – that which exists within 'weak tie' networks but is better positioned to offer shared experiences, new information and peer support (Madge & O'Connor, 2006). Bartholomew et al. (2012) suggest that Facebook serves this function by providing a platform for contact across both strong and weak tie networks, increasing bonding and bridging capital, essential to successful adjustment to parenthood. Mothers conceptualised this as a sense of belonging to a community willing and able to share in the experience and reported reduced isolation, increased confidence, connection and reassurance.

Recognising the significance of the development of social support as a fundamental part of the BSF group is crucial to developing the format within maternity services.

The group must meet the needs of mothers seeking social and emotional support, including reassurance, validation and recognition of their efforts and intentions in order to drive sustained participation in the group to function as a CoP. It is also important to recognise that there is potential within online communities for behaviour and relationships that may also have negative impacts, most often reported by women as biased attitudes, poor group etiquette, judgemental behaviour or moderation. Findings also illustrated difficulties that arise in relation to differing levels of insight and self-awareness.

One mother raised concerns about the management of negativity toward HCPs, and another reported her only experience of midwives posting within the group as being negative, by implication observing the group only to contribute defensively. These experiences illustrate the need for established frameworks for moderation and clear guidelines and support for local BSF group participation. HCP involvement should be transparent in order to generate and maintain trust within the community, to build and maintain positive relationships and improve outcomes whilst recognising the factors intrinsic to the development of a functioning CoP.

Key to this is exploring the relationship between face-to-face support groups and local BSF groups. Mothers frequently referred to the benefits of physical support, referring to the importance of observation and assessment in addressing many issues, particularly in the early days, and the positive psychosocial impacts of connecting with other mothers and trained supporters in person. Concerns that online support was not used to completely replace this provision as a way to reduce costs and/or access to professional support also frequently arose in the data.

Most groups represented by mothers in the study did offer a face-to-face group and the local aspect of the provision was valued. BSF groups often arise from a physical group, providing a virtual extension of the existing community before expanding to admit new members. This is a familiar utilisation of the social media platform for today's mothers with over half having found the BSF group they joined by conducting an online search for it themselves and around a third of those who had

face-to-face group provision attached to their BSF group had attended it. Those who had not described barriers such as recovery from birth or an unwell baby, and mental health challenges, such as anxiety relating to coping with going out with the baby, breastfeeding whilst out and social anxiety about the group environment. Other mothers had no or limited access to transport or other responsibilities that made logistically attending a group difficult. They emphasised the value of access to online support in overcoming these. Others believed groups would be judgemental or exclusive, and described having drawn these conclusions through their experiences of belonging to the BSF group, demonstrating the need for clear guidelines for members and moderation that promotes inclusivity, including scope of practice (Vickery et al., 2020) and signposting for guidance on referrals for specialist support.

Another theme identified the function of the group in providing targeted support – some mothers felt that the BSF group alone was sufficient in meeting their need for support and reassurance, not feeling the need to access physical support, or that they had access to alternative physical support. Targeted support is identified in the literature as most effective (McFadden et al., 2017). The data suggest the provision of BSF groups improves self-efficacy, knowledge and confidence, offering the reassurance of ease of access if necessary whilst reducing demand on the face-to-face support required. Functioning as a CoP, BSF groups enable mothers to identify answers to commonly asked questions from archived posts and to access further support from peers or moderators, reducing pressure on other services and health professionals (Skelton et al., 2020). This represents a more effective use of time and resources than attending for face-to-face support, widening provision for those who need it. The potential of this format to better target limited resources requires further research.

However, the sources of moderation and support are fundamental to its quality and efficacy. Mothers discussed the importance of training and experience and their concerns around reliability and trust, including issues of clarity relating to the qualifications and training of those offering support and their transparency to

ensure advice was safe, up-to-date and evidence based. As a CoP, knowledge sharing is fundamental but in an online environment moderation by those with verifiable expertise, operating under clear guidelines to delete and/or address misinformation, reduces confusion (Skelton et al., 2020).

Access to both peer and professional support is key (Sinha et al., 2015). Mothers in the sample reported have been well supported with breastfeeding, offline, by midwives. As the majority of the mothers in this sample had maintained breastfeeding beyond early infancy receiving positive support from midwives during the newborn period may be a significant contributory factor to continuation. Some mothers also described poor examples of care and receiving inaccurate or out of date information from midwives. They felt this had undermined their confidence in the expertise or commitment of midwives to providing high quality breastfeeding support and as result believed that lactation specialists (such as those trained and registered by the International Board of Lactation Consultant (IBCLC) or peer supporters trained by charities such as La Leche League (LLL), NCT or the Association of Breastfeeding Mothers (ABM) were more reliable and better placed to offer on and offline support. Reducing the time/resources available for midwifery input and the ability of midwives to offer individualised, holistic care has damaged, for some mothers, the trust previously held in their breastfeeding support skills, often transferring this to wider sources.

Navigating the space between breastfeeding promotion and respecting women's choices has been widely discussed, with considerable negative press of midwifery practice. Whilst the majority of staff are aware of the sensitivities around the issues of infant feeding (UNICEF, 2018), it is crucial that ongoing training, support and exposure to breastfeeding families enables them to develop the considerable skill required to promote the significant benefits of breastfeeding whilst recognising how to support those for whom it is not a choice, or is not straightforward. In the local BSF group context this may mean further training in more complex scenarios such as exclusive pumping and breastfeeding multiples, recognition of the considerable contributions Infant Feeding Leads or IBCLCs can make if a

collaborative approach is taken and clear referral pathways for issues that fall outside of midwifery scope (e.g. tongue tie, allergies, drug contraindications). Further research is needed.

Findings reflect those of other studies, that mothers seek help from peer support services, on and offlline, as a result of not receiving adequate support (RCM, 2014). Although evaluations of peer support interventions alone provide mixed reports of effectiveness (Kaunonen et al., 2012), collaboration between health professionals and peer supporters has demonstrated some success improving continuation of breastfeeding, and services positively evaluated by midwives, mothers and peer supporters (Ingram, 2013). Collaboration within BSF provision would ensure the expertise and resources necessary to provide the range of support sought by women, including on issues such as returning to work, weaning onto solids and longer-term developmental changes that are outside the scope of midwifery training and practice. With cuts to Health Visiting services resulting in a loss of capacity to support breastfeeding beyond maternity care, alongside 28% of health visitors not feeling confident in others providing support (e.g. peer supporters) when they cannot (Stephenson, 2018), there is a clear need for robust multi-disciplinary guidance and training to support the development of trust in collaborative services, to improve outcomes (RCM, 2018).

Despite the limited number of health professional moderated groups identified, the data suggests some volunteer run groups also have midwives contributing to them in some capacity. Overall, mothers belonging to volunteer run groups felt that the addition of midwives would or may be valuable to the support they receive, and of those already using midwife-led groups 87.5% were frequently accessing support from them and finding this useful. Mothers who used a BSF group which was midwife-led were also more likely to regard the offline support they had received from midwives positively than those in other groups and were more confident in the reliability of the information on the group, indicating that online interaction increased their perception of midwifery care overall. This is a clear indication that further research into developing the midwifery role, recognising the role of

lactation specialists and understanding the barriers to midwives participating in BSF group support is justified.

Adoption of the BSF-CoP format in standard maternity services has the potential to support the development of midwives, health visitors and students with exposure to the knowledge sharing, resulting in increased confidence and skill. Emotional health and wellbeing, including burnout and stress arising from increasing workloads and reduced resources, is arguably now an even more significant issue than knowledge acquisition amongst the UK midwifery and health visiting workforce (RCM, 2018; Institute of Health Visiting, 2018). This is resulting in increasing attrition and sickness rates, compounding the issue of reduced staff numbers, as well as the significant cost to the health of staff and loss of support to families (RCM, 2018).

Membership of a CoP through involvement in the BSF group may confer the advantages of its developing social support networks on moderators and contributing professionals, with appropriate supportive relationships, continuity and collegiality known to improve midwives' satisfaction, stimulating better care for mothers (Rayner et al., 2008) and improving midwives' wellbeing. Recommendations for participation by maternity health professionals must, however, consider the implications for scope of practice, including the need to update job descriptions (Vickery et al., 2020), and the appropriate allocation of training, resources and renumeration to prevent participation in the online provision of support becoming additional workload. This requires further research in the next phase of study.

The BSF group format, with an associated face-to-face group and HCP input has the potential to provide the key tenets of successful breastfeeding support identified by the literature. The data demonstrates the importance of collaborative approaches, building and maintaining trust across disciplines to provide evidence based, effective support to mothers.

Findings have identified that the local BSF group format has an important role in breastfeeding support, combining the benefits of social learning conferred by its characterisation as a community of practice with improved outcomes for public health. It also has the potential to be leveraged to support the improvement of maternity services, meeting strategic organisational, clinical and digital goals. Further research must now identify any individual, professional and institutional barriers and facilitators to develop recommendations for adoption of the format.

5.6 Limitations

This was an exploratory study in a new area which relied on large scale recruitment online, within the groups to be studied, and included only those still participating. Whilst efficient, this recruitment method meant mothers with strong opinions about their experiences, or affiliations with their group, may be more likely to respond. Those with negative experiences, or who had discontinued breastfeeding earlier may be less likely to remain in the group and be excluded from the sample. However, variability in breastfeeding outcomes e.g. combination feeding, exclusively pumping and breastfeeding barriers was evident, suggestive of a range of experiences. Internet recruitment methods also have the potential to be biased towards a demographically homogenous sample, as seen here. The sample demographics also reflect those most likely to respond to an online survey – older, female, educated and white (Couper et al., 2007). Whilst Black and minority ethnic groups make up 13% of the UK population (Office of National Statistics, 2011) they are much less likely to be represented in health and social care research studies, including response to online surveys. Reasons for poorer engagement are complex, including beliefs about those who conduct research, language, cultural values and the cultural competence of researchers. Although the older, more educated sample is representative of those UK mothers most likely to initiate breastfeeding (McAndrew et al., 2012), this limits generalisation to the whole population, affecting validity and translation into practice (Raghavan et al., 2018).

Online research methods can also bias a sample by excluding those without online access. However, women of childbearing age are the least likely group to suffer digital exclusion (OFCOM, 2022). As this study sought those already using social media to access breastfeeding support, the research questions could be addressed relying on online methods and recruitment. However, to ensure future services are equitable and accessible, considerations of types of digital exclusion (e.g reliance on smartphone only for internet access) is needed.

The questionnaire design relied on self-reports and perceptions. Some elements of the study also had the potential for recall bias, particularly relating to early experiences and intentions as the mean baby age at time of completion was 10.6 months. As there was only one coder for the qualitative data, there was no testing of interrater agreement and the study may also have benefited from member checking to validate the thematic analysis (Braun & Clarke, 2014). The results of the study raised indications of, and possible explanations for, associations between group membership, continuation and positive experiences. Further study is required to determine where these relationships are causal.

5.7 Conclusions

This mixed-methods descriptive study explored a novel area: the value of local BSF groups and their potential as communities of practice. Mothers perceive their group to have provided support that has enhanced their knowledge, confidence, peer relationships and self-efficacy, resulting in extended breastfeeding duration – an indication of the local BSF group format successfully facilitating functioning CoPs. The groups were described as a highly valued essential service, filling a gap created by the under-resourcing of standard NHS breastfeeding support as well as working alongside it. Mothers valued the input of health professionals within BSF groups where this was available and desired this input where it was not. They identified core support issues/needs fulfilled by their membership of a BSF group, but also described concerns and barriers to be addressed. Discussion highlighted the potential of the CoP to improve public health outcomes and support maternity

services to fulfil strategic goals. These findings are preliminary and descriptive but provide a foundation on which to establish an evidence base for the provision of local Facebook breastfeeding support groups within health services.

The next study will build on these findings to explore the perspectives of midwives in relation to the use of Facebook, identifying potential impacts, barriers and facilitators to the adoption of, and engagement with, local BSF groups as a service.

Chapter 6: Midwives' perceptions and experiences of using Facebook Groups to support families

Publications:

Morse, H., & Brown, A. (2021). Midwives' perceptions and experiences of using Facebook to support families, *Midwifery Digest (MIDIRS)*, June 2021, 31(2), 176-177

Morse, H., & Brown, A. (2023). UK midwives' perceptions and experiences of using Facebook to provide perinatal support: results of an exploratory online survey. *PLOS Digital Health***,** 2(4): e0000043. https://doi.org/10.1371/journal.pdig.0000043

6.1 Background

Study one explored the value to mothers of access to local breastfeeding support via Facebook groups, their function as communities of practice and any significance relating to moderator type. Although a number of studies have identified that BSF groups are highly valued by mothers and associated with longer breastfeeding duration (Robinson et al., 2019; Wagg et al., 2019), findings from study one revealed the value of basing Facebook group support within a local area. Links to local services and face-to-face groups enabled mothers to access the support that was most convenient and appropriate for them, created opportunities for socialising in person and a greater sense of shared experience. As communities of practice (Skelton et al., 2020), with a member lifecycle from 'beginner' to 'leader' (Kim, 2000; Sonnenbichler, 2010), local BSF groups have the potential to become a developing resource for mothers that may influence the infant feeding norms in geographic areas with positive outcomes for public health.

Research has demonstrated that moderators are essential to the success of online communities (Skousen et al., 2020), and that they play a vital role in overseeing discussion in Facebook breastfeeding support groups (Bridges et al., 2018). Mothers have previously identified concerns about group ethos and moderation style (Regan

& Brown, 2019) that study one participants reiterated. The use of midwife moderators for pregnancy and postnatal Facebook support has demonstrated success in providing supporter continuity and validated information, addressing these downsides (McCarthy, 2017; McCarthy et al., 2017; McCarthy et al., 2020). The results of study one suggested that these benefits may apply to midwife moderation of local BSF groups and that mothers desire this input, but that few currently have access to it.

Findings also identified an association between midwifery input, mothers' confidence in the group's reliability and improved perceptions of local midwifery support. It is possible therefore that the format has potential for development and adoption by maternity services, linking online and face-to-face breastfeeding support to widen access, offer reassurance and promote trust. This presents an opportunity for maternity services to provide and promote local BSF groups as a public health intervention. However, in order to develop the use of local BSF groups and the midwife moderator role, insight is needed into the barriers and facilitators to doing so. Numerous studies highlight that despite a high level of public demand for responsive, evidence-based internet services, the NHS continues to be slow to integrate these into routine care (Tranter & McGraw, 2017). Despite rapid digitalisation across the NHS as a result of the COVID-19 pandemic, maternity services remain behind (RCM, 2020a) and research suggests that perceptions of risk and lack of training inhibit professional social media use amongst midwives (Dalton et al., 2014). However, research into midwives' perceptions of Facebook use in practice is sparse, and no literature has been identified that explores any training or support offered to midwives related to this developing role.

Study two therefore explores how midwives and student midwives perceive the use of Facebook support in practice, to build on mothers' views and to identify the barriers and facilitators to developing the provision. Specifically, the study aimed to ascertain the prevalence of midwife involvement in Facebook support and the

attitudes towards its use to communicate with and support mothers, particularly in light of any changes seen during the COVID-19 pandemic.

This study and data is therefore relevant to Research Question two: What are midwives' perceptions of professional social media use, and what are their experiences of offering online support via Facebook communities? It also relates to Research Question three: Do the experiences of midwives align with the conceptualisation of BSF groups as online communities of practice?

Five sub-questions were examined:

1. How prevalent is midwifery input to Facebook support? What are the experiences of those involved in the role?
2. Do midwives perceive Facebook groups as an appropriate format for delivering deliver support? What impacts do they identify?
3. How has the COVID-19 pandemic impacted on midwives' experiences of online communication with mothers?
4. What concerns do midwives have in relation to the use of social media in professional practice? Do midwives perceive any personal and professional benefits arising from the use of Facebook support?
5. What training needs relating to social media and breastfeeding support do midwives have?

6.2 Methods

Design

An exploratory-descriptive survey design was used to collect data on the attitudes of midwives towards Facebook use, the benefits and challenges of developing the midwife's role in Facebook group provision, and barriers to development of the service. Participants completed an online questionnaire asking them about their

experiences and/or perceptions of the use of Facebook to provide mothers with support. The online questionnaire, hosted by Qualtrics XM LLC and distributed via social media, email and website hosting, was considered the most appropriate data collection tool to meet the objectives of this study.

Participants

Participants were registered midwives or student midwives based in the UK. Participants completed an online questionnaire asking them about their perceptions and experiences of Facebook groups being used by midwives to support mothers (Appendix 3).

Inclusion criteria were:

1) Aged 18 or over.
2) Registered midwife or student midwife in the UK.
3) Able to complete the questionnaire in English
4) Able to give informed consent.

Measures

Questions were devised based on the literature and responses indicated using a tick box for closed questions. Open ended questions were included to gather qualitative data for thematic analysis, exploring attitudes to the use of Facebook groups to provide midwifery support, perceptions of training and support needs and changes in online support during the COVID-19 pandemic.

The questionnaire (Appendix 3) included:

- Age, gender and ethnicity. Participants also gave employment details including how long they had been a midwife and any specialist roles they held. County area was also collected to determine the geographic spread of participants.
- Measures of Facebook use: including type of use and perceptions of use.

- Format of Facebook support roles: including types of support, responsibilities held, time spent and reimbursement.
- Perceptions of Facebook support roles: including any additional breastfeeding qualifications, perceptions of impact of groups on mothers and midwives.
- Training and support for Facebook roles: including any training and/or guidelines received or perceived as needed.

Ethics

Approval for this study was granted by the Swansea University College of Human and Health Sciences Research Ethics Committee. All aspects were carried out in accordance with ethical standards as per the Declaration of Helsinki (1964).

Informed consent was given by participants prior to completing the questionnaire. This was ensured via the participant information sheet and detailed the purpose of the study, who was conducting the research and contact details. Voluntary participation and anonymity procedures were outlined. Processing of all data in accordance with the Data Protection Act 2018 and the General Data Protection Regulation 2016 (GDPR) was detailed along with rights and complaints procedures with relevant processes and contact details.

The questionnaire was only made available for completion once the participant information sheet and inclusion criteria had been read and consent questions agreed. A debrief was loaded at the end of the questionnaire encouraging participants to refer to the NMC social media guidance should they have any concerns relating to professional social media use.

Procedure

The online questionnaire was formatted for ease of use, with focus on intuitive and logical flow. Participants were shown questions chronologically and only those relevant to their previous responses, reducing cognitive and time burden. Pertinent

and relatable issues were identified in the literature to ensure participants identified with questions asked. Quantitative data was collected using tick boxes and Likert-type scales, included to ensure accurate measurement of constructs, frequencies and strength of associations. Open ended questions collected qualitative data to contextualise the issues with richer, more detailed accounts of perceptions, concerns and experiences.

Participants were recruited to the study using an advertisement with a link to the online questionnaire, hosted by Qualtrics XM LLC. The study advertisement (Figure 9) was designed to visually relay the purpose of the study and increase sharing amongst colleagues.

Facebook groups aimed at midwives were identified via a Facebook search, with permission sought from group administrators for posting study information to the group or page. The advertisement and link were shared to these groups and to midwifery related Facebook pages and shared by members, totalling 305 shares over 61 days. The link and advertisement were also posted to the Royal College of Midwives (RCM) website. This link was shared by the RCM via email to members and by the Swansea University Midwifery tutors via email to students, to reach those not on social media. Encouragement was given to share with colleagues. This method of sampling enabled a large number of participants (n=719) to be recruited. Whilst few were non-Facebook users and participants were self-selecting, this method and sample size was considered sufficient given the constraints of COVID-19. Clicking the link enabled participants to read study information and give informed consent prior to loading and completing the questionnaire.

Figure 9: Study advertisement two

Data analysis

Quantitative questionnaire data was analysed using SPSS v26. Multiple choice answers were analysed for frequency. Likert scale data was recoded for response frequencies and descriptive statistics generated for evidence of consensus. Chi square tests were carried out to compute associations between type of Facebook use (personal/social use, professional support use) and age range, specialist role, group recommendations and receipt of training. T tests were performed to compare attitudes to mothers and midwives' use of Facebook support groups and level of concern about their use for the two Facebook use groups. County area data were analysed for distribution frequency using Google My Maps.

Thematic analysis using a six-phase approach was conducted to explore patterns and connections (Braun & Clarke, 2014) within the qualitative data. After familiarisation with the data initial codes (Phase 1) were produced using NVivo v12 (Phase 2), identifying themes (Phase 3). Themes were reviewed in relation to the coded extracts (Phase 4), defined and named (Phase 5). Visual thematic maps were produced to identify the connections and refine subthemes (Figures 9 & 10). Illustrative extract examples were selected to report results within the final analysis.

This was related back to the research question and relevant literature in the discussion (Phase 6).

The quality of the study was evaluated using Lincoln and Guba's criteria (1985):

- *Credibility*: confidence in the findings was developed via both prolonged engagement and persistent observation – the researcher is a long-term member of/observer of activity within a variety of UK midwifery social media groups facilitating scope of understanding and depth of analysis.
- *Transferability*: the analysis and discussion make explicit the patterns and context of relationships and of the sample involved, facilitating evaluation by the reader of the transferability of findings to other contexts.
- *Dependability*: Feedback on the adequacy of data, development of findings and the interpretive perspective, via supervision.
- *Confirmability*: Triangulation established the consistency of findings produced by the different methods, via confirmatory analysis to ensure robust and comprehensive discussion. A reflexive journal was used to reflect on methodological decisions and the researcher's background in midwifery and influences as a health professional, as suggested by Hunter et al. (2018).

6.3 Quantitative Results

Seven hundred and nineteen participants completed the online questionnaire between 1st August - 30th September 2020. Participants provided details about their gender, age range, ethnicity and employment to establish the demography of the sample and representation of the UK midwifery workforce. The participants were asked to indicate their age range (18-21, 22-30, 31-40, 41-50, 51-60, 60+) and fell into all provided age ranges (mean age range 22-30, median 31-40 years). The majority of participants identified as either White or White British (93%) and female (98.9%) (Table 30). The distribution of participants by county of work indicated responses from across the UK (Figure 8).

Figure 10: Distribution of participants by county

Table 30: Sample distribution by demographic factors

Indicator	Group	N	%
Age	18-21	73	10.4
	22-30	229	32.6
	31-40	207	29.4
	41-50	118	16.8
	51-60	64	8.9
	60+	12	1.7
Gender	Female	695	98.9
	Male	6	0.9
	Self-defined	2	0.3
Ethnicity	Asian or Asian British (Indian, Bangladeshi, Pakistani, Other)	5	0.6
	Chinese	0	0
	Black/Black British	10	1.4
	Irish	11	1.6
	Mixed or multiple	18	2.6
	White/White British	654	93.0
	Other	5	0.7

Table thirty-one illustrates the employment history, base and roles of the participants. Participants were asked to provide details of how long they had been a midwife and their current role. Over a third (36.2%, n = 260) were student midwives. Of qualified midwives, time since registration ranged from 0-20+ years, with 63.1% having been qualified 10 years or less. Participants were also asked the location of their work. Overall, twice as many qualified midwives were based in hospital (30.2%, n = 217) as were based in community (14.7%, n = 106). Those with specialist roles (16.4%, n = 118) were asked to give details using a free text box, with infant feeding being the most commonly specified role (13.6%, n=16).

Table 31: Employment details

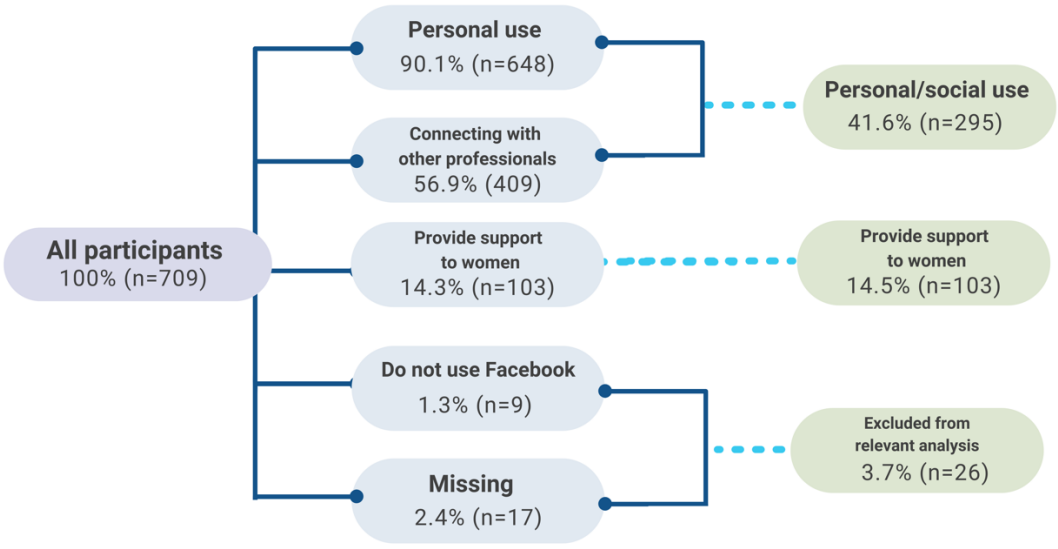
Indicator	Group	N	%
Time since qualification	Current student	264	36.7
	0-3 years	130	18.1
	4-10 years	147	20.4
	11-20 years	82	11.4
	20 + years	80	11.1
	Unspecified	16	2.2
Work setting	Hospital/birth centre based	217	30.1
	Community based	106	15.2
	Students (rotational base)	260	37.2
	Other	116	16.6
Specialist roles	Consultant midwife	2	1.7
	Infant feeding/IBCLC	16	13.6
	Digital/social media	10	8.5
	Team lead/matron	12	10.2
	Public health/safeguarding	11	9.3
	Research/education	9	7.6
	Home birth midwife	4	3.4
	Other specialisms e.g. diabetes, sonography	54	45.8

6.3.1 Part One: *Facebook use*

Part one questions identified the prevalence of Facebook use, types of use and format of support group roles. Participants were directed to questions relevant to their Facebook use.

All participants were asked to indicate whether they used Facebook and how, selecting all that applied. Facebook users most often used it for personal use and connecting with other professionals (41%, n = 295), followed by personal use only (36.4%, n = 262). Just 9 (1.3%) non-Facebook users responded to the survey, reflecting the high levels of Facebook use in the UK population and the limitations of using only internet data collection methods due to the COVID-19 pandemic. Participants who reported using Facebook were split into two groups, those providing Facebook support (alongside or without other use) and personal and/or social uses combined. Participants ticked all that applied, therefore the denominators are not 100% of the total (Figure 11).

Figure 11: Sample breakdown used for analysis by Facebook use type



Cross tabulation was performed to determine the distribution of Facebook use type by work setting (Table 32). Working in a specialist role was significantly associated with providing Facebook support [X^2 = 20.067, p = .000].

Table 32: Facebook use by role

Work role	Hospital/ Birth centre		Community midwife		Student midwife		Specialist role		Total	
Facebook use	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Personal/social use	186	87.3	86	83.5	241	94.5	71	62.8	584	85.4
Supporting women	27	12.7	17	16.5	14	5.5	42	37.2	100	14.6
Total	**213**	**100**	**103**	**100**	**256**	**100**	**113**	**100**	**684**	**100**

Cross-tabulation was performed to determine distribution of Facebook use type by age range. Facebook use was most common in the 31-40 range (37.5%) and this age group was significantly associated with providing Facebook support [X^2 = 47.211, p = .000]. Overall, 22-30 years was the largest group (n = 229) and this age group were also most likely to be students (47.6%, n = 109).

Format of Facebook support roles

Participants who indicated involvement in providing support via Facebook groups as a midwife were asked what type of support they offered. Table thirty three illustrates that, of 88 responses, a combination of antenatal and postnatal support, including breastfeeding support, was most common (36.4 %, n = 32).

Table 33: Facebook group support types

Support type	N	%
Antenatal only	3	3.4
Postnatal only	1	1.1
Antenatal & Postnatal	16	18.2
Antenatal, postnatal & breastfeeding	32	36.4
Breastfeeding	13	14.8
Specialist support e.g. NICU, multiples	14	15.9

Participants providing support in a Facebook group were asked to indicate which responsibilities they had in relation to their role. Contributing to discussion by posting and responding to women's posts alone was the most common responsibility (27.3%, n = 24), followed by involvement in setting up the group, moderating discussion and responding to posts (22.7%, n = 20).

Overall, 18.2% (n = 16) were involved in discussion and moderation alone and 20.5% (n = 18) specified other responsibilities using a free text box. These included responsibility for promotion of their NHS or independent services using Facebook pages (rather than support groups), running support groups for professionals/students and involvement in digital projects (e.g. Maternity Direct, Facemums).

Participants were asked to indicate whether they were required to offer Facebook support as part of their employed role as a midwife (31%, n = 27), or chose to do so outside of their employed role (62.1%, n = 54), the remainder were student midwives. Participants were also asked whether they were paid for their Facebook role. Only 32% (n = 8) of those employed to offer Facebook support were fully reimbursed for the role, 10 (40%) partially and 7 (28%) were not being paid at all. The majority were offering support outside of their employed role and not being paid for it (73.6%, n = 39).

Participants were asked how many hours, in an average week, they spent on their Facebook role. Overall, 26 (35.1%) spent between two and four hours and just 3 (4.1%) over 30 hours a week (Table 34). Two to four hours was the most common weekly time spent on the role, whether employed (24%, n = 9) or as a volunteer (36.2%, n = 17), or as a student midwife (30%, n = 3).

Table 34: Average weekly Facebook support hours

Average weekly hours	N	%
>2	13	17.6
2-4	26	35.1
5-10	16	21.6
10-15	11	14.9
16-29	5	6.8
30-40	3	4.1

Participants were asked how long they had been involved in providing Facebook support (Table 35). Midwives had most commonly been doing this role between 1-3 years (37.5%, n = 33), with 12.5% (n = 11) having started within the previous three months. Of those offering support as part of their employed role, most had been doing so under one year (59.2%, n = 16). Those midwives offering Facebook support outside their role had most often been doing so over a year (77.4%, n = 41).

Table 35: Length of involvement in providing FB support

	Employed role		Outside employed role	
Time	N	%	N	%
0-6 months	9	33.3	7	13.2
7-12 months	7	25.9	5	9.4
1-3 years	6	22.2	24	45.3
4-5 years	4	14.8	8	15.1
5 years +	1	3.8	9	17.0
Total	27	100	53	100

All participants were asked if their NHS health board/trust had official Facebook groups used by midwives to support local women. Of 517 responses, 296 (57.3%)

did, 140 (27.1%) did not and 81 (15.7%) were unsure. Of those providing online support 63 (72.4%) were aware of or involved in their local NHS affiliated group.

Participants indicated whether they had any additional qualifications in, or experience for, providing breastfeeding support. Overall, 153, (29.7%) did and 362 (70.3%) did not, whilst of those providing Facebook support, 43 (47.8%) did and 47 (52.2%) did not.

Participants were also asked if they felt additional post midwifery registration breastfeeding training or experience was required to provide online support, 310 (60.5%) did and 202 (39.5%) did not. Of those providing Facebook group support, 50 (58.8%) felt additional breastfeeding training was necessary and this was a significant association [t (709) = .43380, p = .000]. Further details were given using a free text box and analysed thematically.

Perceptions of Facebook use

All participants who indicated any type of Facebook use were asked to rate a series of statements about their use using a five-point Likert scale [strongly agree to strongly disagree], with 655 completed responses. Cross tabulation and t-tests were performed to identify differences and explore associations between perceptions of Facebook use by the two groups (personal/social and support). Providing support was significantly associated with perceptions of trust, connection and improvements in care, confidence in online professionalism and being happy interacting with mothers online (Table 36).

Participants were asked if they had only started providing a Facebook support role as a result of the COVID-19 pandemic. This was the case for 13 (14.8%) participants. Those participants not providing support were asked if they would consider the role in future. Overall, of 393 completed responses, 220 (56%) felt they would or may, and 173 (44%) indicated they would not.

Table 36: Statements on Facebook use

Type of Facebook use	Personal/ Social		Support		
	Agree		Agree		Significance
Perception of FB use	**N**	**%**	**N**	**%**	
I trust FB with my information	146	25.9	37	41.6	t (650) = 3.596, p = .000
Enables me to connect/learn from other professionals	449	80.2	83	93.3	t (647) = 3.948, p = .000
Friends/family are FB users	429	76.3	67	75.3	t (649) = .742, p = .459
Social benefits	482	85.8	78	87.6	t (649) = 1.134, p = .257
Convenient & easy to use	540	96.1	83	93.3	t (649) = .231, p = .818
Confident in staying professional online	480	85.4	84	94.4	t (649) = 2.793, p = .005
Happy to interact with mothers	178	31.7	75	84.3	t (649) = 10.311, p = .000
Facebook use can improve care	268	47.7	81	91.0	t (649) = 8.818, p = .000
Also use other social media	440	78.3	68	76.4	t (649) = 649, p = .073

6.3.2 Part Two: *Perceptions of Facebook support*

Part two questions identified perceptions of Facebook support, including concerns and support for the role. These were directed at all participants, regardless of Facebook use and type.

Participants were asked to rate a series of statements of positive impacts of mothers' use of Facebook support groups using a five-point Likert scale [agree to disagree], with 510 completed responses. There was a consensus of agreement with all statements, and strong agreement with the ability of Facebook support to provide peer support and access to shared experience. Participants were less likely

to agree with positive impacts on continuity of care (54.7% gave a neutral or disagree response) and improvements in breastfeeding rates (44.3% neutral or disagree).

Positive perceptions of mothers' use of Facebook groups were compared for the two types of Facebook use (personal/social and support). Participants who provided Facebook support reported significantly greater agreement with all statements (p = <0.05) (Table 37).Participants were also asked to rate a series of statements about midwives' professional use of Facebook support groups, using a five-point Likert scale [strongly agree to strongly disagree]. These statements focused on elements of knowledge acquisition and social support.

Table 37: Perceptions of Facebook support group impact on mothers

Facebook use type	**Personal/ social**		**Support**		
	Agree		**Agree**		**Significance**
Perception	**N**	**%**	**N**	**%**	
Improve knowledge	347	82.4	84	97.7	t (503) = 5.129, p = .000
Increase confidence	333	79.1	83	96.5	t (503) = 6.151, p = .000
Help provide peer support	387	91.9	85	98.8	t (504) = 4.452, p = .000
Improve self-efficacy	360	85.5	83	96.5	t (502) = 5.465, p = .000
Improve continuity of care	178	42.3	50	58.1	t (505) = 3.398, p = .001
Enable sharing of experiences	404	96.0	85	98.8	t (504) = 5.248, p = .000
Improve breastfeeding rates	222	52.7	59	68.6	t (505) = 3.834, p = .000
Improves communication	255	60.6	67	77.9	t (504) = 4.293, p = .000
Improves feedback	331	78.6	78	90.7	t (505) = 3.733, p = .000

Responses were compared for the two types of Facebook use (personal/social and support (Table 38). For only basic IT skills being needed, those in the support group

were less likely to strongly agree (M = 2.02, SD =.958), although this was not significant (p = .438). Participants providing support reported significantly greater agreement with all other statements (p = <.0.05).

Table 38: Perceptions of midwives' involvement in FB support groups

Facebook use type	Personal/ social		Support		
	Agree		Agree		Significance
Perception	N	%	N	%	
Help midwives signpost services	380	90.5	84	97.7	t (505) = 5.246, p = .000
Improve connection with mothers	308	73.3	74	86.0	t (503) = 4.018, p = .000
Increase midwives' knowledge	260	61.9	78	90.7	t (504) = 5.840, p = .000
Improve communication with mothers	320	76.2	72	83.7	t (503) = 3.846, p = .000
Require only basic IT/digital skills	340	81.0	69	80.2	t (505) = .776, p = .438
Are a positive experience for midwives	168	40.0	59	68.6	t (504) = 4.773, p = .000
Improve connections between midwives	287	68.3	65	75.6	t (503) = 2.845, p = .005
Contribute to professional/career development	253	60.2	66	76.7	t (503) = 3.175, p = .002

Concerns about providing Facebook support

All participants were asked to indicate whether and to what extent a list of personal and professional issues were of concern to them in relation to providing Facebook support as a midwife [very concerned - not a concern]. More than half of all participants were concerned to some level about all the personal issues, except digital competence (35.2%, n = 179). Personal concerns centred around issues of

privacy and boundaries. There was a consensus of opinion on all areas of professional concern, with lack of guidance for moderating groups and public posting for fear of error or complaint being most strongly felt.

Responses were compared for level of concern by Facebook use type (personal/social only or support) (Table 39). The personal/social group reported significantly greater personal concerns compared to support providers for personal privacy, increased workload/stress, becoming emotionally involved and overstepping boundaries. Participants in the personal/social group also reported greater levels of concern for all professional issues, and the pattern was significant.

Table 39: Concerns relating to providing FB group support

	Personal/social		**Support**		
	Concerned		Concerned		**Significance**
	N	**%**	**N**	**%**	
Personal					
Personal privacy	338	81.1	52	61.2	t (505) = -4.090, p = .000
Digital competence	147	35.3	31	36.5	t (504) = .449, p = .653
Criticism from colleagues	260	62.4	38	44.7	t (505) = -2.625, p = .009
Ensuring my advice is evidence based	301	72.2	60	70.6	t (503) = -.999, p = .318
Workload/stress	274	65.7	48	56.5	t (502) = -3.266, p = .001
Emotional involvement	254	60.9	39	45.9	t (501) = -3.597, p = .000
Overstepping boundaries	324	77.7	42	49.4	t (501) = -6.387, p = .000
Professional					
Posting publicly in case of error/complaint	355	85.1	47	55.3	t (503) = -5.662, p = .000
Being reported to the NMC/my employer	305	73.1	34	40.0	t (500) = -6.222, p = .000
Ensuring mothers' confidentiality	311	74.6	43	50.6	t (500) = -4.719, p = .000
Lack of guidance for moderating groups	351	84.2	44	51.8	t (500) = -7.529, p = .000
Lack of employer support	317	76.0	44	51.8	t (499) = -4.782, p = .000
Managing conflict online	347	83.2	44	51.8	t (501) = -7.165, p = .000

Professional support for Facebook roles

All participants were asked to rate whether they felt any of a list of professional and managerial sources were supportive of midwives providing Facebook support to mothers using a five-point Likert scale [agree to disagree]. 'I don't know' was included as an option to determine levels of awareness of each source. Responses were scattered (IQR 2-3), with around a third each agreeing, disagreeing or not knowing the supportiveness of each source. Overall, work colleagues were seen as supportive most often and NHS health board/trust management and social media policy the least.

Table 40: Perceptions of professional support for FB group roles

Facebook use type	**Personal/ social**		**Support**		
	Agree		**Agree**		**Significance**
Source	**N**	**%**	**N**	**%**	
Facebook group guidelines	133	32.2	44	51.8	t (498) = 3.298, p = .001
Health board/NHS trust social media policy	158	38.3	37	43.5	t (496) = 1.375, p = .203
Health board/NHS trust digital strategy	142	34.4	32	37.6	t (496) = 1.122, p = .263
Health board/NHS trust Communications team	158	38.8	36	42.4	t (497) = 1.254, p = .211
Health board/NHS trust Management	114	27.6	30	35.3	t (494) = 2.617, p = .009
NMC social media guidance	167	40.4	44	51.8	t (494) = 1.941, p = .053
The Royal College of Midwives	181	43.8	40	47.1	t (495) = 1.053, p = .293
Work Colleagues	176	42.6	53	62.4	t (494) = 2.180, p = .030
Universities/ midwifery educators	175	42.4	37	43.5	t (492) = -.579, p = .093

Perceptions of support by Facebook use type (personal/social only or support) were compared (Table 40). Participants who provided Facebook support reported greater perceptions of all sources being supportive of the role, and this was significant for Facebook group guidelines [t (498) = 3.298, p = .001].

Participants were asked how frequently they recommended the use of Facebook support groups to women they care for. Sometimes was the common individual response (31.5%, n = 160) and 119 (23.4%) of midwives were recommending them frequently. However, 185 (36.4%) were rarely or never recommending Facebook support. Of those providing support themselves, 56 (60.2%) frequently or sometimes recommended groups to mothers, compared to 222 (53.6%) of those who did not. Type of Facebook use was significantly associated with frequency of recommendation [X^2 = 99.907, p = .000].

Training and support for Facebook roles

Finally, participants were asked for their views on changes in online practice and improving support for midwives. Further details were given using a free text box and analysed thematically.

Participants were asked to indicate whether they had received any training relating to social media use, and whether or if they would find this useful. Few participants had received any relevant training. All training was perceived as useful by the majority of participants, whether they had received it or not (Table 41).

Cross tabulation by type of Facebook use identified that of those who were providing Facebook group support, 9 (10.8%) had received digital skills training, 15 (18.1%) had received social media training and 15 (18.1%) had received e-professionalism training. Being involved in Facebook support was not significantly associated with having received digital skills training [X^2 = 2.107, p = .147], social media training [X^2 = 1.976, p = .160] or e-professionalism training [X^2 = .002, p =

.962]. However, on average for the three training types, 49 (70%) of the support group believed receiving these would be useful.

Participants were also asked if they had received written local guidelines for providing Facebook support. Overall, 49 (12.2%) had, and 41 of these (83.7%) found these useful. Of those providing Facebook support to women, just 18 (22.2%) had written local guidelines, whilst 54 (76.1%) believed they would be useful. Further details on training received or needed were given using a free text box.

Table 41: Training/guidelines received and perceptions of usefulness

Training	Received	Useful		Not useful	
		N	%	N	%
Digital skills	Yes	60	14.9	9	2.2
	No	186	46.0	80	19.8
Social media	Yes	49	12.2	7	1.7
	No	210	52.4	71	17.7
E-professionalism	Yes	74	18.3	4	1.0
	No	250	34.8	31	7.7
Written local guidelines for Facebook support	Yes	41	10.2	6	1.5
	No	272	67.8	26	6.5

6.4 Thematic Analysis (a)

Five open ended questions were asked (Table 35), enriching the quantitative data with participants' individual views, concerns, reasoning and experiences.

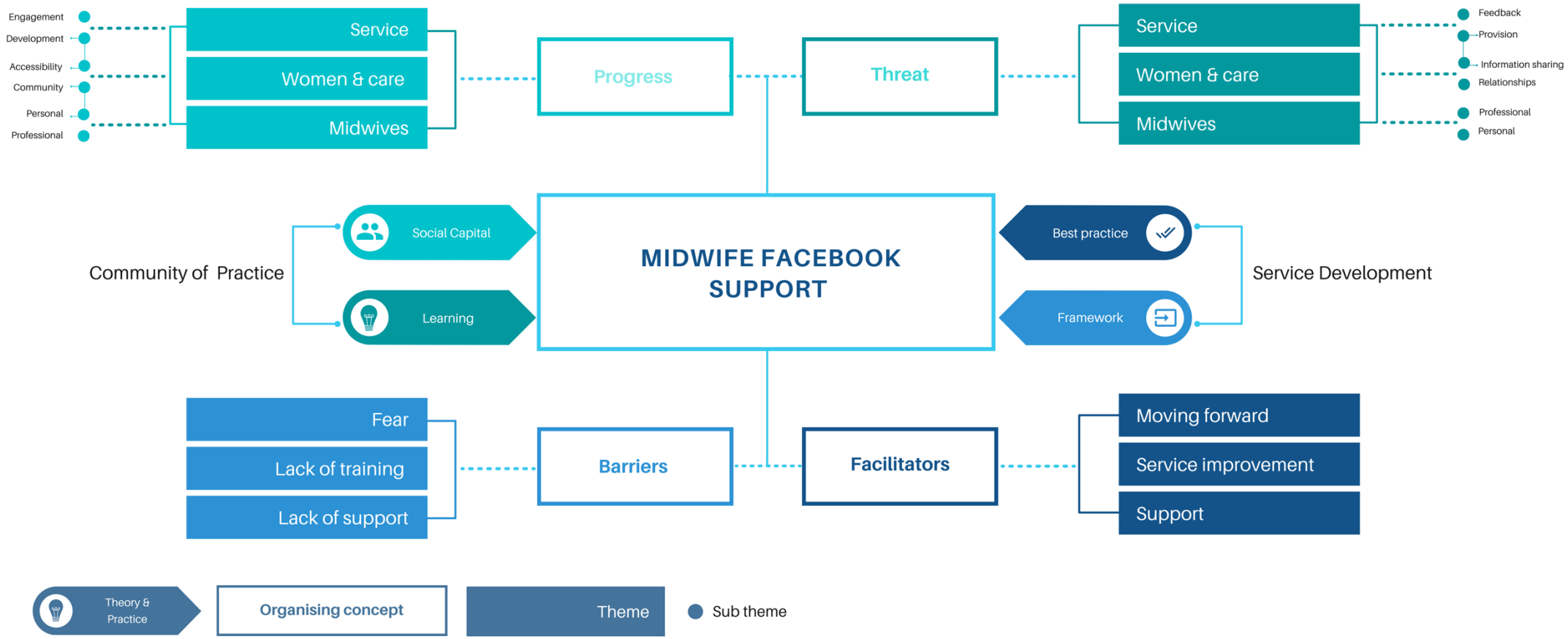
Table 42: Open ended questionnaire items

1) Would you consider a role in providing midwifery support/care to women within an official Facebook group? Please explain your reasons.
2) Do you think additional post midwifery registration breastfeeding training/experience is needed to provide breastfeeding support online? Please explain your answer.
3) Please describe any additional training or support you feel would benefit you and/or other midwives in using Facebook to support mothers.
4) Midwives and maternity services communicating with mothers and families via social media has become more widespread during the coronavirus pandemic. Please describe any changes you have seen and how you feel about them.
5) Is there anything further you would like to add?

Thematic analysis following Braun and Clarke's six phase approach (Braun & Clarke, 2006) was used. NVivo v12 was used to code responses. Themes and sub themes were identified and organised around four central concepts: Midwife-led Facebook support as 'progress' and as 'threat', and 'barriers' and 'facilitators' to social media use. Concepts, themes, subthemes and their relationships are described below using illustrative data extracts and analysed within the discussion. Question two was analysed separately to develop further insight specifically related to breastfeeding.

A visual map was developed to develop, refine and visualise relationships between overarching concepts, themes and subthemes identified using thematic analysis (Figure 12).

Figure 12: Visual thematic map (2a)



The themes supported social learning as an appropriate theoretical framework for analysis and identified data of use to service development.

6.4.1 Concept 1: Progress

There were a number of ways in which midwives providing support via Facebook was perceived by participants as 'progress'. Three 'Progress' themes were identified:

Progress theme 1: Service - the ways in which the provision of midwife-led Facebook support was perceived as improving, or able to improve maternity services. This included increased engagement, improved feedback and the development of services to meet strategic and service user expectations.

Sub theme: **Engagement**

Participants described how social media interactions between mothers, midwives and the maternity service, in the context of the COVID-19 pandemic, had improved feedback and engagement. This was perceived as a positive for individuals and the service:

> *"A positive has been that women have shared their birth stories with thanks and appreciation for the great care they have received- this improved morale for the midwives and provided other mums to be with some reassurance."* (Birth centre midwife)

> *"Much more engagement online meaning bulletin style messages get shared and spread around quicker. Takes some pressure off community midwives and advice lines who would normally take brunt of calls regarding changes -this is positive. Easier to get feedback and find out what is working and what isn't - also positive but not formalised."* (Digital midwife)

Sub theme: **Development**

Participants described the ways they perceive the use of social media for support as necessary, positive progress for the maternity service, alongside the need to develop robust and supportive guidance for midwives:

> *"Local guidance and training from the trust is imperative to support confidential, management of boundaries, regulate information provided and monitor safe practice. I think that the use of Facebook should be under the auspices of the employer to support the midwife to help benefit women and their families. Need guidance on complaint and liability."* (Hospital midwife)

> *"We are in an age of social media. People expect to be able to use these methods to communicate. As service providers we need to be able to adapt and use the same platforms as our service users to ensure we provide evidence based and accessible care."* (Community midwife)

Progress theme 2: Women & care **-** the ways in which the provision of midwife-led Facebook support was perceived as improving, or able to improve the maternity care received by women, and the need for progress.

Sub theme: **Meeting needs**

Participants described perceptions of social media use as a positive and necessary tool for reaching and empowering women, increasing engagement, encouraging peer support and providing evidence-based information.

> *"II would consider a role in supporting women via social media as I feel it makes support accessible for all women and is a really useful tool in empowering women to support each other."* (Community midwife)

> *"We need to move with the times. Lots of women are more likely to interact with services if they are available in a format that is easy for them to access. I suspect that social media support will make services far more accessible to those who find it difficult to travel or for those who find leaflets/written materials difficult to understand."* (Midwife)

> *"I think most people these days have social media and it's easy to access. Most women are on other unreliable Facebook groups for*

information so providing one with evidence-based practice for women would be beneficial." (Hospital midwife)

Sub theme: **Community**

Participants described the positive use of Facebook groups to offer both professional and peer support within an online community, particularly where in person support has been affected by the coronavirus pandemic. This encompassed antenatal, postnatal and infant feeding informational and social support.

"The sense of community on social media platforms between expectant mothers has been a lot more apparent during lockdown as women have been unable to attend face-to-face parentcraft/mother and baby classes etc and have been reaching out to each other a lot more online for advice and just general friendship." (Student midwife)

"Women have felt a little put out during this pandemic and I have noticed a lot of activity on a local health board website for feeding. It has been great to watch others peer support each other and midwives to continue with continuity that otherwise could have been lost." (Hospital midwife)

"Many women have felt socially isolated during the pandemic. Facebook pages and social media forums have helped to bridge the gap and provide support when they haven't had family or friends to be able to turn to." (Community midwife)

Progress theme 3: Midwives - the ways in which the provision of midwife-led Facebook support was perceived as progressive for midwives' skills or experiences.

Sub theme: **Personal**

Participants described personal experiences and impacts of the value and perceived potential of Facebook support, often accompanied by a lack of institutional support for this progress.

"Yes, I'd love to (give FB support)! Think it would bring down a lot of the unequal power dynamics that are implicit by being a HCP." (Hospital midwife)

"A sudden recognition by my employer [due to the pandemic] of the value of what I had been doing for a long time in my spare time!

Suddenly this was a role that warranted paid time, which felt like a kick in the guts to be honest. Everything I had done to date has been set up, maintained and learnt in my own time and I know it has been of immense value. During covid, we have expanded our services online and been able to involve more Midwives (those who cannot work clinically) - it has been of value, but I do not believe that it is truly seen for the potential it has - that is still a battle." (Hospital midwife)

"My trust have been very unsupportive when I have done anything online, my trust have become very resistant to me growing and developing within my unit in the last 4 years that I've been "public" with what I do. It has led to a growing divide between me and them and has been one of many things that is adding to me leaving the trust. However, the women who have had support from me on my personal midwife Facebook page, allow me to provide continuity of care (when it's needed), and achieve a sense of fulfilment from being a midwife That my job no longer gives. I've offered my skills to the trust during covid 19, as I'm also in the clinically vulnerable group so have not been patient facing for months, and they have refused every step of the way. I'm heartbroken that the advances that could be made online are almost seen as witchcraft despite our trust rushing to swap antenatal classes. Covid 19 could have yielded major change for our trust, but instead I feel it's clinging to the dark ages." (Community midwife)

Sub theme: **Professional**

Participants perceived professional engagement online to be much needed progress, with great potential for midwives and midwifery care.

"The pandemic has shown that a lot of what was thought to be best done in person can be done online just as or more efficiently. This does need to be assessed in maternity so we can provide the easiest and most relevant services that maintain highest levels of safety." (Student midwife)

"I think there is great potential in terms of improving communication & cutting travel, and offering more flexibility to MW (working from home) but we must be wary of seeking and respecting women's preferences and not reducing screening (including supporting self-screening i.e. with BP/urine)." (Community midwife)

6.4.2 Concept 2: Threat

There were a number of ways in which midwives providing support via Facebook was perceived by participants as a 'threat'. Three 'Threat' themes were identified:

Threat theme 1: Service **-** the ways in which the provision of midwife-led Facebook support was perceived as negatively or potentially negatively impacting on maternity services.

Sub theme: **Feedback**

Participants described how engaging with Facebook created opportunities for negative feedback and challenges in managing responses.

> *"It's a great idea however, trust is then up for public verbal abuse and becomes frustrating when you can't challenge the 'keyboard warriors'."* (Hospital midwife)

> *"My trust has a page that provides information to the public about current services and changes etc this is manned by an IT specialist who is not midwifery trained and has lead to some misinformation. It has also led to posts from the public 'naming and shaming ' midwives and care provided. We have a policy that is not very specific about social media use and I feel that leaves things open to individual interpretation which can prove tricky."* (Community midwife)

> *"I feel these were initially a fantastic way of giving the relevant information that was still very much needed during this pandemic, unfortunately they very quickly became a platform to criticise the health boards and Midwives etc which became very detrimental at an already stressful time."* (Hospital midwife)

Sub theme: **Provision**

Participants described perceptions of Facebook use as a threat to women's access to individualised information and care, or as a way to justify reductions in service provision.

> *"Those comms were seen as temporary during extremis. When all face-to-face meetings can resume the concern is that they will not -*

women will be left with inadequate levels of care and midwives held responsible for mopping up issues via Facebook. It's another NHS care scandal waiting to happen." (Hospital midwife)

"I feel very concerned that that social media will replace face-to-face dissemination of information. A key skill for a midwife is to tailor both content and level of information to each individual to ensure it is relevant and understood. Whilst I see the benefit of increased reach, a one size fits all approach will not tailor information for those who most need it." (Community midwife)

Threat theme 2: Women & Care - the ways in which Facebook group support was perceived as problematic for the delivery of reliable information and as undermining advice from health professionals.

Sub theme: **Information sharing**

Participants described concerns that social media groups pose a threat to appropriate and effective information sharing, perpetuating false information with the potential for adverse outcomes.

"By far the largest type of conversation I've seen [online] has been women discussing and diagnosing normal newborn behaviours as 'reflux' or 'CMPA'. This might be good in other situations except I have then seen many occasions of discussing and recommending medications and dosages, what to say at doctor's appointments to "get what you want"." (Community midwife)

"It hard to ensure evidence-based guidance is provided and supported by some peer groups. They can be helpful but also provide incorrect advice." (Hospital midwife)

"It's impossible to gather all the information, other non-medical professionals give their opinion diluting the impact of the health care professionals' advice." (Student midwife)

Sub theme: **Relationships**

Participants perceived the use of Facebook as a threat to women's relationships with services/care providers, and the ability of professionals to communicate effectively and individually with them.

"Unfortunately [social media use] does mean there is a delay in some women accessing appropriate care, as they will message with a serious concern when the inbox is not manned (though it is widely publicised what times it is manned!). I also am concerned by the messages received by people who are seeking emotional support, when this would be best provided holistically by their community midwife." (Community midwife)

"There is a way that you can read things online that may come across in a different way as to how you'd say it in person. I would like to say I'm a lot more confident giving advice in person where we can have a face-to-face conversations and read each other's cues." (Student midwife)

***Threat theme 3. Midwives* -** the ways in which providing Facebook support was perceived as a threat to midwives' skills or experiences.

Sub theme: **Personal**

Participants described concerns about personal boundaries and the potential for time, privacy and wellbeing to be threatened by professional social media use.

"I just worry that professionals can forget boundaries exist on social media. Especially when they post to each other...forgetting patients may see their posts too." (Community midwife)

"There is a risk that midwives will let work bleed into their personal time and so there should be strict guidance about midwives switching off from "professional" FB when they are not working." (Community midwife)

"Heavier and more widespread use of HB groups to provide information and support [during COVID-19]. The information is useful in dispelling myths etc but I have had to unfollow many of them (I was pregnant and gave birth during the pandemic) as I felt, and still feel, that there is a lot of anger and vitriol on these sites. It's also difficult when you are seeing bad advice being given by others. I have also seen some quite unprofessional responses from the moderators of one HB group which only served to fuel the fire. Maybe it is hard for some to try and remain neutral when the pandemic has put so much pressure on a service? Then it feels almost personal when someone attacks it as they are talking about you and your work colleagues." (Hospital midwife)

Sub theme: **Professional**

Participants described issues of accountability and concerns relating to the use of social media in professional practice.

> *"Any advice given by midwives can and will be screenshotted, edited, shared on women's personal accounts, and has huge potential personal risk to midwives. I have seen many midwives berated and destroyed on social media, comments taken out of context, interactions I have witnessed and been present as the midwife posted, knowing background from their in person consultations and the woman's medical notes - and yet the woman has publicly posted very different information. I don't think any interactions should be public."* (Hospital midwife)

> *"The ability to share posts and information given that may be woman/area/trust specific could mean that others apply it to their own scenarios and therefore pose a potential risk in that individual information has not been sought, taking all individual factors in to account. Where the culpability and accountability lies is dubious in my opinion."* (Community midwife)

> *"The risks for professional misconduct are high - I have witnessed many midwives berated on Facebook following interactions I know to be impeccable. Our trust doesn't have official support but there is one group affiliated with our trust, run by volunteers and CCG professionals. Despite input from midwives the conversation amongst women invariably becomes dangerous in its recommendations and there is no way to implement baby friendly standards."* (Community midwife)

6.4.3 Concept 3: Barriers

Participants identified three distinct 'Barrier' themes to the use of social media to provide support:

Barriers theme 1: Fear – participants described how personal and professional fears presented a barrier to their use of potential use of social media in practice.

> *"I would be worried about confidentiality, being hacked, being stalked. No.* [Facebook use] *is totally unprofessional and unsafe for both mothers and me as a professional."* (Hospital midwife)

"I would be mindful that my philosophy of practice does not marry with the expectations of some employers. I'd also be concerned about being judged by others who do not share similar approaches to mw care. I would feel I'd have to "tow the line" in that I could only offer support and advice that is aligned with institutional midwifery care." (Midwife)

"Our lecturers have given us extremes of views on social media use, probably good to have the spread but it has been confusing. Most of my cohort are like me, very worried about what we post online to the point where we probably wouldn't. This would mean women miss out on that advice/connection. I think we need more training other than scaremongering. I think the NMC should have really clear cut advice about social media use and whether students/midwives should be using social media to connect and when it's appropriate. This could stop me worrying about getting it wrong." (Student midwife)

Barriers theme 2: Lack of Training – participants described how a lack of training designed to support and clarify the use of social media presented a barrier to safe and confident use.

"I think we need to move away from the assumption social media=\=unprofessional, and all the training I've had or discussed with others have been about protecting yourself and defensiveness, not about safe usage or recommendations to improve care." (Community midwife)

"The only training I've received was basically - beware social media! Yet it is an essential part of my job in terms of keeping up with research (Twitter), communicating with colleagues on service improvement/policy (Facebook) and communicating with women (Facebook, WhatsApp, Zoom)…I received (independently) some great zoom training, focusing on using the interactive tools and building group cohesion online - essential if we are not going to just use these tools didactically." (Community midwife)

"We need trust specific Social Media Training. Reassurance and clear guidance that if giving evidence-based information this is not inappropriate. Many students/midwives have it drilled in that any talk of "work" online goes against NMC code." (Hospital midwife)

Barriers theme 3: Lack of support – participants described the lack of support, hostility and resistance by employers, professional body and universities as presenting a barrier to their use of social media in practice.

> *"There is condemnation from employers when responding to women who speak ill of our trust online. I've only ever sought to connect women with services when they cannot reach them, correct misinformation, and reach out when there is clear distress. My employer responded by threatening me with referral to NMC for using Facebook on trust time and misrepresenting the trust online."* (Hospital midwife)

> *"I have been told by my university that we must never interact with mothers on social media, I imagine they would support a professional approach but as they have given us no training and been very negative about social media I wouldn't dare (and my background is in digital marketing)."* (Student midwife)

> "[Support for] …*this should be built into midwifery degrees! Our entire lives are online for heaven's sake! Midwifery programmes have themselves gone online during lockdown and they've no excuse for not providing thorough and up to date digital training. All NQM should leave university feeling competent with engaging professionally online in any capacity, be it professionally on LinkedIn, setting up influencer accounts on twitter or supporting women as part of our midwifery role."* (Student midwife)

6.4.4 Concept 4: Facilitators

Participants identified three distinct 'Facilitator' themes to the use of social media to provide support:

Facilitators theme 1: Moving forward – participants described a perception of social media as fundamental to the lives of the women they care for and the need to keep pace being a facilitator for change.

> *"I believe contemporary society is hugely influenced by social media. Social media provides an accessible source of support for women and their families and I feel midwives and students should use this to their advantage. Facebook is a part of many mothers' lives and therefore*

they may be more likely to access support and information by a route that they are familiar with." (Student midwife)

"We should meet the women where they are. Social media is so widely used now, we need to start recognising it as a way to get women to engage & reach people that would not attend groups or classes." (Midwife manager)

"We are in an age of social media. People expect to be able to use these methods to communicate. As service providers we need to be able to adapt and use the same platforms as our service users to ensure we provide evidence based and accessible care." (Digital midwife)

Facilitators theme 2: Service improvement – participants described the potential of social media support to improve services, improve connections and remove barriers to care as a facilitator for its incorporation into midwifery practice.

"[Social media support]…*ensures that midwifery care keeps up with society and allows women from all backgrounds to engage with it. I think it may allow women to feel more connected with maternity services and other pregnant women. A Facebook group should not however replace other means of contacting/engaging with maternity services but help to add to it."* (Community midwife)

"Lots of woman no matter their age use Facebook daily and so it would be a great opportunity to reach out to more women and give daily support. It is now the new norm for people to use social media as a way of connecting and via platforms like Facebook women may be more inclined to seek support should they needed. Especially now, during the current pandemic." (Student midwife)

"In the age of social media most women accessing maternity services are using it. It may also remove some of the barriers that may prevent women from accessing advice from other avenues, such as feeling like they are "bothering" professionals and feeling intimidated or condescended by professionals. Social media is a more relaxed avenue to access information." (Community midwife)

Facilitators theme 3: Support – participants described how support and guidance for midwife participation in the development of online support services facilitates development of the role and its incorporation into practice.

"Local guidance and training from trust is imperative to support confidential, management of boundaries, regulate information provided and monitor safe practice. I think that the use of Facebook should be under the auspices of the employer to support the midwife to help benefit women and their families. Is there any guidance on complaint and liability and is the midwife covered by the employers' indemnity insurance?" (Hospital midwife)

"Part of my role is creating professional training for midwives using social media which I have undertaken at the 12 NHS Trusts Facemums has provided care in. This level of training is essential to ensure midwives have the evidence base from their Trust and professional body to ensure safe care and professional practice. Additionally, all midwives I have trained are placed within Facebook groups to enable them to discuss ideas with midwife colleagues and then they can have one to one support with me or my colleague to enable professional confidence and skill for all midwives participating in Facemums." (Midwife)

6.5 Thematic Analysis (b)

Participants were asked to explain why they believe additional post midwifery registration breastfeeding training/experience is needed, or not needed, to provide breastfeeding support online/via social media. Six key themes were identified (Figure 12). Those who believed it was not needed cited reasons related to breastfeeding as a core midwifery skill ('Core skill'), or the responsibility of individuals to recognise the limits of their competence and of institutions to improve pre-registration training ('Taking responsibility'). Those who believed it was necessary gave reasons that were developed into four themes: 'Upholding best practice', 'Resources and referrals', 'Inadequate training/exposure' and 'Additional skillset'.

Figure 13: Visual thematic map (2b)

6.5.1 Category 1: No need for additional breastfeeding training

Two 'No need for additional training' themes were identified:

Theme 1: Core skill – the belief that breastfeeding is an integral part of a midwife's role, developed as an undergraduate and enhanced by practice experience. Delivery via social media was not seen as requiring additional knowledge or skills.

> *"We have been afforded extensive and independent learning surrounding breastfeeding and anatomy through my 3 years at university and been supported during placement to work alongside breastfeeding peers. I am confident that I would be able to support women without this additional learning, although if it was offered it would be something I would definitely take part in*." (Student midwife)

> *"The training and hands on experience is more than adequate and there are so many resources for midwives and women. I don't think it's needed."* (Midwife)

Theme 2: Taking responsibility – some participants felt that being competent to provide breastfeeding support was a skill that midwives should take individual responsibility for: seeking updates, additional training and practice exposure- and being passionate. Others cited institutional responsibilities for ensuring midwives did not need additional training.

> *"If the midwife wishes to provide support but feels that they need additional training then it is up to them to seek it on an individual basis."* (Midwife)

> *"All midwives should be able to support a woman to breastfeed. It should not be a specialist skill. If midwives need more training, then this signifies a problem with their undergraduate training."* (Midwife)

> *"If it is someone's passion they will be good at it* [online breastfeeding support]." (Midwife)

6.5.2 Category 2: Additional breastfeeding training needed

Four 'Yes additional training is needed' themes were identified:

Theme 1: Additional skillset – the belief that although breastfeeding is an integral part of a midwife's role, the online format may require additional knowledge or skills. These included technical, online and e-professionalism skills as well as wider breastfeeding knowledge that may be beyond standard training.

> *"Social media is constantly evolving so the practitioner need to be able to be confident in things such as sharing and privacy in order to safeguard women's information and dignity in a way that you would not have to consider if this was being done face-to-face."*(Midwife)

> *"Midwifery training does not include enough information on problem solving of lactation issues - it's very basic & you need far more than this to problem solve online."* (Midwife)

> *"For some online situations yes absolutely. I don't think anecdotal evidence is always beneficial and I think midwifery input is required, whether that be training peers or providing care directly. Infant feeding is a midwifery speciality, it's complex and can result in neonatal health issues of advice isn't given correctly or issues not picked up on."* (Midwife)

Theme 2: Resources and referrals – participants identified a need for the provision of appropriate resources for themselves and for signposting mothers with wider needs. The benefits of collaboration with other professionals and ongoing, updated and in-depth training were also highlighted.

> *"Trained professionals who are constantly maintaining their qualification have the newest breastfeeding evidence and support and are in a better place to offer women support*." (Midwife)

> *"Updates always important, including local referral pathways, local tongue tie professionals. connections with Health visitor etc."* (Midwife)

> *"UNICEF training was available through midwifery training, but this is not as in depth as training with other breastfeeding training providers such as LLL, NCT, ABM or BfN."* (Midwife)

Theme 3: Inadequate training/exposure – participants perceived issues and with developing and maintaining breastfeeding knowledge and potential variations in skills, requiring further training. They also acknowledged midwifery training would not provide knowledge relating to older babies.

> *"There is a frightening amount of misinformation coming from midwives online."* (Midwife)
>
> *"Not everyone has same experience in training and may need more training to do this effectively. The knowledge and experience of our midwives are as varied as the people we support!"* (Midwife)
>
> *"Midwifery education in relation to breastfeeding is very limited and when women seeking support are asking complex questions about older babies I am not confident that all midwives (myself included) would be able to support them appropriately."* (Midwife)

Theme 4: Upholding best practice – participants identified issues of socio-cultural support for breastfeeding, relating to both mothers' and midwives' experiences. An understanding of the debate surrounding breastfeeding and breastfeeding support in a wider context, and upholding accepted standards, were considered important when engaging in online support provision.

> *"I believe breastfeeding support is one of the areas in which Midwifery care in the UK lacks greatly. Improving midwives' knowledge of breastfeeding and how to support women would not only improve women's experience of breastfeeding within maternity care but also attempt to change the essence of conversation regarding breastfeeding amongst midwives. In turn perhaps increasing the breastfeeding rate."* (Student midwife)
>
> *"It is vital to be able to communicate the importance of breastfeeding effectively and it's even more difficult online. The topic is emotive and it is crucial not to get involved with using terms such as 'Fed Is Best'."* (Midwife)
>
> *"So important to midwives to understand and unpack their feelings around infant feeding and breastfeeding in particular. Having up to date safe information is key."* (Midwife)

6.6 Discussion

Study one identified that midwife moderation of Facebook support for breastfeeding improves mothers' confidence in the reliability of the support a group offers and significantly improves perceptions of local midwifery support. Having identified these benefits and a desire for the development of this provision, the aim of Study two was to explore the attitudes of midwives and student midwives to professional Facebook support, gaining insight to their perspectives and experiences of the midwife moderator role. Specifically, what are the barriers and facilitators to the development of the online support provision that mothers seek?

The findings offer insight into reasons for the disparity between innovation and uptake when it comes to the integration of digital tools into midwifery practice. The demand from today's mothers for greater digital access to records, information and support is well established (Smith et al., 2020), and the digital transformation of the NHS has the potential to improve care, cut costs and increase efficiency (Public Accounts Committee (PAC), 2020). However, systemic issues with connectivity and hardware and a lack of funding and resources have historically hindered progress, resulting in a series of failed programmes and missed targets for 'paperless' services (PAC, 2020). Currently no NHSX digital plan for maternity exists, and there is no expectation for services to deliver on their digital strategies (RCM, 2020a). As a result, only limited improvements have been seen in digital maturity within maternity services, despite ongoing requests by the RCM for action and investment which emphasise the need for a cultural shift in the workforce (RCM, 2020a). The outbreak of COVID-19 demonstrated the ability of the NHS to rapidly accelerate the application of digital communication tools across health services (Jardine et al., 2020). However, direct support from midwives via Facebook has not seen a large increase, with 85.2% of participants offering support having done so prior to the pandemic. Whilst focus for clinical care remains on the urgent need for interoperability and the upgrade of legacy systems to ensure records are accessible (PAC, 2020), social media offers a free platform to develop maternity support and

public health engagement in a format that services users are familiar with (McCarthy, 2017).

However, digitalisation in any form requires clear plans to understand the digital skills and concerns of the workforce, to support learning and develop specialist career pathways (RCM, 2020a). Just 1.3% of study participants were non-Facebook users, compared to 33% of the UK population, and 14.5% of 25-40 year olds (Statista, 2021) Whilst this may be partially a result of the internet data collection methods, the demographic of midwives and student midwives in the sample reflected the childbearing women they care for (the majority being female and aged 22-40 years), who themselves represent the largest number of social media users (Office for National Statistics, (ONS) 2018). It is unsurprising therefore that almost all participants were active Facebook users, that 95.1% find the platform convenient and easy to use and that 77.6% also used other social media such as Twitter or Instagram. Limitations of data collection methods aside, these findings suggest that much of the midwifery workforce is familiar with using social media for personal use, potentially providing a strong foundation for developing skills for the midwifery moderator role. However, many participants also expressed strongly held views about the personal nature of their Facebook use and a desire to keep professional life and engagement with women separate. Overall, 44% stated they would not consider a role that involved offering Facebook support in future. It is evident that digital skills present less of a barrier than the pervasive conception of social media use as unprofessional.

The findings present compelling evidence that the current midwifery input into online breastfeeding support services that mothers in study one valued so highly are largely being delivered by midwives unpaid and in their own time. Overall, 67.1% of midwife-led Facebook roles involved giving breastfeeding support, and these roles were significantly associated with holding a specialist role, predominantly infant feeding. Unsurprisingly therefore, being involved in support was also significantly associated with the belief that additional breastfeeding training was necessary for the role.

These findings suggest that specialist infant feeding midwives and midwives with additional breastfeeding training or experience are providing much of the available Facebook support for breastfeeding as volunteers. Postnatal care, including breastfeeding support, has long been recognised as marginalised and under-resourced, nicknamed the 'Cinderella' of the maternity service (Ball, 1994; Barker, 2014). The COVID-19 pandemic has exacerbated this, leaving new parents isolated and struggling to access the support they need (Renfrew et al., 2020; Brown & Shenker, 2020). Online midwife-provided breastfeeding support currently appears to be suffering the same fate, relying on volunteers to fill the gap (Regan & Brown, 2019; Grant et al., 2017). Level of knowledge, experience and skill are key to providing effective, evidence-based breastfeeding support. Although midwives are required to be proficient in the knowledge and skill required to support breastfeeding, from the point of registration (NMC, 2019), mothers in study one reported some negative experiences of their knowledge and concerns about midwives being suited to the role.

Although some midwives expressed strong views about their training and experience being sufficient to provide online breastfeeding support, around two thirds felt additional training would be needed. Their reasoning centred on infant feeding being a midwifery specialism, the need for knowledge of more complex breastfeeding issues and experiences of colleagues being out of date or having negative attitudes. Participants recognised the need for input from those with additional specialist knowledge and knowledge of supporting others beyond the immediate postnatal period. This broadly reflected the opinions of mothers in study one and highlights the need for collaboration with other providers, including health visitors, lactation consultants and peer supporters (Ingram, 2013).

Many participants also recognised unique training needs relating to e-professionalism and the development of skills required to deliver successful breastfeeding support remotely. Experiences of varying levels of knowledge and competence relating to breastfeeding, despite pre-registration requirements were

evident. Wider issues were also acknowledged, relating to the 'conversation' surrounding breastfeeding, its socio-cultural significance as a debate on and offline, and implications for ensuring midwife engagement is appropriate and reflective. This is particularly important in a formula feeding culture, where arguments undermining breastfeeding and the rights of breastfeeding mothers to access support free of industry influence (Brown, 2017) are pervasive, even for midwives (Rickett, 2019). Participants were cognisant of implications of midwives' own personal and vicarious experiences of breastfeeding, and the need for support for reflecting on these before engaging with breastfeeding mothers, particularly in an online forum. The need to develop an awareness of the BFI standards (UNICEF, 2013) to underpin support and to acknowledge the benefits of third sector professionals and training were also apparent to many participants. Overall, around two thirds of participants felt additional breastfeeding training would be needed for the role.

Acknowledging the additional training and support required for the role forms part of the wider issue of the underfunding of midwifery services and undervaluing of breastfeeding support. Overall, 73.6% of participants who were offering online support were doing so unpaid and outside of their employed role. The finding that Facebook mediated professional support is existing largely outside of NHS maternity services, relying on individual midwives with a personal belief in the benefit of this provision to provide it, prompts concern for sustainability, equity, quality and safety.

Registered midwives are accountable for upholding NMC values and standards in any role that requires the application of their professional knowledge, regardless of employment status (NMC, 2018). Therefore, any midwife providing social media support holds the same responsibility for working within their competence and ensuring information is evidence based, whether this is a voluntary or paid role (NMC, 2019). However, if a midwife offers support in her own time, but also holds a paid role, she can be held accountable for any issues/errors by her NHS employer whilst working outside her job description, as well as by the NMC (NMC, 2018;

NMC, 2019). This situation was a concern for the majority of participants not providing support and for just under half of those who were. Where there are no employer guidelines for midwives to offer their professional knowledge online, there is little protection against any complaint or perceived support for social media practice. Fear of practising outside clinical guidelines resulting in litigation, and a perception of blame culture within the NHS are known issues, restricting effective midwifery care and limiting whether and how midwives advocate for women (Robertson & Thomson, 2016). Therefore, midwives who choose to share their knowledge and offer mothers online support outside an employed role do so at potential professional risk to themselves (McGrath et al., 2019).

These midwives described frustration at personally investing time and skill to develop online services without employer support, renumeration or recognition, even in the context of rapid digitalisation as a result of COVID-19 (Horton et al., 2021). Parallels can be drawn with the propping up of breastfeeding support provision, where gaps left by cuts and underfunding are filled by charities and volunteers (Regan & Brown, 2019). As study one found, these are often women motivated by their own experiences of breastfeeding and access (or lack of access) to breastfeeding support. These volunteers give time and experience in a desire to support other mothers, but group moderation can put their own wellbeing at risk (Beckett, 2018). The unregulated nature of online support groups and the polarising, emotive nature of discussing breastfeeding experiences is not only challenging for mothers (Regan & Brown, 2019) but facilitating respectful engagement to ensure productive support can also be stressful for moderators/supporters (Brown, 2022). Mothers in study one emphasised the impact of a positive or negative group ethos, and the importance of a moderation style that is inclusive whilst ensuring any misinformation is addressed. It is evident that developing this is a skill that ought to be recognised and supported, particularly for midwife moderators who are accountable for upholding professional standards in the role (McCarthy, 2018).

Where midwives are offering social media support voluntarily there are implications for wellbeing and sustainability that may put the wellbeing of individual midwives at risk (Daigle, 2020), with service and staffing consequences for employers and for mothers. Continuing to work despite illness rather than taking time to recover (known as 'presenteeism') is prevalent amongst midwives, attributed to a feeling of responsibility to mothers and a reluctance to let others down (Kinman et al., 2020). Midwives are also known to have a generally poor work-life balance with limited opportunities for rest and recovery, both mental and physically (SOM, 2020). Whilst involvement in an online community can confer social and emotional benefits (Skelton et al., 2020), substantial cognitive, emotional and time investment are required from moderators and professional contributors (Ruckenstein & Turunen, 2020). 'Switching off' physically, emotionally and psychologically from a mobile workplace that is ever present and capable of placing demands around the clock may exacerbate these concerns (Coulson & Shaw, 2013). Participants described concerns about personal boundaries and the potential for time, privacy and wellbeing to be threatened by professional social media use (Daigle, 2020). The majority feared additional workload and stress would arise and were concerned about emotional involvement. Safeguards and boundaries implemented by employers are clearly essential to manage the role, particularly if undertaken alongside the demands of clinical practice.

Building continuity of care between midwives and moderators, providing timely responses and ensuring any misinformation in peer interactions is addressed are core elements of a midwife moderated group (McCarthy, 2017), but providing these may take a personal toll particularly if the role is voluntary and commitment is unbounded and self-managed. A significant number of participants were providing online support as part of their employed role, but this time was either unpaid or only partially paid. Alongside issues of accountability and wellbeing related to performing a social media role, this lack of renumeration and support exemplifies a range of issues within the profession. Midwives regularly work unpaid overtime (RCM, 2020b) and skipping meals, toilet breaks and even becoming dehydrated at work have become normalised (Sorby, 2020). Existing understaffing has been

compounded by Brexit and the COVID-19 pandemic, with Heads of Midwifery reporting that services frequently rely on the goodwill of staff to keep going (Murphy, 2021). Fair pay has been an ongoing issue over the last decade, with the value of midwives' wages decreasing in real terms by over £7000 since 2010 (Sorby, 2021). The systemic undervaluing of their work and skills has exacerbated low morale, contributing to almost three quarters of midwives considering permanently leaving the profession (Murphy, 2021). One participant described the sudden acknowledgement of social media support during the COVID-19 pandemic as worthy of paid time, as 'a kick in the guts', expressing the frustration of those midwives seeking recognition for the time and skills they invest in this (and all) provision. Social media roles, where there are no guidelines, working hours or renumeration in place, clearly carry a risk of exacerbating existing work-based inequities and increasing pressures.

In addition to the potential personal and professional risks being shouldered by midwives, this situation also prevents effective auditing of any midwife-led online support to ensure its quality, efficacy, safety and accessibility. A fifth of the mothers who responded to survey one reported being unsure who was moderating the online support group they used, and this impacted their engagement and perception of the reliability of the information offered within the group. Services and individual midwives have a responsibility to ensure information provided is evidence based and accessible, to support informed decision making (NMC, 2018). It is therefore vital that mothers can identify who is providing information and support, to provide reassurance and to ensure online groups are part of a robust, professional and accountable service. Frameworks to support and standardise online provision would benefit services, midwives and mothers, in line with strategic public health (PHE, 2015) and digital transformation goals (PAC, 2020).

Midwives and student midwives currently providing Facebook support are motivated by their belief in and experiences of the benefit of this provision for both women and midwives. Research has identified that access to online support groups have a range of benefits to mothers, including increased knowledge, confidence,

self-efficacy and social support, consistent with being a community of practice (McCarthy, 2020). Whilst there was a consensus on these benefits amongst the sample, midwives in the support group were significantly more likely to recognise them, in addition to more specific impacts such as increased relational continuity and improved breastfeeding continuation. They also recognised the positive impact online support may have on mothers' feedback about the maternity service/care, as study one identified. These findings suggest that engagement with online support provision, whilst predominantly self-led, increases positive attitudes towards it and improves recognition of the benefits to mothers evident in the literature (McCarthy et al., 2017; Black et al., 2020). Widening opportunities for involvement may improve perceptions, increase skills and reduce fear of online engagement across the midwifery workforce.

Conceptualised in the literature as online communities of practice (CoP), Facebook groups offer a space for social learning, via access to knowledge, lived experience and social interaction (McCarthy, 2017; Black et al., 2020; Skelton, 2020). Social support amongst pregnant and new mothers is key to mental wellbeing and self-efficacy and can be successfully provided within online communities (Ginja et al., 2018; McCarthy, 2017). This was reported by mothers in study one as central to their value. Participants recognised this ability to develop and maintain social connections as 'progress' in terms of care provision. They shared a consensus that access to an online community can provide mothers with vital social support and access to shared experience that they may not have in their physical networks.

Midwife moderators also benefit from their involvement in a CoP, engaging in a virtual community that enables the development of intimacy and trust in the professional relationship between mother and midwife, with or without being involved in their clinical care (Jones, 2022; Atanasova et al., 2017). Participants with experience of providing support were significantly more likely to strongly agree that the role has benefits for midwives, particularly CoP benefits such as improved connections with mothers and other midwives and increased knowledge. Overall, 68.6% of those providing online support felt it was a positive experience, whilst of

those who had no experience of the role, just 40% felt it would be. Support providers also had significantly fewer concerns about downsides, suggesting the risks perceived by those with no experience of the role are not widely experienced by those doing it. This finding demonstrates again that overall perceptions and experiences are improved through engagement with the role. However, negativity, fear and mixed messages about social media use are currently pervasive and preventing engagement (Scragg et al., 2017). This occurs in other areas of midwifery practice, where the provision of evidence-based care is impacted by fear of litigation, despite it being very rare for midwives to face disciplinary action (Robertson & Thomson, 2016). Jones et al. (2021) found that the introduction of digital professionalism and social media into the nursing curriculum did not increase fitness to practice cases over a twelve-year period, suggesting that inappropriate use is rare. Developing support and guidance for safe, professional use of social media which includes offering support is needed, with focus on midwives' experiences of the benefits. Further research is needed to explore implications for education and practice if benefits are conferred by undertaking the midwife moderator role.

Many participants held binary attitudes towards the integration of Facebook support into midwifery practice. Views were strongly held as to whether Facebook support presented progress for, or a threat to, maternity services, women and midwives, reflecting the results of other studies into eHealth (Vickery et al., 2020). Progress for the service was centred on experiences of improved feedback from mothers about the maternity service as a whole and awareness of digital transformation in maternity lagging behind strategic goals and women's expectations (RCM, 2020a). Improved feedback was important to participants, acknowledging the difficulty in communicating rapidly changing guidance during the COVID-19 pandemic via conventional media. Feeling unable to give optimal care (Walton et al., 2020) and concerns regarding how best to prepare women and partners and manage their anxieties and fears, including not being able to answer questions because of lack of information (Wilson et al., 2020), caused considerable distress to midwives during the COVID-19 pandemic (Hunter et al., 2020). Engaging

with mothers via Facebook enabled faster updates, support and provided opportunities to address misinformation and to improve communication (Tsao et al., 2021). Participants reported seeing an increase in mothers using the platform to share positive birth stories, praising and thanking staff and offering support to each other. Camaraderie and social connectedness are fundamental to wellbeing, particularly during the pandemic (Walton et al., 2020; British Psychological Society, 2020) and participants described positive Facebook posts from families as a boost to staff morale during a difficult time. This suggests implementing Facebook support is an additional opportunity for services to optimise job satisfaction and promote staff empowerment and leadership (Hunter et al., 2019; Walton et al., 2020).

Others strongly believed that communicating with mothers via Facebook had opened up the maternity service to 'trolls' and 'keyboard warriors' (terms used to describe those using the platform to post abusive or aggressive remarks) (Ruckenstein & Turunen, 2020). Trolling is recognised as a form of online antisocial behaviour, deliberately attempting to disrupt or provoke others, and has similar emotional and psychological impacts as face-to-face harassment (Nicol, 2012). During the COVID-19 pandemic, increased anxiety and more time spent online have escalated a collectively negative mood (Suciu, 2020). Individuals find a cathartic relief from expressing anger and frustration, but this creates toxicity on and offline which ultimately erodes collective good will (Suciu, 2020). In the context of the pandemic, midwives reported seeing posts reflecting anger, fear and confusion around changes and restrictions to care, including negative experiences of communication with health professionals, which is reflected in the literatures (Madvig et al., 2022).

Midwives felt unable to 'defend' themselves, colleagues or the service against this and described social media responses as distressing and a negative distraction during an already pressured time (Hunter et al., 2020). Midwives with experience of delivering online support identified issues with social media communication proliferating rapidly as a result of the pandemic, without proper attention given to developing moderator guidance and allocating resources to ensure timely

responses (Ruckenstein & Turunen, 2020). However, these experiences were specific to Facebook pages (public facing and anonymously delivered) rather than Facebook support groups (which facilitate relationships between mothers and a known midwife). This type of antisocial online behaviour has not been seen in evaluations of 'closed' (private) midwife moderated groups, where any complaints can be dealt with rapidly and constructively within a trusted pre-existing support network (McCarthy, 2020). Groups facilitating reciprocity are also able to overcome the disconnect resulting from 'collective' (institutional) responses rather than the individualised, trusting dialogue services users seek (Madvig et al., 2022).

Increased engagement with the maternity service as a result of online access to support was therefore also seen as progress, reaching mothers who may conventionally be more difficult to reach (O'Higgins et al., 2014). Engagement is defined as the mutual exchange of information between professional and service user, encouraging active participation in health management and decision making based on information and choice (Patel & Rajasingam, 2013). User engagement is known to improve experiences and outcomes, which are both key indicators of the quality of a health service (Jones et al., 2021). However, maternity professionals continue to struggle with accepting maternal choice, particularly where decisions may appear to increase clinical risk, resulting in women feeling disempowered and dissatisfied (Patel & Rajasingam, 2013). The use of online groups to engage with women, offering information in a format that allows them to access it at their own convenience, and to ask questions in their own time, offers a new approach to promoting engagement (Tranter & McGraw, 2017). Participants described how social media had helped them communicate more effectively with younger mothers and those with language or communication barriers, increasing their engagement with the service. They recognised the potential of the medium to widen access and a need to meet mothers where they are – which is predominantly on Facebook (Audelo, 2013).

However, the concept of Facebook use as a threat to information sharing within the mother-midwife relationship was also widely held. Participants described concerns

that social media groups pose a threat to appropriate and effective information sharing, feeling that widespread use exacerbated the spread of misinformation, leaving health professional advice 'diluted' or refuted. It is recognised that as services continue to fall short in being women-centred with their advice and support, mothers turn frequently to online sources to fill knowledge or support gaps, and that this can be problematic (Kraschnewski et al., 2014).

Wexler et al. (2020) identified that women are not just seeking social support from online communities, but health information about their pregnancy and baby. Ellis and Roberts (2019) found only half of responses to pregnancy related posts in peer communities are accurate, a quarter lack any credible evidence base and 5.5% are potentially harmful. Participants recognised this issue and whilst some felt that midwife moderation could provide a basis for addressing misinformation, others felt offering groups provided opportunities for mothers to seek information that undermines health professional advice. Again, these concerns were significantly associated with the personal use only group and mediated by experience of the midwife moderator role. Where mothers do have access to a midwife moderated group, this becomes their primary source of pregnancy information and that they trust the information shared within it is validated and reliable (McCarthy et al., 2020). However, Visram and Hunter (2019) found peer led online breastfeeding support was preferred over professional led groups, particularly by younger women and those who were not university educated. This highlights the need to further investigate the format of online groups to identify differences in support style and moderation, and how best to meet different needs.

Perceived threats to maternity care were also expressed by participants. They feared negative impacts on women's support seeking behaviours, concerned that where communication was asynchronous the window for immediate intervention or medical care be missed, whilst awaiting an online response. Others were concerned about information or tone being misinterpreted, or missing wider 'unspoken' cues, damaging the mother-midwife relationship and its function in preserving safe maternity care. They felt traditional key communication skills could

be lost or undermined by online interaction. These aspects of relationship building, communication and holistic approaches to care are fundamental to midwifery (Sandall et al., 2016). Evidence suggests however that building and maintaining effective relationships is not only possible but potentially enhanced by the midwife moderated online support model (McCarthy et al., 2017). These concerns were held by those not involved in online group support, suggesting that with midwife moderation in its infancy and few operating guidelines developed, insight into how groups function to facilitate and sustain professional-service user relationships is limited.

Although most participants felt that social media is now ubiquitous in modern life, and communication via digital tools desired and expected by mothers, others expressed concerns about the impact of digital media in pregnancy. Research suggests there are negative impacts on body image, with frequency of Facebook use in pregnancy associated with level of body dissatisfaction (Hicks & Brown, 2016) and negative impacts of all digital media use in pregnancy on psychological wellbeing and quality of life (Smith et al., 2020). However, causality and the direction of the effect in these relationships is not fully understood and it may be those already suffering with anxiety or lacking in confidence are most likely to use Facebook frequently (Smith et al., 2020). Although access to midwife moderated Facebook groups appears to offer social support and validated information that improves mothers' perceptions of their experience and wellbeing (McCarthy, 2017), proposals to integrate social media support must also consider any potential impacts of promoting the platform and which service users may be susceptible to unintended negative effects.

Perceptions of Facebook support as a threat to standard service provision was also widely held. Participants feared that the uptake and integration of digital tools during the pandemic would be used to justify further funding cuts and the withdrawal of resources for essential face-to-face support. This is an understandable conclusion against a backdrop of a decade of staff shortages and lack of funding across maternity services, affecting morale and quality of care

(Sorby, 2020). Midwives feared that any time or cost savings created by adopting online support into their midwifery practice would be used to the benefit of the employer rather than women or midwives. Policies that demonstrate commitment to funding high quality face-to-face services and to developing social media support as a complementary rather than replacement communication tool will therefore be needed to maximise engagement.

Despite these concerns, participants also felt that the use of digital tools, rapidly introduced into practice during COVID-19, had reduced travel, workload and task duplication; a belief upheld by the evidence (Horton et al., 2021). The pandemic was seen as a catalyst for digital transformation that improved efficiency within the service enabling them to fulfil their role more effectively. However, many were concerned that old ways of doing things would 'creep back in' without focused strategic effort to maintain and resource the digital progress that has been made. The RCM echoed these concerns in its statement to parliament, calling for advancement before 'muscle memory' thoughtlessly returns the profession to old practice (RCM, 2020a). Recognising and evaluating the progress made, and lessons learnt, is vital to support new innovation and embedding digital tools into practice (PAC, 2020; Horton et al., 2021). Overall, Midwives are largely engaged with the need for, and potential of, digital communication with women, with 56% willing to consider a role that involved offering social media support in future. Findings highlight that despite this, and echoing previous studies (Dalton et al., 2014) the midwifery profession is lacking the support and guidance to engage online without fear.

Protecting personal privacy and security was central to participants' concerns around engaging online with mothers. Personal Facebook users, without experience of an online support role, were concerned about being personally identifiable. They feared that their Facebook profile could be 'tagged' once recognised and information shared out of context or misconstrued may put them personally or professionally at risk. These concerns are widely shared amongst midwives (Dalton et al., 2014) and midwifery educators (Jones et al., 2021). Many student midwives

reported being warned against social media use during their education, and Jones et al. (2021) describe how midwifery teaching staff fear promoting professional use of social media would lead to an increase in poor practice and subsequent issues of fitness to practice. These fears echo warnings within the NMC Social media guidance (NMC, 2019) which does not differentiate between engaging inappropriately with mothers and the provision of support. The view that Facebook cannot provide a secure, professional platform for midwives to engage with mothers was frequently expressed, highlighting the current lack of clarity of how social media provision can be organised to prioritise safety (O'Connor et al., 2018). A midwife's credentials need to be clearly identifiable when engaging online, to ensure credibility and accountability (Chretien & Kind, 2013). However, various approaches, including the use of a separate 'profile', can be used to protect and differentiate the personal and professional online space and those delivering support evidently felt safer in the role, feeling able to protect themselves and maintain professionalism in the online space.

E-professionalism refers to the expression of professional attitudes and behaviours in the digital space (Cain & Romanelli, 2009). Whilst professionalism remains itself difficult to define and measure, midwives are socialised through their education and practice to understand what is expected of them (Einion, 2017), and the standards they must uphold to register with the NMC (NMC, 2018). This now includes social media guidance (NMC, 2016), which currently defines the building of any relationship with women via social media as unprofessional. This is an example of the ongoing challenges in developing provision and lobbying for digital transformation, where fear of engaging online is embedded in the professional code. Although 85.4% of personal users and 94.4% of support providers felt confident in staying professional online, it is clear that other tenets of the professionalism paradigm (Cain & Romanelli, 2009), including maintaining boundaries (77.7% and 49.4% respectively) and ensuring confidentiality (74.6%/50.6%) present significant barriers.

These fears, and the potential for interpretations of malpractice, constituted the largest barrier to social media engagement: 73.1% of personal users and 40% of support providers feared being reported to the NMC or their employer as a result of support offered online. Midwifery practice is fraught with tensions between autonomy and accountability and midwives encounter daily clashes between professional and employer requirements (Herron, 2009). Employer policies can be out of date or not reflect the best available evidence – which midwives are held accountable for upholding by the NMC Code (2018). Midwives subsequently feel they walk a tightrope between being sacked (by the employer) or struck off (by the NMC) (Herron, 2009). As NMC social media guidance specifically prohibits the use of social media to build relationships between midwives and women (NMC, 2016), without differentiating between personal and professional relationships, it is unsurprising that midwives fear engaging online risks their professional registration. In a climate of digital transformation and endorsement of midwife-moderated social media groups by Health Education England (HEE) (2018), updating NMC guidance and introducing e-professionalism training is imperative to overcome fear as a barrier.

Whilst other health sectors, such as pharmacy, dentistry and medicine, have seen growth in e-professionalism research relating to engaging with service users online (Aase, 2010, Madvig et al., 2022), midwifery lags behind. In 2009 the WHO declared that it was critical that health professionals use social media to engage in a conversation not only to 'pass down' information (McNab, 2009), yet just 21.7% of participants had received any e-professionalism training. To achieve the digital transformation set out in subsequent strategic policies (NHS England, 2016; PAC, 2020), greater emphasis on supporting a more nuanced understanding of e-professionalism, beyond avoidance and defensive practice, is needed. The findings of study two support wider research findings that health professionals have a great interest in understanding 'cybercivility' and digital professionalism (De Gagne et al., 2018), highlighting that midwives are eager to engage where guidance exists, and where policy supports practice.

Few participants identified personal benefits beyond social media use as a practical tool. However, some highlighted its potential for challenging power dynamics and felt it would enable them to practise more autonomously and in line with their own core values. Others described social media enabling them to offer support beyond the 'institutionalised' midwifery expected of them, finding a sense of fulfilment they feel their job no longer gives. McCarthy et al. (2017) describe midwife moderated Facebook groups as facilitating informational and relational continuity between moderators and mothers, which was highly valued by both. Continuity (ongoing support throughout pregnancy from a known midwife) is known to improve outcomes, self-efficacy and reported experiences (Walsh & Devane, 2012). In a climate of concern for attrition rates and burnout, there is also growing evidence that continuity also improves midwives' wellbeing (Cramer & Hunter, 2019). Few participants perceived that continuity of care could be improved through Facebook support groups but agreement was significantly associated with experience of the role. Jones (2022) argues that the Facebook group offers a space that, through offering a 'window into women's experiences' creates a greater depth of relationship that builds trust and intimacy. These findings are echoed across the Mhealth literature in relation to mother-midwife interactions (Willcox et al., 2015; Vickery et al., 2020). Whilst further research is needed, they findings of study two concur that Facebook support may present an alternative means to providing continuity that current systems are struggling to facilitate (McCarthy et al., 2017; McLachlan et al., 2016).

Participants' concerns about personal impacts, in addition to privacy previously discussed, centred on the potential for social media use to impinge on work-life balance, boundaries and wellbeing. Negative impacts of social media on the individual are widely recognised; social media use requires energy and cognitive processing that can cause overload and fatigue (Islam, 2020; Coulson & Shaw, 2013). The introduction of social media as an additional professional communication tool risks overload by introducing expectations of social media engagement that erode control and increase stress (Lee et al., 2016). Research has also demonstrated that increased use amongst nursing staff has implications for

productivity and quality of care; increasing task distraction, anxiety, stress and rumination (Moqbel & Kock, 2018; Majid, 2020). Participants recognised potential issues for time management and the ability to differentiate between being 'on' and 'off' duty if the workspace is being carried in the pocket and sharing a domain (Facebook), usually reserved for personal use. This generated concern that workload and stress would increase, fears of becoming emotionally involved and of overstepping boundaries. However, these concerns were significantly associated with those not already involved in offering support. Social media affordances (what benefits it offers or is perceived as offering the user) therefore appear to determine if and how personal midwife users engage with it, dependent on their beliefs, capabilities and experiences (Islam et al., 2020). Further research is needed to understand how personal and professional social media 'roles' and 'profiles' can be delineated.

During the COVID-19 pandemic the use of social media as a healthcare tool has become ubiquitous (Wong et al., 2020), playing a crucial role in disseminating health information and tackling misinformation (Tsao et al., 2021). Although the majority of participants recognised this as beneficial, midwives providing support were significantly more likely to feel that their own use of Facebook enabled them to connect with and learn from other professionals and other midwives. This may be as a result of support providers being intrinsically and extrinsically motivated to engage with social media, increasing their engagement and widening communication with other professionals online (Coulson & Shaw, 2013). This group also had significantly greater confidence in maintaining online professionalism, despite being no more likely to have received specific e-professionalism training. Innovative approaches to developing e-professionalism skills, via inclusion as an assessed element of nursing training, have demonstrated success in increasing confidence and knowledge (McGrath et al., 2019), without negative impacts to professional behaviour (Jones et al., 2021). However, researchers also report reluctance amongst midwifery educators to adopt such programmes (Jones et al., 2021). These findings demonstrate a need for increased focus on e-professionalism

training to support the workforce to benefit from the professional benefits of appropriate social media use (Vukušić Rukavina et al., 2021).

The use of social media amongst maternity professionals to enable individual and workplace visibility and the forging of connections had been widely accepted and encouraged prior to the pandemic (Power, 2014; Rolls et al., 2016). The NMC social media guidance sets out benefits of use for registrants and students, including building professional relationships, creating discussions around research and clinical experiences and providing access to learning resources (NMC, 2019). Regulators, unions and workplaces now commonly use official social media accounts to share and cascade important information with members, service users and representatives (Jones, 2019; Sinclair et al., 2015). As a result, Facebook is now considered a legitimate platform for communication amongst professionals and for the dissemination of information and research (Power, 2015). Although the majority of participants agreed that social media use could contribute to their professional or career development, those in the support provider group were significantly more likely to agree, suggesting involvement in the role has wider professional benefits (Byrom & Byrom, 2014). Midwives are required to commit to lifelong learning to maintain competence (NMC, 2018) and networked learning provides unprecedented access to rapidly changing evidence and overcomes barriers to traditional forms of continuing professional development (Vilain & Stewart, 2012).

Significant debate exists as to the merits of social media in general with regard to actual learning and improved clinical care (Wong et al., 2020). However, Jones (2020) argues performing the midwife moderator role promotes collective learning and enhances midwives' decision making, reflection, communication and clinical knowledge. Coulson and Shaw (2013) also found personal and professional learning and growth through supporting and empowering others were central to the moderator experience. Mothers with access to midwife moderated groups report enhanced clinical care, either through use of the group to clarify and support information given by their clinical midwife, or by receiving direct care from midwives with whom they had built an online relationship via the group (HEE,

2020). Support providers were significantly more likely than personal users to perceive online Facebook support as capable of improving care for mothers in this way. Although belief in the benefits of online support is a common motivator for becoming a group moderator (Coulson & Shaw, 2013), midwives providing online support reported receiving positive feedback that reinforced their motivation, perhaps explaining why they are prepared to continue to provide this unpaid and voluntarily.

Social networking and online communities have the potential to shape and improve care and interventions (Horton et al., 2021), but this potential is not being widely recognised by midwives, who are largely being trained to fear and avoid them (NMC, 2019). As a result, the maternity workforce perceives professional bodies such as the RCM and NMC, and employer policies, strategies and management, as unsupportive of the use of Facebook to offer support. This was true for around two thirds of both the personal and support groups, with no significant difference between the two. The support provider group were however significantly more likely to perceive Facebook's own guidelines for delivering groups as being supportive, representative perhaps of a greater familiarity of the use of these to facilitate group support, and significantly greater personal trust in the company itself (Anderson et al., 2012). They also perceived their colleagues to be supportive of the role more often than personal users, suggesting once social media support is embedded and normalised in an NHS trust, positive perceptions of this provision increase amongst the wider workforce. Leigh et al. (2020) describe such peer-to-peer recommendations as providing assurances for digital health interventions that are a significant facilitator of engagement.

Pre-registration midwifery programmes are central to the professional socialisation of future midwives, introducing codes of practice and the responsibilities embedded in the NMC Code necessary for registration upon qualification (NMC, 2019). This process underpins the development of the midwife's identity, adoption of core values and acceptance of professional norms (Einion, 2017). A developing understanding of professionalism and motivation to conform, comply and uphold

those values which constitute 'being a midwife' is influenced by peers, mentors and educators (Einion, 2017); including that which relate to the adoption of digital technologies and social media use (Jones et al., 2016). As a result, digital transformation begins in the classroom and will continue to grow in importance in midwifery education as regulators demand increasing numbers of digital competencies (Terry et al., 2019; Jones et al., 2021). Although there is a long-standing issue with the age profile of the midwifery profession in England, the proportion of younger midwives has increased in the last decade, including an additional 3,511 in their twenties and thirties (RCM, 2018). This 'Generation Z', represented by 43% of participants, are digital natives and have increased expectations of digital innovation in nursing education and professional practice (Vizcaya-Moreno & Pérez-Cañaveras, 2020; McGrath et al., 2019). Despite these imperatives to drive change, participants perceived universities and midwifery educators as one of the least supportive sources of social media use in midwifery practice, and this is supported by research (Jones et al., 2021). These findings demonstrate how a lack of clarity around e-professionalism guidelines, and mixed messaging regarding safe engagement with mothers online are hindering the digital maturity expected of the profession by women and midwives (Wylie, 2014). Midwifery education must therefore play a key role in advancing this change (Jones et al., 2016; Vickery et al., 2020).

Registered midwives have a responsibility to maintain the knowledge and skills needed for safe and effective practice and to ensure information and advice, including that which relates to using health services, is evidence based (NMC, 2018). Access to training for maintaining and continuing professional development is fundamental in supporting midwives to meet this standard, including developing knowledge of digital services (Clayton, 2022). Despite increased digital competence being demanded, and midwives keen to participate, digital training opportunities lag behind, with 65% of midwives employed in specialist 'digital midwife' roles having received no additional training at all (RCM, 2020a). Participants in both personal and support provider groups reported receiving little digital skills, social media or e-professionalism training, despite wanting it. The few who had received

some had found it useful. Lack of support and training were also identified as barriers to Facebook support, demonstrating the need to target digital and social media skills training as a key need for pre- and post-registration midwives (Jones et al., 2016).

Conversely, where participants identified employer and colleague support for social media roles this was seen as a facilitator of progress and an indicator of changing mindset and culture. Participants who saw professional social media use as progress identified opportunities to make improvements in information sharing, engagement and feedback (Price et al., 2018). The theme 'moving forward' linked these to strategic goals, professional obligations and a personal desire to meet women's needs and expectations. Perceptions of a need for midwives and maternity services to keep pace with society and women's communication preferences and improve service provision are key facilitators of change (Byrom & Byrom, 2014).

Overall, a number of interesting findings arose from study two. Firstly, that midwife input to Facebook support currently exists largely outside of NHS maternity services. This echoes the low number of women in study one reporting access to midwife moderated breastfeeding support Facebook groups. Where this provision does exist, it relies on individual midwives with a personal belief in its benefits, and a willingness to face potential, or perceived, professional risks to provide it, usually unpaid and in their own time.

Secondly, the study revealed many midwives held binary attitudes towards Facebook groups as an appropriate format for delivering support. Online support was perceived as presenting either 'progress' or 'threat' to the same three areas: the maternity service, to women and care, and to midwives themselves. Despite opposing views about midwives engaging with mothers using social media, there was a consensus on a range of benefits for mothers. Midwives already providing online support were significantly more likely to perceive positive benefits for mothers and midwives.

Thirdly, fear of engaging online was identified, alongside lack of training and support, as the most significant barrier to the development of the midwife moderator role. There were widely held personal and professional concerns, including negative impacts on privacy, stress and boundaries, a lack of support, training and guidance and fear of accidental malpractice. Never having provided online support was significantly associated with greater levels of concern, fewer agreed benefits and less perceived support for the role. Finally, findings highlighted the institutional and cultural change needed to improve services, promote online engagement and progress digital maturity.

In sum, this study has demonstrated that there are significant perceived personal and professional barriers to the integration of Facebook as a tool for supporting mothers into midwifery practice. Despite strategic goals and the impact of the Covid-19 pandemic, digital progress in maternity remains slow. Fear amongst professionals and employers is preventing creative approaches to overcoming the complexities of engaging with social media to improve care and meet women's needs. Most midwives seek further training and those who are providing support perceive it positively, despite a lack of renumeration and resources. Those midwives with infant feeding specialist roles or a passion for breastfeeding support were most likely to be providing online support. As such, these findings suggest investment would benefit professionals and the profession as a whole, as well as women, babies and families.

6.7 Limitations

This was an exploratory study in a new area which relied on large scale recruitment online, attracting participation amongst midwives via social media posts and online sharing. Whilst efficient, this recruitment method meant those midwives active on social media may have been more likely to respond. Although efforts were made to share the link via the RCM and sharing encouraged outside social media, those who choose not to use social media are less likely to have been represented. However, social media use amongst the sample reflects high levels of use in the general

population, particularly amongst a similar demographic. The small number of support providers and the limited midwife moderation of BSF groups are also proportionate.

The questionnaire design relied on self-reports and although anonymous, social desirability bias should be considered in survey responses by professionals. Social media use by midwives is presented as professionally problematic by educators, employers and professional bodies, which could lead to denying involvement or exaggerating negative views. However, participants were self-selecting and questions carefully worded to minimise any bias.

6.8 Conclusions

This mixed-methods exploratory descriptive study explored a novel area: the perceptions and attitudes of midwives to the use of Facebook groups to support families. Midwives acknowledged the potential benefits to the maternity service and to mothers of digital transformation in the NHS. They perceived Facebook group support as having the potential to positively impact mothers' experiences, improving connection and communication and information sharing. Their concerns for women centred on individualised care, potential for miscommunication and negative interactions/feedback, offering a range of areas to address to ensure safe provision of online services. There was a consensus of concern related to professional conduct online, maintaining personal boundaries, a lack of guidance and support for and a need for additional training. Midwives currently involved in online support were significantly more likely to report positive perceptions of its impact and use and to have lower levels of concern. However, the application of the knowledge, skill and passion of midwives to delivering support via social media needs wider exploration to ensure access it equitable and midwives are supported, protected and renumerated.

Further research is needed to add depth to these experiences to develop insight into any solutions that have or may be developed in relation to online roles for midwives in breastfeeding support. The next study will therefore build on these

findings to enrich the exploration of midwives' experiences of developing and engaging with local Breastfeeding Support Facebook groups.

Chapter 7: An examination of midwives' experiences of facilitating and delivering local breastfeeding support via Facebook groups

Publications: Morse, H., Brown. A. (2022). "Running on goodwill and fairydust" - midwives' experiences of facilitating and delivering local breastfeeding support via Facebook groups: a qualitative descriptive study. medRxiv 2022.10.18.22281224 [Preprint] https://doi.org/10.1101/2022.10.18.22281224

7.1 Background

Reflecting the wider literature, the findings of study one highlighted the value of BSF groups and identified that mothers would like further midwifery input into online breastfeeding support to improve reliability and connection with local services. Study two highlighted that although most midwives recognise potential benefits, they perceive significant barriers to providing midwife moderated Facebook support. These included personal and professional risks associated with engaging with mothers online and a lack of training. However, the studies found that some mothers are receiving and highly valuing midwives' support on Facebook, and that midwives involved in this provision were passionate about doing so, despite largely being unpaid.

Therefore, despite the barriers created by contradictions between national strategy and employer social media policies (Scragg et al., 2017), a small number of mothers and midwives are engaging in BSF group provision and report benefits from doing so (Morse & Brown, 2021). The findings of study two present insight into the barriers and facilitators for midwives engaging with online support, however no evidence has been identified that explores existing Facebook support provision. Research is needed to understand which challenges have been faced and overcome to facilitate and deliver this provision, how and by whom.

Establishing the patterns in group format and delivery and the logistics for midwives of creating, or being involved in moderating them, is fundamental to understanding

what is successful. Mothers in study one expressed that collaboration was important to them in connecting experiential knowledge, lived experience and trained expertise. Little is known about whether collaboration between any maternity services and third sector breastfeeding organisations is established online, or any logistics of doing so. Sharing solutions to overcoming barriers and identifying ongoing issues will support the development of best practice guidelines.

Study two highlighted that fear was a major factor in many midwives' perceptions and experiences of social media use, in line with prior evidence (Dalton et al., 2014). However, level of concern for personal privacy, increased workload/stress, becoming emotionally involved and overstepping boundaries was significantly less for midwives involved in online support, as was concern for all professional issues. In depth qualitative investigation is needed to understand the context of these differences, establishing to whom the role may be suited and why, or if fear can be mediated by policy, support and training.

Findings also identified a general lack of relevant training for midwives in relation to digital skills, social media and e-professionalism, and being involved in Facebook support was not associated with having received any training. Exploring individual experiences is needed to understand perceptions and experience of training and support, to establish what is needed and how to effectively develop and target it. It is also evident from the findings that where Facebook provision exists it is largely being delivered unpaid, indicative of the wider issues of the under resourcing of breastfeeding support and under valuing of the skills and time of those delivering it. Insights from those involved will enable recommendations to be made.

Significantly, both mothers and midwife moderators confirmed they received a range of benefits from their engagement with the BSF group, including social connectedness and knowledge acquisition, consistent with the conceptualisation of BSF groups as an online community of practice (CoP) (Skelton et al., 2020). Interview data were used to add depth to this finding, generating further insight

into midwives' experiences of personal and professional development as a result of online engagement, to inform recommendations for practice.

The study and data are relevant to Research Questions two, three and four:

RQ2. What are midwives' perceptions of professional social media use, and what are their experiences of offering online support via Facebook communities?

RQ3. Do the experiences of mothers and midwives align with the conceptualisation of BSF groups as online communities of practice?

RQ4. What group formats and logistics are involved in current midwife-led BSF service provision, and what recommendations can be made for further development?

To explore these in greater depth, three sub- questions were examined in study three:

1) How do midwives involved in providing breastfeeding support via a local BSF group perceive the value of this provision?
2) What are their experiences of creating these services and of engaging with mothers online?
3) What local BSF group formats have been developed by/with midwives and what are the logistics involved in service delivery?

7.2 Methods

Design

Semi-structured interviews were used to collect data on the experiences of midwives involved in creating, facilitating and/or delivering breastfeeding support via a local BSF group. This was considered the most appropriate data collection tool to meet the objectives of this study, aiming to add significant depth to the insights generated by the findings of study two, including group formats and logistics.

Interviews are an ideal way of facilitating a 'professional conversation' (Kvale, 2007), capturing participants' perceptions and experiences, and preserving their own language and concepts (Braun & Clarke, 2014). The semi-structured format was chosen to ensure participants were offered opportunities to offer insights into the same range of issues, whilst allowing scope for unanticipated issues to be raised (Braun & Clarke, 2014). This was key to meeting the objectives: identifying similarities and differences in perceptions, experiences, and logistics.

Participants

Nine participants completed a semi-structured interview to describe their experiences of creating, facilitating and/or delivering breastfeeding support via a local BSF group.

Inclusion criteria were:

1) Aged 18 or over.
2) Registered midwife in the UK.
3) Experiences of creating, facilitating and/or delivering breastfeeding support via a local BSF group
4) Able to complete the interview in English.
5) Able to give informed consent.

Materials

An interview schedule was devised based on the literature and previous study findings. This focused on the factors involved in setting up and facilitating the BSF group, its perceived value and any personal and professional impacts. Further questions explored the format and facilitation of the group. The interview schedule was semi-structured to allow responsive exploration of the participant's account, including unanticipated issues, and question wording and order adapted accordingly (Braun & Clarke, 2014).

Interview Guide

Researcher to introduce themselves and remind of aims of study.

Remind the person that they have already given their consent to be interviewed and check that they are still happy to proceed, including recording. Remind them their name will not be used and they will not be identified in any way. They may stop at any time.

Background

- *What is your professional role and remit?*
- *Are you involved in using a Facebook group to provide local breastfeeding support?*

Local BSF group role

- *How would describe your current role within/in relation to the BSF group?*
    - *How long do you spend each week on this role? Is this time paid?*
    - *Have you had any special training for this role in breastfeeding or online support? Do you think this is needed?*
- *How did you become involved in BSF group provision?*
    - *Did you have any concerns about doing so? How did you resolve these?*

Local BSF group format and function

- *If applicable, can you describe the process of setting up the group?*
    - *Were there any issues? How were these resolved?*
    - *Do you have any written guidelines?*
- *Can you tell me about the format of your group and who contributes to its function?*
    - *Does the group collaborate with any non-health professionals who offer BSF support?*
    - *Does it have a connected face-to-face support group/s? Any other local links?*
- *How would you describe the purpose of local Facebook group support for breastfeeding?*
    - *What do you think are the benefits for mothers? Do you have any concerns?*

Support and experiences

- *How are you and the group supported by the local health board/trust?*
- *Can you describe any personal or professional challenges you have faced in your role?*
    - *How did you manage these?*

- *Has being involved in the group had any positive impacts on you?*
    - *Can you tell me about these?*
- *What attitudes have you encountered about the provision of BSF groups?*
    - *Within maternity services? From midwives?*
    - *Have you seen any change since the COVID-19 outbreak?*
- *What are your thoughts on all maternity services providing BSF groups?*
    - *What are the barriers to more midwives getting involved?*
- *Is there anything else you'd like to comment on/add?*

Ethics

Approval for this study was granted by the Swansea University College of Human and Health Sciences Research Ethics Committee. All aspects were carried out in accordance with ethical standards as per the Declaration of Helsinki (1964).

Eligible participants who expressed interest via email were sent a participant information sheet. This detailed the purpose of the study, who was conducting the research and contact details. Voluntary participation and anonymity procedures were outlined. Processing of all data in accordance with the Data Protection Act 2018 and the General Data Protection Regulation 2016 (GDPR) was detailed along with rights and complaints procedures with relevant processes and contact details (Appendix X). Informed consent was given by participants prior to completing the interview, by signing and returning the consent form via email (Appendix X). This included permission to audio and video record the interviews. Consent was confirmed verbally before commencing the interview and the recording, with anonymity and storage processes explained to each participant (Rapley, 2007). Recordings were stored on a password protected computer accessible only to the primary researcher.

Procedure

Participants were recruited to the study using an advertisement with an email address to contact the researcher/supervisor. The study advertisement (Figure 13) was designed to visually relay the purpose of the study and increase sharing amongst colleagues. Facebook groups aimed at midwives were identified via a Facebook search, with permission sought from group administrators for posting study information to the group or page. The advertisement and link were shared to these groups and shared via Twitter.

Figure 14: Study advertisement three

All interviews were conducted virtually, via the participants choice of Zoom or Microsoft Teams. Due to their semi-structured nature, length of discussion varied between 35 and 60 minutes. All participants enabled cameras/video sharing and these were recorded with permission, using the Zoom/Teams integrated recorder. All participants were thanked by the researcher and a debrief emailed after the interview (Appendix X). This encouraged participants to refer to the NMC social media guidance and to self-refer to their relevant NHS Wellbeing at Work service should they have any concerns. Each participant received a £15 Amazon voucher via email in return for their time.

Data Analysis

All interviews were transcribed and checked against the recording, either via Zoom transcript (for Zoom interviews) or through importing Microsoft Teams recordings into Microsoft Stream for transcription. Identifying information was removed from each. Participants were identified by number, ordered by interview date e.g. 'Midwife 1'. Thematic analysis using a six phase approach was conducted to explore patterns and connections, identifying aspects of the data which related to the first two research questions (Braun & Clarke, 2014). Inductive content analysis, identifying data relating to group formats and logistics was then conducted to categorise group types (Elo & Kyngäs, 2008).

Firstly, each video interview was re-watched and script read twice for familiarisation with the data. After familiarisation with the data, initial codes (Phase 1) were produced using NVivo v12 (Phase 2), identifying themes (Phase 3). Experience themes were reviewed in relation to the coded extracts (Phase 4), defined and named (Phase 5). Illustrative extract examples were selected to report results within the final analysis. This was related back to the research questions and relevant literature in the discussion (Phase 6).

Data relating to group formats and logistics was further analysed using simple content analysis to inform future recommendations for practice. Content analysis focuses on summarising data into pre-determined or defined areas of interest or categories, that may also develop during the process (Krippendorp, 2004). Content analysis may be qualitative (generating themes) or quantitative (resulting in codes that can be statistically analysed), but the overarching aim is to break down the text into units for analysis and presenting this as economically as possible. Content analysis can vary in complexity, but a simple approach (identifying and categorising data related to group formats and logistics) was decided upon, due to the small sample. This allowed for semantic validity (the context of each interview was standardised) but the approach may be problematic in terms of generalisability (Hsieh & Shannon, 2005). However, this secondary analysis defined and

demonstrated group formats and logistics in sufficient depth to support sustainability modelling, enabling recommendations to be made for improving provision.

The quality of the study was evaluated using Lincoln and Guba's criteria (1985):

- *Credibility*: confidence in the findings was developed via both prolonged engagement and persistent observation – the researcher is a long-term member of/observer of activity within a variety of UK midwifery social media groups facilitating scope of understanding and depth of analysis. Persistent engagement and familiarity supported reflexivity through awareness of bias (Patten, 1999).
- *Transferability*: the analysis and discussion make explicit the patterns and context of relationships and of the sample involved, facilitating evaluation by the reader of the transferability of findings to other contexts.
- *Dependability*: Findings were audited via supervision, providing feedback on the adequacy of data, development of findings and the interpretive perspective.
- *Confirmability*: Triangulation established the consistency of findings against those produced by the previous studies via confirmatory analysis to ensure robust and comprehensive discussion. This was confirmed via supervisory feedback and member checking. A reflexive journal was used to reflect on methodological decisions and the researcher's background in midwifery and influences as a health professional, as suggested by Hunter et al. (2018).

7.3 Thematic analysis

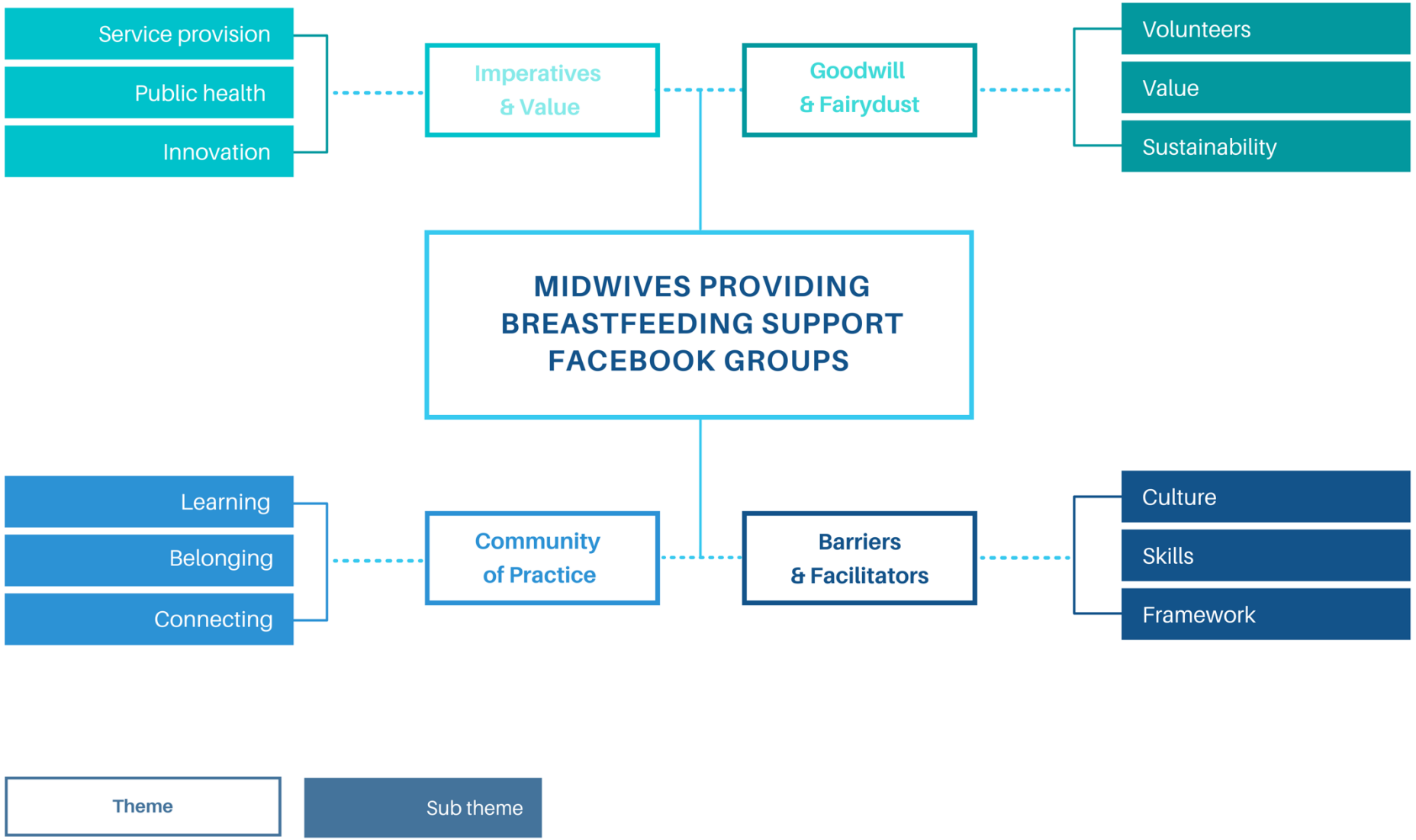
Using thematic analysis four themes and twelve sub themes were identified in relation to the first and second research questions. Data relating to the third question was analysed separately using simple content analysis:

1) Midwives' perceptions of the value of local BSF groups and their involvement
2) Midwives' experiences of being involved in the provision of BSF groups
3) The group formats and logistics involved in service delivery

The four themes relating to midwives' experiences were: (1) Imperatives and Value, (2) Goodwill & lack of resources, (3) Community of Practice and (4) Barriers & Facilitators. Sub themes within each theme related to the significance of each to the experiences of the participants in facilitating the delivery of online breastfeeding support, and suggestions were made in relation to improving and standardising services (Figure 14).

In relation to how participants structured and managed support delivery, a wide variety of group formats were reported. However, common requirements and challenges to implementing the provision within maternity services were described, and four broad group types defined (Midwife-led BSF group (1), Midwife-led Facebook maternity support group (2) Midwife managed, Peer Supporter delivered BSF group (3), Peer Supporter delivered, Midwife supported BSF group (4). Overall, managing reliance on volunteers appeared to be a common experience.

Figure 15: Visual thematic map (3)



Thematic analysis: Perceptions and experiences of midwives involved in the provision of BSF groups

7.3.1 Theme 1: Imperatives and value

This theme encompassed the ways in which midwives perceived the BSF group as both valuable and necessary to improving women's experiences and outcomes, as well as an imperative for services to meet their duty to women and public health.

Sub theme: **Service provision**

A key issue raised by midwives was the value of providing BSF groups as part of a maternity service, particularly in the context of the COVID-19 pandemic. Midwives in the study reported mixed experiences – some had initiated BSF groups as a necessity, finding support to do so easier to access as a result of the pandemic, whilst others with existing groups felt their impact and value was recognised retrospectively in light of lockdown.

> *"…there was a face-to-face service that wasn't very well set up and didn't work very well. And when COVID happened immediately, all of our face-to-face services stopped and so in March* [2020] *very quickly, we realized that the women really wanted some sort of parent education and were feeling really vulnerable. And so I said to my boss, let's just start up a private Facebook page… while we've not got anything else on the table and so that's what we did."* (Midwife 3)

> "*During the lockdowns [managers] realised that the only way we could talk to our mums and families was to actually engage in something that wasn't paper based or a poster on the wall…. [On the existing BSF group] we were reaching them where they live."*
> (Midwife 7)

Midwives whose BSF groups were running prior to the pandemic described them as arising from longstanding gaps in provision, put in place to meet the needs of breastfeeding mothers where, for any reason, health professionals were unable to do so. Reasons for these gaps involved both lack of resources and removal of services.

> "*Women think that health visitors should be like midwives and come around once or twice a week. And health visitors don't have that capacity and that isn't their job, but because they got rid of the weighing clinics and the drop in the women that are really desperate have got nowhere to go*." (Midwife 3)

One midwife highlighted changes to the focus of midwifery care exposing a need for new ways of meeting these needs.

> "*Midwifery is dreadfully misdirected… all of the focus being on the antenatal period and intrapartum and yet the thing that has the greatest impact on a woman's life really is the first few weeks of being a mother. That's what's missing from our services, any care for the woman as a mother… [The BSF group]… provides what missing doesn't it?*" (Midwife 5)

Midwives expressed a passion for supporting breastfeeding mothers as motivation to 'fill the gap' and frustration at the limited resources allocated to them in order to do so. A lack of service provision for breastfeeding mothers frequently provided the catalyst for creating and committing to running a BSF group.

> "*In terms of BFI accreditation we weren't in a good place…We had didn't have an [infant feeding] team, it was just me…the hours were limited but I knew that we weren't good enough. So the automatic thing for me was, well, we haven't got a peer support service…but I know that Facebook groups work well. So let's just set one up… It felt like a safety net which is just ridiculous and frustrating because it shouldn't come down to that.*"
> (Midwife 1)

Midwives also highlighted the value of BSF provision to the service in meeting strategic goals, identifying mothers' feedback as central to understanding its potential long-term impacts on both experiences and breastfeeding outcomes. Midwives were aware of how mothers' valued BSF groups and had positive perceptions of the impacts.

> "*When we've had the [BFI] assessments…a theme running through them has been how women talk about the Facebook groups. You know this isn't just a nice little fluffy bit of extra icing. It's an*

> *absolutely integral part of the care platform. It's there alongside…the intervention of the midwife [and] is just as important…many of them say I wouldn't still be breastfeeding if it wasn't for the Facebook group*." (Midwife 5)

Midwives also viewed BSF groups as a straight-forward and cost-effective solution to enhancing breastfeeding support, expressing this as an imperative for improving experiences and the quality of the maternity service.

> "*I think [creating a BSF group] is a no brainer. It's something that with the right kind of set up, which isn't difficult – you press a button and you've got a group basically and with the right guidelines, with the right sort of training of staff that are involved then I think it's just a fantastic opportunity to add to wherever your services are in terms of breastfeeding support*." (Midwife 1)

Sub theme: **Public health**

The potential of BSF groups as a significant public health intervention was significant for midwives. They discussed the potential for BSF groups to provide fast, convenient support that can make the difference between continued breastfeeding and a positive experience, or a woman stopping before she is ready due to lack of timely support. This was seen as imperative for public health and valuable to both women and services.

> "*I don't want anybody to not have support…I think it's really important that it's easy to access because formula is really easy to access. So, if you can't get that support quickly and have nowhere to go for it, if it's hard work, it's not gonna happen, is it?*" (Midwife 8)

Other benefits included service integration, linking midwifery care and contact with mothers in the community setting enabling increased contact, signposting and information, including between midwives.

> "[A mother] *will be asking for a specific help [on the BSF group] and I get a private message for me [from another midwife] to say no, it's OK, I've spoken to her today [in person] and so it was almost like a bit of a hub for us as well…*" (Midwife 1)

> "[Midwives] *tend to signpost their really anxious mums to the group because they know that there's somebody there, another mum there at 4:00 AM, and then that midwife will follow her anxious mum there to sort of keep half an eye on her. Interact with her if she desperately needs it*." (Midwife 3)

The potential for increased continuity of care was also noted, although midwives felt these benefits had emerged from the BSF group provision, rather than being implemented to deliver them. Lack of time and resources were perceived as limiting the potential of the format to improve the service provision, despite continuity of care being well-established as a significant factor in improved health outcomes with benefits for mothers and midwives.

> "*It could have been another avenue for communication and support but that's not what it was set out to be. It just kind of was a bit of an added bonus. Again, I suppose if someone had the time to administrate the whole thing, it could have been amazing. And in terms of that continuity of care as well, then picking up on things.*" (Midwife 1)

> "*Accidentally [there is more continuity]. I'm talking to the women a lot more. It also means that I'm getting to know the women, and I wouldn't necessarily have known people that rock up in my clinic. And now they go. Oh yeah,*
> *I've talked to you on Facebook or you posted that video and so I'm having a bit more continuity with them, which is much nicer for me too*." (Midwife 3)

Midwives also felt that the format encouraged self-efficacy, providing an information resource and source of support trusted as safe and evidence based by women and midwives so some needs could be met without requiring individual input from a professional. They felt this reduced pressure on midwives and providing more cost-effective long-term support enabling women to support and educate one another.

> "[The BSF group] *takes some questions off, you know, that women might otherwise be bringing their midwife or their health visitor with. They can post in the group and have some reassurance from other mums or somebody, but I think that the fact that it's quite heavily*

> *moderated by* [midwives] *means that the information in it is good*." (Midwife 8)

This was also seen as a mechanism to extend the capacity and reach of breastfeeding support services, tapping into the community support and providing evidence based, professionally mediated information that is accessible to more mothers. However, there was a perception again that this was undervalued.

> "*Before [the BSF group] our reach for care for specialist information for the women that we looked after, was six a week in our face-to-face groups… Our Facebook group has around, 1650 women, far bigger than six mums a week, and yet they were paid for their face-to-face, work, and yet, we're looking after, a couple of thousand women* [without extra resources]." (Midwife 7)

Sub theme : **Innovation**

BSF groups were seen as valuable and effective for women and services, but also key to digital transformation. Integrating technology into services was described as imperative to meeting mothers' needs and expectations, improving their connections with and visibility of midwives. Engaging with social media information seeking was described as an imperative, ensuring accurate information is available, and health professionals are able to address misinformation.

> "*We live in 2021 social media is the best way to communicate anything… it is the way that we get things out to people now and I am the generation of people who are having children and I know that I would really appreciate looking on Instagram and going. Oh, those are the midwives that might be at my birth, right?*" (Midwife 6)

> "*The first thing people do is get their phone out for support, isn't it? They either Google it or they put it on a Facebook page to say, 'Help, what do I do?' And if we can get the correct information to people on social media, it's a lot better than them getting incorrect information in my opinion*." (Midwife 6)

Midwives described how mothers valued access to them via the BSF group, filling the gaps in professional face-to-face support created by under resourcing.

Specifically, input from midwives was highlighted as adding value to the peer support available online, enhancing reliability through evidence-based information.

> "[Mothers] *did actually feed that back, that they'd like more availability of the professionals on the [BSF group], so although there is value in the peer support, because it's that lived experience…they also wanted that authoritative voice in there as well, either confirming or, you know, adding more…so they definitely wanted that* [midwife] *voice there as well*."
> (Midwife 1)

Whilst midwives recognised the benefits to the service they were providing, many described the challenges faced by lack of support and often reluctance from management to do so, including a perceived lack of value placed on breastfeeding support and the BSF group. This involved a number of factors, including the age and attitude of individuals in relation to social media use in general.

> "*Managers all seem to be leaders of a particular age, you know and very, very much against* [providing Facebook support]. *And we had a lot of hostility.*" (Midwife 5)

Other midwives described frustration that, despite the BSF group serving a strategic purpose for the service, those tasked with its provisions felt under supported and under resourced. Some managers were perceived as negative or obstructive to innovation.

> "[The attitude is] *very much like just get us through BFI every couple of years and don't bother us too much. That's fine, you know. Continue on. There isn't much will towards improving things. Perhaps we should make* [more of] *big deal about* [the impact of the group] *so that we could perhaps get a bit more buy in and support from management*." (Midwife 8)

> "*Their attitude is very much…say no to everything until we've had time to thoroughly investigate it and incorporate it into our policies and get approval from all of these different people it's very much along those lines*." (Midwife 4)

Some midwives also discussed how resistance from within the workforce limited the extent of, and support for BSF group delivery. Others noted that there was varying understanding of the need for increased breastfeeding support and a lack of insight into the how online support is formatted and delivered.

> "*Some of the older more traditional midwives don't use social media and aren't really for it because they don't recognize how useful it can be. It's almost like they see it as a really bad thing. So there's resistance and also they don't know how to access it or use it*." (Midwife 6)

> "*Not all the midwives are aware that there are big gaps in the service and it isn't able to meet al.l the needs [of breastfeeding mothers]…I think sometimes there's an attitude that the additional the additional support or non NHS support might be a bit unnecessary or…there might be a bit of a misperception of what's actually involved*." (Midwife 4)

Innovation such as BSF support was highlighted as low on the agenda of midwives, generally struggling with their workload, despite its potential to offer potential solutions in some areas.

> "*I think that you know the biggest barrier is really that the services are so, so stretched to the maximum already so for a lot of midwives it's just about doing the job that doing, and not necessarily having the capacity to add to that*." (Midwife 4)

Midwives felt that whilst the pandemic had prompted services to overcome reservations about interacting with service users using social media, enabling new provision and innovative solutions to emerge, guidance was lacking.

> "*We've all followed our noses doing this, haven't we, and developed something that we hope works…the main thing is that it's safe for the women and they trust the service*." (Midwife 5)

One midwife suggested that the online support had been set up without input or support from management, attracting support retrospectively as a result of its success.

> "*I favour the 'ask for forgiveness, not permission' approach so you know, I think that the fact that we've got sort of 1800 members speaks for itself. There's a need there or they wouldn't be in the group and they wouldn't stay in the group if they didn't value it. And so yeah*, if [management] *weren't supportive at the beginning, they have to be supportive now.*" (Midwife 8)

In summary, BSF groups were seen as a necessary part of developing services to meet the needs and expectations of the current generation of mothers, and to improve dire breastfeeding rates. Midwives involved in the provision believe it is incumbent upon maternity and public health services to innovate, to embrace digital communication and to adequately resource and issue guidance for this provision to ensure access is safe and equitable.

7.3.2 Theme 2. Goodwill and lack of resources

This theme highlighted the reliance on volunteers, both peer and professional, to provide BSF group support, often without resources, acknowledgement or renumeration. Midwives described a personal passion for delivering improved support alongside several personal costs to doing so.

Sub theme: **Volunteers**

Midwives described a range of BSF group formats, all relying either all or in the most part on them volunteering their own time to facilitate and deliver support. This was embodied by the concept of groups being run on goodwill and 'fairydust' (alluding to the lack of renumeration and resources). One midwife described the emotional connection that motivated her continued commitment.

> "*It was gonna be finite, that was always the plan. And now it's been forever… what happens, rightly or wrongly, is that you become slightly obsessed with it, it becomes your little world. I'm sitting there in the evening talking to mums on my group and do that at the weekend and do that when I'm on annual leave. It's run on goodwill*

and fairy dust." (Midwife 3)

The lack of investment and support for BSF group administration was described as having ongoing consequences in terms of future planning, related to the reliance on individuals to maintain online support services in the own time.

> "*The NHS is so restrictive I think in terms of introducing new concepts so it had to just be me that took it on the chin if* [creating the BSF group] *didn't go as we hoped and I even* [struggled] *to hand it over as I was leaving. Nobody was willing to take responsibility for it so* [running a BSF group] *comes down, as a lot of things do in the NHS, to goodwill unfortunately*." (Midwife 1)

The motivation to offer support voluntarily was described as a passion, derived from personal experiences of breastfeeding and breastfeeding support. Midwives were willing to offer their skills voluntarily online to fill the gaps in what they could offer in a paid capacity, borne of a desire to see improvement and prevent harm.

> "*It's run with the aim of avoiding the harm that you experienced. And that's why you still want to do it* [voluntarily], *and care for other people and give them the information you never had this because, you know, you can pay it forward and trying to heal something at the same time*." (Midwife 7)

> "[Breastfeeding support] *is something that I've always been interested in since I breast fed my first child, but* [online support] *has not been done within my role. That's been done just because I care.*" (Midwife 1)

> "*I just think it is one of the things that if you're passionate about breastfeeding you do volunteer to do stuff like all the peer supporters do. But in a midwifery capacity*." (Midwife 6)

Midwives described the importance of peer support within the BSF group, hinging on time being volunteered by other mothers, either as a parent or trained peer supporter. Trained peer supporters played either a lead or supporting role depending on the format of the BSF group. All agreed collaboration was key to sustainable and quality support.

> "[Online support] *has to be a collaborative, you know, thing. It can't just be us, we can't just do it because we need the volunteers to run it, but we can't leave them to do it by themselves. They need back up*." (Midwife 5)

Others felt strongly that the reliance of services on peer supporter to volunteer to run online support provision simply shifted the burden of a lack of resources onto other women, rather than tackling the gaps in funding of professional support.

> "[A peer supporter led format] *is probably a way of keeping* [the BSF group] *going maybe, and taking the load off of* [midwives] *who are shouldering the load, however, does it diminish the status of the information that we give? And maybe we should step away from that that idea that it's OK to freeload on women who are at home with their babies? All'that really does is passes pressure to another female who is working fo' free*." (Midwife 7)

Sub theme: **Value**

Midwives described value in relation to their own time and skill, recognising sacrifices made to provide online support and a need for self-protection.

> "*I regret leaving in some respects I could see the potential for it and how it could have been even better if it had the time and the energy to do things. But when it just falls on you to kind of do it in your spare time, it's too much of a big ask really*." (Midwife 1)

One midwife described the potential benefits of providing online support were limited by the lack of support provided to those facilitating it.

> "*The problem is protecting the role of the infant feeding coordinator in this* [running a BSF group] *because everybody starts off feeling that they can change the world and that they are superhuman and they can sort everything out and you very, very quickly become very, very overwhelmed.*" (Midwife 5)

The undervaluing of the provision, renumeration for providing it and a lack of recognition of the skill and commitment involved were highlighted. Midwives

acknowledged the complex nature of quantifying and qualifying the time spent engaging with mothers online.

> "*I run the* [trust/health board] *breastfeeding Facebook page too, and again I do that in my own time. You can meet reluctance* [on pay] – *like going to a face-to-face breastfeeding group 100% would be part of hours within work, and again if they were doing a virtual online group we could put it in the diary, but I think stuff like commenting or providing support is one of those things that we just wouldn't get paid to do.*" (Midwife 6)

Others described the default position of services relying on volunteers, particularly peer supporters, as failing to acknowledge and value the role and expertise of health professionals and breastfeeding specialists.

> "*It's minimizing us again isn't it? It's not building on actually, this* [breastfeeding] *knowledge is really important, and is also rare currently, and we need to be able to show that that's actually very valid. If I was in another profession. So, if I was a consultant of something else, it wouldn't be viewed in the same way. We'd demand much higher salaries. And it's just because it is based around women feeding babies that it becomes something that's not worth investing in.*" (Midwife 7)

Midwives also described how they valued the group personally and professionally, underpinning their willingness to give their time and resources voluntarily.

> "*My job is huge, it's not easy to organise and split my time and I think this is added another layer, but because I enjoy it….it gives me that connection with women, it's a layer that I don't object to, although I know it's making my life harder, it's actually making my life better too*." (Midwife 3)

Providing online support gave midwives a sense of control over the information shared, ensuring women had access to evidence-based information and retaining the ability to remove incorrect or undermining posts.

> "*It's nice to be in a group where you kind of got a measure of control. So, if there's anything up there that's really undermining, I can just take it out, you know*." (Midwife 8)

However, a lack of written guidance resulted in midwives becoming and/or feeling individually responsible for ensuring the compliance of the group with breastfeeding standards. This was seen as an additional barrier to wider involvement, centralising the responsibility for maintaining the value of the group.

> ["There's no written guidance], *no it's all on me, because I'm BFI lead. Obviously it has to be WHO code compliant, you know. And so I'm very aware of that. And if it was somebody else running it, I don't know if they'd have that on their radar at all, so they might post things that were less BFI friendly.*" (Midwife 3)

***Sub theme*: Sustainability**

The lack of recognised framework for providing and facilitating BSF groups was seen by midwives as central to both the ad hoc nature of services and reliance on voluntary commitment. Midwives felt BSF group provision was reliant on them remaining in post, with little support from management. This resulted in concern for the future of the online support they were investing their time and energy in.

> "*There is no succession planning for my role 'cause I've just been on annual leave for two weeks and carried on with the Facebook stuff, but my job collapsed while I was away*. [The group] *would just stop if I went or it wouldn't stop it would peter out it. It wouldn't be taken away, but it would just not have the momentum that it has.*" (Midwife 3)

This was also described as manifesting as anxiety for those providing the service, requiring both short- and long-term strategies.

> "*If I'm going to be away, I will I let the* [other midwives on the group] *know and ask them to sort of step up a bit and be mindful I'm not monitoring it, but I do worry and I can't do it 24/7 forever, can I?*" (Midwife 8)

This was recognised a part of the wider issue of undervaluing breastfeeding support and those providing it, in contrast to the expectations of employer support in other midwifery roles, with impact on the perceived sustainability of the role.

> "*I don't think my that my* [infant feeding] *job is sustainable at all at the moment without goodwill. There isn't any element of succession planning… and* [I had] *no meaningful handover.*" (Midwife 8)

Midwives discussed group formats as having developed dependent on their own level of commitment and having to learn to manage boundaries to ensure sustainability, particularly in relation to personal messages via Facebook (rather than group posts). Some felt compelled, willing or both to provide this support.

> *"It's actually the private messages that I find more time consuming but I find it really hard to draw the boundaries to be honest…I don't want anybody to stop breastfeeding because they couldn't get an answer. Or, you know, access to any support on a Saturday night or something*." (Midwife 8)

Another described having created her own strategies for self-management of the commitment arising for accepting personal messages.

> *"I don't mind* [private messages] *because it's not over the top and I think, you know, genuinely if I'm busy or something else is happening that takes priority in my life I have learned that I can 'not see' a message until I've got time to see it."* (Midwife 7)

However, one midwife felt strongly that personal messages fell outside the remit of the group support, compromising her professional responsibilities, and had put pathways in place to offer alternative means of support. This was also considered more sustainable for her and for the management of the group.

> "*I don't read* [personal Facebook messages]. *I delete them because I cannot read that story because as soon as I've read it, I have professional responsibility for it, and it's completely inappropriate for me to be engaging with a woman on Facebook Messenger about*

> *clinical issues. So, I then talk to the group admins and say, can you make sure this lady is signposted back to her midwife for an initial assessment.*" (Midwife 5)

In summary, current local BSF groups, although varying in set-up, format and function, are reliant on both midwives and peer supporters working voluntarily. Both do so through personal passion for normalising breastfeeding, a desire to address undermining culture and misinformation to support mothers to meet their goals. Despite this passion, midwives are aware of issues of sustainability and are frustrated by the lack of value placed on their time, skill and investment.

7.3.3 Theme 3. Community of Practice

This theme demonstrates the ways in which midwives perceived the BSF group as a source of social learning, both for women and themselves.

Sub theme: **Learning**

Midwives expressed that the primary intention of setting up a BSF group was to facilitate peer (mother to mother) support whilst offering access to professional support when required, promoting shared learning.

> "*I hoped from my experience that it would run itself that you know. I saw these groups that had worked, obviously with a midwife administrator, but that more or less you'd have experienced mums helping less experienced mums. And I will be there just moderating. And that was the hope*." (Midwife 1)

Midwives had experienced development within the group learning that is typical of a community of practice, with knowledge and lived experience being shared, and a commitment to this community learning being demonstrated by the members. Mothers became more expert as a result, relieving pressure on midwives.

> "*We've seen like exponential growth* [of the BSF group] *and mothers who we saw in that first year are now very much commentators who peer support other women. And they're very passionate about doing so, so it's almost become less time*

> *consuming, even though there are more women on there because the information they're giving is right. So, you skim read the comments now and you're able to see actually, yeah, she said everything I would.*" (Midwife 7)

This was considered an additional reason for identifying as a midwife when posting on the group, adding the authoritative voice to underpinning trust, learning and sharing. Providing evidence-based information and signposting to reliable sources was fundamental to ensuring the same standard of information was shared within the group.

> "*We tend to put infant feeding team after* [a post] *to give it that extra weight and the women will all answer too. Women repeat what we said four weeks ago…that's really nice 'cause they've learned, and they're sharing and I love that…Or they reshare our videos that we've shared in the past, so often they get there before we've even got there. It's really powerful."* (Midwife 3)

Midwives also identified with the community supporting their own learning and development, through observing interactions and prompting further inquiry. This was seen as an additional benefit to the provision.

> "[As a midwife] *looking at what people are asking, you can think I'm not really sure about that and you can either look it up yourself or you can see what another person has replied …it's reinforcing it all the time so you its sort of staying with you*." (Midwife 2)

> "*It goes both ways...it's helping you as a professional in terms of your development, you're learning but it's helping the women as well. It ticks every box*." (Midwife 1)

It was also identified that the group served as a learning tool in particularly for newer midwives, but that this was self-selecting and dependent on familiarity with Facebook and motivation to engage.

> "*There's quite a lot of Band 5* [newly qualified] *midwives are in* [the BSF group] *and they came more quickly than the older midwives. Generally, I think that's because they're younger, so they're more used to being on Facebook and it being a big part of their lives. But*

> *also, I think that they are interested in what I'm saying to women, and they use my signposting like First Steps nutrition or save the videos to share with their women.*" (Midwife 3)

One midwife described how observing peer supporters via the BSF group had actively supported her in acquiring breastfeeding knowledge and boosting professional development, making a strong case for collaboration across support providers with the community.

> "[On the BSF group] *the peer supporter goes 'What about trying this?' and you think oh, I didn't even think about that, so it's like a multi-agency involvement, isn't it? It's like anything, the more the more brains you have on one thing, kind of the better. And you definitely learn from each other*." (Midwife 6)

As an organic community of practice (rather than a specific learning group), the group provided a catalyst for learning for newer midwives both from women and from the evidence-based information provided by their specialist or more experienced midwife colleagues. Midwives also felt this created a resource of reliable information that could be drawn upon in practice and for professional development.

> "*So that's what I want them to [join the group for] 'cause they wouldn't come in my staff breastfeeding group if I made one of them for learning, but actually everything I post on* [the BSF group] *is BFI friendly. It's 100% what I want the staff to share with their mums. So, if they're sharing from that group, they know that they're doing something that is aligned with what the trusts' ethos is, and that's really valuable."* (Midwife 3)

Sub theme: Belonging

Midwives felt that the BSF group functioned as an online community within a local geographic community, creating a sense of belonging which motivated women to support each other. This also gave midwives a sense of satisfaction and fulfilment, a key motivator for ongoing involvement in a CoP.

> "*I could see this community growing of women…you'd see kind of the same names come up. They were starting to provide advice and becoming confident themselves that are obviously mums that have breast fed several times. And were just giving the most amazing advice, and I wouldn't need to do anything. I just kind of let it go. Yeah, that's spot on and just leave it, and that was amazing*." (Midwife 1)

Midwives described how the BSF group enabled services to reach out to more mothers and families than the traditional support provision. It was felt that this had the potential to create 'real-life' breastfeeding communities benefiting more women and babies in future as knowledge and social support are shared.

> ""[The BSF group] *is expansive, it's got that ability to be able to move [breastfeeding support] past just talking to two people to two hundred people and even mums who've given up but who are still staunch supporters. You don't have to be a breastfeeding mother or have a newborn [to belong to the group], you just have to live in* [the local area], *because you might not breastfeed this child, but you might do your next child*." (Midwife 7).

One midwife described the benefits of also funding peer supporter training via the NHS for committed group members as also having the potential to normalise and promote breastfeeding further, changing culture.

> "*f that mum* [after peer supporter training] *goes on to support a friend or three friends, you've now got three women breastfeeding…I think that's a bloody good deal. If we paid every pregnant woman to do the training, we might save the NHS millions*." (Midwife 6)

Normalising breastfeeding culture in an area, as a result of mothers' belonging to the online breastfeeding support community, was a motivator for midwives, and an effect they reported seeing within the BSF group. This was highlighted particularly in relation to breastfeeding continuation past early infancy.

> "*On the group they get to see mums feeding their 2 or 3 year olds and it's normalising it where you would never really see that in real life, very rarely…but they'll post and it's just really nice to have that*

> *exposure and to discuss things that they might not have even known that they wanted advice on, but somebody else is asking so now they know what's coming*." (Midwife 2)

> "[The BSF group] *has created a breastfeeding community in [the area] which is really not a breastfeeding friendly society and I think that's amazing. I think it's brilliant that a new mum can join that group and see that there's nearly 2000 mums in there and some of them are still feeding their toddlers and it's showing them kind of what's possible.*" (Midwife 8)

Midwives also described a sense of personal belonging, of increased social connection and more meaningful relationships, as a result of providing BSF group support over a longer period than usual midwifery care. This was described as personally fulfilling, but also as an investment in the breastfeeding journey that had longer term benefits for mothers and babies, and for the group itself.

> "*I think that one of the unexpected values of the group is that connection with mums with older babies, because as a midwife once they're discharged you don't have that interaction and the relationship that you build up. But the six weeks that you're probably giving intense breastfeeding support in the group means that when they're talking about pumping and going back to work they do come back to us now…*[which] *is a good thing from my perspective*." (Midwife 3)

It was also considered significant for the CoP that the BSF groups were seen as 'belonging' to the local health service, alongside giving women a sense of ownership of and security within the group itself.

> "*With such a poor and breastfeeding rates we have no real breastfeeding community or culture…so having the midwives and health visitors on board and signposting to the Facebook groups so it's got like that secure feeling to it that it belongs to the health board that its safe and for everybody*." (Midwife 5)

Sub theme: **Connecting**

Midwives described a number of significant connections that they perceived as underpinning the impact and benefits of the local BSF group format. Several highlighted occasions where they had delivered support both face-to-face and online, contributing to a mothers' successful breastfeeding journey, fed back to them via the group. This reinforced the value of a connected local service and led to a sense of satisfaction in the job.

> "*One thing that I'll always remember is a woman that I actually saw face-to-face for support…she really wanted to breastfeed and she had all sorts of problems and I remember her posting when the child was one in the group, and saying, I'm still breastfeeding and its down to this group and the support of the of the team. I was like, even if it's just one person clearly still breastfeeding for longer than they'd dreamt of then that was kind of enough for me."* (Midwife 1)

The ability to provide connected care across physical and online support was described as fulfilling by several midwives, highlighting the impact of continuity of care/support. The format also enabled them to observe and engage with mothers' feedback and the ongoing impact of the support received.

> "*It's lovely because you actually see the women in the group months later that you've supported in those early days, and I think from a career perspective it's a really good boost to know that actually, the support obviously worked and she's still accessing support now, so it's really nice to see."* (Midwife 6)

Having described the depth of personal passion for, and commitment to providing breastfeeding support, midwives often expressed fulfilment as a result of their investment in the group. One midwife explained her emotional connection to the momentum created within the group.

> "*I love [belonging to the BSF group]. I love watching how strong and able women are and passionate and how good information is shared and then re-shared and shared again and you just think yeah, there it is. It's building, it's moving forward."* (Midwife 7)

Others identified the importance of the connections between midwives, teams and the women they support via the BSF group in promoting trust and good practice within the community and the wider service.

> "[The success of the group] *is about that trust in the* [midwifery/maternity] *team and the relationship that they've already built with the team…that's really important*." (Midwife 3)

> "*Women trust their midwife implicitly…it's all that oxytocin…they will follow her to the ends of the earth, so if their midwife says you need to join that Facebook group, they will join it. That's the strength of midwifery, so midwives need to have the confidence that group is well organised and it's a safe place for women to go*." (Midwife 5)

Connections between midwives and the BSF groups were also seen as key to mothers' experience of support, with consistency ensured through ongoing training received by midwives and their engagement with the BSF group.

> "*You can post really good research on there and…they're getting the same message continuously, and that's one of the things that a lot of women say about breastfeeding is that they're sick and tired of…being told five different ways to breastfeed a baby, whereas…we share the same resources* [on the group] *so…women get a consistent approach*." (Midwife 6)

One midwife described the far-reaching effects of connecting families and support professionals with an online community and delivering consistent, evidence-based information. This was seen as having the potential to overhaul information giving within the wider service.

> "*The group helps others to learn how do support breastfeeding as well. I think there's a duality to the group itself is that is that it's not just women and mothers who that we're educating, it's their families. And it's midwives and its healthcare support workers, or student midwives. They're all seeing the same answers. So the answers that they then give start to become more standard. The information sharing becomes the same and you all of a sudden got a workforce are actually singing the same song*." (Midwife 7)

Another midwife described the group as a vehicle used to deliver change of approach to address the culture of the local maternity service, addressing poor practice and elevating good information to educate women and midwives within the CoP. This served as a further important connection between the online and physical services, with the BSF group influencing practice.

> "*We can't just sort things once there is a problem… we need to look at what's being said in the community* [by midwives]. *These* [non-evidence based/undermining] *messages are getting out and we need to eradicate it and put it right. So, the more women in the group the more mums that you're reaching…you know they've got mum friends, they talk about, it becomes a more an open conversation*." (Midwife 1)

Midwives felt that the most significant connection created by the BSF group was the relationships between mothers. They described 'real-life' relationships as being facilitated by the group, and these were seen as positive for mothers health and wellbeing, for extending breastfeeding duration and changing attitudes in the wider local community.

> "[A mother] *sent me a message the other day saying that her and another mum go out for coffee twice a week…she's made a new friend as we know is so important…she's got a breastfeeding buddy now, where before she didn't know anybody else that breastfed ever. So, she's now however many months breastfeeding and I don't think she would have done that without the group."* (Midwife 3)

> "*Mothers* [from the group] *are out there with knowledge at the school gates or talking to their friends and some of them become like a little go-to person in their toddler group…they're really valuable* [to the community]." (Midwife 8)

Echoing previous findings, the BSF group was likened to a 'village', capable of connecting people with each other, with breastfeeding knowledge and support and anchoring this changing culture within a local community. One midwife described this as using the digital tool to fulfil a need created by changing society.

> *'It's a village. It's the thing that everyone missed out on as the world expanded and women got pushed into work at the same time as raising children, we lost all of that community and somehow on social media [breastfeeding support] became a village. With all of us saying it's alright, its normal and you will be ok." (Midwife 7)*

In summary, midwives presented key experiences consistent with conceptualisations of local BSF groups as online communities of practice (Skelton et al., 2020). Midwives were aware of knowledge acquisition and increased social connection and support impacting all those engaged with the BSF group, including themselves and the wider healthcare workforce. They also reported a belief in the potential for the CoP to impact the physical local community, generating greater breastfeeding knowledge, shared experience and the possibility of cultural change**.**

7.3.4 Theme 4. Barriers and facilitators

This theme identified the challenges faced by midwives in delivering online breastfeeding support and highlighted where support was received or needed.

***Sub theme*: Culture**

Midwives described a variety of cultural impacts, both individual and organisational, on the running of a BSF group and perceptions of engaging with mothers online. One midwife described an organisational culture that disincentivised innovation amongst the workforce.

> "*There's a lot of lip service paid to worshipping tall poppies and people that have progressed change, but actually at the coalface people hate them…they just want everything to stay the same*." (Midwife 5)

She felt this was an endemic issue amongst both NHS and third sector organisations in relation to breastfeeding support, a culture that stifled change and progress.

> '*I've spent the last 25 years trying to be a bridge between* [breastfeeding charities] *and the NHS, you know, and that it it's a very uncomfortable place to be because people like being in their silos…The breastfeeding community is just as bad as the NHS, they all like to be in their comfort zone…but a comfort zone is a nice place, it's a beautiful place, but nothing grows there*." (Midwife 5)

Others highlighted attitudes towards, and familiarity with social media amongst midwives, as a result of their education and practice, as a particular barrier to wider engagement and support for the BSF provision. This was perceived as a cultural fear within the midwifery workforce and wider profession. One midwife described how social media is an established part of her life, a comfortable and familiar place to offer support and information to women, whilst being aware of other midwives for whom it is new and frightening.

> "*Even though I only trained [as a midwife recently] it was if you friend anyone on Facebook you will lose your [NMC registration] and I'm just like Facebook is the new normal' I've grown up with social media, I had Bebo, I had MySpace I've had Facebook. You can just delete someone, it's not a big issue. Online is not a problem in my opinion, but I have colleagues that haven't even ventured to a smartphone. So for them the thought that we've now got Facebook pages is just like what on Earth? Why? Why are you doing that? That's just dangerous*." (Midwife 6)

Another midwife explained how attitudes and a 'digital culture' had been impacted both positively and negatively by the surge in online support as a result of the COVID-19 pandemic. Resentment towards midwives working online was seen to be borne of a lack of knowledge about the role. Gathering evidence was perceived as a solution to allaying fears and negativity, and promoting the benefits of the service amongst the workforce.

> "*There are a number of midwives that had never used social media before* [the COVID pandemic] *and we're now doing it and they could see straight away, this is amazing. We're talking to parents via these Facebook pages and they're benefiting from it. But then from the clinical midwife, there was almost a bit of resentment…so what do you do then you're not looking after anybody. So, it needs to be talked about more. I think we need more evidence of how effective it is for parents and [midwives] need to recognise that it's not going to go away and they need to get on board basically. They need to catch up."* (Midwife 1)

Concerns were perceived as underpinned by a lack of guidance and support for safe online engagement, resulting in a generalised fear about the permanency of giving information via social media and the potential for it to be misconstrued.

> "*If the midwife is confident to put that information out there, it's all right. But you've got documented evidence of what you've just put on social media, and that can be used in a positive or negative way*." (Midwife 6)

Finally, midwives described the important links between approaches to breastfeeding support and culture across the rest of the service and the delivery of support via the BSF group.

> '*We've got to look at culture, so why did the midwives in our unit, top up babies [with formula] all the time? Why is that become a cultural thing? I attacked it from that point of view within the unit in education* [in addition to creating a BSF group]" (Midwife 1)

One midwife described the potential of the BSF group to provide support, including the training of peer supporters to assist in running it, being limited by the need to address standards of support elsewhere. The two were seen as inextricably linked to ensure messaging was consistent from midwives across hospital and community settings, and to ensure (often personal) time investment was worthwhile.

> "*We trained* [peer supporters] *at the weekend and in our own time, we were training women like crazy, thinking this is going to change the world. But at some stage just realised that actually the standards in the hospital need looking at, I can't do this or maintain it* [the BSF group and training] *when you couldn't see the difference at the time."* (Midwife 9)

Sub theme: **Skills**

Skills were a key component underpinning the success and limitations to online service delivery. Midwives felt these included the need for those involved in BSF group support to have an advanced level of breastfeeding knowledge and support skills with the confidence to share these publicly. Several midwives had concerns that midwives' standard level of breastfeeding education and experience could not

meet the requirements, or that they perceived it would not, affecting their confidence. This was compounded by the public nature of social media.

> "[There] *is fear of saying the wrong thing. Fear of saying the wrong thing in terms of not necessarily being confident that their advice will be evidence based. Yeah, and having it in black and white and being able to be scrutinized properly.*" (Midwife 7)

One midwife felt strongly that midwives, overall, were not equipped with the right knowledge or skills for providing online breastfeeding support. She described this as a disconnect between perceived and actual knowledge, affecting their suitability for the role.

> "*It's the Dunning Kruger effect…the less people know about something, the more they think they know. And that's very, very prevalent in breastfeeding…So with the average midwife what they think they know about breastfeeding and what they actually know are two different things…To be honest, with the greatest respect, I don't think midwives are the ones to take* [running BSF groups] *on*." (Midwife 5)

She felt that this lack of suitability could be attributed to the adoption of BFI standards failing to give midwives the depth of knowledge required.

> "*I think midwives have an overinflated idea of their own competence and ability in regard to breastfeeding, and I blame the BFI for that. Everybody thinks that the BFI is the be all and end all, and actually it's below the* [ABM] *mother supporter standard for peer supporters*." (Midwife 5)

All respondents had backgrounds in peer support themselves, or advanced specialist training. They felt this knowledge supported their confidence in providing support on social media but had experience of a lack of confidence amongst other midwives., even those who had actively joined the BSF group.

> "*I'm quite conscious that I answer a lot of questions in the group* [but] *I try to kind of give people a bit of confidence to do it themselves…it's*

definitely something that more people need to be able to do, because we should all be able to answer the basic questions." (Midwife 8)

One midwife attributed reluctance on the part of other midwives to be more involved in the group to a perception of group ownership, rather than confidence in knowledge. Leadership and support skills were described as needed to overcome this type of barrier.

"*It really is my group, you know, without it meaning to be my group and so it's me that does most of the posting. When I've talked to midwives before about it they say, oh…we feel like we're sort of stepping on your toes a bit because it's your group and I tried to encourage them. But they do answer questions, they don't tend to initiate, but they do reply and respond."* (Midwife 3)

However, some described experiences of having to moderate either poor advice, or an inappropriate approach from other midwives within the group. This was seen as a result of a lack of experience in the approach needed to give information online, and the differences between this and that used in clinical practice. This included a perception that poor practice could be masked in person, and exposed online.

"*I think* [midwives involved in a BSF group] *need further breastfeeding education to feel that they could answer in an appropriate way it's different to when midwives are in a room with a mum. There's nobody else to scrutinize the words they choose, or their methods…and it's not until a later date, then maybe that somebody has to go in and unpick certain things that have been said…*[but] *if you do that on a media platform, if you say the wrong thing then everybody can see it. So, I have deleted midwives' comments because they weren't up to date*." (Midwife 7)

These experiences included a lack of support skills and ability to present themselves professionally online. Midwives saw this as a key skill for the role.

"*Some people just* [don't have the right skills]. *Like the one midwife commented on somebody's post who had asked…something basic and she was like, 'oh, for goodness sake, it's not rocket science' or something along those lines and I just deleted it….It might have been a Friday night…she might perhaps have had a couple glasses of wine*

and wasn't really thinking, but you can't. You can't do that." (Midwife 8)

Training in online professionalism and enhancing skills for providing breastfeeding support were perceived as needed, addressing and acknowledging the difference between clinical advice and information giving. One midwife described this as inherent in peer supporter training.

> "[Peer supporters] *are trained not to say 'Well, what I would do is or what I think you should do it is…', they don't give advice. They offer suggestions and information and the woman makes up her own mind about what she wishes to do.*" (Midwife 5)

She also highlighted the different skills needed for BSF group support, and the need to consider and/or adjust tone and approach to provide it effectively.

> "[Midwives' don't] *realise there are 600 women watching and the impact of them as a health professional. You know what they, what they saying? How are they saying it, the tone of it?... They put themselves in the driving seat, because that's what they used to doing. But on social media you have to adopt a different approach, it's much more collaborative. It's much more providing information and not telling people what to do*." (Midwife 5)

Others agreed that midwifery training could lead to prescriptive advice giving, not suitable for online support, and the need to develop appropriate communication skills.

> "*You do have to think a lot about communication when you're thinking about peer support and you're always reminded that you're not advising you're providing information…*[but] *midwives are a bit more like, you know, we can give advice. So some of them are a bit more prescriptive about it, maybe*." (Midwife 8)

However, those involved in BSF groups felt that they were particularly aware of this, and the need to adopt this approach in training.

> *Knowing that everything you say is, is going to be read by that could be read by the whole of the group and is basically out there on the internet forever, it does make you really think about every word that you write, and how it comes across*." (Midwife 4)

> "*You're not there to tell someone what to do, you're there to support them. And again, I think that comes from training*." (Midwife 6)

Personal skills were also identified by midwives as being central to the success of the BSF format, including approachability and accessibility whilst maintaining professionalism. One midwife described necessary skills and attributes, whilst highlighting the complexity of managing this role.

> "*You have to have the right person, that's a little bit social media savvy and a little bit approachable to do it, because if you have the wrong person sitting there and you just are very medical and very mechanical* [online support] *doesn't work. That's why it works because people think they're my mate. But that also lowers the boundaries it's a sort of a double edged sword*." (Midwife 3)

She described the difficulty of defining these attributes and behaviours, and creating boundaries whilst maintaining the efficacy of online interactions and support.

> "*How do you write that boundary though? Because actually there's quite a lot of instinctive behaviour in that i'sn't there?...That's where those boundaries come from…some people have got good instinctive behaviour and it grows, but I think it's very difficult. Which is why no-one's done it, because it's very difficult to quantify and qualify what these things are."* (Midwife 3)

Sub theme: **Framework**

The framework, or lack of framework, of BSF groups was described as both a barrier and facilitator to their delivery. Midwives described fears amongst staff and services about negativity online, and varying approaches to managing any impact, on families and staff of negative experiences being shared online.

> "*A lot of the concern* [about the BSF group] *is that* [negative comments] *would slip through the net because there aren't enough people available come to be able to pick up any problems*." (Midwife 5)

All participants shared experiences of mothers or families posting poor experiences or naming staff online, and described fear of being targeted or 'trolled'. BSF groups had varying strategies to minimise these incidents and their impact. This included the importance of adopting a framework including collaboration between and respect for the health service and peer supporters.

> "[In response to a post] *members of the group had commented saying what a bloody useless midwife …and then it did turn a bit* [nasty]….*our peer supporters knew that that wasn't OK… and they did actually notify us as a health board to say we're really sorry this was on the page…we did talk about it and we decided to delete it….Because we've got such good relationships with the peer supporters…whereas I think in other areas if there are poor links…it could just end up becoming a bit of a fest.*" (Midwife 6)

However, another described managing negative experiences as having a personal impact when situations arise without guidance on their management and support for those involved. Her experience resulted in withdrawing her input to the group.

> "*There was a really big incident*. [I commented and a group member] *posted this absolute rant* [in response] *I saw it in bed at night which was really scary. Yeah, so I totally backed out…her post kept having hits all the time, there were all these little love hearts going up on it. The girls buried it* [because] *we didn't know what to do with it and then I said to them, look' I'm not gonna come back on the site again. So I stay in the background."* (Midwife 9)

She also questioned whether, where midwives were part of BSF groups, negative feedback about the maternity service affected morale and their engagement with the group, particularly in relation to signposting women to it for support. It was felt that frameworks to support feedback without negative impact on staff and families using the group were needed.

> "*Mothers* [were asked to] *put the feedback on* [the BSF group]. *And I don't know if that has a negative impact on the staff, but I've noticed the women I've seen don't know about the group, whereas last yea' I'd be expecting them to know about the group…so are they* [not recommending it] *now people have seen that?*" (Midwife 9)

One midwife described other difficulties arising from no coherent approach to digital professionalism, causing confusion when engaging with families both on and offline.

> "*There have been some times when I've seen somebody post something and I, I recognize their name from one of my from a different I've had contact with them in a different context…an' I've been unsure what the etiquette is. So, you know, do I say Oh hi…I remember you from such and such, or is that is that inappropriate, you know should I avoid responding to those posts in case there's any kind of conflict of I don't know anything that might make them feel uncomfortable*." (Midwife 4)

Varying approaches the how professionalism and professional responsibility is determined in the online space, and a lack of framework for engagement were evident. One midwife described fear of the consequences of online engagement were based on a failure to recognise women as able to engage with support appropriately, or to understand the limits of their professional responsibility.

> "*Women are sentient beings. If* [a mother] *wants further support she knows where to find it…* [Support] *is not a contract*… [the fear] *comes down to defensive practice…and that's not how I practice because I think it just leads to you going a bit crazy and missing the point…And that's what all care comes down to: women can choose to engage or they can choose not to. But you can't force them to do either thing…just signpost appropriately*" (Midwife 7)

However, another midwife felt midwives should avoid disclosing their professional identity within the BSF group and take a background role in facilitating support delivered by peer supporters, as failing to do so put them at professional risk.

> "*Once you've outed yourself* [as a midwife], *you have a professional responsibility to the woman, don't you? So, if you're saying I am the midwife here, then you've got to see it through. You've got to take responsibility for that woman's case. If you're posting as a peer supporter or breastfeeding counsellors then you aren't taking professional responsibility for the woman, and I think that's really important*." (Midwife 5)

These differing approaches highlight the impact of a lack of a standardised approach or robust guidance, creating disparities in organisational, professional and individual attitudes and culture, and therefore service provision. This impact extended to the scope and aims of the group. These had developed organically, based on experience rather than evidence, and midwives described benefits and difficulties, particularly in relation to group membership. The size of the group and its ongoing management presented some issues.

> "[The BSF group has] *got so big and I think evolving wise what we need to do is probably put a horrible caveat…that women should probably leave after a certain amount of time… The reason that I haven't done it so far is that I like the women that are three months postnatal who are regurgitating* [information*]...that's the point of the peer support. But in five years when my group is 10,000 strong, what do you do with it?*" (Midwife 3)

Another midwife described issues with management around the nature of ongoing breastfeeding support and the boundaries of midwife involvement, Again, this was complex in relation to maintaining effective peer support and ongoing relationships with and breastfeeding education with women.

> "*We get push back again and again about how old the babies are…but I think that having a newborn and seeing that people are still going is a brilliant thing to see and I think that we should all be doing it together and you don't get the peer support element without that."* (Midwife 8)

Finally, one midwife highlighted that although a current lack of evidence base in relation to the benefits of, or a standardised framework for, appeared to limit

support for initiating BSF group provision, managers were happy to share in their success.

> "[The group] *was definitely used by some of the managers when they've done presentations, saying 'we've got this amazing Facebook group'. But, you know, they weren't bothered in the beginning, it just sounds really good on paper doesn't it? We've got a Facebook group, there are nearly 800 women involved within a year and it's adding value to a service. So they'll use it when it when it suits them.*" (Midwife 1)

She felt the solution for this was to develop the evidence base to demonstrate and recognise the impacts and benefits, to develop frameworks and secure future investment in the service.

> "*I'm hoping that your study proves the actual value of this. It is significant, and it needs to be taken seriously. It's not just a Facebook group. This helps women to breastfeed for longer than they would have. And helps pregnant women to learn about the realities of being a new mum that they remember when faced with a newborn.'It's ticking so many boxes. It just needs to be recognised better by the NHS certainly."* (Midwife 9)

In summary, the were a range of barriers midwives felt they faced in providing online breastfeeding support. These included experiences of individual fears and organisational culture that viewed online engagement as risky or problematic, as well as a range of perceptions in relation to midwives' skills and suitability for the role. However, midwives providing BSF support identified their own experiences and aptitudes as supportive of the development of the role and in training others effectively. There was a consensus that the provision requires an evidence base to support future development of frameworks and bids for investment.

7.4. Content analysis: *Identifying group formats and logistics involved in service delivery*

The data was also analysed using simple content analysis to identify the varying ways midwives were delivering their BSF groups, including level of midwifery and personal involvement, collaboration with other providers and approaches to moderation. All groups were 'private' – a Facebook setting restricting viewing of group activity to members and preventing the sharing of posts directly from the group. This was described as protective for the service and for women.

> "*One of the rationales behind the private group is that it's slightly safer for us as a trust as well, because you don't have the world looking in on it, so you can go, 'Oh no, we didn't mean to put that out there' and retract it, and it's not shareable from that group, so it's safer for the women who do share pictures…and all kinds of things. You can obviously screenshot, and you can't protect against that, but there's that sort of level of safety. It's never 100%, is it on social media? It's not possible, but it gives them that a little bit of reassurance*." (Midwife 3)

Four main group formats linked to maternity services were identified. These varied in their approach to managing and facilitating the group, and the level of midwife, and other health professional input.

7.4.1 Type 1: Midwife-led BSF group

This model was created and delivered by infant feeding team midwives, with no structured (trained) peer support input. Maternity support workers were closely involved in responding to queries. Employed clinical midwives and health visitors were present on the group, giving some input. These groups were linked closely to face-to-face support groups, clinics and home visits. Some paid time was available for training and administration, but most support given unpaid.
These groups predominantly grew from the need to communicate information regarding face-to-face groups, and to promote wider breastfeeding services.

> "*We had a* [face-to-face] *group to see women and* [created the BSF group] *as a way of trying to spread the word but also pass on messages… like admin for being able to say that there wasn't any group that day or the boilers broken. I just felt like I've got no way of talking to these women because it was a drop in it and* [the BSF group] *was just a public way of being able to talk about what was happening…The original intention wasn't to give support on the group*" (Midwife 8)

Moderation of initial posts was achieved by setting the posts to pre-approval, so that midwives and other professionals listed assigned as group administrators are required to check the content before it is posted. This was perceived as enabling the midwife to keep an eye on responses, but also to prevent sales or misuse of the group. Subsequent comments on these posts were also moderated for content accuracy (See 'Community of practice' theme).

> "*I'm mindful that I've approved three or four posts so I know an' I'll check in on them a few hours later and they've all had really good input from other mums*." (Midwife 8)

> "*The question doesn't go up until you approve it, so you do have time to be able to work out whether or not it's appropriate. This was partly to do with the fact that people would try and sell stuff or promote a business and that wasn't what the page was intended for*." (Midwife 7)

Midwives involved in this format felt this was labour intensive but the load shared with other members of the maternity service, albeit in their own time.

> "*Part of the* [maternity support worker] *role is to go out and talk to mums. They offer the group as a form of support so as admin* [on the group] *they'll OK their application to become members so that limits a little bit of what we have to do to monitor the actual input.*" (Midwife 7)

In summary, the group was described as providing professionally moderated support with close links to the face-to-face support being its primary function, alongside facilitating peer support with oversight from the specialist infant feeding team. The format currently relies on midwives providing most of this input unpaid.

7.4.2 Type 2: Midwife-led Facebook maternity support group

This model encompassed all maternity services, open for discussion on and support for any aspect of maternity care. Group overseen by the infant feeding and public health midwives. There was close collaboration with other clinical midwives and health visitors in responding to posts. No service run face-to-face groups available, but administrators signpost to clinics and wider services. All time contributed was unpaid.

Midwives described this format as arising from the loss of parent education and public health referrals at the outbreak of COVID-19. The group was aimed at those women giving birth in one area, enabling access to breastfeeding support alongside other services.

> "[To join] *you have to be delivering or have had a baby at our trust...A year later we now have over 1400 people in the group, it's just evolved and evolved and… the women absolutely love it. The group itself is antenatal education and postnatal support as well as breastfeeding*." (Midwife 3)

This model, although relying heavily on the infant feeding lead in an unpaid capacity, midwives across clinical areas offered support, joining up services.

> "[The advantage of the format is] *the women trust us…we've got MSW and midwives all in the group. And the women know who is responding because they sign that they're in MSW or a midwife…like my colleague, she signs that she's antenatal clinic lead, so they know the where the advice is coming from.*" (Midwife 3)

Collaboration with wider breastfeeding support services was also a feature of the format, and posting encouraged to add value to the group and widen access to support.

> *"We have the local NCT peer supporter and so she posts her breastfeeding groups…and the local health visiting service also has a*

member in our group so she posts their breastfeeding support and drop in clinics…it's very collaborative." (Midwife 3)

It was considered that the general maternity support aspect was valued by mothers and encouraged input from more midwives. Midwives did not feel that a specific group would reduce workload or offer other benefits, primarily due to the ways mothers were perceived to want to access support in all areas, once access to midwives was available to them.

"I could set up a breastfeeding group and they would still post 'what formula should I use?' or…'do these spots look normal?' because they don't have the same boundaries that we do. And so yes, it might be predominantly for breastfeeding support, but I guarantee you would get so many other things anyway." (Midwife 3)

7.4.3 Type 3: Midwife managed, Peer- supporter delivered

This model was managed and overseen by the infant feeding team, with signposting and referral pathways in place for clinical support. The groups were affiliated to the health service but run and moderated by volunteer peer supporters, trained by third sector breastfeeding organisations. Midwives working for the wider maternity service are encouraged to signpost mothers for group support, but not to actively respond within the BSF group.

This model was designed to link trained peer support with maternity services, avoiding professional issues arising from wider midwifery input, but supporting volunteers within an organisational structure.

"When I said [I wanted to set up a BSF group], *I said this has to be a collaborative thing. It can't just be us. We can't just do it because we need the volunteers to run it, but we can't leave them to do it by themselves. They need the backup.*" (Midwife 5)

Peer supporters provided the BSF group support were required to be trained, currently at their own cost, and retain third sector memberships. This was described as providing security for all parties.

> *"The admins are all trained peer supporters and some of them are at breastfeeding counsellors and lactation consultants as well…Admins are members of* [breastfeeding organisations] *which is my line in the sand… it keeps them safe with the structure for support and supervision for them if the* [maternity service] *pulls the rug on them."* (Midwife 5)

Oversight of the running of the groups is achieved via a separate messenger group that peer supporters are encouraged to use to access support or report any issues. This was considered supportive but also reducing some load on the health professionals involved.

> "*There's quite a structure behind these Facebook groups…I don't admin the* [BSF] *group, so I don't do the nitty gritty…but we have a messenger group…* [which] *is how I supervise the [peer supporters] as the admins. They need direct access to supervision in case they get into difficulties with the case so they can do that via the messenger group which is everybody and all of the admins and me and the health visitor lead."* (Midwife 5)

Training for health professionals in setting up and overseeing online support was described as useful and impacting on decision making for this model. Group guidelines were developed from existing third sector peer support groups, seen to be of a high standard.

> "[Social media training] *had a big effect on me…it made me sort out guidelines for the groups, which was quite easy because* [breastfeeding organisations] *already have solid guidelines*." (Midwife 5)

7.4.4 Type 4: Peer supporter delivered, midwife supported

This model involved the maternity service funding peer supporter training, providing updates and ongoing support. BSF groups had close links with face-to-face peer support groups, which were attended by midwives and health visitors. Some midwives were involved in the groups, giving support voluntarily, but with support from employers.

This model was initiated by health services, investing in a peer support model to improve breastfeeding services and rates.

> "*There was a drive from the* [maternity service] *that we needed peer supporters in every area. There was a drive to get these peer supporters trained and then to help them set up* [BSF] *groups…we gave them example constitutions and then said go and make it your own*." (Midwife 6)

This was seen as part of a wider midwifery culture of support for online services and engagement, within competency limits. The rationale for this was understood as promoting improved connections between mothers, midwives and services.

> "*Because we provide continuity* [we are encouraged] *to be identified as midwives and be sort of commenting and offering support online, as long as the midwife is confident to put that information out there…It could just be something like* [posting] *that actually this* [BSF group] *sits within the health* [service] *and you can give us a call so it's empowering the woman* [to access more support]." (Midwife 6)

However, the peer support model, whilst embedded in the service and supporting midwives to offer support when needed and able, was not seen as an additional burden. This was described being a result of trust and collaboration.

> "[The model] *is great because you know that they're doing their own thing. You know the* [peer supporters] *are really competent, confident…it's their groups, but we just kind of drop in for a bit of support or just offer our information, if it's something that we think would be useful for this mother…I don't feel like it's any more pressure on me."* (Midwife 6)

Midwives described the importance of strong links between the peer supporters and the health professionals to ensure that, whilst the BSF was run by volunteers, links with the service were evident to mothers and supported by referrals where needed.

> "*They can contact us at any point, so especially if it gets someone that they think has got a tongue tie or significant position or attachment issue, or they can't support them, or it's a health issue, they can refer back to the health visitors and link in with the infant feeding coordinator regularly*." (Midwife 6)

It was also central to maintain this model that peer supporters were provided with funded training, to encourage commitment and connection with the wider service. As BSF groups were linked directly to face-to-face peer support groups, safeguarding assurance and training was also provided.

> *"We pay for* [peer supporter] *training as long as they commit to their [BSF] group for at least six months, whether that's once or once a month or whatever…we will hopefully be providing DBS checks and an induction with mandatory e-learning too*." (Midwife 6)

Midwives also described how this model also included ongoing support to maintain links, the quality of the service and to show gratitude for the peer supporters as volunteers.

> *"We also hold enrichment days we bring all our peer supporters together for the day just to say a massive thank you and update them on any new research has come out or… letting them know policy [changes] so that they know what's going on within the health service infant feeding agenda and we offer them to come along to our strategic meetings about infant feeding so they can be part of the planning…they know what works, what doesn't work, probably more so than what we sometimes."* (Midwife 6)

The data show that whilst BSF groups linked to maternity services are becoming more common, there is a wide variation in approach. Midwives described this arising from a lack of evidence or guidance, with groups developed from a need, and reliant on both health professionals and peer supporters being willing to give their time, knowledge, and skills on a volunteer basis. In short, concerns about the ongoing sustainability of groups dependent on volunteers were evident, and there was a consensus that whichever model was adopted, a clear evidence base to underpin decision making and investment are required.

7.5 Group formats: identifying strengths and Weaknesses

The National Quality Board (NQB) defines quality care in the NHS as care that is effective, safe and provides as positive an experience as possible, through services which are well-led, sustainable, and equitable (NQB, 2021) (Figure 15). Participants' descriptions of leadership, efficacy, experience, safety and sustainability were identified in the data, determining the strengths and weaknesses of the four group formats against this definition (Table 36).

Figure 16: The NHS dimensions of quality care (NQB, 2021)

All group formats were perceived by the midwives involved in running them as effective support interventions, with feedback from mothers indicating their experiences were positive. Leadership by participants and from those they collaborate with, where applicable, was seen as good quality, with barriers arising predominantly on a management level. The service was perceived to be safe, whilst acknowledging the limitations and/or lack of governance and escalation processes. Overall, sustainability in terms of human and financial resources was a significant issue for all formats.

Table 43: Individual strengths and weaknesses of group formats

(MW= Midwife, PS = Peer supporter)

Group type	Strengths	Weaknesses
1. MW led BSF group	• Extension of midwifery service (highly integrated) • Relational continuity with midwives, builds trust in local service • High level of professional breastfeeding expertise • Extension of face-to-face groups • Specialised CoP developing knowledge & community	• Reliance on midwives' unpaid time for management & moderation – lack of sustainability • No wider collaboration • Little management support, no financial resources
2. MW led Facebook maternity support group	• Extension of midwifery service (highly integrated) • Relational continuity with midwives, builds trust in service • High level of professional breastfeeding expertise • Wide community and third sector collaboration • CoP benefits for midwives involved	• Reliance on midwives' unpaid time for management & moderation – lack of sustainability • Potential for breastfeeding to not be at forefront of generic group/reduce CoP impacts • Management support for service but not financially resourced
3. MW managed, PS delivered BSF group	• Funded PS training and collaboration ensures sustainability • Does not rely on midwifery time • Well established links to seek midwifery support • Extension of face-to-face groups • Well supported by management structures	• Less relational continuity with midwives • Relies on motivation of PS • Fewer CoP benefits for midwives
4. PS delivered, MW supported BSF group	• Peer support service promoted by maternity service enhances trust in PS • Established referral pathways to clinical care • Less reliance on individual midwives • Some management support	• No relational continuity with midwives • External PS training, less integrated, less investment by service to maintain links • Relies on midwifery time to maintain oversight of PS input/registration • No CoP benefits for midwives

7.5 Discussion

Building on the previous findings, the aim of this final study was firstly to explore the perceptions and experiences of midwives involved in the provision of BSF groups in more depth, and secondly to identify the BSF group formats and logistics involved in service delivery. The results confirmed the findings of study two; midwives offering breastfeeding support via local BSF groups do so because they are passionate about the benefits of this type of support, citing positive impacts on mothers' breastfeeding experiences and durations and therefore public health. They also confirm midwives are providing almost all this support as volunteers, even where the BSF group is linked to their employed role and employer. Exploration identified that although midwives either deliver or facilitate this support voluntarily, they do so to meet a need that exists as a result of depleted breastfeeding support services, in addition to a belief that online support has benefits in itself. It is clear that this has created a surge in BSF groups linked to maternity services, boosted further by restrictions on face-to-face support during the pandemic, but without clear guidance, or an evidence base establishing best practice. As a result, formats and logistics vary, and there is no consensus supporting midwife involvement or collaboration with third sector organisations. The findings have important implications for those considering the integration of online breastfeeding support within maternity services.

Previous research has established that increasing workload and a lack of capacity, both in midwifery and health visiting, impact on the ability of health professionals to offer breastfeeding support within commissioned services (UNICEF, 2017). It is anticipated this will worsen in coming years as ongoing cuts to public health budgets continue (Stephenson, 2018). As formula feeding continues to be the UK norm, mothers are increasingly reliant on health professionals for informational and emotional support, with those receiving the help they need more likely to continue past early infancy (Morse & Brown, 2021; Emmo00tt et al., 2020). Findings echo these issues, highlighting that health professionals passionate about breastfeeding

support are frustrated by the restrictions to the service they can provide and keenly aware the impact this has on families.

Breastfeeding support was perceived as a fundamental part of maternity services, and of their role, motivating their willingness to provide this support unpaid, and often without guidance. Describing BSF groups, and breastfeeding support services as a whole, as being run on 'goodwill and fairydust', midwives encapsulated the issue of breastfeeding; of mothers, babies and those who support them, as being undervalued. This is a common theme in the literature, which describes how breastfeeding support, despite being a public health responsibility, falls largely on the shoulders of volunteers (Brown, 2017; Regan & Brown, 2019). Midwives cited reasons for becoming involved with a BSF group and providing support voluntarily, including wanting to ensure no mother stopped breastfeeding through lack of access to timely support and to heal their personal experiences. These reasons also underpinned their willingness to overcome fears in relation to the professional and personal risks of engaging online, mediating these through gaining social media experience and a commitment to service improvement.

Midwives were keenly aware of the perceived risks of online engagement, of the potential for blurred boundaries and issues surrounding digital professionalism. Confidence in their knowledge, ability to access evidence-based information and awareness of BFI and WHO standards were perceived as mitigating these risks. However, many also reported experiences of moderating the contributions or engagement of other professionals online and perceived a need for further training. Research into the skills and attributes suited to the role, including the development of digital professionalism, was considered central to securing the future of professional online support. This theme is evident in the literature, which recognises that health professionals struggle with the concept of digital professionalism, and that a didactic approach to the changes it poses to practice is not effective (Neville & Waylen, 2015). Research is needed to support appropriate training, identifying how to safely adjust adjust the traditional professionalism paradigm to account for the needs and expectations of professionals and services

users engaging online (McGrath et al., 2019; O'Connor et al., 2018). It was evident from the findings that midwives were frustrated by the lack of an evidence base available to underpin frameworks and to justify support and investment by management.

Midwives were aware of receiving mixed messages in clinical practice, where social media use is promoted within national strategy but discouraged in local policy, and this is echoed in the literature (Scragg et al., 2017). As a result, a lack of support within organisations for designing and delivering BSF groups was common, leaving midwives designing group structures and methods of facilitation. One midwife referred to this as having to "just follow our noses". As a result, anxieties about the sustainability of the group format, as well as the ongoing impact and implications of being solely responsible for maintaining its function were also common. A sense of overcommitment and personal impacts, including being over capacity and feeling obligated, has been noted in previous studies of health professional moderators (Atanasova et al., 2017). However, in contrast, midwives in this study did not describe an emotional burden, but rather a positive emotional reward from their involvement with and impact on mothers. These findings, in line with studies one and two, and the wider literature (Skelton et al., 2020; Jones, 2020), provide evidence that local BSF groups function as online CoPs, conferring informational and social benefits to midwives as well as mothers.

Learning and sharing knowledge within the CoP was a significant motivator for midwives' involvement. There was a focus on the extended reach of an online CoP, and its ability to confer benefits to the wider midwifery workforce, including students and support workers. The mechanism for this process was often perceived to be exposure to a wider range of mothers' issues and stories, alongside organic learning from responses to posts by peer supporters and specialist lactation midwives. In effect it enabled midwives to educate their colleagues, enhance signposting and support continuing professional development, and offer a platform for organic learning from mothers shared lived experiences. Jones (2022) refers to midwife moderated Facebook groups as providing a 'window into women's

experiences', creating opportunities to reflect, develop insight and enhance knowledge and confidence. The findings from this study confirm midwives perceive a range of personal and professional benefits, including deeper and longer-term connections with women, that motivate their continued participation in the BSF group. Study one found that mothers recognised the power of the CoP in normalising the joys and challenges of breastfeeding, supporting longer continuation; and the findings confirm that midwives recognise and value this impact, motivating their involvement.

For many midwives the willingness to offer time and skill voluntarily was also a result of improved job satisfaction. Research demonstrates midwives are widely experiencing detrimental impacts to their emotional health and wellbeing in clinical practice (Hunter et al., 2014); the potential for online engagement with women and families to provide increased connection and a sense of fulfilment is therefore a key finding. Increased relational continuity was also reported, a factor known to improve pregnancy and birth outcomes and women's experiences, in addition to improved fulfilment for midwives (Sandall, 2016). Continuity of care for all women is a vision which has been adopted across national maternity strategies (Welsh Government, 2019; NHS England, 2017), yet never achieved as a result of widespread systemic barriers (Francis, 2021). Some improvements could be made through increased relational continuity through integration of online midwifery moderated support groups (McCarthy et al., 2017), as reported in the findings.

Collaboration with others was also considered key to maintaining and sustaining an online service, and formats were all linked formally or informally to trained peer support. Mothers seek access to trained peer support, and this provision is recommended by the World Health Organization and reflected in UK guidance (Grant et al., 2017). However, there are no specified models for delivering this support within services, resulting in heterogeneity of services and inequitable access (Grant et al., 2017). This study found that BSF groups run within services also vary in format and accessibility, including access to trained peer support. Midwives cited institutional and managerial barriers to engaging with third sector

breastfeeding organisations in their efforts to sustain groups; a need confronting to a hierarchical NHS culture. These are evident in the literature, highlighting the complexities of managing lay health workers due to ideological divisions on health, and the resulting tension between biomedical and social perspectives on interventions (South et al., 2012; Ingram, 2013). South et al. (2012) also highlighted that willingness to support lay participation can be impacted by dimensions of responsibility for others, in addition to dimensions of power. Conflict arises in a hierarchical system where greater value is given to professional contributions.

Findings of the study identify that designing and facilitating peer support involvement in maternity service BSF groups centred on this issue; how to facilitate integration and maintain service oversight with a level of safety and acceptability to all. Most BSF group models were reliant volunteer peer supporters to facilitate daily administration tasks and timely responses to posts, therefore valuing them was key to forging and maintaining working relationships and
trust.

Women who choose to access breastfeeding peer support training do so with a positive attitude towards breastfeeding, lived experience as a breastfeeding mother and a desire to help others achieve their goals. In addition, peer support training employs a biopsychosocial approach to extend this knowledge and develop skills, including reflection on personal experiences and the challenging of negative attitudes to breastfeeding (Kempenaar & Darwent, 2013). This results in significantly higher levels of breastfeeding knowledge and more positive attitudes in peer supporters than in either midwives or mothers (Darwent & Kampanaar, 2014). Participants expressed a number of issues in relation to midwives without this type of training, or alternative extended breastfeeding training, and their ability to deliver professional and effective BSF group support. These included acknowledging that standard midwifery education and current practice may not provide sufficient exposure to breastfeeding mothers to support the development of the expertise needed for the role. Previous research has established that despite the required midwifery competencies, breastfeeding support from health professionals can be

inadequate, and attitudes impacted by personal experiences (Darwent & Kempenaar, 2014). Membership of the group was perceived as a method of addressing these issues, extending learning and sharing positivity within the CoP environment.

It was also highlighted that those involved in delivering online support need to possess, or develop, a specific skill set to do so effectively. These included a non-directive communication style, offering information and support rather than advice. Midwives involved in BSF groups perceived peer support training to embody a supportive, relational approach to breastfeeding, in contrast to midwifery training only, which tends towards a directive, authoritative stance. There was a belief that this stance was incompatible with the skill needed to manage communication on social media, which requires the ability to professionally manage being directly and publicly challenged. This is supported by the literature; Burns et al. (2013) identified that of the discourses shaping midwifery approaches, a relational approach, valuing the woman's superior knowledge of herself and her baby was the least represented, whilst the 'midwife as expert' discourse persists. Working in a medical model, midwifery communication skills are developed through the management of women (Dykes, 2006), and the resulting directive, dismissive or conflicting interactions can impact on women's breastfeeding confidence (Sheehan et al., 2009). The need for a communication style that provides informational and emotional support simultaneously is therefore key to health professional moderation of social media groups, posing a challenge to those not skilled in this approach (Atanasova et al., 2017). Midwives cited several potential solutions, including training and mentorship and collaborative approaches to moderation. It was also suggested that as online engagement is currently self-selecting, those involved embody this approach and an awareness of digital professionalism that can be nurtured and disseminated to other midwives via the CoP.

As such BSF groups were seen to offer maternity services a format for improving digital literacy and investing in the digital transformation of NHS support, with minimal cost implications. Midwives believed innovation to meet the expectations

of digital support current and future mothers have is needed, sharing the vision put forward by national strategy (NHS England, 2016). They expressed ways in which the services they were running had the potential to improve care, cut costs and increase efficiency (PAC, 2020), and yet lacked funding and investment. Reluctance to invest in digital services, breastfeeding support and failure to recognise the personal investment made by midwives in delivering social media support were seen as systemic, embedded in the organisational culture of the NHS. As a result, midwives felt unsupported in developing digital support services, resulting in the wide variety of BSF formats, approaches and logistics involved in the BSF groups delivered by the sample.

Policies, protocols and procedures underpin the delivery of care within the NHS. These and the discourse associated with developing and delivering them are fundamental to an organisational culture of safety (Jones et al., 2021). To deliver safety to service users and staff, this culture must comprise of openness, leadership, support, communication and the integration of risk management, and continuously seek to minimise harm and optimise care (Rosen et al., 2018). Midwives have created and facilitate local BSF groups to support women and to improve experiences and outcomes. However, the lack of leadership and policy support raises safety concerns, including questions of training, quality, sustainability and access, which were identified by both mothers and midwives.

Improving the quality of services is central to safety. Quality NHS care is defined in key dimensions: effective, safe, responsive and positive care for service users, plus leadership, sustainability and equity for service providers (Jones et al., 2021). Findings demonstrate the clear commitment of midwives involved in local BSF groups to providing a service which by nature is responsive and person-centred, enabling equal partnership in care. However, although there are clear benefits to BSF groups and midwife moderated social media support (Black et al., 2020; Skelton et al., 2020; McCarthy et al., 2017, McCarthy et al., 2020), no investment has yet been made in creating evidence-based policies to underpin current practice. This has left midwives “following their noses” (Midwife 7) when offering this service,

resulting in the heterogeneity of formats. As such there are potential safety and quality issues for women, midwives and services, including a lack of resources leading to sustainability concerns.

Sustainability is key to quality: resources need to be allocated responsibly and efficiently, providing fair access to the service for all (Jones et al., 2021). Without establishing a clear way forward for the provision of social media support services to ensure they are accessible to as many mothers as possible and supported by alternative formats for those who need or prefer other methods of support delivery, they cannot be audited, quality or safety assured or improved, as required by law (National Quality Board (NQB), 2021). Volunteer pathways and solutions to reliance on midwives working unpaid in the role to sustain services are urgently needed.

Safe, quality services are also "well-led": they are open, collaborate internally and externally, and are committed to learning and improvement (Jones et al., 2021). Findings indicate that many local BSF formats are examples of effective collaborative working, incorporating a variety of disciplines and often those who have trained in the third sector, yet there is little evidence of the impact, challenges or processes for information sharing required to measure quality standards (National Quality Board (NQB), 2021). To fulfil the required commitment to learning and improvement, services providing social media support groups have a responsibility to ensure they are officially established and recognised. In doing so their impact can be measured, solutions to challenges developed and quality indicators established, for the benefit of staff and service users. Quality oversight (and therefore safety) requires a defined governance process to support use and facilitation of the groups, including coproduction and information sharing (NQB, 2021).

Although findings suggest all formats offer highly personalised care, access to health professionals varied. Taken with the existing body of literature, mothers overall had positive experiences of receiving breastfeeding support via BSF groups,

and felt the health professionals that engaged with them online were responsive and caring. Mothers in study one also felt that their breastfeeding duration was extended through access to this type of support, as reported in the literature (Robinson et al., 2019; Black et al., 2020). However, despite experience and efficacy being indicators of quality, no midwife reported any operational requirements in place to measure or share these impacts, or investment based on the benefits.

In sum, this study has demonstrated the impact that a lack of research into and support for the BSF group format has had on individual midwives and equity of the service. Without a clear evidence base, midwives in different areas have developed approaches to delivering breastfeeding support via social media in isolation. As a result, there is a heterogeneity of services, with little to no sharing of experience or development of best practice, and critically no quality assurance or risk management in place. What all formats have in common is significant reliance on both peer and professional volunteering to sustain online support services. Findings have confirmed that without established frameworks and recognition of the significant contribution made to breastfeeding support by BSF groups and the commitment of volunteers, midwives fear these services will become unsustainable despite their impact on mothers and public health.

7.6 Limitations

Whilst online, video-based interviews have become an increasingly popular tool, they also have limitations, effecting many aspects of the research process. Obtaining written consent for the recorded interview via digital methods, the digital literacy of the participants and researcher and considerations platform incongruence needed to be considered (Roberts et al., 2021). Typically, NHS staff are more familiar with Microsoft Teams, whilst the University predominantly uses Zoom. The researcher had to become familiar with both platforms, including recording and transcription features, to accommodate the preference of participants. In addition, interpreting the non-verbal communication that underpins

analysis can be limited by video technology, particularly as being distracted by the image of oneself on-screen and a lack of eye contact is common (Krouwel et al., 2019). However, there are numerous benefits, reducing travel time and costs and offering a convenient, accessible way for geographically disparate participants to take part (Roberts et al., 2021).

With regard to sampling, only interested and motivated participants may have taken part, omitting the views of those who may have more negative experiences of BSF group facilitation. The sample size was also limited by time and resources. However, as the participants had detailed knowledge of the phenomenon, fewer interviews were needed to get an in depth understanding (Malterud et al., 2016). Further research may want to explore the experiences of peer supporters involved in these specific BSF groups, to understand the wider impact of the different approaches and levels of midwifery involvement.

It is recognised that the participants were aware of the researcher's background as a midwife and interest in social media support, and this may result in confirmation bias (Powell et al., 2012). As social media use by midwives is presented as professionally problematic by educators, employers and professional bodies, only those midwife participants happy to be identifiable to another midwife conducting the research would have agreed to take part, despite the anonymising of data post collection. However, open questioning and building a positive rapport with those electing to take part promoted trust in confidentiality, enabled high validity, encouraging detailed answers and exploration.

7.7 Conclusions

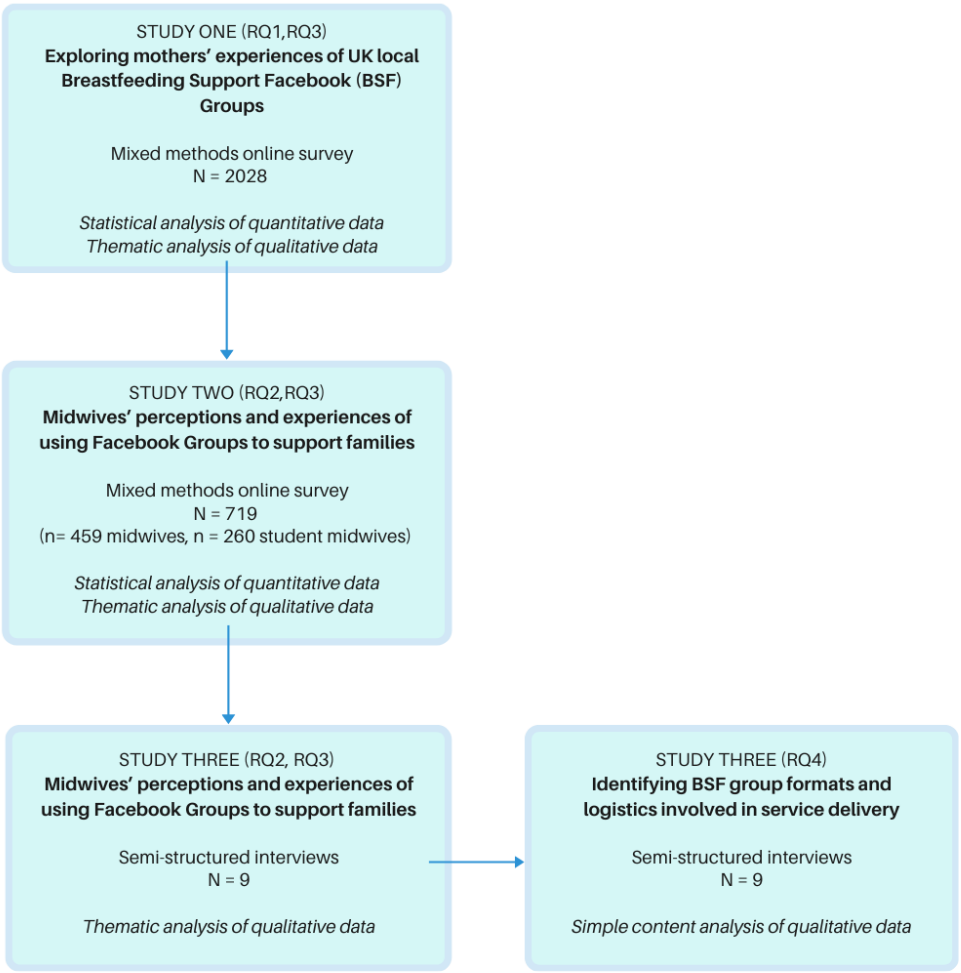
Limitations aside, this research has confirmed the significance of BSF groups in maternity services and established the importance of disseminating this evidence base to underpin investment and development. The next chapter will bring together the findings of all three studies and explore the strengths and limitations of each format to propose a best practice framework.

Chapter 8: General discussion

8.1 Overview

This thesis set out to examine whether and how professionally moderated local breastfeeding Facebook groups can be used within maternity services to support women to continue breastfeeding. Via a series of three connected studies (Figure 3), it explored the phenomenon of local BSF groups from the perspectives of the mothers who use them and the perceptions of midwives towards this type of support, alongside detailed insights on experiences and group formats from midwives involved in this provision.

Figure 3: Schematic of studies within this thesis



The thesis identified that all local BSF groups, regardless of moderator type, are highly valued by the mothers who use them for their convenience, access to shared local experience and social learning. Findings highlighted that input from midwives supports confidence in the reliability of local BSF groups, and significantly improves perceptions of local midwifery support. In short, mothers want to access local breastfeeding support using Facebook, and provision by maternity services enhances its value to them. However, data collected from midwives identified challenges relating to maintaining professionalism, boundaries and the sustainability of online service provision. Given the drive towards digital approaches to improve efficacy and efficiency of public health interventions, local BSF groups could present a viable solution.

Overall, results of the three studies demonstrate high levels of acceptability for professionally mediated social media breastfeeding support interventions amongst mothers and midwives, despite a number of significant barriers to delivery. The findings are therefore important in ensuring that the delivery of online support is evidence based, sustainable and equitable.

8.2 Addressing the research questions

This thesis begun with a systematic literature review which identified that seeking online breastfeeding support is widespread and established the benefits to mothers in relation to knowledge, social connection, convenience and accessibility. It also highlighted the conceptualisation of BSF groups as online, organic communities of practice, normalising breastfeeding and increasing duration amongst members. Notably, it also identified limited research in relation to the development of digital professionalism in midwifery, and a lack of consistency on social media use by professional bodies and at local and national service level. A clear gap in research also emerged in relation to specifically local run online services and differences associated with midwife moderation. Limited evidence was available in relation to midwives' attitudes toward and involvement with social media support.

To address the identified gap, the three studies contained in this thesis were designed to address four research questions (See Section 1.3). The findings of each study are synthesised below to examine these research questions in detail.

> *RQ1. What experiences do women have of locally aimed breastfeeding support Facebook (BSF) groups, and what are their perceptions of midwife moderation of these groups?*

Having identified a lack of evidence relating to local BSF groups, study one used a mixed-methods survey to collect data examining mothers' reasons for and experiences of accessing Facebook support and differences associated with midwives leading this support. Participants were keen to share experiences of accessing local online support, providing rich qualitative data in response to broad open-ended questions.

Findings demonstrated that all local BSF groups are highly valued by the mothers who use them for their convenience, access to shared local experience and social learning. Data provided insight into how the specific characteristics of local BSF groups benefit mothers and their breastfeeding experiences. Firstly, groups were often visited at least daily by those with the youngest babies, who usually joined pre-emptively during pregnancy. This early support seeking from the BSF group is a new key finding: mothers knew where to find support when needed when their baby was born and were also exposed to positive breastfeeding attitudes online during pregnancy. This is critical as breastfeeding rates drop rapidly in the days and weeks after birth (McAndrew et al., 2012). It was also highlighted that although mothers used the group to seek support for practical aspects of breastfeeding, it was also a resource for accessing support on wider issues like safe bedsharing and breastfeeding in public. Participants talked about the group 'ethos' around these wider issues as helping them to continue to breastfeed by normalising these approaches, which are associated with longer breastfeeding duration.

The anchoring of the online group within a physical community also enhances the shared experience and opportunities for social networking 'in real life'. Previous research has highlighted that BSF groups provide a stepping-stone to accessing face-to-face support (Regan & Brown, 2019), and a core finding of study one in relation to the research question, is that local online BSF groups often provide a link or gateway between social media groups and face-to-face groups (Morse & Brown, 2021). This is significant because face-to-face support remains important and repeated systematic reviews show that successful breastfeeding support interventions offer provision across a combination of settings (hospital, home and community) (Sinha et al., 2015; McFadden et al., 2017). Feeling connected to the group, seeing familiar faces and trusting information strengthened the likelihood that some women would go on to attend face-to-face groups. Mothers also valued the links between on and offline support for access to shared experience, local knowledge and the opportunity to build 'real life' supportive relationships with members and moderators.

Another key finding is that health professional moderation is uncommon, echoing previous research that found the majority of online support is provided by charities or volunteers (Black et al., 2020). Study one found most local BSF groups were provided by other parents, peer supporters and lactation consultants with little health professional input. Whilst mothers highly valued these volunteer-run groups for their lived experience and information sharing, they also perceived them as filling a gap in the support that health professionals and NHS services are failing to provide (Regan & Brown, 2019; Black et al., 2020).

Social support is a critical element of both initiating and sustaining breastfeeding, and access to a local BSF group (and linked face-to-face group where available) provides mothers with access to the knowledge and experiences of other mothers (Ingram et al., 2005). However, accessing this online poses challenges for mothers in validating the information shared and the expertise of those providing it (Regan & Brown, 2019). Poor experiences of moderation left women feeling judged, unwelcome or not able to ask for support and mothers' perceived midwife

moderated local BSF groups as a solution, providing consistent moderation and validated expertise. Previous research has demonstrated this, along with increasing relational continuity between mothers and midwives via midwife moderated groups (McCarthy et al., 2017; McCarthy et al., 2020). Findings highlighted that knowing who was providing them with trained support led to mothers visiting the group more often and believing it to be reliable. This has important implications for developing local BSF groups as an effective breastfeeding support intervention.

Notably there was also an association between feeling supported by midwives online and offline. Mothers in BSF groups moderated by midwives were more likely to feel that midwives they saw face-to-face were supportive of breastfeeding. These improved perceptions suggest that online provision can enhance support for mothers and feedback for services; a clear benefit of integrated, local midwife moderated online support.

The aim of studies two and three was therefore to explore, in relation to RQ2, the perspectives of midwives in relation to the use of Facebook, identifying impacts, barriers and facilitators to the adoption of, and engagement with, local BSF groups as a service.

> *RQ2: What are midwives' perceptions of professional social media use, and what are their experiences of offering online support via Facebook communities?*

To address RQ2, study two used a mixed-methods online survey to collect data on midwives' experiences and/or perceptions of the use of Facebook to provide mothers with support, the benefits and challenges of developing the midwife's role in Facebook group provision, and wider barriers to development of the service. Data was collected to examine demographic and professional profiles, Facebook use and the prevalence of provision of midwifery support using Facebook groups. This was not limited to breastfeeding support only, reflecting the limited provision identified

by study one, to ensure a sufficient sample. Qualitative data explored attitudes towards Facebook roles, training needs and perceptions of increased social media use during the COVID-19 pandemic.

Midwives recognised that women expect health services to use digital tools for support and communication, and that social media has the potential to improve these services (PAC, 2020). However, consistent with other studies, the findings show midwives are concerned about the perceived risks of engaging with mothers online (Dalton et al., 2014) and lack support and training on digital professionalism (Jones, 2021). Despite being encouraged by digital strategy to engage with service users on social media (McNab, 2009; NHS Digital, 2022), midwives felt prevented from doing so by local policies and a lack of employer support, and student midwives reported active discouragement from universities. This is in line with previous research, identifying confusion arising from mixed messaging (Scragg et al., 2017) and a lack of relevant training.

Many midwives perceived any interaction with mothers on Facebook as inappropriate and unprofessional and most felt that NMC (2019) social media guidance did not support midwives to provide Facebook support. This reflects the generic referencing within the guidance of relationship building as unprofessional and inappropriate, despite improved relational continuity being a key benefit of midwife moderated Facebook groups (McCarthy et al., 2017). These findings are important to consider in relation to the development of online support services, updating training and policies to reflect national strategy and the evidence base supporting this provision.

A key finding of study two was that very few midwives providing Facebook support were being paid to do so, even where this was part of their employed role. The majority were doing so outside an employed role and in their own time, and most had no local guidelines to support the role. These findings are a concern, demonstrating a failure to support, safeguard and renumerate midwives who

provide a service that mothers seek and services benefit from (Morse & Brown, 2021).

Midwives interviewed in study three were also providing extensive time and resources to BSF groups in a voluntary capacity, even where services were clearly linked to their employer and employed role. They felt this was indicative of the general undervaluing of breastfeeding, the role of the midwife in breastfeeding support and of social media group moderation, and were motivated to offer BSF support as a result of depleted resources frustrating efforts to establish more extensive face-to-face support. They were also motivated by a belief that local BSF groups add informational and social value through enhanced links with services and felt that health professional input was key to trust and reliability (Regan & Brown, 2019; Skelton et al., 2020; McCarthy et al., 2020).

Despite their passion and motivation, midwives offering online support were keenly aware of the perceived risks of engaging online with mothers, and the potential professional pitfalls, including the blurring of boundaries. However, adding to the same findings in study two, they described the designing group rules and developing personal strategies for managing these, and felt these helped them to deliver the service safely. Overall, findings highlighted that although the numbers of midwives currently involved are limited, their experiences of, and attitudes towards providing Facebook group support are positive. However, wider perceptions of personal and professional risk and a lack of support are significant barriers to greater midwife involvement, despite recognition of the benefits

> *RQ3. Do the experiences of mothers and midwives align with the conceptualisation of BSF groups as online communities of practice?*

The results of all three studies fitted previous conceptualisations of BSF groups as organic communities of practice (CoP), where learning occurs as a by-product of social co-participation (Lave & Wenger, 2002). As in previous studies, the CoP

characteristics identified were a sense of community, trust, positive breastfeeding attitude/behaviour change and knowledge acquisition via the group as a developing resource (Skelton et al., 2020). Like participants in other research, mothers also reported extended breastfeeding duration as a result of BSF group membership (Black et al., 2020; Skelton et al., 2020), and the normalisation of breastfeeding experiences, challenges and solutions.

This normalisation is important in helping women breastfeed for longer (Fox et al., 2015) and is a key benefit of the CoP. As in other studies (Skelton et al., 2020; Black et al., 2020), mothers felt the BSF group was able to counter a lack of support, experience or misinformation in their existing networks. Many mothers remained a group member for several years, offering guidance and emotional support for those with younger infants, passing on information and experience. This human capital and tacit knowledge of both how to support new mothers practically and emotionally provide rich depth to the group as a community of practice (Pyrko et al., 2017). As the group members are also geographically close, normalisation within the online community of practice also has the potential to have a wider impact on a local community, and its health services.

Studies two and three identified that midwives involved in providing support experienced improved connections with mothers and providing continuity as personally fulfilling, as well as recognising the benefit of relational continuity to mothers' wellbeing and pregnancy outcomes (Walsh & Devane, 2012). Midwives felt their knowledge had increased as a result of being involved in moderating an online community, learning from mothers' questions and experiences: clear markers of a CoP. This reflects previous research identifying that health professional moderators commonly report increased learning and research opportunities, and that the role can be personally and professionally empowering (Atanasova et al., 2017). Midwives in the personal use only group were less likely to perceive these benefits, or the potential for engaging online to support continuing professional development. Findings suggest this may be a missed opportunity; that widening

access to midwife moderator roles could benefit individuals and services through improved outcomes and staff wellbeing.

Study three, supporting the findings of other studies with health professional moderators (Health Education England (HEE), 2020; Atanasova, 2020), there was also a consensus of agreement that the BSF group offers CoP benefits to both mothers and midwives. Participants focused on the CoP as providing opportunities to extend midwives' knowledge of and exposure to breastfeeding, alongside the improved job satisfaction and connection with mothers (McCarthy et al., 2017).

Overall, the findings of all studies taken together suggests the conceptualisation of local BSF groups as CoPs is supported by this thesis, and consideration from a theoretical perspective is discussed further in section 8.5.1.

> *RQ4. What group formats and logistics are involved in current midwife-led BSF service provision, and what recommendations can be made for further development?*

The data from study three was analysed to identify group formats and logistics in delivering social media support. The heterogeneity of formats was notable in the findings, echoing face-to-face peer support services (Grant et al., 2017). There were also a variety of approaches, and attitudes to collaboration both within maternity services (e.g., with health visitors, maternity support workers) and with the third sector (breastfeeding charities, peer support training organisations).

Midwives often had strongly held beliefs about the nature of voluntary breastfeeding support and the viability of services relying on goodwill to maintain provision; some felt midwifery input was central, others organisational. Findings confirmed previous results, demonstrating the lack of standardisation and equity of services arising from a lack of evidence base or consistency in messaging around digital engagement (Scragg et al., 2017).

Another key finding was the perceived importance of a specific set of skills, attitudes and aptitudes necessary as a successful midwife moderator, particularly in relation to breastfeeding support. Aligned with peer support training, midwives felt development of a non-directive style and relational approach to offering support via social media was fundamental, and developed through experience and training, as suggested by other studies (McCarthy et al., 2017; Atanasova, 2020). There was widespread agreement that midwives required additional training and support to deliver online support safely and effectively, including during university education (Jones, 2021) and that the current lack of evidence base undermined efforts to attract investment and management support for the provision.

Overall, findings confirmed that without established frameworks and recognition of the significant contribution made to breastfeeding support by BSF groups and the commitment of volunteers, midwives fear these services will become unsustainable despite their impact on mothers and public health. This is discussed further in section 8.6: Sustaining BSF group services.

8.3 Bringing the findings together

Bringing the findings together, the research questions have been addressed in depth across the three studies. They highlight the significant role local BSF groups are now playing in delivering breastfeeding support to mothers' who use the platform to seek it out. In relation to RQ1 they have shown that mothers expect, and value access to support, including health professional support, on social media, as its use during pregnancy and the transition to parenthood becomes increasingly ubiquitous. This is the first body of work to explore the perceptions of both mothers and midwives engaging with local BSF groups, establishing both how and why they are provided, and what motivates their use (RQ1,2,3).

Literature has previously highlighted that mothers highly value all types of BSF group, focusing on the benefits of access to peer support in normalising

breastfeeding and its challenges, offering convenient round the clock access to solidarity and signposting (Black et al., 2020; Audelo, 2013; Robinson et al., 2019). It has also demonstrated that BSF groups can be conceptualised as organic online CoPs (RQ3), creating opportunities for social learning, increased social connections and the creation of a developing resource (Skelton et al., 2020) and that mothers seek access via social media because it facilitates responses and reciprocity (Wagg et al., 2016). As a body of work, and in addressing RQ3, this thesis has added depth to those findings, demonstrating that mothers join early, and stay a long time – this is key to a successful CoP, supporting new members and elevating them from novice to expert over time, motivating reciprocity (Sonnenbichler, 2010). This is also key to understanding how the BSF group fosters positive attitudes and behaviour change, normalising breastfeeding and impacting on both goals and duration.

Significantly, this work also identified the motivations of midwives involved, largely unpaid, in providing online support as linked to the benefits of CoP membership, including knowledge acquisition and the development of social links through relational continuity and community connection (RQ2,3). Mothers identified that local links within the BSF group were central to its value, offering connections to a physical community of breastfeeding mothers, opportunities for 'real-life' friendships and local lived experience. Integration with wider maternity services was also an essential element of the groups value for midwives, enabling meaningful signposting, opportunities to share with and educate colleagues and greater job satisfaction.

Mothers also highly valued BSF groups that were linked to services, with midwife input, citing greater trust, perceptions of reliability and consistency in moderation. This contrasts with wider experiences of BSF groups, where some mothers expressed fear of judgment and experiences of misinformation (Regan & Brown, 2019). Findings suggest that integration of social media support with maternity services has the potential to overcome some drawbacks of the format, ensuring safety, evidence-based information and equitable access.

Whilst mothers highly valued collaboration with and signposting to wider services, midwives were working in varying approaches, within services with a variety of attitudes to third sector involvement. The complexity of bringing together what mothers' value from services, with what midwives are able professionally, institutionally, and organisationally to deliver was evident across the studies. A clear need for frameworks and guidance to support professionals and volunteers was identified.

A lack of staff and resources, leaving individuals to invest time and skill, and to create groups and facilitate support based on passion and goodwill, are clearly a significant barrier to developing provision. Possessing or developing the appropriate skills and knowledge to deliver support via social media was also seen as important to becoming an effective midwife moderator, by both mothers and midwives. Both felt pre-registration breastfeeding training was likely to be insufficient for the specialist role, but that BSF groups, overseen by those with additional knowledge and experience, were able to facilitate further learning.

Midwives proposed that issues of resourcing and skills could be addressed through the development of an evidence-base to underpin investment, wider training (including digital professionalism and non-directive online support approaches) and experiential learning through exposure to the CoP. Midwives (and current student midwives) felt that universities and midwifery educators were didactic in their attitude towards professional social media use, often discouraging its use and stymieing development of the necessary skills. This is evident in the literature (Vilain & Stewart, 2012; Jones et al., 2016). Further work is needed to establish the benefits to students across health professions of early skill development (McGrath et al., 2019), recognising the perceived professional malpractice risks involved are not borne out by the evidence (Jones, 2021).

The body of research reinforcing the benefits to health professionals of social learning though online CoP involvement is growing (Jones, 2020; Atanasova, 2017), and student midwives are increasingly of the 'millennial generation', preferring

heutagogical (informal and self or peer-led) approaches to learning that are aligned to social media engagement (Eachempati et al., 2017). It is incumbent upon educators and services to recognise the needs of the future workforce alongside those of service users to provide innovative and effective care. However, findings demonstrate that the heterogeneity of current services, arising from a lack of guidance and recognised evidence base, is itself a barrier to ensuring the safety, efficacy and equity of online support for families, midwives and services (RQ4).

Through exploration of the research questions this research has established a range of benefits, challenges and impacts to both mothers and midwives that need to be addressed by service providers. The findings have also highlighted the urgency with which these need to be addressed, particularly in light of the rapid digitalisation as a result of the COVID pandemic and the new reliance women perceive they have on online forms of communication for support, information and guidance as breastfeeding experience in communities remains low, and resources withdrawn. The findings also add to the conceptualisation of BSF groups as communities of practice with significant advantages for women and the normalisation of breastfeeding via social learning. Additionally, the potential for such CoPs to provide learning opportunities, job satisfaction and relational continuity is a significant finding, building on the small body of existing evidence to highlight ways in which online support can be leveraged for greater development opportunities. The final question, relating to group formats has been fully explored- identifying for the first time the need to recognise the current heterogeneity of services, research outcomes and identify best practice to ensure an effective and equitable approach is established.

This thesis makes a significant contribution to the body of knowledge in relation to the delivery and moderation of breastfeeding support via local media. It establishes for the first time the positive impact made on breastfeeding experiences and outcomes by linking face-to-face and online support, particularly where these are associated with maternity services. The findings also describe for the first time the heterogeneity of approaches being taken within maternity services, highlighting

how this creates insecurity for mothers and midwives in terms of risk and sustainability. As a result of this research, it is now known that whilst midwife moderated social media support for breastfeeding offers benefits for all stakeholders, work is needed to create sustainable services through collaboration, particularly with volunteers and third sector organisations. NHS sustainability modelling, which is outlined in section 8.6, for the first time establishes the specific areas requiring investment, so that the findings may have a positive impact on practice.

8.4 Considering the findings from a theoretical perspective

To answer Research Question three, exploration of the experiences of mothers and midwives in the context of BSF groups as online communities of practice was needed. Previous studies have explored the conceptualisation of the learning and identities formation process taking place in BSF groups as an online community of practice (Skelton et al., 2020) and highlighted their impact on health professionals (Atanasova, 2016; Zhang et al., 2022). Reviewing these studies offered Wenger's theory of communities of practice as an explanatory framework for the data collected by this thesis, as explored in the narrative review (Wenger, 2008). Taken together, the findings of the three studies highlighted the ways in which local BSF groups facilitate social learning: characterised by the presence of a 'shared domain' (the group), a 'community' (mothers) and a 'practice' (breastfeeding and the development of shared breastfeeding resources).

Findings identified how learning within the BSF group occurs as a by-product of social co-participation: mothers valued the group for access to knowledge, experience and social support, which was facilitated by interaction and engagement. Positive interactions motivated further engagement, developing a convenient, accessible and permanent resource available to, and as a result of, the evolving membership. Wenger (2008) suggests that the growth of the community and its success is dependent on a number of frequently performed activities,

including problem solving, requests for information, seeking experience, reusing assets, coordination and synergy, growing confidence, mapping knowledge and identifying gaps. The results of study one highlighted examples of all of these, with mothers indicating increased knowledge, emotional support, social connections, confidence and reciprocity. Notably, many mothers joined early and stayed for a significant period, contributing significantly to the group as evolving 'assets' offering a depth of knowledge and shared experience.

Additionally, midwives perceived local BSF groups as having the social learning benefits reported by mothers. They recognised individual and community knowledge acquisition and social connectedness, although fewer associated the CoP as having the potential to impact breastfeeding duration. However, most agreed there were benefits to the community in normalising breastfeeding practices and experiences through BSF group provision. Midwives involved in the groups themselves were more likely to perceive the benefits to mothers and to themselves. CoP benefits to professionals of engaging with the BSF group, including improved connections with mothers and other midwives and increased knowledge were identified by participants. Notably, there was also recognition of the potential for online engagement to reflect positively on service provision, alongside consideration of the downsides. These are all key social learning processes – creating a mutuality of engagement dependent on expectations of online interactions, adding value through developing competence (and supporting others to do so), accountability within the on and offline community and as a result, a shared identity (Wenger, 2008).

Midwives engaging with mothers within local BSF groups perceived significant benefits to from doing so, including social connectedness and knowledge acquisition, consistent with the conceptualisation of BSF groups as an online community of practice (CoP). Notably they recognised these as personal, impacting on them as individuals through greater job satisfaction achieved through relational continuity (McCarthy et al., 2017), and as professionals by widening their knowledge through exposure to women's experiences (Jones, 2022).

Midwives also felt that the BSF group functioned as an online community within a local geographic community, creating a sense of belonging which motivated women to support each other. This contributed to their sense of satisfaction and fulfilment and was a key motivator for ongoing involvement. They also considered it significant that the BSF groups were seen as 'belonging' to the local health service, alongside giving women a sense of ownership of and security within the group itself and increasing levels of trust. Trust is an integral part of the function of a CoP, and mothers raised concerns about the transparency of qualification and experience of moderators, as did midwives. Trust within the community is also integral to the success of the group, impacting on engagement and reciprocity (Wenger, 2008). Midwife participants in study three felt that their provision of online support and willingness to engage in the community supported the development of trust within the BSF group and the wider service, enhancing the value of the group and quality of interactions.

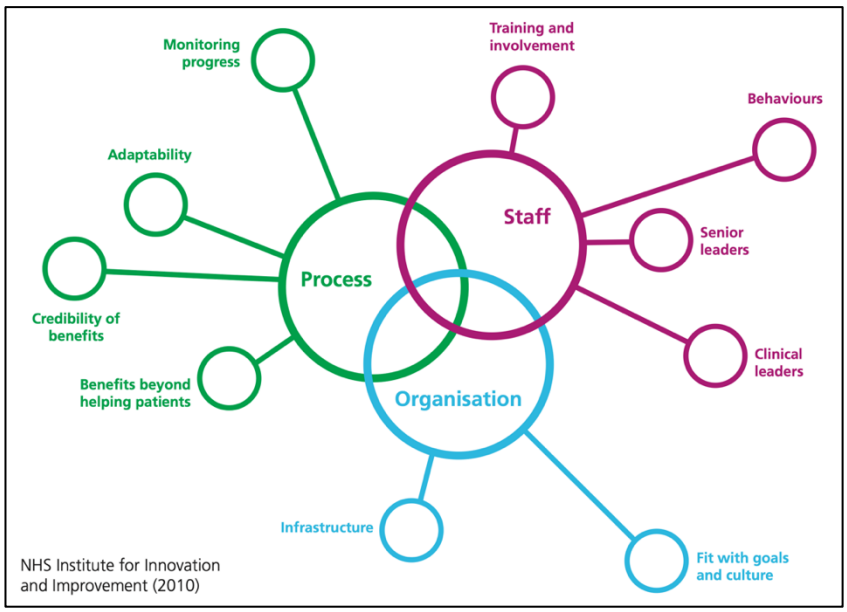
Taken together the findings demonstrate how local BSF groups function to support and motivate social learning as communities of practice. They highlight the organic nature of successful CoPs and the balance between professional input/engagement and the facilitation of a supportive network of mothers, growing in confidence and competence as they support one another. This has clear impacts on breastfeeding attitudes, knowledge and self-reported breastfeeding duration. Notably, midwives garnered personal and professional benefit from their involvement that can be attributed to the process of social learning, including increased social connection and greater knowledge acquisition.

As such local BSF groups have the potential to benefit mothers and midwives whilst normalising breastfeeding, enhancing knowledge and skills, promoting public health and adding value to maternity services.

8.5 Sustaining BSF group services

The findings suggest that local BSF groups, linked to maternity services, have the potential to be a significant public health intervention, improving breastfeeding duration and experiences to reduce health inequalities. This is a strategic priority across the UK (Welsh Government, 2019; Royal College of Paediatrics and Child Health, 2022). However, sustainability is key to service quality and safety (NQB, 2021), yet was consistently identified as a concern by all of those involved in the implementation of BSF groups. NHS Improvement recommend the use of sustainability modelling, a diagnostic tool that can be used to identify strengths and weaknesses in service improvement initiatives (NHS Improvement, 2018). Modelling involves assessing process, staff and organisation factors against set criteria to provide an understanding of where to focus and strengthen work to maximise the likelihood of sustaining the service improvement (Figure 16).

Figure 16: The Sustainability Model *(NHS Improvement, 2018)*



Using the findings, the Sustainability model was used to identify the strengths and weaknesses of BSF groups as a service improvement, regardless of format. The model describes ten factors involved in ensuring the sustainability of a change,

which were mapped against the most appropriate factor level, as described by participants (Table 43).

Factor level scores are described by the model as A,B,C,D or E and allocated a numerical score from 0-15 (NHS Improvement, 2018).

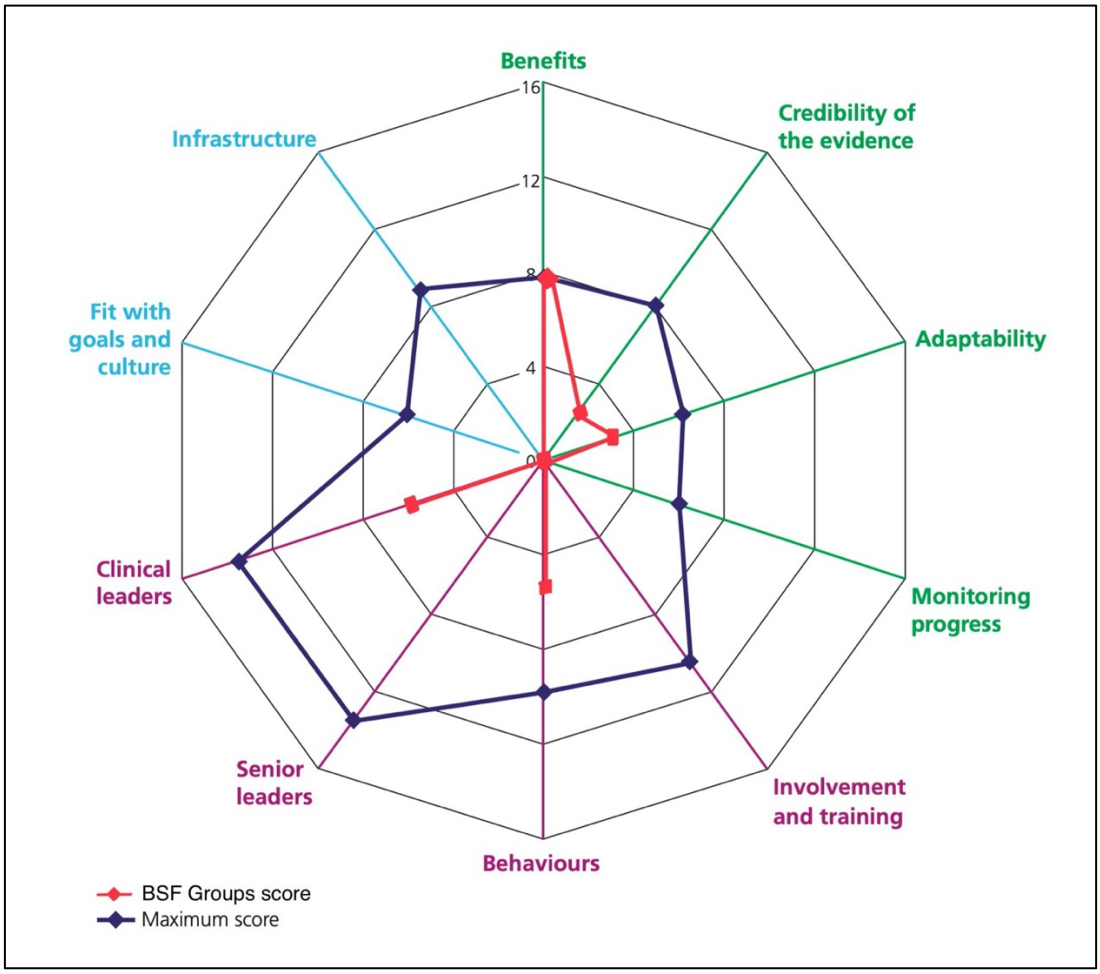
Table 43: BSF group sustainability modelling

Factor Description	BSF group factor level achieved	Score
The service improvement has benefits beyond helping patients.	The change has a wide range of demonstrable benefits beyond helping patients, for example by reducing waste, creating efficiency or making people's jobs easier.	A/8.5
Credibility of the benefits – visibility to patients, staff and the organisation visible and perceived as beneficial by staff. Evidence that this type of change has been achieved elsewhere.	Benefits of the change are not widely communicated or immediately obvious even though they are supported by evidence. They are not widely believed by stakeholders.	C/3.1
Adaptability of improved process – ability to overcome internal pressures, continue to meet ongoing needs. Reliance on specific individuals.	The improved process can be adapted to support wider organisational change but it would be disrupted if specific individuals or groups left the project. Elements of this work will continue to meet our organisation's improvement needs.	B/3.4
Effectiveness of the system to monitor progress and communicate results of the change to patients, staff, the organisation and the wider healthcare community.	There is a limited/ no system to monitor progress and to communicate the results.	D/0
Staff involvement and training to sustain the process – including training and development infrastructure to identify gaps	Other than those involved in implementing the change, staff have not been involved from the beginning of the change process and have not had training or development in the new way of working.	D/0

in skills and knowledge and staff education and training to take the change forward.		
Staff behaviours toward sustaining the change - is the change perceived as a better way of doing things that they want to preserve for the future.	Staff are able to get involved with the project and they believe that the change is a better way of doing things, but do not feel empowered.	B/5.1
Senior leadership engagement and support – including involvement in the initiative, understanding and promoting it, and giving time to break barriers and ensure success	Organisational leaders are somewhat involved but not highly visible in their support of the change process. They use their influence to communicate the impact of the work but cannot be relied upon to break down any barriers if things get difficult. Staff typically don't share information with, or seek advice from leaders.	D/0
Clinical leadership engagement and support – including influence, understanding and taking responsibility for breaking down barriers	Clinical leaders are not involved or visible in their support of the change process. They have not used their influence to communicate the impact of the work or to break down any barriers. Staff typically don't share information with, or seek advice from clinical leaders.	C/5.7
Fit with the organisation's strategic aims and culture.	The goals of the change are not really clear and they have not been shared widely. They have not been linked with the organisation's strategy so we don't know if they support any organisational aims for improvement.	D/0
Infrastructure – including training, competency and access to resources. Policies and procedures in place including the role being built into job descriptions.	Staff have not been trained in the new process and are not confident in the new way of working. Job descriptions, policies and procedures do not reflect the new process and there are no communication systems to adequately support the new process. Facilities and equipment are not appropriate to sustain the new process.	D/0

Factor levels were scored and plotted on a portal diagram against maximum scores, to determine the areas requiring the most focus (Figure 17). The results highlight that despite the benefits of the BSF group services, without investment in processes and infrastructure to communicate these to stakeholders, the reliance on a small number of committed staff is unsustainable. The diagram confirms that training and education for staff is also key, as is senior and clinical leadership to ensuring sustainability for staff and service users.

Figure 17: Sustainability modelling portal diagram



8.6 Recommendations

The diagnostic sustainability modelling establishes that for BSF groups to become sustainable within maternity services, focus needs to be applied at organisational level on leadership, staff involvement and training, and infrastructure. Change is

also needed on a professional level. Firstly, NMC social media guidance (NMC (2019) should recognise the benefits of offering support and building professional relationships with service users where appropriate using social media. Wider dissemination and better communication of the national strategy for engaging with stakeholders online, addressing fears and promoting the benefits of social learning for health professionals are also key. The integration of social media engagement, including digital professionalism, into pre-registration programmes and greater access to post-registration training and development will be central to change.

Leadership **(Sections 5.3.2, 6.3, 6.4, 7.3)**

BSF groups are currently being created and facilitated by midwives, usually infant feeding specialist midwives, with little wider leadership support. Active involvement from organisational and clinical leaders in the development of the service, ensuring alignment with organisational improvement strategies and quality indicators is crucial to sustainability. Leadership needs to be visible, communicating the goals and impact of linking social media support for breastfeeding with staff and breaking down barriers to their involvement. A working group should be established to include all stakeholders, widening support and information sharing, particularly where collaboration with third sector providers is embedded in the chosen BSF group format. As the 'digital midwife' role becomes more widely recognised and appointed, technical leadership support for infant feeding specialist midwives should be established within organisational structures to support BSF group delivery.

Involvement and training **(Sections 6.4, 7.3)**

Midwives are aware of the benefits of social media support for mothers, but little is being done to support them to engage without fear, to manage risks online and offer effective support in line with strategic and public health goals. Involvement is self-selecting resulting in an unsustainable reliance on midwives working unpaid and outside their job description to enhance breastfeeding support for mothers.

Sustainability would be improved through involving greater numbers of staff in initiating and facilitating this support, ensuring they have opportunities to identify skill gaps and can share ideas and solutions to challenges. Midwives reported a need for relevant training, organisational support and realignment of attitudes to social media engagement with mothers to national goals and the emerging evidence base.

Infrastructure **(Sections 6.4.3, 6.4.4, 7.4)**

Policies and procedures that set out the format, goals and day-to-day delivery of the service are needed, including communication systems that support information sharing where registered health professionals are delivering care that links on and offline. This includes transparency of governance and escalation processes, and clear pathways for third sector collaboration in the training and delivery of peer support. Job descriptions and person specifications which reflect the roles undertaken by those engaging with service users on social media are essential to protect and support all stakeholders. The provision of equipment that enables separation of professional and personal social media use, and renumeration commensurate with the time and skill required are also needed. Consultation on resourcing the service in line with its benefits to professionals, individuals and public health is needed to establish solutions to the challenges of this currently often unseen role. Visibility of the role and the benefits of social media support are key to bringing staff on board with change and to meet the expectations of a new generation of parents (and midwives).

8.7 Future directions for research

The findings have highlighted a number of avenues for exploration. Study one identified that mothers valued and sought midwifery input to BSF groups, but also that they had positive experiences of peer support led groups. Further research is needed to understand the differences in more depth, exploring the level of midwifery input needed to provide the reported benefits. In the context of the four

main identified formats, extending the research to compare these would enable resources to be appropriately allocated for the greatest benefit i.e., the optimum division of investment between midwife moderator and peer support training/roles. Studies exploring the benefits of BSF groups are growing, but analysis of the reliability of the information in relation to moderator type is needed to strengthen the findings.

Evidence suggests exposure to positive breastfeeding attitudes and behaviour during pregnancy may have significant impact on a mother's choice and motivation to breastfeed. Intervention studies to identify whether this is true of early exposure to a trusted BSF group would be interesting and support investment in and promotion of the service as an intervention. Further research is also needed to understand the benefits and limitations of the formats from an organisational standpoint, including which formats involve most challenges in governance and facilitation and what solutions have been developed to overcome these. Case studies to provide data on the function and delivery of the group, making the role of the moderators visible, would benefit those wishing to develop online services, supporting business cases and underpinning decision making.

Finally, research is needed into digital professionalism training and its application to midwives. As the evidence base in relation to other health professionalism expands, more work is needed to understand how positive attitudes can be nurtured and the appropriate skillset developed amongst midwives. Study two demonstrated that most midwives perceive social media to present a personal and professional risk, despite recognising the benefits to mothers. Intervention studies could explore the impact on midwives of exposure to BSF groups, looking in more depth at their impact on perceptions, skills and knowledge. This data could support the introduction of social learning through BSF groups at both pre- and post-registration. Studies have identified the benefits to inclusion of social media to curriculum and assessment in nursing (Jones, 2021) and replication and innovation of such methods applied to pre-registration midwifery programmes is needed to prepare the workforce for the future.

8.8 Conclusions

Recognising the body of literature that has established the value of social media support for breastfeeding (Baker & Yang, 2018; Clapton-Caputo et al., 2020; Black et al., 2020; Skelton et al.; Regan & Brown, 2019), this thesis explored whether and how professionally moderated local breastfeeding Facebook groups can be used within maternity services. It explored the potential of the local BSF group format as an online community of practice - as a forum for social learning, knowledge acquisition and the development of social connection, and demonstrated how they can improve experiences and outcomes for mothers and midwives.

The key conclusions from this work are, first, that local BSF groups are widely used and highly valued by mothers for access to information and social support that benefits their breastfeeding duration and experiences. As such they have the potential to be a significant public health intervention. Links to midwives and local maternity services add value to BSF groups for mothers and create pathways to wider support, including the face-to-face support which is still critically important to successful breastfeeding.

Findings supported the theory that local BSF groups form online CoPs, with associated social learning benefits for all members, including professionals. As such they have the potential to support education and ongoing training in relation to non-directive communication styles, wider breastfeeding skills and knowledge. Findings also highlighted the significant social connections developed through relational continuity and the positive impact on midwives' wellbeing: this is key at a time when morale and job fulfilment are in crisis.

However, whilst aware of the benefits to mothers and services, midwives seek further training and support to ensure their online engagement is acknowledged, safe and effective. Developing relevant education at pre-and post-registration level

and addressing the confusion arising from mixed messages on online engagement across the profession were key conclusions.

Currently, BSF services are lacking recognition, clinical and managerial support and renumeration for staff, impacting their sustainability. Clear recommendations for future development of working groups focused on leadership and infrastructure have been set out, also highlighting the focus needed on governance processes to support staff and ensure services are safe, effective and of good quality. Key for the future of online support provision is recognition and future support for those who have pioneered this work, at their own risk and cost, in order to offer mothers improved access to support. If this can be achieved then local BSF groups have the potential to make a long-term positive impact on mothers, midwives and services.

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Appendix 1: Literature Review

Data Extraction Form (adapted from Aveyard et al., 2016)

SM: Social Media
BF: Breastfeeding
EBF: Exclusive Breastfeeding
SCT: Social cognitive theory
ABA: Australian Breastfeeding Association
UGC: User-generated content
FB: Facebook
CoP: Community of Practice

Authors	Research Aim	Sample	Method	Key Themes
Alianmoghaddam, Phibbs & Benn, 2019	Explore the quality of BF support through SM in New Zealand	30 mothers breastfeeding 0-6mths	Face-to-face interviews monthly until BF cessation or 6 months	Mothers need reliable online information; Apps can be good for promoting BF; Information is accessed through weak ties on FB. SM should be used to support EBF
Black, McLaughlin & Giles, 2020	Explore experiences of SM for BF & any extended BF success. Use SCT as a theoretical lens.	8 women from on FB group	Semi-structured interviews	Increased self-efficacy, empowerment by online community through emotional support and information. SM potential for improved BF outcomes
Bridges, Howell & Schmied, 2018	Explore experiences of BF mothers using ABA peer support FB groups	778 wall posts with a total of 2,998 comments	Online ethnography of posts made in 15 ABA FB groups over four weeks in 2013	Informational (learning) and emotional support (coping strategies) are provided by peer supporters and other

				mothers. Group admin also play a vital role in overseeing discussion.
Skelton et al., 2018	Use mothers' attitudes and behaviours/SM use to understand effects on BF outcomes	21 women (focus group) & 12 mothers (interviews) from one US FB group	Online focus groups & interviews	SM positively influences BF attitudes, knowledge, behaviours and longer BF duration
Visram & Hunter, 2019	To determine whether and how UK mothers use SM to access BF advice/support, differences in perceptions of professional and peer led support.	1012 mothers recruited via social media	Online mixed-methods survey distributed via SM	98% reported using SM for BF support, felt groups normalise & encourage BF. Peer led were preferred to professional led, associated with lower age. Lower education level was associated with increased group influence on comfort to BF in public.
Tomfohrde & Reinke, 2016	To explore SM technology use and reasons whilst breastfeeding	309 women, BF within the last 5 years	Online quantitative survey	Mothers frequently use SM whilst BF, most often for entertainment but around a third to connect with BF mothers and seek BF info/support
Abrahams, 2012	Examine presence of formula marketing on	7 SM sites/tools examined for mention	SM sites and were systematically searched	SM is used by manufacturers often violating the WHO Code.

	US SM sitesusing WHO Code	of 11 formula brands	using brand names as keywords, google searches/site searches conducted for Apps & tools. Banner ads excluded.	Online communities are used by manufacturers perpetuate FF norms/undermine BF. SM presents new challenges to BF promotion: need objective sources.
Jin, Phua & Lee, 2015	Examined the impact of UGC and 'likes' on a BF FB page on female college students' breastfeeding-related attitudes and behaviours.	102 female graduate students (no mothers/BF experience)	3 between-subjects full factorial, post-test only design. Online questionnaire containing edited versions of a BF FB page assigned to conditions.	Page popularity (likes) & expert comments increased source credibility, pro BF attitude, self-efficacy & increased intention to BF. Story sharing increases social identification, participation & empathy.
Senkal & Yildiz, 2019	Examine European based violations of WHO Code by formula companies using SM	46 SM multi-platform accounts examined for 9 formula brands (2016-18)	Qualitative research examined activities using WHO Code as framework	Formula manufacturers violate the Code using SM, mostly FB and Instagram. Direct contact, financial relationships with bloggers & creating apps. Legislation, training & monitoring needed.
Marcon, Bieber & Azad, 2019	To assess how Instagram (IG) is used to	4,089 images and 20,532 correspondi	Content analysis based on	IG is being used to share diverse BF content & create

	depict, portray & share information about breastfeeding	ng comments posted on IG with popular breastfeedin g-related hashtags	grounded theory	supportive networks & address challenges. Could be used for BF public health campaigns but no evidence of this yet. Formula companies not infiltrating IG.
Skelton, Evans & LaChenaye, 2020	To explore how use of a FB BF group influences BF related knowledge, attitude & behaviours	21 mothers using a BF FB group	Online focus group discussions (n=21) and individual interviews (n=12). 314 completed online survey.	Concept of online CoP: sense of community, trust, interaction & BF promotion. Captures & stores knowledge for access. Motivated to share in group.
Clapton-Caputo, Sweet & Muller, 2020	Understand expectations & experiences of women who access SM groups when exclusively expressing	10 women from one FB group for exclusively pumping mothers in Australia	Semi-structured interviews. Interpretive-descriptive analysis.	Expected and received emotional and informational support from the group. Shared experience of grief at loss of direct BF. Education & support on/for this needed.
Robinson, Lauckner, Davis, Hall & Anderson 2019	Examine sources of BF support in SM groups and mechanism for	277 African-American mothers from 9 US FB groups	Online survey	FB groups provided most support, compensating for lack elsewhere. Level of FB

	translation into behaviour change			support was sig correlated with intended BF duration.
Campbell, 2020	Explored use of FB groups by BF charity (ABA) to build relationships & motivate real-life/face-to-face engagement to sustain charity	19 ABA members qualified in BF education with FB group moderator roles	3 Online focus groups (6-8 participants) and 5 interviews	Closed FB groups can foster support and community. Interaction must be authentic & genuine – positive experiences motivate real world connection
Bridges, 2016	How mothers find info on BF FB groups (Australia)		Case study of 3 FB groups, interviews and online focus groups	SM provides immediate, complementary support to BF mothers. Moderated forums provide trusted info
Chalklen & Anderson, 2017	Examine mothers concerns about using Facebook (Australia)	117 mothers surveyed, 17 interviewed	Online surveys, semi-structured interviews	Lack of privacy common concern, mothers adept at negotiating privacy/openness online
Morris, 2014	Explore how mothers of children under 3 years use Facebook & Twitter	412 US mothers	Online survey plus optional consent for FB timeline data dump (given by 259 mothers)	Mothers create a large digital footprint with implications for maternal & child health. Patterns may cause privacy risks. Posting about the child is lower than info/support seeking.

Regan & Brown, 2019	Explore positive & negative experiences of online BF support & motivations	14 mothers breastfeeding child up to 3 years	Semi-structured interviews	Mothers were drawn to online support because it fills a gap. Support is reassuring, empathetic and convenient, but negatives include judgement, polarised debate and lack of regulation
Slomian, Bryere, Reginster & Emonts, 2017	How and why new mothers use the internet for information, assess its credibility & any effect on decision making	349 women with child under 2 years (Belgium)	Online survey	Most women use internet for postnatal info & breastfeeding info/support most common. Impacts decision making. Useful but concerns over reliability. Professionals should be willing to discuss online info
Cavalcanti et al., 2019	Impact of HCP mediated FB group on FB duration (Brazil)	251 mother-child pairings (123 intervention, 128 control)	Single blind RCT using FB group intervention	Significant positive impact on the duration and frequency of exclusive breastfeeding (33% v 8% at 6mths).
Lebron, St George, Eckembrecher & Alvarez, 2019	Examine the Babycenter BF support forum to understand the information seeking and sharing	258 posts and 1445 corresponding comments	Content analysis	Popular topics challenges, supply etc. Used interview style questions and built consensus through agreement.

	practices of its users.			Shared knowledge & encouragement – important future resource & intervention
Wagg, Callanan & Hassett, 2019	To document and describe the posts made within an online breastfeeding support group.	501 posts and associated comments. Most from mothers with babies 6wks-6mths.	Systematic message content analysis	FB group used to request and receive range of support around the clock. Creates community which shares and celebrates.
Robinson, Davis, Hall, Lauckner & Anderson, 2019	Describe experiences of African-American mothers using FB for BF support and their beliefs, practices & outcomes	22 Black mothers	Four online focus groups	Improved confidence for public BF and prolonged initial goals. Valued convenient access and online community. Positively influences norms.
McCarthy et al., 2020	Explore experiences of mothers using Facemums group moderated by midwives	Two secret FB groups each moderated by 2 qualified midwives. One group had 17 mothers and the other 14 mothers. Both groups ran for 35 weeks.	Data combined from online posts, post intervention focus groups & interviews with mothers & midwives. Thematically analysed.	Convenient, accessible, safe spacing for sharing. Trust that info was reliable. Primary source of info in pregnancy. Enables individualised info and social support provision.
McCarthy et al., 2017	Explore midwifery continuity in	Two FB groups: 31 mothers and	8 focus groups at 10 week	Relational continuity evident for

	Facemums communities	4 midwife moderators	intervals & 28 interviews within six weeks of giving birth.	mothers & midwives, and informational continuity described by mothers. Valued by both: alternative to lack of continuity
Archer & Kao, 2018	Role of Facebook in social support for mothers in Australia (0-4 years). Identify negatives and positives.	10 focus groups (number of participants not stated)	Thematic analysis of focus group data	Provides valued support and connection but concerns about addiction, mental health, superficiality & negative role modelling of SM use to young children
Boyd, Price, Mogul, Yates & Guevara, 2019	Examine feasibility & outcomes for FB group intervention for postnatal depression (US)	24 US mothers (mostly single, black, low income)	Small RCT, FB intervention group/ in-person group control. EPDS assessment pre-and post	FB delivered programme had higher attendance, increased parenting competence & reduced depressive symptoms. Viewed positively, high participation
Nolan, Hendricks, Williamson & Ferguson, 2018	Explore ways midwives can enhance FB support for adolescent mothers	5 midwives, 2 mothers (focus groups) 3 mothers interviewed	Narrative inquiry of focus group data (one mothers, one midwives)	Midwife input validates SM use, improves accuracy, parenting support & social capital. Mw focus on regulation & repercussions. Guideline development crucial.

Dalton et al., 2014	Investigate midwives' attitudes & experiences of ICT/ impacts on use in antenatal care.	MW who provide Antenatal Education, 8 interviews, two focus groups (13 participants) (Australia)	Semi-structured interviews, focus groups and short surveys. Thematic & statistical analysis	Recognised benefits but reservations on use in practice: legal risks, privacy, misdiagnosis, misunderstanding & lack of training. Accessibility issues including motivation
Jones, Chudleigh, Baines & Jones, 2021	Identify if introducing SM & digital professionalism to nursing curriculum impacts FTP cases	FtP cases related to SM for 4398 nursing students and 338 midwifery students (control group)	Case review of routinely collected data	No increase in FtP hearings. Hearings very infrequent. Benefits not negated by increased inappropriate SM use. Students 'police themselves'. SM should be embraced
Blixt et al., 2019	Explore women's advice to HCPs on BF support	139 BF mothers recruited from SM sites	Content analysis of telephone interviews	Sensitive, individualised EB care, antenatal preparation, respectful mutual dialogue, practical support
Herron, Sinclair, Kernohan & Stockdale, 2015	To conceptualise online BF support	1230 online messages, online interviews with 12 women	Concept analysis of messages, individual online interviews	Support and debate with experienced mothers which is accessible, responsive & sustained by indirect reciprocity. Woman generated,

				authentic support opens doors for investment
Tranter & McGraw, 2017	Evaluate incorporation of Maternity Direct+ FB into routine care	235 mothers who had used the service	Online evaluation form	High demand for & satisfaction with responsive EB SM service for non-urgent info & signposting. Can be integrated to complement other channels
Burns & Schmied, 2017	Explore BF communication style differences between continuity MW & peer supporters	22 women supported by 5 MW and 4 peer supporters	Group & individual interaction observations, follow up interviews with mothers	Women prefer known MW, PS or combination seen as a 'knowledgeable friend' & enhanced confidence over fragmented, authoritative style
Gleeson, Flowers Fenwick, 2014	Explore experiences of receiving breastfeeding support from midwives in the early postnatal period.	6 first time mothers with babies under 4 weeks (Australia)	In depth interviews	Mothers want midwives to be present; investing time in them, listening to them, and helping them solve problems. Lack of time has negative impact
Hunter, Magill-Cuerden & McCourt, 2015	Identify barriers to BF support on a PN ward	7 MW and 2 MSW	Observation and interview	Lack of time, staff & control over time & space. Task orientation & resistance to change supports

				existing model of care. Need support to provide relational care
Donelle et al., 2021	Role of digital technology in transition to parenting & early parenting practices	26 female participants	10 focus groups & 3 interviews	Digital technology gives mothers convenient access to health information but they have concerns about credibility and trustworthiness of the information.
Wilson, 2020	Explore variables leading to sustained BF for SM group users	241 women from 17 FB BF groups	Perception scales and the Breastfeeding Confidence, Knowledge, and Attitudes Measure	FB groups improve confidence, knowledge, attitudes and, potential for exclusive breastfeeding to 6 months
Lagan, Sinclair & Kernohan, 2011	Explore midwives' perspectives of women's internet use	303 midwives	Online survey	Midwives aware of increasing internet use for pregnancy info & impact on decision making. Concerns over accuracy. MW need skill development to work in partnership.
Ellis & Roberts, 2019	Explore online pregnancy forum use & evaluate quality of info	480 posts explored for motivation, 153 for clinical content accuracy.	Thematic content analysis	Exchange of information and emotional key functions of online forums. Info &

		Mumsnet & Netmums		moderation concerns. Signposting for supportive community aspects to counter lack of offline support recommended
Rosin & Zakarija-Grković, 2016	Identify barriers/ facilitators of integrated care from perspective of BF support practitioners	301 participants at 3 internationa l BF conferences	Paper survey distributed at conferences. Statistical and Thematic analysis.	Integrated care (collaborative approach to BF support) is essential. Services inconsistent & unsupported. Affects shared decision making & accessibility of info & support
Ingram, 2013	Explore perceptions of mothers, midwives & peer supporters to a BF support service	163 mothers surveyed, 14 interviewed. & PS and 4 HCP interviewed		Psychosocial benefits for all involved & continuity. Small increases in BF rates, esp EBF. Collaboration and combination effective & well evaluated.
Jacobs et al., 2016	Define characteristic s and needs of Facebook users in relation to congenital anomalies.	1133 responses from FB users using groups/page s for support/ info	Online mixed-methods survey	FB support groups are highly populated and active. HCPs & policy makers need to better understand and participate in social media to support families and

				improve patient care.
Seefat-van Teefelen et al., 2011	Explore women's views on psychosocial support from midwives	21 Dutch pregnant women	3 Focus groups. Thematic analysis	Pregnant women want attentive, proactive, professional psychosocial support from midwives throughout the transition to motherhood.
Atanasova, Kamin & Petric, 2016	Explore benefits & challenges of HCP moderators in online groups	7 HCPs in Slovenia	Semi-structured interviews	HCPs feel they facilitate empowerment in service users, can empower or disempower the HCP
Thomson & Crossland, 2019	How peer support can be used to influence BF experiences	409 surveys and 23 interviews	Analysis using behaviour change wheel	Peer support needs to be delivered as part of effective interdisciplinary partnerships
Baker & Yang, 2018	Explore SM use in pregnancy and postpartum	117 US mothers	Online survey	Majority of mothers use SM for info and support. HCPs need to become familiar and comfortable with using SM to support mothers
Niela-Vilén et al., 2015	Describe perceptions of BF mothers of preterm babies using FB peer support	22 Mothers (Finland)	TA of FB posts – 221 by mothers, 36 by peer supporters and 48 by the midwife	BF paradox in hospital – contrasts and contradictions. SM peer support beneficial, sustainable by the MW.

	group intervention			Connection between BF and mothering identity.
Rasmussen & Felice, 2016	Explore Use of SM to find info on exclusive pumping (US)	543 posts	TA of Baby Centre posts	Have to fill info gap not filled by professionals by seeking peer support.
Darwent & Kempenaar, 2014	Report on BF knowledge and attitudes of mothers, midwives and peer supporters	19 student midwives, 36 peer supporters, 23 breastfeeding women	Cross sectional survey (online & paper)	All groups high but PS higher on both scores. Stmws higher knowledge than mothers but similar attitude scores

Appendix 2: Study One - Consent form and Questionnaire

Your experiences of using local Breastfeeding Support Facebook Groups

What is the purpose of the research?

Breastfeeding and caring for a baby is made easier with the help of those around us, and increasingly mothers and families are now turning to Facebook groups for support with their breastfeeding journey, sharing their knowledge and experiences online. We are interested in finding out if being a member of a Facebook group that was set up to offer breastfeeding support in a local area makes a difference to parents' experiences (for example, "Swansea Breastfeeding Mums" or "Telford Breastfeeding Group"). We are looking at the type of information and discussion that is valued and, how the group is used by parents. We are also interested in finding out whether your group is led, moderated by or has participants who are local midwives, commenting in a professional capacity and if so whether you think this has any impact on the support or discussion in the group. We hope that the findings will help us better understand how we can support parents effectively using social media.

Who is carrying out the research?

The data are being collected by Holly Morse, PhD student in the Department of Public Health, Policy and Social Sciences at Swansea University. The research has been approved by the Research Ethics Committee, College of Human and Health Sciences, Swansea University and is supervised by Professor Amy Brown.

What happens if I agree to take part?

If you would like to take part, you will be invited to complete a questionnaire about your experiences of using Facebook groups for breastfeeding support. Questions will ask about how you use a Facebook group to access information and support to breastfeed and what difference this may have made to you. The questionnaire will take around 10 minutes of your time. There are no right or wrong answers. We want to hear your open and honest experiences on this topic. If there are any questions you do not wish to answer, you can skip them and carry on with the rest of the questionnaire.

Are there any risks associated with taking part?

There are no significant risks associated with participation. If as a result of taking part you have any questions or concerns about your baby or your own wellbeing we encourage you to contact your health visitor, or GP who can provide you with further information and support. Q0.1 **Data Protection and Confidentiality** Your data will be processed in accordance with the Data Protection Act 2018 and the General Data Protection Regulation 2016 (GDPR). All information collected about you will be kept strictly confidential. Your data will only be viewed by the researcher/research team. All electronic data will be stored as an encrypted file on a password-protected computer file on a private laptop. **What will happen to the information I provide?** An analysis of the information will form part of the report at the end of the study and may be presented to interested parties and published in scientific journals and related media. All information presented in any reports or publications will be anonymous and unidentifiable. **Is participation voluntary and what if I wish to later withdraw?** Your participation is entirely voluntary – you do not have to participate if you do not want to. However, please note that the data collected for this study will be made anonymous. Thus it will not be possible to identify and remove your data at a later date once you have completed the questionnaire. **Data Protection Privacy Notice** The data controller for this project will be Swansea University. The University Data Protection Officer provides oversight of university activities involving the processing of personal data, and can be contacted at the Vice Chancellors Office. Your personal data will be processed for the purposes outlined in this information sheet. Standard ethical procedures will involve you providing your consent to participate in this study by completing the consent form that has been provided to you. The legal basis that we will rely on to process your personal data is necessary for the performance of a task carried out in the public interest. This public interest justification is approved by the College of Human and Health Sciences Research Ethics Committee, Swansea University. The legal basis that we will rely on to process special categories of data is necessary for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes. **How long will your information be held?** Data will be preserved and accessible for a minimum of 10 years after completion of the research. Records from studies with major health, clinical, social, environmental or heritage importance, novel intervention, or studies which are on-going or controversial should be retained for at least 20 years after completion of the study. It may be appropriate to keep such study data permanently within the university, a national collection, or as required by the funder's data policy. **What are your rights?** You have a right to access your personal information, to object to the processing of your personal information, to rectify, to erase, to restrict and to port your personal information. Please visit the University Data Protection webpages for further information in relation to your rights. Any requests or objections should be made in writing to the University Data Protection Officer:- University Compliance Officer (FOI/DP) Vice-Chancellor's Office Swansea University Singleton Park Swansea SA2 8PP Email: dataprotection@swansea.ac.uk **How to make a complaint** If you are unhappy with the way in which your personal data has been processed you may in the first instance contact the University Data Protection Officer using the contact details above. If you remain dissatisfied then you have the right to apply directly to the Information Commissioner for a decision. The Information Commissioner can be contacted at: - Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF www.ico.org.uk **What if I have other questions?** If you have further questions about this study, please do not hesitate to contact Holly Morse [redacted] or Professor Amy Brown at aa.e.brown@swansea.ac.uk

Q0.2 If you would like to take part in the questionnaire please read through the following statements. · I have read and understood the information above. · I am over 18 years of age. · I have a baby aged 0 – 24 months. · I am currently a member of a local Facebook group that offers me breastfeeding support. · I consent to taking part in this study. If you can answer yes to all the above answers then click next to progress to the next page, otherwise thank you for your time.

Q2 How old are you?

_____

Q3 What is your highest level of education?

- ○ No formal qualifications
- ○ GCSE or equivalent
- ○ A-Level or equivalent
- ○ Degree or equivalent
- ○ Postgraduate or equivalent

Q4 What is your marital status?

- ○ Married/civil partnership
- ○ Divorced
- ○ Cohabiting
- ○ Single
- ○ Widowed

Q5 What are the first three letters of your postcode?

_____

Q6 Are you currently employed?

- ○ Yes full time
- ○ Yes part time
- ○ No

Q7 What is your ethnicity?

- ○ White/White British
- ○ Gypsy/Traveller
- ○ Irish
- ○ Asian or Asian British: Pakistani
- ○ Asian or Asian British: Bangladeshi
- ○ Asian or Asian British: Indian
- ○ Asian or Asian British: Chinese
- ○ Asian or Asian British: Other
- ○ Black or Black British
- ○ Mixed or multiple
- ○ Other

Q8 How old is your baby (or babies if twins or more)

_____

Q9 How are you currently feeding your baby?

- ○ Just breastfeeding
- ○ Just pumped breastmilk
- ○ Just formula milk
- ○ Combination/mixed feeding (formula and breastmilk)
- ○ Breastmilk and solid food
- ○ Formula and solid food

Q11 Since deciding to breastfeed I have been well supported (in person rather than online) by:

	Strongly Agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree
My Family	○	○	○	○	○
My partner	○	○	○	○	○
My partner's family	○	○	○	○	○
Friends	○	○	○	○	○
Midwives	○	○	○	○	○
Health visitors	○	○	○	○	○

Q13 *For the purpose of this questionnaire we want to know about how you use a local Breastfeeding Support Facebook group in your area. The type of group we are interested in is one that is specifically local to you. For example it might have the name of your town or area in the group name, as against a group that is accessed from people around the country / world and is a more general breastfeeding interest group.*

Q14 What is the full name of the local Facebook group you belong to which you joined for breastfeeding support? (Please enter the most used if you use more than one)

_____
_____
_____
_____
_____

Q15 How old was your baby when you joined the group?

_____

Q16 If you were pregnant or joined in a previous pregnancy/whilst breastfeeding previously please state:

_____
_____
_____
_____
_____

Q17 Why did you join the Breastfeeding Facebook group?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
In case I experienced breastfeeding problems	○	○	○	○	○
I was already having breastfeeding problems	○	○	○	○	○
For reassurance about how breastfeeding was going	○	○	○	○	○
For reassurance about normal baby behaviour	○	○	○	○	○
To share experiences of breastfeeding with other mothers	○	○	○	○	○
To find like minded mothers	○	○	○	○	○
I was looking to find face-to-face support or a group to attend	○	○	○	○	○
I wanted support but didn't want to go to a face-to-face group	○	○	○	○	○
I wanted support but couldn't get to a face-to-face group	○	○	○	○	○
I had no other support for breastfeeding	○	○	○	○	○
For support from midwives on the group	○	○	○	○	○
For support from trained peer supporters on the group	○	○	○	○	○

Q18 How did you become aware of the Breastfeeding Facebook Group?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
My community midwife recommended it	○	○	○	○	○
A hospital midwife recommended it	○	○	○	○	○
Saw information leaflet or poster in hospital or clinic	○	○	○	○	○
Saw information leaflet or poster in community e.g. supermarket, library	○	○	○	○	○
I did a Facebook search	○	○	○	○	○
I did a google search for support groups	○	○	○	○	○
I attended the Face-to-face group associated with the online group first	○	○	○	○	○
I saw the group details shared on Facebook/social media	○	○	○	○	○
Friends/family members recommended it	○	○	○	○	○

Q19 Is the online Breastfeeding Facebook group associated with a Face-to-Face support group?

○ Yes

○ No

○ Maybe

Q20 Have you attended the Face-to-Face support group?

○ Yes

○ No

Q21 Why have you not attended the Face-to-face group?

_____
_____
_____
_____
_____

Q22 Who runs/offers support at the Face-to-face support group? (Please tick all that apply)

- ☐ Parents
- ☐ Midwives
- ☐ Maternity Support Worker
- ☐ Lactation specialist e.g. IBCLC, LLL, ABM
- ☐ Trained peer supporters
- ☐ Unsure

Q23 Who runs/moderates the Facebook Group? (Please tick all that apply)

- ☐ Parents
- ☐ Midwives
- ☐ Maternity Support Worker
- ☐ Lactation specialist e.g. IBCLC, LLL, ABM
- ☐ Trained peer supporters
- ☐ Unsure

Q25 How do you know who runs/moderates the Facebook Group? (Please tick all that apply)

- [ ] It is written in the group description
- [ ] They introduced themselves on the group
- [ ] The person who recommended the group told me
- [ ] I saw details on a leaflet or shared post
- [ ] I've worked it out myself reading group posts
- [ ] I've met them at a face-to-face group
- [ ] I've had care from them outside the group (e.g. as a community or hospital midwife)
- [ ] I don't know who runs it

Q26 Are you aware of any group members who are who are local midwives commenting in a professional capacity?

- ○ Yes
- ○ No
- ○ Unsure

Q27 How important to you is it that parents using the Breastfeeding Facebook Group are from your local area?

- ○ Very important
- ○ Moderately important
- ○ Slightly important
- ○ Not at all important
- ○ Unsure

Q28 If you have had or seen support from Midwife members/moderators in the Breastfeeding Facebook Group how useful did you find this?

- ○ Very useful
- ○ Useful
- ○ Not useful
- ○ Not applicable

Q29 If the Breastfeeding Facebook Group does not have Midwife members/moderators do you feel having some would be valuable for the group?

- ○ Yes
- ○ Maybe
- ○ No
- ○ Not applicable

End of Block: Block 2

Start of Block: Block 3

Q30 How often do you use or visit the Breastfeeding Facebook group?

- ○ Several times a day
- ○ At least once a day
- ○ A few times a week
- ○ Once a fortnight
- ○ Rarely

Q31 How often do you use the Breastfeeding Facebook group for the reasons below?

	Often	Sometimes	Rarely	Never
To ask a breastfeeding question	○	○	○	○
To ask a baby related or parenting question e.g. sleep, weaning	○	○	○	○
To answer a breastfeeding question	○	○	○	○
To answer a baby related or parenting question e.g. sleep, weaning	○	○	○	○
To share links (e.g. events or information relevant to the group)	○	○	○	○
To read discussions without commenting	○	○	○	○

Q32 Have you seen any of the following topics discussed on the group?

	Often	Sometimes	Rarely	Never	Unsure
Positioning and attachment	○	○	○	○	○
Frequency of feeding	○	○	○	○	○
Baby weight loss/gain	○	○	○	○	○
Increasing milk supply	○	○	○	○	○
Sleep	○	○	○	○	○
Bed sharing	○	○	○	○	○
Expressing breastmilk	○	○	○	○	○
Formula or bottle feeding	○	○	○	○	○
Tongue tie	○	○	○	○	○
Complications e.g. mastitis, thrush	○	○	○	○	○
Parenting styles	○	○	○	○	○
Social events/meet-ups	○	○	○	○	○
Baby development	○	○	○	○	○
Returning to work	○	○	○	○	○
Weaning	○	○	○	○	○
Relationships e.g. partners or family	○	○	○	○	○

Q33 Have you received support from the Breastfeeding Facebook group with any of the issues below?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Pain	○	○	○	○	○
Lack of sleep	○	○	○	○	○
How to safely bedshare	○	○	○	○	○
Dealing with unsupportive friends/family	○	○	○	○	○
Concerns about feeding in public	○	○	○	○	○
Concerns about baby weight gain/loss	○	○	○	○	○
Increasing milk supply	○	○	○	○	○
Introducing formula	○	○	○	○	○
Mental or emotional health	○	○	○	○	○
Questions about baby development	○	○	○	○	○
Weaning onto solids	○	○	○	○	○
Breastfeeding older babies/toddlers	○	○	○	○	○
Recommendations for private tongue tie services and/or osteopathy	○	○	○	○	○
Recommendations for NHS services, groups or clinics	○	○	○	○	○

Q34 Or support for any other issue that was important to you? Please give details:

_____
_____
_____
_____
_____

Q35 Did you feel supported on these issues by:

	Often	Sometimes	Never	Unsure	Not applicable
Midwives	○	○	○	○	○
Trained peer supporters	○	○	○	○	○
Other parents	○	○	○	○	○
Lactation specialists e.g. IBCLC, LLL, ABM	○	○	○	○	○

Q36 Do you agree with the following statements about your experiences of using the group?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Not applicable
I find reading other mothers' breastfeeding experiences helpful	○	○	○	○	○	○
I feel confident that the information on the group is reliable	○	○	○	○	○	○
I feel more confident taking advice if midwives add to the discussion	○	○	○	○	○	○
I get emotional support from the group	○	○	○	○	○	○
I have seen judgemental or negative comments	○	○	○	○	○	○
My knowledge of how breastfeeding works/what is normal has grown since joining the group	○	○	○	○	○	○
I am reassured by having access to trained support via the group	○	○	○	○	○	○
I enjoy supporting other parents by sharing my experiences and knowledge	○	○	○	○	○	○
I feel connected to other parents on the group	○	○	○	○	○	○
I have concerns about privacy and confidentiality on Facebook	○	○	○	○	○	○
I feel I have access to midwifery support not available elsewhere	○	○	○	○	○	○

Q37 Do you think there are any negatives to belonging the Breastfeeding Support Facebook group?

- ○ Yes
- ○ No
- ○ Maybe

Q38 What do you think the negatives to belonging to the group are?

_____
_____
_____
_____
_____

Q39 Would you recommend this group to other parents?

- ○ Yes
- ○ Maybe
- ○ No

Q40 What are your reasons for recommending or not recommending this group?

_____
_____
_____

Appendix 3: Study Two - Consent form and Questionnaire

Midwives' perceptions and experiences of using Facebook Groups to support families

Q0 What is the purpose of the research? Being pregnant, breastfeeding and caring for a baby is made easier with the help of those around us, and increasingly mothers and families are now turning to Facebook groups for support, sharing their knowledge and experiences online. Our research has identified that families value the information and social support they get from locally provided Facebook support groups and particularly the contribution of midwives to those groups. The coronavirus pandemic has seen rapid change in online communication with families. This study looks at how midwives feel about using Facebook groups to offer support and their experiences of doing so. It aims to develop an understanding of the benefits and barriers to offering Facebook support and the support midwives need to fulfil this role. This questionnaire asks about how you view the use of Facebook professionally, any experience of its use in practice and the support available to you. We hope that the findings will help us better understand how we can support professionals to support parents effectively using social media.

Who is carrying out the research?
The data are being collected by Holly Morse, PhD student in the Department of Public Health, Policy and Social Sciences at Swansea University. The research has been approved by the Research Ethics Committee, College of Human and Health Sciences, Swansea University and is supervised by Professor Amy Brown.

What happens if I agree to take part?
If you would like to take part, you will be invited to complete a questionnaire about your views on midwives using Facebook groups to support mothers. Questions will ask about whether or not you use Facebook and your thoughts/experiences of using Facebook groups to give support to mothers.

The questionnaire will take around 7-10 minutes of your time. There are no right or wrong answers. We want to hear your open and honest experiences on this topic. If there are any questions you do not wish to answer, you can skip them and carry on with the rest of the questionnaire.

Are there any risks associated with taking part?
There are no significant risks associated with participation. If as a result of taking part you have any questions or concerns about your baby or your own wellbeing we encourage you to contact your health visitor, or GP who can provide you with further information and support.

Q0.1 **Data Protection and Confidentiality** Your data will be processed in accordance with the Data Protection Act 2018 and the General Data Protection Regulation 2016 (GDPR). All information collected about you will be kept strictly confidential. Your data will only be viewed by the researcher/research team. All electronic data will be stored as an encrypted file on a password-protected computer file on a private laptop. **What will happen to the information I provide?** An analysis of the information will form part of the report at the end of the study and may be presented to interested parties and published in scientific journals and related media. All information presented in any reports or publications will be anonymous and unidentifiable. **Is participation voluntary and what if I wish to later withdraw?** Your participation is entirely voluntary – you do not have to participate if you do not want to. However, please note that the data collected for this study will be made anonymous. Thus it will not be possible to identify and remove your data at a later date once you have completed the questionnaire. **Data Protection Privacy Notice** The data controller for this project will be Swansea University. The University Data Protection Officer provides oversight of university activities involving the processing of personal data, and can be contacted at the Vice Chancellors Office. Your personal data will be processed for the purposes outlined in this information sheet. Standard ethical procedures will involve you providing your consent to participate in this study by completing the consent form that has been provided to you. The legal basis that we will rely on to process your personal data is necessary for the performance of a task carried out in the public interest. This public interest justification is approved by the College of Human and Health Sciences Research Ethics Committee, Swansea University. The legal basis that we will rely on to process special categories of data is necessary for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes.
How long will your information be held? Data will be preserved and accessible for a minimum of 10 years after completion of the research. Records from studies with major health, clinical, social, environmental or heritage importance, novel intervention, or studies which are on-going or controversial should be retained for

at least 20 years after completion of the study. It may be appropriate to keep such study data permanently within the university, a national collection, or as required by the funder's data policy. **What are your rights?** You have a right to access your personal information, to object to the processing of your personal information, to rectify, to erase, to restrict and to port your personal information. Please visit the University Data Protection webpages for further information in relation to your rights. Any requests or objections should be made in writing to the University Data Protection Officer:- University Compliance Officer (FOI/DP) Vice-Chancellor's Office Swansea University Singleton Park Swansea SA2 8PP Email: dataprotection@swansea.ac.uk **How to make a complaint** If you are unhappy with the way in which your personal data has been processed you may in the first instance contact the University Data Protection Officer using the contact details above. If you remain dissatisfied then you have the right to apply directly to the Information Commissioner for a decision. The Information Commissioner can be contacted at: - Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF www.ico.org.uk **What if I have other questions?** If you have further questions about this study, please do not hesitate to contact Holly Morse at [redacted] or Professor Amy Brown at a.e.brown@swansea.ac.uk

Q0.2 **If you would like to take part in the questionnaire please read through the following statements:** · I have read and understood the information above. · I am over 18 years of age · I am a Registered midwife or student midwife in the UK · I consent to taking part in this study If you can answer yes to all the above answers then click next to progress to the next page, otherwise thank you for your time.

Q1 What is your age range?

- ○ 18-21
- ○ 22-30
- ○ 31-40
- ○ 41-50
- ○ 50-60
- ○ 60+

Q1a What is your gender?

- ○ Female
- ○ Male
- ○ Trans* male
- ○ Trans* female
- ○ Gender non-binary

○ Self defined. Please specify: _____

Q2 Which UK county area do you work in?

_____

Q3 What is your ethnicity?

○ White/White British

○ Gypsy/Traveller

○ Irish

○ Asian or Asian British: Pakistani

○ Asian or Asian British: Bangladeshi

○ Asian or Asian British: Indian

○ Asian or Asian British: Chinese

○ Asian or Asian British: Other

○ Black or Black British

○ Mixed or multiple

○ Other

Q4 How long have you been a midwife?

○ Currently a student midwife

○ 0-3 years

○ 4-10 years

○ 11-20 years

○ 20 years +

Q5 What is your current role?

- ○ Hospital based midwife
- ○ Freestanding midwifery unit based midwife
- ○ Community based midwife
- ○ Registered but not currently practicing
- ○ Student midwife
- ○ Independent midwife
- ○ Other. Please specify: _____

Q6 Do you have a specialist role?

- ○ No
- ○ Yes. Please specify: _____

Q7 Do you use Facebook? If so which if these apply? (Please tick all that apply)

- ☐ I do not use Facebook at all
- ☐ I have Facebook for personal use
- ☐ I use Facebook to connect with other midwives/students
- ☐ I support/provide care to women in a Facebook group/s

Q7a Which statements describe your reasons for not using Facebook?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I don't trust Facebook	○	○	○	○	○
I don't believe Facebook is secure	○	○	○	○	○
The important people in my life don't use Facebook	○	○	○	○	○
There is no benefit to me of using Facebook	○	○	○	○	○
I don't have the digital/ IT skills needed	○	○	○	○	○
Facebook support does not improve care for mothers	○	○	○	○	○
I don't want to be found on Facebook by mothers	○	○	○	○	○
I have concerns about professionalism on Facebook	○	○	○	○	○
I prefer other social media e.g. Twitter, Instagram	○	○	○	○	○

Q7b How do you feel about the following statements?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I trust Facebook with my information	○	○	○	○	○
Facebook helps me to connect with/learn from other professionals	○	○	○	○	○
The important people in my life use Facebook	○	○	○	○	○
There are social benefits to me of using Facebook	○	○	○	○	○
Facebook is convenient and easy to use	○	○	○	○	○
I feel confident in how to stay professional online	○	○	○	○	○
I am happy to interact on Facebook with mothers	○	○	○	○	○
Providing Facebook support improves care for mothers	○	○	○	○	○
I also use other social media e.g. Twitter, Instagram	○	○	○	○	○

Q8 Which of the following are you involved in providing to women/families within a Facebook group? (Please tick all that apply)

- ☐ Antenatal support
- ☐ Postnatal support
- ☐ Breastfeeding support
- ☐ Specialist support (e.g. NICU parents). Please specify: _____

Q9 Which responsibilities apply to your Facebook role? (Please tick all that apply)

- ☐ I was involved in setting up the group
- ☐ I moderate discussion
- ☐ I contribute to discussion by posting and responding to women's posts
- ☐ Any other? Please specify: _____

Q10 Please indicate whether any of the following apply (Please tick all that apply)

- ☐ I am required to offer Facebook support as part of my employed role
- ☐ I choose to offer Facebook support/contribute to groups outside my employed role
- ☐ I help to give Facebook support to mothers as a student midwife

- [ ] I am happy and confident having a Facebook support role
- [ ] I would prefer not to be doing a Facebook support role
- [ ] I only started using Facebook to support mothers as a result of the coronavirus pandemic

Q11 In an average week how much time do you spend on your Facebook role?

- ○ Enter approximate number of hours: _____

Q12 Are you reimbursed for the time you spend on your Facebook role? (Please tick all that apply)

- [ ] I am reimbursed for all the time spent on my Facebook role
- [ ] I am only reimbursed for part of the time needed to fulfil my Facebook role
- [ ] I am not paid for any of the time spent on my Facebook role
- [ ] I think all the time spent on the Facebook role should be paid
- [ ] I help to give Facebook support as a student midwife

Q13 How long have you been involved with providing Facebook support as a midwife/student midwife?

- ○ under 1 month
- ○ 1-3 months
- ○ 4-6 months
- ○ 7-12 months

○ 1-3 years

○ 4-5 years

○ 5 years+

End of Block: Block 1

Start of Block: Block 2

Q14.1 ***The following questions will give you the opportunity to tell us your views on the use of Facebook Support groups.***

Q14 Does your health board/NHS trust have official Facebook groups used by midwives to support local women?

☐ Yes

☐ No

☐ Unsure

Q15 Would you consider a role in providing midwifery support/care to women within an official Facebook group? Please explain your reasons.

_____

Q16 Do you have any additional experience in or qualifications for providing breastfeeding support?

☐ No

☐ Yes. Please give details _____

Q17 Do you think additional post midwifery registration breastfeeding training/experience is needed to provide breastfeeding support online?

☐ No. Please explain why not: _____

☐ Yes. Please explain why: _____

Q18 What do you think about the following statements about mothers' use of Facebook Support Groups?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
They can improve mothers' knowledge	○	○	○	○	○
They can increase mothers' confidence	○	○	○	○	○
They can help provide social/peer support	○	○	○	○	○
They can help mothers to help themselves	○	○	○	○	○
They can improve continuity of care	○	○	○	○	○
They enable mothers to share experiences	○	○	○	○	○
They can improve breastfeeding rates	○	○	○	○	○
They can improve communication with midwives	○	○	○	○	○
They can improve feedback of staff and services	○	○	○	○	○

Q19 What do you think about the following statements about midwives' professional use of Facebook Support Groups?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
They can help midwives signpost services to women	○	○	○	○	○
They can improve the sense of connection with mothers	○	○	○	○	○
They can increase midwives' knowledge	○	○	○	○	○
They can improve communication with mothers	○	○	○	○	○
Only basic IT/digital skills are needed	○	○	○	○	○
It is a positive experience for midwives	○	○	○	○	○
They can improve connections between midwives	○	○	○	○	○
Being involved in online support contributes to professional/career development	○	○	○	○	○

Q20 Are the following of concern to you in relation to providing Facebook Group support?

	Very concerned	Concerned	Neither concerned or unconcerned	Mostly unconcerned	Not a concern
Personal privacy of midwives	○	○	○	○	○
Digital competence (being 'tech savvy' enough)	○	○	○	○	○
Criticism from colleagues	○	○	○	○	○
Posting publicly in case of an error or complaint	○	○	○	○	○
Ensuring advice I give is evidence based	○	○	○	○	○
Being reported to employer or NMC	○	○	○	○	○
Increased workload/stress	○	○	○	○	○
Overstepping boundaries	○	○	○	○	○
Becoming emotionally involved	○	○	○	○	○
Ensuring mothers' confidentiality	○	○	○	○	○
Lack of guidance for moderating groups	○	○	○	○	○
Lack of employer support	○	○	○	○	○
Managing conflict online	○	○	○	○	○

Q21 Do you feel any of the following are supportive of midwives providing Facebook support to mothers?

	Strongly agree	Agree	Disagree	Strongly Disagree	I don't know
Facebook group guidelines	○	○	○	○	○
Health board/NHS trust social media policy	○	○	○	○	○
Health board/NHS trust digital strategy	○	○	○	○	○
Health board/NHS trust Communications team	○	○	○	○	○
Health board/NHS trust Management	○	○	○	○	○
NMC social media guidance	○	○	○	○	○
The Royal College of Midwives	○	○	○	○	○
Work Colleagues	○	○	○	○	○
Universities/ midwifery educators	○	○	○	○	○

Q22 How often do you recommend using Facebook support groups to women you care for? (Please tick all that apply)

○ Frequently

○ Sometimes

○ Rarely

○ Never

○ Not applicable

Q23.1 ***The final three questions will ask for your views on improving support for midwives and changes in practice.***

Q23 Please indicate whether you have received any of the following and their usefulness below:

	Have you received any of the following?		Was or would these be useful?		
	Yes	No	Yes	No	Unsure
Digital skills training	○	○	○	○	○
Socia media training	○	○	○	○	○
E-professionalism training (how to be a professional midwife online)	○	○	○	○	○
Written local guidelines for providing Facebook support	○	○	○	○	○

Q24 Please describe any additional training or support you feel would benefit you and/or other midwives in using Facebook to support mothers:

_____

_____

_____

_____

_____

Q25 Midwives and maternity services communicating with mothers and families via social media has become more widespread during the coronavirus pandemic. Please describe any changes you have seen and how you feel about them:

_____

_____

_____

_____

_____

Q26 Is there anything further you would like to add?

_____

_____

_____

_____

_____

End of Block: Block 3

Appendix 4: Study Three: Participant Information Sheet

I am a PhD student at Swansea University. My research examines the use of Facebook groups to provide breastfeeding support for mothers within their local area. The aim is to gain a wider understanding of how they are being used within and alongside maternity services to widen and improve the support mothers receive. This interview investigates the experience of midwives involved in setting up and contributing to the delivery of breastfeeding support in Facebook groups. The aim of the interview is to understand your experiences of being involved in this type of online support and your views on its development. It asks you to reflect on any support or training you have received or would like to receive, and any concerns you have or challenges you have faced in your role.
Finally, it looks at any positive impacts for you and for the women you support and asks for your views on if and how the service could be developed more widely. The interview would take around 30-45 minutes and be conducted over Zoom or Microsoft Teams at a time of your choosing.
If you are involved in providing mothers in your local area with breastfeeding support via a Facebook group and would like to find out more about taking part, please reply by email with contact details and availability.
Thank you.

Participant Information Sheet

Who is carrying out the research?
The data are being collected by Holly Morse, PhD student in the Department of Public Health, Policy and Social Sciences at Swansea University. The research has been approved by the Research Ethics Committee, College of Human and Health Sciences, Swansea University and is supervised by Professor Amy Brown.

What happens if I agree to take part?
If you agree to take part, you will be invited to complete an interview via Zoom or Teams at your convenience, about your experiences of using Facebook groups to support breastfeeding mothers. We will ask some questions about your role and how your group functions, your thoughts about this service and your experiences as a midwife of supporting breastfeeding mothers via Facebook. There are no right or wrong answers. We want to hear your open and honest thoughts on the benefits and challenges of providing online support. If there are any questions you do not wish to answer you can skip them and carry on with the rest of the interview.
If you are happy for your interview to be video recorded we will use the recording facility. If you would prefer not to be video recorded a separate audio recording

device will be used to record your responses so that they can be transcribed after the interview. All video and audio recordings will be erased after the transcription has been made. We will store audio recordings until this time on a password protected computer.

Are there any risks associated with taking part?
We are conducting this research to try to better understand midwives' experiences of providing breastfeeding support via Facebook groups. We hope that this will help improve support and training for midwives and develop the service for mothers. There are no anticipated physical risks or financial costs to participating in this study. We will ensure your participation and respons
es remain anonymous.
Data Protection and Confidentiality
Your data will be processed in accordance with the Data Protection Act 2018 and the General Data Protection Regulation 2016 (GDPR). All information collected about you will be kept strictly confidential, with the exception of appropriate disclosure in the event of safeguarding concerns. Your data will only be viewed by the researcher/research team. All electronic data will be stored as an encrypted file on a password-protected computer file on a private laptop.

What will happen to the information I provide?
An analysis of the information will form part of the report at the end of the study and may be presented to interested parties and published in scientific journals and related media. All information presented in any reports or publications will be anonymous and unidentifiable.

Is participation voluntary and what if I wish to later withdraw?
Your decision to take part in this study is voluntary. You can choose whether or not you want to participate. If you decide to stop during the interview we will ask you how you would like us to handle the data you provided. This could include destroying it or using the data collected up to that point. After the interview, your data may be withdrawn for up to one month by contacting us. Whatever decision you make, there will be no penalty to you and you will be treated with respect.

Data Protection Privacy Notice
The data controller for the UK arm of this project will be Swansea University. The University Data Protection Officer provides oversight of university activities involving the processing of personal data, and can be contacted at the Vice Chancellors Office. Your personal data will be processed for the purposes outlined in this information sheet.
Standard ethical procedures will involve you providing your consent to participate in this study by completing the consent form that has been provided to you.
The legal basis that we will rely on to process your personal data is necessary for the performance of a task carried out in the public interest. This public interest justification is approved by the College of Human and Health Sciences Research Ethics Committee, Swansea University. The legal basis that we will rely on to

process special categories of data is necessary for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes.

How long will your information be held?

Data will be preserved and accessible for a minimum of 10 years after completion of the research. Records from studies with major health, clinical, social, environmental or heritage importance, novel intervention, or studies which are on-going or controversial should be retained for at least 20 years after completion of the study. It may be appropriate to keep such study data permanently within the university, a national collection, or as required by the funder's data policy.

What are your rights?

You have a right to access your personal information, to object to the processing of your personal information, to rectify, to erase, to restrict and to port your personal information. Please visit the University Data Protection webpages for further information in relation to your rights.

Any requests or objections should be made in writing to the University Data Protection Officer:-

University Compliance Officer (FOI/DP)
Vice-Chancellor's Office
Swansea University
Singleton Park
Swansea
SA2 8PP
Email: dataprotection@swansea.ac.uk

How to make a complaint

If you are unhappy with the way in which your personal data has been processed you may in the first instance contact the University Data Protection Officer using the contact details above. If you remain dissatisfied then you have the right to apply directly to the Information Commissioner for a decision. The Information Commissioner can be contacted at: -

Information Commissioner's Office, Wycliffe House,Water Lane, Wilmslow,Cheshire, SK9 5AF www.ico.org.uk

What if I have other questions? If you have further questions about this study, please do not hesitate to contact Holly Morse at [redacted] or Professor Amy Brown at a.e.brown@swansea.ac.uk

If you would like to take part in the interview, please read through the following statements:

- I have read and understood the information about the study
- I understand that any information I give will be treated confidentially
- I understand I am not obliged to take part in the study and can withdraw at any time
- I agree to take part in this study

If you can answer yes to all the above answers then please confirm your contact details and we will be in touch to arrange an interview.

APPENIDX 4B: Study Three: Participant Consent Form

Participant Consent Form

Project title: Midwives' experiences of using local Facebook Groups to support breastfeeding

If you have any further questions about this study you can contact the researchers at:

Holly Morse RM at [redacted]
Professor Amy Brown a.e.brown@swansea.ac.uk

		Participant initial
1.	I (the participant) confirm that I have read and understand the information sheet for the above study (*dated*) which is attached to this form.	
2.	I understand that my participation is voluntary and that I am free to withdraw at any time during the interview and up to one month afterwards, without giving any reasons.	
3.	I understand what my role will be in this research, and all my questions have been answered to my satisfaction.	
4.	I understand that I am free to ask any questions at any time before and during the study.	
5.	I have been informed that the information I provide will remain confidential unless safeguarding issues require sharing.	
6.	I am happy for the information I provide to be used (anonymously) in academic papers and other formal research outputs	
7.	I am willing for my information to be audio and video recorded.	
8.	I have been provided with a copy of the Participant Information Sheet.	
9.	I agree to the researchers processing my personal data in accordance with the aims of the study described in the Participant Information Sheet.	

Print name of participant	Signature	Date
Print name of researcher	Signature	Date

Thank you for your participation in this study. Your help is very much appreciated.