Motherhood and Pre-Term Birth: Exploring First-Time Mothers' Experiences of Others' Pregnancies and Mother-Infant Attachment in the Neonatal Intensive Care Unit (NICU).

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Abstract for whole portfolio

Background: One in 13 babies in the UK are born prematurely each year. Many will require essential treatment from a Neonatal Intensive Care Unit (NICU) and may experience lifelong complications. For parents, this often unexpected start to parenthood can result in emotional distress. Birthing mothers may have unique experiences owing to their own personal recoveries post-birth. Less is known about the broader societal impacts of pre-term birth on motherhood identity and interpersonal experiences.

Method: This thesis portfolio consists of a systematic review and an empirical study. The systematic review included a narrative synthesis and appraisal of 12 research articles exploring factors that act as barriers and facilitators to mother-infant attachment in the NICU. The empirical study involved a qualitative exploration of 15 first-time mothers of very pre-term babies' experiences of other women's pregnancies, analysed using reflexive thematic analysis.

Results: The systematic review found that factors within the mother-infant dyad as well as structural and contextual factors beyond this influenced mother-infant attachment in the NICU. These includes five main concepts of: physical proximity between mother and baby, motherhood identity and role attainment, mother's psychological experiences, the role of professionals, and the NICU environment. The empirical study found that pre-term mothers experiences of other's pregnancies elicited complex emotional and interpersonal responses shaped by individual and wider societal structures linked to identity, social comparison and impacts of trauma.

Conclusion: Mothers of pre-term babies experience a complex interplay of individual and broader structural challenges that shape their identity and relationships.

Key words: Pre-term birth, motherhood, attachment, neonatal intensive care (NICU)

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Chapter One: Introduction to Thesis Portfolio

A pre-term baby is defined as a baby born at 37 weeks gestation or earlier (World Health Organisation: WHO, 2023). Often unexpectedly, one in 13 babies in the UK are born prematurely each year, typically due to pregnancy-related health or development complications (Bliss, 2024). Some late pre-term babies (born at 34-37 weeks gestation) may require little or no specialist care from a Neonatal Intensive Care Unit (NICU). Whereas babies born at earlier gestations have increased medical vulnerabilities meaning specialist NICU care is essential for their survival and growth. The average length of admission for a baby born between 28 and 32 weeks gestation is 44 days, increasing to 96 days for those born below 28 weeks (NDAU, 2017). Substantial medical advancements to neonatal care and the recognition of the important role of parents in caring for their babies in NICU in recent decades has resulted in a significant increase in the survival rate of premature babies and their quality of life (Liang et al., 2021).

Having a baby born prematurely and requiring admission to NICU can be a distressing experience for parents. One study explored the immediate impact of pre-term birth with results showing increased reports of anxiety and depression for pre-term parents in comparison to full-term parents (Ionio et al., 2016). Further to this, Treyvaurd et al. (2013) reported on psychological outcomes for parents seven years after pre-term birth and found consistent outcomes, with parents continuing to report higher levels of anxiety, depression, and parenting stress, with poorer family functioning reports than their full-term comparatives. This suggests that the distress experienced by parents sustains beyond the NICU admission. Whilst this is true for all types of parents and caregivers, the specific experience of mothers may be unique.

Stern's (1995, 2020) Theory of Motherhood Constellation posits that the psychological transformation into motherhood begins during pregnancy and extends into the first year of an infant's life. Stern presents four main themes within this process: physical protection of baby, emotional attunement to baby, enlistment of models and social support in other mothers, and integrating maternal identity into their existing self. Pre-term birth and NICU admission undoubtedly interacts with the above themes, altering the mother's role and access to those processes to develop her motherhood constellation, all whilst managing her own recovery from the birth. A study that interviewed 30 pre-term mothers whilst their baby was in NICU provides evidence for this, with findings that mothers reported feelings of inadequacy and powerlessness in caring for their infant as they are governed by institutional rules and displaced by professionals. Additionally, they reported reduced feelings of emotional connectedness to their baby and a lack of coherence in their maternal identity (Spinelli et al., 2016). A larger population-based study using data from a national UK survey supports these findings, with pre-term and very pre-term mothers reporting reduced feelings of their baby belonging to them, and more negative feelings towards their baby and their relationship to them at three months post-partum (Henderson, Carson & Redshaw, 2016). This study also evidenced that mothers of pre-term babies reported less use of community support services after their baby was discharged from NICU. However, explanations for this are less definitive in the evidence base and require further research.

Early caregiver relationships are now widely known as one of the largest predictors in developmental outcomes for babies and children, extending beyond this into adulthood (World Health Organisation, 2004). With foundations in attachment theory, the evidence base suggests that the mother-infant relationship can be compromised by a mother's experience of mental health difficulties, as this may limit their capacity to be emotionally responsive and

attuned to their baby's needs (Barnes & Theule, 2019; O'Dea et al., 2023). This understanding has informed UK policymaker's recognition of perinatal mental health as a public health concern, with NHS long term plans and services shaped accordingly (Tripathy, 2020). Evidence suggests that providing early interventions to babies and their caregivers within the first 1001 days of a baby's life creates the largest return of investment in healthcare, reducing strain and costs otherwise put on the system at a later stage (Heckman, 2012). Considering this in the context of pre-term birth, it is known that on average, pre-term babies are at higher risk of poorer mental health and developmental outcomes in childhood in comparison to their full-term peers (O'Nions et al., 2021). This suggests even greater importance in reinforcing protective factors for pre-term babies, such as strong early attachments to their caregiver. This requires support for the mothers who, as evidenced, are often reported to experience NICU as detrimental to their wellbeing and identity. As NICU is unavoidable and essential for baby's survival, it is necessary to increase our understanding of mothers' needs in this context in order to provide accessible and useful support.

Beyond biological understandings of what constitutes maternal identity is the notion that motherhood is socially constructed. Oakley (2005) argues that the identity of a mother is constructed as a result of societal norms and expectations, which are underpinned by narratives on gender roles that disempower women. It is possible that those who have a different experience of motherhood, where their social transition into this role is disrupted and they are unable to meet normative expectations, may experience a sense of marginalisation. This experience is likely to be true for pre-term mothers and evidence suggests thar pre-term mothers feel isolated from groups of mothers with full-term babies, due to their differing experiences acting as a reminder of their non-normative start to motherhood (Fowler et al., 2019). However, to date, there is very limited research exploring

pre-term mothers' societal experiences in the context of other mothers. Based upon Oakley's theory it is comprehensible that this sense of marginalisation is driven by disempowerment experienced by women living in societies with male-centric discourses. Furthermore, as evidenced by Katila & Meriläinen (1999), research has traditionally been underpinned by this same discourse, which female researchers and participants can be active agents in challenging and reshaping by producing more female-focused research. It is possible that disempowerment through lack of representation of women, in this case pre-term mothers, is reinforced, and highlights a gap in the literature that would be best addressed through exploring, and giving voice to, the lived experiences of this group of mothers from a feminist epistemological standpoint.

This thesis portfolio aims to explore concepts of motherhood, attachment, and pre-term birth to provide novel additions to the existing literature and inform healthcare practices.

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Chapter Two: Systematic Review

A Systematic Review Of Barriers And Facilitators For Mother-Infant Attachment In The Neonatal Intensive Care Unit (NICU).

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Abstract

Background: The importance of early caregiver relationships for shaping infant social and emotional development is widely established. Infants who require an admission to NICU are at an increased vulnerability to experiencing disrupted attachment due to separation from their primary caregiver. This means that understanding the barriers and facilitators for the developing attachment between an infant and their caregiver in the NICU is essential. All types of primary caregiver may experience challenges in their attachment to their infant in NICU; however, the experience of birthing mothers is uniquely different due to the additional personal recovery needs they face which may add further challenges in their developing relationship with their infant.

Review question: "What are the barriers and facilitators to mother-infant attachment in the NICU?"

Method: A systematic search was conducted on four databases (Medline, CINAHL, PsycINFO, & Scopus) identifying research from January 2005 to current day. A narrative synthesis approach was used to analyse the data.

Sample: The sample contains 12 qualitative and mixed-methods research articles. Data within these were collected from parents and professionals from NICUs in the UK.

Results: The review identified five major concepts which held barriers or facilitators to mother-infant attachment in NICU: 1) Physical proximity, 2) Motherhood identity and role attainment, 3) Mother's psychological experiences, 4) Role of professionals, 5) The NICU environment.

Conclusion: These outcomes suggest that mother-infant attachment is informed by individual experiences of the mother and wider structural influences through the NICU healthcare system. Interventions designed to improve attachment development in NICU should focus on these two wider inputs streams.

Key words: Mother-Infant Attachment, Neonatal Intensive Care (NICU), Bonding, Barriers, Facilitators.

Key findings

- Close physical proximity between mother and baby remains key for their developing bond, however perceived closeness using video technology is effective.
- NICU professionals, particularly nurses, are key moderators in facilitating mother-infant attachment.
- Wider healthcare structures, which are typically unseen, have a top-down influence on mother-infant attachment in NICU.

Statement of relevance

Through a systematic review of the literature, this study identifies the barriers and facilitators to mother-infant attachment in the NICU in the context of attachment-based policies and guidance that have been in place for over 20 years. Understanding these factors are key to supporting infant mental health and improving outcomes for later life. The findings from this data synthesis are relevant for healthcare providers who can implement changes to clinical practice to better support the families in their care.

Definitions

Bowlby (1969) defined attachment as “an enduring affectional bond” between two individuals. In the context of mother-infant attachment, it is essential for an infant’s safety and survival to remain close to and be comforted and protected by their mother. Ainsworth (1978) expanded on this with findings that a secure mother-infant attachment is sustained through repeated sensitive and consistent responses from mother to infant. This requires mothers being emotionally attuned to their infant’s cues to encourage a reciprocity of communication between mother and infant. It is important to recognise caregiving or parenting roles that exist beyond the biological mother-centric assumption, and research exploring this within adoptive families has identified that the defining descriptions of attachment are applicable to other types of primary caregiver-infant dyads (Singer et al., 1985) Similarly, modern day definitions of attachment have not deviated away from those reported historically, with these key principles remaining relevant today (Benoit, 2004; Sullivan et al., 2011). For the purpose of this review, the descriptions above will be utilised to define the term attachment.

Introduction

Every year in the UK over 900,000 babies require treatment from a Neonatal Intensive Care Unit (NICU) (BLISS Charity, 2024). The length of admission varies greatly between babies depending on the severity of their condition and care needs, which is often associated with the gestation they are born at. The National Neonatal Audit Programme reported that babies born full-term (37 weeks gestation and over) require an average stay of four days, whereas babies born prematurely between 28 and 31 weeks have an average stay of 44 days, with many individuals' needing treatment extending far beyond this (Royal College of Paediatrics and Child Health, 2017).

Parents of hospitalised babies report experiencing significant emotional distress related to fear, anxiety, and uncertainty for their child (Wray et al., 2011). Many face additional complex emotions such as helplessness or guilt for their child's need for treatment, or loss for the experience of parenthood that they had expected (Bertoncelli et al., 2025). This emotional strain can be exacerbated by practical challenges such as the financial burden linked to hospital access and transport, and managing other cost and resource demands such as childcare and employment (Cheah, 2019). The UK "cost of living crisis" in recent years has impacted on wider healthcare access due to costs associated with attending hospitals or needing to prioritise work commitments (Lattouf, Visram, & Albani, 2024). It is likely that for NICU parents, particularly those whose babies have long admissions, this current context could further compound the difficulties they face in visiting their baby as well as accessing support for their own healthcare needs arising from emotional distress.

The survival rate of infants in UK neonatal care has drastically increased in recent decades. A large UK cohort study exploring neonatal deaths of premature babies found that infant mortality reduced by half between 1988 and 2008 (Berrington et al., 2012). These

improved outcomes can be owed to advancements in medical provision, innovative treatments, and dedicated care pathways which have developed significantly since neonatology was recognised as a specialist provision in the 1960's (Philip, 2005). During this period of medical advancement, care focused on reducing risk of infection for babies, with professionals placed as the expert carers and parents seen as visitors (Sullivan & Cummings, 2020). Leading into the early 2000s, greater recognition has been given to parental involvement and the role they have on supporting babies' growth, development, and recovery. This was recognised on a national level by the UK government providing the National Service Framework for Children, Young People and Maternity Services which outlined specific policies and procedures related to the implementation of family-centred care that NICU's are required to follow (Phillips et al., 2004). A primary focus has been on the many benefits of skin-to-skin contact between parents and babies (UNICEF, 2023). This includes enhancing bonds through touch and comfort, improving breastfeeding outcomes to support baby's weight gain and growth, and ability to reduce stress, ease pain, and improve physiological stability for babies (Hullumani, Qureshi, & Raghumahanti, 2026). This evidence base underpins the cost-effective and accessible intervention of Kangaroo Care, the prolonged skin-to-skin contact between parents and babies in NICU, which is also now part of standard recommended practice in the UK (POPPY Study, 2009; UNICEF Guidelines 2025).

Continued developments regarding parental involvement in neonatal care have been made at both national and local levels. The Neonatal Critical Care review (2019) proposed the care model of Family-Integrated Care, whereby parents are viewed as joint partners with the healthcare team and supported to be involved in primary caregiving and decision-making for their baby in NICU, with a commitment to tackle barriers against this (BLISS, 2024). Additional initiatives and policy changes to support parental involvement have been

implemented, such as the Maternity and Neonatal Voices Partnership parental advisory groups (NHS England, 2023) and the updated Neonatal Care Leave Act (Dept. for Business and Trade, 2025). Whilst this is recommended and interventions have been designed to improve parent-infant attachment, it is unclear how these have been implemented since the National Service Framework was introduced in 2004 and whether there are additional non-intervention based factors that are relevant for developing attachment in NICU, such as wider social changes in the UK.

The developing attachment in the parent-infant relationship is another area that can be significantly impacted by NICU. Early caregiver relationships are key to supporting babies' cognitive, emotional, and social development, and are the greatest predictor in longer-term outcomes (Gerhardt, 2025). Babies receiving treatment in NICU, particularly those born prematurely, are at higher risk of developing longer term physical health or neurodevelopmental comorbidities, therefore placing even greater importance on the role of early secure attachment relationships for this group (Patel, 2016). A systematic review synthesising 20 qualitative studies on the impact of NICU on parent-caregiver relationships reported that proximity, reciprocity, and commitment were factors associated with building parent-infant attachment and were negatively affected by NICU admission (Carton, Cordwell, & Steinhardt, 2020). This review outlined some explanations for this such as parental fear of physical contact, the practical barriers of vital machinery, reduced parental responsibility, and parental lack of confidence to understand babies' cues. Methodologically, it included experiences of any primary caregiver but as a critique recognised that there are differences in reports of infant attachment experiences between mothers and fathers in the research literature. Whist these findings provide important understandings on this topic, and there are shared experiences and challenges for all primary caregivers of infants in NICU, it is possible

that grouping all primary caregivers in this way may be overgeneralising these experiences and potentially minimise individual needs that differ dependant on parental role.

A qualitative study by Fegran, Helseth, and Faegermoen (2008) explored parental attachment experiences immediately after birth and found that birthing mothers' experiences of emotional and physical distress, and subsequent needs for personal recovery, were an inhibitor to building bonds with their infant. However, during this period, the availability of fathers allowed greater opportunity for them to have early involvement with their babies' care. This was found to encourage role attainment as a father and had a positive influence on building father-infant attachment. Similar experiences were reported in a more recent study by Provenzi et al., (2016) where fathers demonstrated high levels of engagement with parental occupations in NICU, whereas this was demonstrated less by mothers, as they experienced high anxiety about their baby's health and ambivalent feelings towards them. This may be explained by the differing process of parental role attainment which has been found to be an important precursor to building parent-infant attachment in NICU (Gibbs, Boshoff, & Stanley, 2015). This process typically happens earlier for mothers during their pregnancy, and the interruption of a premature birth may be interpreted as a loss of relationship or role that needs to be regained, leading to distress for the mother (Bigelow et al., 2012; Wang et al., 2021). Research on the father's experience of role attainment suggests that fathers often obtain a role as a provider in caring for their hospitalised baby and the proximity to their baby is a less important factor in developing attachment, which contrasts to the experience of mothers, who report that physical separation is their main barrier to building bonds with their baby (Pohlman, 2005; Loewenstein, Barroso, & Phillips, 2019). This suggests that grouping experiences of both parents is not entirely reflective of the differing needs for each parental role, and exploring individual roles in further detail, such as

a synthesis of mother-infant attachment research specifically, may hold more meaningful clinical implications.

Existing systematic reviews in this area have largely focused on the impact of specific interventions on parent-infant attachment in NICU. Kutahyalioglu and Scafide (2023) synthesised 16 quantitative studies conducted globally; to examine how Family-Centred Care (FCC) practices affect parent-infant bonding. They found that practices underpinned by FCC principles such as Kangaroo Care, Infant Massage, Music Therapy and Reading did have a positive impact on parental reports of bonding, as recorded on various standardised outcome measures used in individual papers. This review supports the existing evidence base and benefits of FCC in NICU, however included a small sample of data and recognises the need for exploring separate mother-infant and father-infant dyads to reflect differing experiences. To address this need, a narrative synthesis of 12 mixed-method studies was completed to explore intervention strategies in NICU that specifically enhance mother-infant interactions (Siva et al., 2025). The strategies included were underpinned by FCC principles such as Kangaroo Care and Video Interactive Guidance (VIG), and findings revealed that all interventions employed did enhance mother-infant interactions. This study supports the evidence that FCC practices are effective for improving mother-infant relationships in healthcare systems worldwide and holds a large sample specially of mothers, which increases generalisability of the results. However, the narrow focus on interventions alone does not provide information on which underlying mechanisms within these intervention may be supporting enhanced interactions between mother and baby. This limitation applies to both reviews discussed here, as exploring the impact of interventions alone excludes wider social or psychological factors beyond the NICU setting that may impact bonding, and furthermore that may interact with a mother's ability to engage with effective interventions.

A recent systematic review of 23 methodologically diverse studies conducted worldwide explored factors that influence parental presence in NICU (Marie et al., 2025). The review identified five main categories; parents' socio-demographic and cultural characteristics, the NICUs physical layout and regulations, the parent-healthcare team relationship, parental participation in the infant's care, and the infant's health status. This study usefully addresses gaps highlighted from previous reviews that focus solely on interventions as it considers broader factors beyond these. However, whilst the researcher's argue that the international breadth of data increases generalisability, it is likely that there is significant heterogeneity across the samples due to contextual differences across countries that are likely influencers in the categories identified. Examples of this include differences in parental leave allowances, cultural beliefs and expectations linked to care, and differing provisions within healthcare systems, all of which can vary greatly across the world. Furthermore, this review is largely descriptive and does not extend to interpretation of how these factors may impact the quality of parental presence in NICU, and such how this may influence parent-infant interactions or bonds.

Despite this growing evidence base, there remains a gap in the literature regarding the experiences of mothers and mother-infant attachment in NICUs in the UK. Existing reviews have focused on the impact of specific interventions and excluding potentially broader factors outside of interventions that may be relevant. They have also used samples of the broader population of parents / caregivers and have included internationally broad research, resulting in potentially heterogenous samples with wide variation that may be less relevant to certain healthcare systems, such as the NHS. This review will therefore include interventions and factors that are relevant in NICU to answer the question "what are the barriers and facilitators to mother-infant attachment in NICU?."

Method

Protocol & registration

The protocol for this systematic review was registered on PROSPERO under the registration number CRD420251229244 and is accessible at the following link: https://www.crd.york.ac.uk/PROSPERO/view/CRD420251229244.

This review followed the guidance outlined in Preferred Reporting Items for Systematic Review and Meta Analyses (PRISMA) 2020 statement (Page et al., 2021).

Search strategy

Four electronic databases were searched (Medline, CINAHL, PsycINFO, & Scopus) between the timeframe of January 2005 to current day. This date range was chosen to reflect the implementation of attachment-related policies and frameworks in UK NICUs which are outlined above. A university librarian was consulted to support with the development of the search strategy such as identifying related search terms and syntax (Appendix A).

Eligibility criteria

This review's inclusion and exclusion criteria is outlined below in Table 1. To maintain consistency, countries outside of the UK were excluded due to the differing healthcare systems and government policies underpinning these across countries. Research papers focusing on fathers and other parents / caregiver's perspectives were excluded in order to focus on a homogeneous group of birthing mothers for this specific research. To note, gendered language relating to birthing women, mothers, and female identification was used to maintain consistency of the population across the literature. Papers with data that overlapped across both the inclusion and exclusion criteria were included if there was a clear separation

of variables/ groups and the data that met inclusion criteria could be reviewed in isolation. This was found for studies that included both mothers and fathers but presented with a clear identification of data relating to mothers separately, and similarly for those which included multiple countries, but discussed data from the UK separately.

Table 1

Inclusion and exclusion criteria

Inclusion	Exclusion
Written in English	Not written in English
Mothers only	Fathers or other parents/ caregivers
In NICU	After NICU / home / other contexts
In the UK	Outside the UK
Primary study - Randomised and non-randomised studies (mixed methods, quantitative, or qualitative)	Existing reviews
Dated from 2005-current	Prior to 2005
Makes reference to barriers or facilitators of mother-infant attachment/ relationships	Does not make reference to barriers or facilitators of mother-infant attachment/ relationships

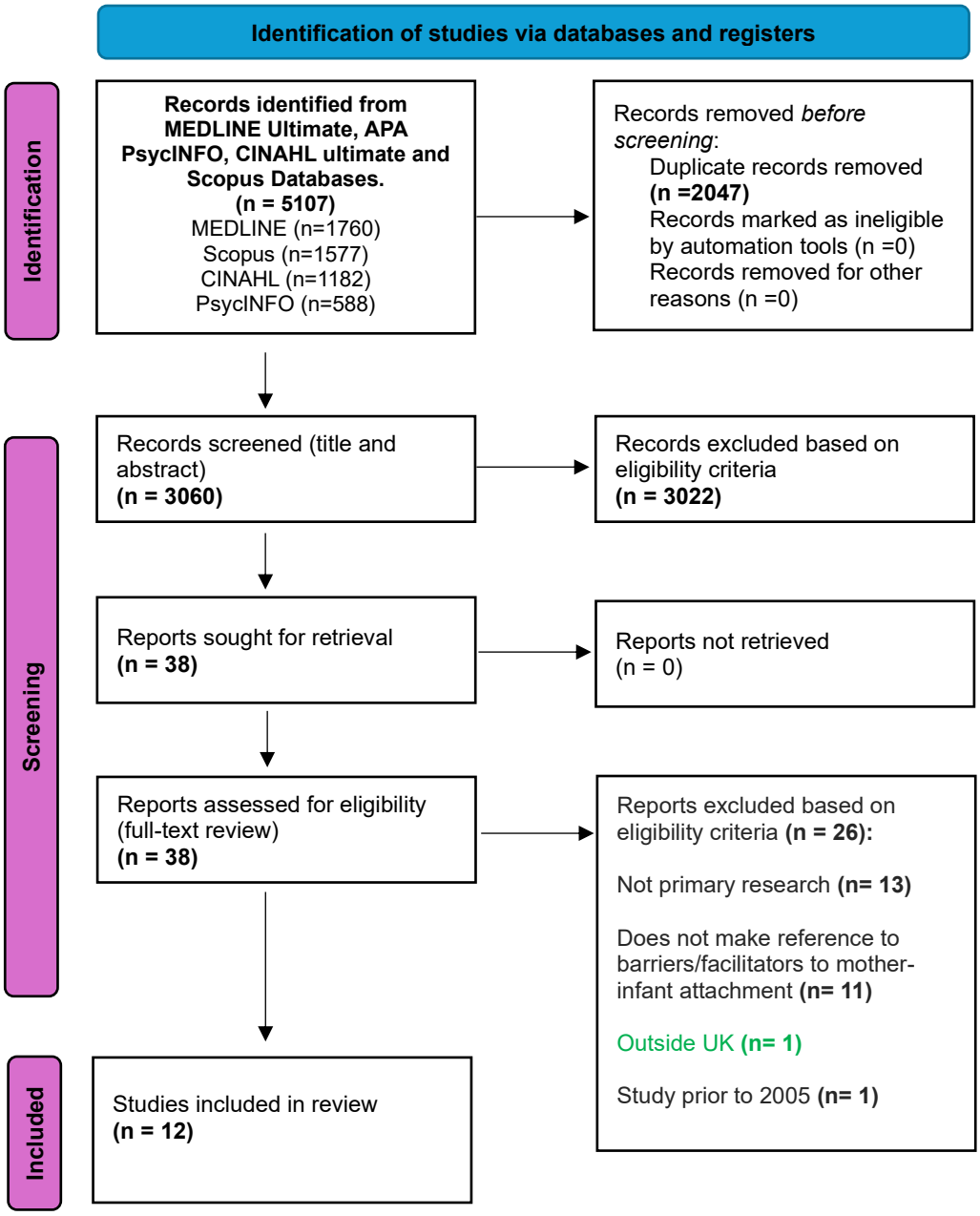
Screening & study selection

The study selection process is presented in a PRISMA diagram (Figure 1). A total of 5107 papers were identified from searches completed on the four databases. Following this, titles and abstracts of these papers were exported into EndNote reference management software to be collated and then exported into Rayyan screening software. 2047 duplicate records were identified and removed from the sample. The primary reviewer (GK) screened all remaining titles and abstracts against the eligibility criteria and an independent second-rater (GG) blindly reviewed a randomised selection (20%) of this sample**.** A total of five disagreements/ discrepancies were found and resolved through discussion to reach consensus. This resulted in a final sample of 38 papers for full-text review which GK reviewed 100% of

and GG blindly reviewed 20%. No discrepancies were identified between reviewers at this stage. A final sample of 12 papers were found to meet eligibility criteria and included in the synthesis.

Figure 1

PRISMA Flow diagram



Data extraction

Data extraction was completed by the primary researcher (GK). The following data was extracted from the included papers and results of this are presented in Table 3:

- Title, author(s), and year of publication.
- Study design (qualitative, quantitative, or mixed).
- The intervention of factor explored.
- Participant sample.
- Any measures or questionnaires if used.
- The terms used in reference to the broader term of 'attachment.'
- The barriers and facilitators to mother-infant attachment described.

Data analysis

A narrative synthesis was chosen due to the heterogeneity of the studies, using the guidance of Popay et al (2006). An inductive concept mapping approach, informed by Mulrow Langhorne & Grimshaw (1997), was used to define concepts within the literature. This approach allows integration of direct and indirect influences reported in research, which is useful for answering broader questions with complex themes, and is often used for reviews conducted in healthcare settings.

Critical appraisal

The Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018) was used to assess the quality of the 12 included papers. The MMAT is a broad critical appraisal tool designed for assessing the methodological quality of qualitative research, randomised controlled trials, non-randomised studies, quantitative descriptive studies, and mixed methods studies. The MMAT was created in response to the increased demand of systematic reviews including

multiple study designs and the issues faced with critically appraising a sample of papers with wide heterogeneity (Hong, Gonzalez-Reyes, & Pluye, 2018). An early version of the MMAT was found to be efficient and effective, and demonstrated high inter-rater reliability, with the tool since having been adapted with further improvements (Pace et al., 2012). As reviewer judgement is key to critical appraisal, the MMAT guidelines recommend the use of independent secondary reviewers. Therefore, GK completed a quality assessment of 100% of the papers and GG blindly completed 20% to reduce risk of judgement biases. No discrepancies were identified. The MMAT guidance was followed to aid decision-making and reviewers responded to each relevant study design question subset with the given answers of "Yes," "No," or "Unsure."

Results

Study characteristics

Of the twelve studies included, eight used qualitative methodology including individual interviews, group interviews, and observations. The remaining four used a mixed-methods approach including the use of standardised measures and study-specific questionnaires (e.g. pre-post intervention surveys), and interviews. The studies were either focused on experiences of an intervention (e.g. CoolCuddle, vCreate webcam technology) or experiences of broader factors present in the NICU (e.g. role of professionals, environmental design). The papers included perspectives of mothers, fathers, and professionals and this review focused on those related to the mother-infant relationship only. Similarly, studies which included elements of design or outcomes that were unrelated to attachment, such as the use of questionnaires, were included but were not explored as part of this review. Table 3 provides a preliminary synthesis of the extracted data.

Study quality

The MMAT does not advise computing an overall quality score but rather recommends reviewing quality by individual domains on the measures. Table 2 therefore presents answers to each question (see Appendix B for expanded questions). Overall, it was found that the 12 studies were found to largely be of good quality and of low risk of bias due to answers on the MMAT, with all papers either rated as “yes” or “unsure” for meeting criteria.

Table 2

Study quality outcomes using MMAT.

	Screening questions		Qualitative					Mixed methods				
Reference	**S1. Are there clear research questions?**	**S2. Do the collected data allow to address the research questions?**	**1.1**	**1.2**	**1.3**	**1.4**	**1.5**	**5.1**	**5.2**	**5.3**	**5.4**	**5.5**
Arnold et al (2013)	Y	Y	Y	Y	Y	U	U					
Brown & Shenker (2022)	Y	Y						U	Y	Y	Y	U
Flacking & Dykes (2013)	Y	Y	Y	Y	Y	Y	Y					
Flacking, Thomson & Axelin (2016)	Y	Y	Y	Y	Y	Y	Y					
Ingram et al (2021)	Y	Y	Y	Y	Y	Y	Y					

Ingram et al (2024)	Y	Y						Y	U	Y	Y	Y
Kerr et al (2017)	Y	Y	Y	Y	Y	Y	Y					
Kirolos et al (2020)	Y	Y						Y	Y	Y	Y	U
McGowan, Naranian & Johnston (2017)	Y	Y						Y	U	U	Y	Y
Petty, Whiting, & Harding (2025)	Y	Y	Y	Y	Y	Y	Y					
Suarez et al (2022)	Y	Y	Y	Y	Y	Y	U					
Swanson et al (2012)	Y	Y	Y	Y	Y	Y	Y					

Y=Yes, N=No, U=Unsure

Table 3

Preliminary synthesis of extracted data.

Title	Author & Year	Study design	Intervention or factor	Participant / sample	Questionnaires / measures	Key terms referencing attachment	Results: Facilitators / Barriers
Parents' first moments with their very preterm babies: a qualitative study	Arnold et al (2013)	Qualitative: Thematic Analysis	Factor: parent experience of baby	Mothers (N= 32) Fathers (N= 7)		Bonding	**Facilitators** 1. Baby being outside of the incubator 2. Touching and holding baby **Barriers** 1. Prolonged time before first physical contact with baby 2. Baby's discomfort 3. Fear of baby dying 4. Baby being inside incubator

							5. Medical equipment covering baby's face and body 6. Worries about physical contact interfering with baby's care / harming baby – having limited knowledge on this
Receiving screened donor human milk for their infant supports parental wellbeing: a mixed-methods study	Brown & Shenker (2022)	Mixed methods	Factor: use of donor human milk	Mothers (N= 102) Fathers (N=5)	Quantitative and qualitative survey	Bond	**Facilitators** 1. Having reduced pressure / exhaustion of trying to breastfeed / express own milk 2. Reduced stress of mother 3. Increased positive mother-infant interactions

							4. Supporting / protecting mother's mental health and post-natal recovery 5. Reducing mother's feelings of failure / guilt **Barriers** Mother's stress related to relationship / hopes
'Being in a womb' or 'playing musical chairs': the impact of place and space on infant feeding in NICUs	Flacking & Dykes (2013)	Qualitative: Ethnography Grounded Theory using Observations and Interviews	Factor: NICU environment & feeding	2 x UK NICUs (and 2 x Swedish NICUs not included in review) Staff (N= unknown)	N/A	Attunement, connectedness, shared awareness	**Facilitators:** 1. Ownership of space / place to affirm role as "mother" – dedicated spaces 2. "At-homeness" – comfort, warmth, normality – meets mothers needs to be able to be emotionally

				Mothers (N= 30) Fathers (N= 7)			present and offer attuned care to baby 3. Privacy 4. The consistency of time spent together in private family rooms 5. Confidence to read cues 6. Proximity - mothers own static chair / bed close next to baby incubator **Barriers:** 1. Lack of privacy for mothers to breastfeed and feeling need to perform & achieve to staff 2. Lack of privacy preventing full skin-to-skin contact

							3. Environment leaving mothers as visitors with no ownership of the space 4. Policies of no eating / drinking forced mother to reduce presence 5. The lack of comfortable chairs, the bright light and the noise were hindrances for an attuned feeding as mothers could not sit for a long time 6. Learning from and modelling of nurses non-attuned feeding (bottle feeding baby on their side, limited interaction) Social factors e.g. older children at home

Pathways to emotional closeness in neonatal units– a cross-national qualitative study	Flacking, Thomson & Axelin (2016)	Qualitative: Thematic Networks Analysis	Factor: Emotional closeness in NICU	Mothers (N= 6) (Additional samples from Sweden and Finland NICUs excluded from this review)	N/A	Emotional closeness, bonding	**Facilitators:** 1. Physical closeness – face to face, eye contact, touch, smell 2. Reassurance of and contributing to infant's wellbeing – providing comfort 3. Understanding of the past and present experiences related to baby – processing own emotions related 4. Engagement in day to day care of baby "parenting normality" 5. Spending time together as a family 6. Kangaroo care 7. Breastfeeding **Barriers:**

							1. Distress from lack of physical closeness 2. Professionals “taking over” care from mothers Fear of baby dying
'Opportunity to bond and a sense of normality': Parent and staff views of cuddling babies undergoing therapeutic hypothermia in neonatal intensive care: 'CoolCuddle'.	Ingram et al (2021)	Qualitative: Thematic Analysis	Intervention: CoolCuddle method for babies undergoing therapeutic hypothermia (TH)	Mothers (N= 11) Fathers (N= 10) Staff (N = 20)	N/A	Bonding, closeness	**Facilitators**: 1. Closeness – a chance to get to know their baby, activate a sensory connection, provide comfort, and stimulate breastfeeding 2. Time alone in the mother-infant dyad / family without professionals – “normality” 3. Reassurance and support from nurses when needed

							4. Appropriate levels and trained staff to deliver intervention 5. Enables family centred care practice **Barriers:** 1. Physical barrier of cooling jacket & wires 2. Separation during treatment without cuddle 3. Constant nurse presence 4. Staffing capacity / resource for implementing CoolCuddle
Mental health of parents with infants in NICU receiving	Ingram et al (2024)	Mixed: Comparative analysis of	Intervention: CoolCuddle during	6 x England NICU	Edinburgh Postnatal Depression	Bonding	**Facilitators** 1. The cool cuddle intervention during TH treatment

cooling therapy for hypoxic-ischaemic encephalopathy		outcomes and thematic analysis of interviews	therapeutic hypothermia treatment	Intervention group (N= 36) Mothers (N= 60) Control group (N = 47)	Scale (EPDS) (Cox et al., 1987) Mother-Infant Bonding Scale (MIBS) (Taylor et al., 2005)		**Barriers** 1. Mother's own trauma, distress, & depression 2. Therapeutic hypothermia treatment without cuddle intervention 3. NICU access to Cool Cuddle treatment (95% in UK not using)
Transition to parenthood in the neonatal care unit: a qualitative study and conceptual model designed to illuminate	Kerr et al (2017)	Qualitative: Thematic Analysis of individual and group interviews	Intervention: Use of webcam (MyLittleOne) technology	Mothers (N = 25) Fathers (N= 8) Professionals (N= 18)	N/A	Bonding, emotional closeness, relationship	**Facilitators** 1. Increased feelings of proximity 2. Increased responsiveness from mother 3. Established transition into parenthood roles

parent and professional views of the impact of webcam technology							4. Visual reassurance of baby's health / welfare 5. Mother's own care and emotional well-being needs being met 6. Opportunity to connect at any time chosen by mother e.g. early morning **Barriers** 1. Physical separation 2. Removal of webcam technology when mother is discharged home
Asynchronous video messaging promotes family involvement and mitigates	Kirolos et al (2020)	Mixed methods	Intervention: vCreate (One-way messaging programme)	Mothers (N= 37) Nurses (N= 77) Other parents (N= 5)	Pre- and Post-intervention surveys inc. quantitative and	Emotional closeness, bonding	**Facilitators** 1. Sense of inclusion and involvement in significant moments e.g. first experiences

separation in neonatal care					qualitative questions		2. Seeing baby when not able to be physically present 3. Seeing baby's progress 4. Improved relationship between staff and parents 5. Improved breastfeeding outcomes 6. Improved ability to implement Family-Integrated Care **Barriers** 1. Healthcare governance / policy approval to implement intervention
Kangaroo Care in the high-technology neonatal unit: Exploring evidence-based practice, policy	McGowan, Naranian & Johnston (2017)	Mixed: Survey of standardised questionnaire and open	Factor: Nurse knowledge, practice, barriers, and	Nurses (N=78)	Kangaroo Care Questionnaire (Engler et al. 2002)	Access to KC for building attachment	**Facilitators** 1. Nurse culture, understanding, and beliefs around KC

recommendations and education priorities in Northern Ireland		ended questions	perceptions of Kangaroo Care				2. NICU environment & staff resource **Barriers** 1. Nurse confidence with implementing KC with babies on high intensity treatments 2. Fear & discomfort – risk of baby's safety 3. Reluctance related to practicalities of KC – time / resource / capacity issues 4. Lack of private space / comfortable chairs for mothers

							5. Nurse understanding – uncertainty of what makes a mother-baby dyad suitable for KC Lack of standardised policies, guidance, and education for implementing KC
Neonatal Nurses' Understanding of the Factors That Enhance and Hinder Early Communication Between Preterm Infants and Their Parents: A Narrative Inquiry Study	Petty, Whiting, & Harding (2025)	Qualitative: Narrative Inquiry	Factor: Communication	Nurses (N= 9)	N/A	Communication, connection, interaction, bonding	**Facilitators:** 1. Role of nurses to facilitate connection between mother and baby 2. Nurse-parent relationship to implement family-integrated care 3. Providing emotional support to mothers encourages nurturing mother-infant connection

							4. Skin-to-skin contact, talking, eye contact 5. Breast & express feeding 6. Mothers engaging in care / parenting occupations for their babies 7. Involving parent's faith / spirituality 8. Reading & singing to baby **Barriers:** 1. Staff capacity 2. Baby in the incubator – "medicalised" 3. NICU environment – lack of privacy and highly stressful

							4. Mother perspective of babies' interactional capacities 5. Mother's fears of baby dying leading to avoidance 6. COVID mask wearing 7. Mother presence / visiting 8. Mother physical and mental health
Exploring Adjustment and Parent–Infant Relations in Mothers of Premature Infants: Thematic Analysis Using a Multisensory Approach	Suarez et al (2022)	Qualitative: Thematic Analysis	Factors: Parental identity	Mothers (N= 12)	N/A	Bond, relationship	**Facilitators** 1. Learning how to perform NICU care skills, regaining parental roles 2. Extended periods of physical touch – holding / cuddling 3. Parents asserting their needs for independent time with baby

							4. Engaging in practical and emotional care for baby 5. Adjustment to "new type of parenting" **Barriers** 1. Loss of parental identity - not carrying out basic care tasks 7. Separation
Developing Maternal Self-Efficacy for Feeding Preterm Babies in the Neonatal Unit	Swanson et al (2012)	Qualitative: Thematic Analysis	Factors: breast feeding, self-efficacy	Mothers (N= 19)	N/A	Interaction, bonding, embodied relationship	**Facilitators** 1. Physical contact 2. Reciprocity in interactions from baby 3. Breastfeeding to re-establish the embodied relationship between mother & infant

							4. Developing expertise in infant's specific care and feeding needs **Barriers** 1. Disrupted expectations of becoming a mother = lack of ownership of baby 2. Lack of involvement in care of baby 3. Mother's lack of autonomy and choice – hospital rules and policies 4. Staff making decisions about baby's care e.g. feeding and power imbalances

							5. Pressure to establish breastfeeding and mother's pain, fatigue & discomfort related to this

Conceptual analysis

Cross-study comparison of the included articles found that the factors that acted as barriers or facilitators to mother-infant attachment were explained by five major concepts: 1) Physical proximity, 2) Motherhood identity and role attainment, 3) Mother's psychological experiences, 4) Role of professionals, 5) The NICU environment. The mechanisms and interventions that supported these are explained under each concept below.

Physical Proximity

All 12 studies referred to physical proximity between mother and infant being a facilitator for attachment and the lack of physical proximity being a barrier. This concept was also found to be weaved into all other concepts below, highlighting its overarching importance in this review. Studies reported broadly on the physical separation between mother and baby being a barrier for their developing relationship due to factors such as medical equipment covering babies' body and face and baby being inside an incubator, limiting opportunities for physical contact (Arnold et al., 2013; Kerr et al., 2017; Suarez et al., 2017). This was supported by the benefits of physical touch through holding, cuddling, and skin-to-skin contact both broadly in unstructured formats, and through utilising interventions such as Kangaroo Care and CoolCuddle, the latter being a proximity-focussed intervention designed specifically for babies undergoing additional medical treatment that would otherwise involve prolonged periods of separation between mother and baby (Flacking, Thomson & Axelin, 2016; Ingram et al., 2021 & 2024).

Ingram et al (2021) reported on physical contact providing opportunities for sensory activation for the mother, which has been described in the literature as an important factor for attachment development, particularly with olfactory senses (Laleh et al., 2025). Several

studies in this review recognised that physical closeness was a factor that stimulated breastfeeding for mothers, perhaps linked to the activation of hormones from the sensory experience of physical closeness. However, many of the studies commented on breastfeeding providing an opportunity for physical closeness, suggesting the mutually reinforcing relationship between physical proximity and breastfeeding, both of which are reported to be facilitators for mother-infant attachment in this review (Swanson et al., 2012; Ingram et al., 2021). Similar reports of growing mother-infant attachment were found in the studies using vCreate and mylittleone video technology interventions, with mothers commenting on the benefits of having a visual representation of their baby on their breastmilk production, eliciting feelings of connection (Kerr et al., 2017; Kirolos et al., 2020). This suggests that perceived physical proximity is a facilitator for attachment in NICU and is likely to be beneficial for mothers where there is an absence of physical contact for various reasons.

Motherhood Identity and Role Attainment

Studies in this review described that establishing identity as a mother is a facilitator to mother-infant attachment. Many reported that this process takes place through the engagement of care tasks and "typical" parenting occupations such as changing nappies, bathing, and feeding the baby (Suarez et al., 2022; Petty, Whiting, & Harding, 2025). For mothers in NICU there are complexities which add barriers to carrying out these tasks, including baby being attached to medical equipment and challenges with mother being able to be constantly present to respond to baby's needs, which subsequently adds barriers to the developing attachment between mother and baby. Despite this, Swanson et al., (2012) found that when provided with the skills and opportunity to develop expertise about their infant's specific care needs, mothers were better able to establish their role and reported this being beneficial to their bond with their baby. Kerr et al., (2017) reported on the usefulness of their

webcam intervention in this which allowed mothers to learn their baby's cues on screen and have opportunity to provide attuned responses. This is closely linked to the findings from Arnold et al., (2013), where mothers avoided involvement or closeness to their pre-term baby out of fear they would cause harm or interfere with their care, preventing them in engaging in parenting occupations, and resulting in a barrier to building attachment to them.

The sense of "normality" within the mother-infant dyad through engaging in parenting occupations appeared to be a key mechanism facilitating attachment. This extended to the dyad being able to spend time with fathers and other family members which allowed for baby to be integrated into the family system and cementing the mother's identity with "ownership" of the baby, which had become disrupted by their separation for NICU admission (Flacking, Thomson & Axelin., 2016). This disruption was described as a temporary loss of emotional connection which Swanson et al., (2012) suggested could be re-established through mothers' breastfeeding. Similarly, engaging in other "typical" mother-infant activities such as cuddling and soothing their baby provided mothers with the reassurance that their baby recognises them as their mother, strengthening their identification of this role through the reciprocal nature of the mother-infant dyad, and ultimately facilitating attachment (Ingram et al., 2021; Flacking, Thomson & Axelin., 2016).

Mother's Psychological Experiences

The impact of mother's mental health was found to be a barrier to mother-infant attachment in this review. Many mothers with a baby in NICU will have experienced complications during the birth resulting in physical and mental health difficulties. In a mixed methods study, researchers found a strong association between lower reports of depression on the Edinburgh Postnatal Depression Scale (EPDS) and higher reports of bonding on the

Mother-Infant Bonding Scale (MIBS) for mothers that took part in the CoolCuddle intervention, with the inverse found for those in the control group (Ingram et al., 2024). This suggests that without additional opportunities for physical touch, mothers with higher reports of depression experienced lower feelings of connection to their baby, identifying mother's depression as another factor present within the mutually reinforcing relationship between bonding and physical closeness. The important need for mother's physical recovery can lead to reduced presence in NICU and separation from their baby, limiting opportunities for attachment. Kerr et al (2017) reported on the benefits of webcam technology in allowing mother to meet their own recovery needs in hospital but continue to have a visual connection with their baby, which facilitated their bond with their baby.

Several studies reported on mother's fears of their baby dying in NICU leading to avoidance and creating a barrier to attaching with their baby with a function of emotional self-protection driving this (Arnold et al., 2013; Petty, Whiting, & Harding, 2025). Flacking, Thomson, & Axelin (2016) described the need for mothers' sense of coherence of their experiences, in order to facilitate emotional closeness with their baby in NICU. This included mothers' having time to psychologically process their traumatic delivery and separation from baby, as well as gaining an understanding of the care that their baby was receiving to help them feel more confident of their baby's survival and in their role as mothers. In Brown and Shenker's (2022) paper, mothers reported experiencing feelings of guilt, pressure, and failure regarding their difficult breastfeeding journey in NICU, which caused tensions in their relationship with their baby. This research found the positive impacts of using donor human milk on alleviating those feelings for the mother, allowing them to have more positive interactions with their baby which facilitated mother-infant attachment.

The Role of Professionals

This review found that professionals played a very important role as facilitators or barriers to mother-infant attachment. McGowan, Naranian & Johnston (2017) reported on nurse confidence, knowledge, and beliefs around Kangaroo Care being highly correlated with how well-employed the intervention is with mothers in NICU, ultimately mediating the opportunities they have to build attachment with their infant. Additionally, this study found that nursing capacity and resource impacted on how both informal opportunities for physical closeness and formal attachment-based interventions were implemented for the mother-infant dyad, which can create barriers for attachment. One study described the challenge of nurses needing to prioritise baby's development and health improvement over the mother-infant attachment, resulting in teaching parents to take more practical rather than attuned approaches to caring for their babies, such as bottle-feeding them on their side (Flacking & Dykes, 2013).

The nurse-mother relationship was found to mirror the mother-infant relationship. Petty, Whiting, & Harding (2025) reported on nurse's perspectives that developing a trusting relationship and shared understanding with the mother improved the use of family-integrated care, which encourages parental involvement and is a known facilitator to mother-infant attachment (Franck, Waddington, & O'Brien, K, 2020. In this study nurses felt it was a key element of their role to facilitate the connection between mother and baby, and providing the mother with emotional support encouraged nurturing responses from mother to baby. To add to this, mothers reported valuing the support and reassurance that nurses could provide them which developed their understanding of their baby and sense of safety in the NICU environment, facilitating attachment (Ingram et al., 2021). However, this required balance for the mothers to have time alone with baby without nurse presence, which was also found to be

a facilitator for their developing attachment (Ingram et al., 2021). Some mothers reported experiencing challenging power dynamics with nurses in NICU, with some nurses "taking over" on decisions and care duties, which resulted in mothers feeling like visitors and caused a barrier to their relationship with baby (Swanson et al., 2012; Flacking, Thomson & Axelin, 2016).

The NICU Environment

The NICU can be a highly stressful environment with lots of staffing and medical equipment due to the vulnerability and high care needs of the babies. One study exploring the impact of this found that the medicalised environment with rules and policies in place, such as not eating or drinking in the ward, forcing mothers to leave the NICU to take breaks, which reduced their presence and opportunities to connect with their baby (Flacking & Dykes, 2013). This reinforced mother's roles as "visitors" to their baby and reduced feelings of "mother identity" which as described above, is a predictor in the developing mother-infant attachment. Further findings in this study showed that uncomfortable plastic chairs, bright lights, and unsettling noises in the NICU resulted in mothers being unable to provide attuned feeds to their babies, potentially causing negative interactions and acting as a barrier to their bond. Whereas NICU environments that held a sense of "at home-ness" with comfort, warmth, and normality, showed that they prioritised mother's needs, allowing them to be supported and emotionally present when providing care to their babies.

The lack of privacy in NICU environments was found to be a barrier to mother-infant attachment (Petty, Whiting, & Harding, 2025; McGowan, Naranian & Johnston, 2017). Being in an open space with other parents, visitors, and professionals prevented mothers from engaging in full skin-to-skin contact with their baby due to feeling exposed and

uncomfortable (Flacking & Dykes, 2013). Many also reported feeling pressure to perform or achieve in their caregiving to their baby as this took place in front of others, which the additional stress of created a barrier to their developing relationship. The NICU's which had private family rooms and dedicated spaces for mother-infant dyads to spend time together away from the incubator, demonstrating family-centred care practices, were found to be beneficial for their developing relationship (Flacking, Thomson, & Axelin, 2016). Within these spaces, the static nature of mothers' beds or chairs increased feelings of permanency in their role as a mother and integral to their baby's care, compared to the movable chairs in an open plan ward that they do not have ownership of, which reinforces their feelings of being seen as a transient visitor (Flacking & Dykes, 2013).

Discussion

The aim of this review was to explore the barriers and facilitators for mother-infant attachment in the NICU. A narrative synthesis of the data identified five concepts: physical proximity, motherhood identity and role attainment, mother's psychological experiences, the role of professionals, and the NICU environment.

The concept of physical proximity was prevalent in all studies and interacted with all other concepts. For example, the development of mother's identity was moderated by opportunities for close physical proximity, with a circularity that mothers were more likely to feel confident in physically interacting with their baby if they felt closer alignment with their identity as a mother. The significance of physical proximity in this review is in keeping with the broad body of literature on the importance of touch and closeness for developing mother-infant attachment, which has underpinned many interventions and guidelines discussed above (Tronick, 2014; Madden-Rusnack et al., 2025).

A novel interpretation of this concept is highlighted in this review which found the benefits of perceived physical proximity using video technology, with two studies illustrating this as a facilitator to mother-infant attachment (Kerr et al., 2017; Kirolos et al., 2020). This is an important finding in the current context of limited resource and capacity in the NHS, and population strain, which may result in babies being placed in NICUs with bed availability further away from their mothers, limiting mothers' presence in NICU and opportunities for physical touch. Whilst these findings are limited to just two studies in this review and there were some pitfalls to video usage reported within them, other research has reviewed the utility of digital technology in NICU during the unfounded circumstances of the COVID-19 pandemic, with parents finding this a useful tool for remaining connected with their baby

even at a physical distance (Murray & Swanson, 2020). This suggests the need for NHS NICUs to consider the implementation of digitalised healthcare for supporting mother-infant attachment when traditional approaches are limited.

This review revealed that there are broader systemic influences on mother-infant attachment beyond the processes which take place within their dyad. Nurses were found to hold an important mediating role between mother and baby with their attitudes and behaviours directly influencing on the developing attachment. In McGowan, Naranian & Johnston (2017)'s study, nurses reported that their limited confidence and understanding of implementing Kangaroo Care resulted from a lack of formal policy, guidance, and training, meaning that mothers had less access to this intervention. This is supported by findings from an existing systematic review exploring reasons for inconsistent implementation of Kangaroo Mother Care in UK NICUs, despite it being a cost-effective intervention that benefits both mother-infant attachment and baby's development (Stefani et al., 2022). This suggests that whilst the standards such as the National Service Framework for Children, Young People and Maternity Services have been set, there appears to be a lack of structural support for individual settings to meet these in their practice, with limited assessment of this nationally. This highlights the potential structural barriers and facilitators for mother-infant attachment and a need to take a top-down approach to improvements. Furthermore, the cost-saving benefit of increasing attachment-based care, as illustrated in an economic evaluation by Lowson et al., (2015), could allow funding to be directed to NICU environment improvements, which the current review has found to be an area that can create barriers or facilitators to mother-infant attachment.

Structural influences on mother-infant attachment identified in this review may extend further beyond healthcare, such as the role of media and wider public perceptions on NICU care. Following the widespread media coverage of the recent conviction of neonatal nurse Lucy Letby, healthcare professionals have anecdotally shared concerns about public mistrust in neonatal staff and fears about the impact of this (Booth, 2023). Similarly, there are widespread concerns about the NHS frequently circulated in UK news publications which may impact on public trust in their healthcare system. In relation to the current review's findings on the mirrored nature of the nurse-mother relationship to the mother-infant relationship, it is possible that broader public mistrust may have more significant implications to mother-infant attachment than is seen at a surface level. This hypothesis is not currently substantiated by empirical research but may be a useful to explore further in order to support NICU staff to maintain positive relationships with parents.

Clinical Implications

This review highlighted that mother's mental health can be a barrier to mother-infant attachment in NICU. Furthermore, mothers accessing mental health support from an external service reduces their physical presence on NICU, becoming an additional barrier to their developing relationship. This suggests the need for psychological support to be provided in-house in NICU to support mother's wellbeing and proximity to their infant. A psychologist in NICU can also provide support and training to other staff members to promote psychologically informed practice. As seen in this review, nurse support to mother's wellbeing and mother's subsequent sense of emotional safety in NICU are additional facilitators to mother-infant attachment. A recent national survey found that approximately 60% of UK NICU's did not have current psychology provision (Adams et al., 2022). This

review can therefore provide evidence to commissioners of the clinical need for NICU psychologists.

Traditionally, interventions designed to improve mother-infant attachment in NICU have placed emphasis on the role of the mother. However, the findings in this review illustrating how wider structural and systemic factors within NICU such as staff perceptions, ambiguous guidance, and lack of appropriate environment can have a significant impact on mother-infant attachment. This suggests the need for review of higher-order processes and the target of interventions to be at this structural level to address barriers which are beyond the control of mothers.

Strengths and Limitations

A strength of this systematic review is that it is a novel synthesis of the data from a homogenous sample of UK mothers. The findings were consistent with the existing evidence base whilst providing an original conceptualisation of the included studies, highlighting some of the less considered barriers and facilitators to mother-infant attachment. The clinical implications from the review highlight evidence to address gaps in NICU with outcomes suggesting how minor changes can significantly facilitate mother-infant attachment. The methodological approach is reproducible to future researchers, and the independent double-screening and quality appraisal process reduced risk of selection bias.

A limitation of this review was the small number of studies included, which may reduce the generalisability of the results. Additionally, demographic information of the mothers in the samples was not included in this review and therefore confounding factors that may be associated with demographics were not explored. The concept of attachment is arguably ambiguous and subjective, and there are very few formal measures of this,

particularly for use in a NICU setting with vulnerable infants (Richter et al., 2022). This meant there were limited studies exploring the specific question posed and the studies included were those which made broader reference to the concept instead, which may have been influenced by researcher language biases. This resulted in a largely qualitative review which again increases risk of researcher bias due to the reliance of researcher interpretation. Consequentially, the concepts identified seemed to interact with a circularity and reinforcing nature between each other, making it difficult to interpret the singular origin of the barrier or facilitator.

Another limitation of this review was the exclusion of non-UK studies. Whilst the rationale for this decision is provided above, this has resulted in a narrow pool of studies and potentially excludes novel and significant factors beyond what is reported in the UK. An example of this is a quantitative study undertaken in Iran which identified Infant Massage as a facilitator for mother-infant attachment in NICU, which is a low cost and accessible intervention (Shoghi, Sohrabi, & Rasouli, 2018), making it a relevant intervention to provide in the current strained NHS context, but did not appear within the UK searches. Another example is a qualitative study carried out in the USA which identified socio-economic barriers to maternal presence on NICU, resulting in barriers to mother-infant attachment, (McCarty et al., 2024) which again could be relevant and applicable to experiences of mothers in the UK facing socio-economic barriers, but was not illustrated in the present review.

Suggestions for Future Research

It would be beneficial for future research to focus on more quantitative and measurable outcomes to increase generalisability in the findings. This includes the development of measures for mother-infant attachment for NICU populations to reduce the

subjectivity of this term within research. It would be useful to develop further understanding on whether additional demographic factors are associated with the mother-infant relationship in NICU, such as religious backgrounds to increase the implementation of more inclusive practices, such as faith-based practices. It would also provide supplementary information to repeat this review with the sample of fathers or non-birthing parents to gain alternative parental perspectives. Finally, the narrow outcomes of this review that exclude potentially relevant factors identified in research conducted other countries and healthcare systems highlights a need for broader, and more internationally inclusive investigations to take place. This would provide more generalisable and useful insights on the experience of mother-infant attachment in NICUs globally with the opportunity for a broader range of suggestions for improvements in this area.

Conclusion

This systematic review identified five main concepts that can act as barriers or facilitators to mother-infant attachment. In line with previous literature, physical proximity was an overarching concept and was present across all research articles. Remaining concepts were either related to the mother's individual experience or to broader systemic and structural influences in the NICU. All concepts appeared to interact with a circularity, and it was not possible to identify specific factors within concepts due to this. The review highlights a need for interventions to reduce focus on the mother-infant dyad alone and address issues more broadly related to NICU to increase facilitators to mother-infant attachment.

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Chapter Three: Bridging chapter

Chapter Two presented the findings of a systematic review exploring the barriers and facilitators to mother-infant attachment in the NICU. The findings highlighted how broader structural and contextual factors in NICU, beyond the mother-infant dyad alone, can influence the developing relationship between mother and baby. Through a narrative synthesis, these factors were summarised into five key concepts: 1) Physical proximity, 2) Motherhood identity and role attainment, 3) Mother's psychological experiences, 4) Role of professionals, 5) The NICU environment. This review illustrated how one area of motherhood, the mother-infant relationship, is impacted by additional challenges in NICU which are not typically encountered by mothers without the NICU journey. However, less is known about how these differing experiences may influence other areas of motherhood, such as the social connection between mothers, which is often seen as a key aspect.

For babies born very prematurely, defined as those born at 32 weeks' gestation or earlier, or with significant health complications, admission to NICU is often essential for survival. As a result, their mothers are required to navigate an unexpected and disrupted transition into motherhood, which markedly differs from the socially constructed 'norm' of motherhood outside of NICU. The psychological impact of NICU on mothers is well documented in the literature. Additionally, research has reported on the influence of pre-term birth on mother's perceptions of their own future pregnancies, with understandably increased anxieties and in some cases decisions to not have further children to avoid repeated experiences (Wood & Quenby, 2010; Chen et al., 2022). Less is known about how pre-term birth influences broader perceptions of pregnancy and motherhood beyond the NICU context for this group of mothers, particularly in relation to social experiences and interactions with

other mothers. In line with the findings of the systematic review, it is plausible that the impact of pre-term birth extends beyond individual psychological responses and interacts with wider interpersonal and structural dimensions of motherhood in society. This warrants the need to explore how mothers of pre-term infants make sense of their experiences in relation to others, and how feelings of difference may be negotiated within social contexts with different groups of mothers. Chapter four presents a qualitative empirical study exploring how first-time mothers of very preterm infants experience other women's pregnancies to address gaps in the existing literature.

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Chapter Four: Empirical paper

"You don't belong to the club because you haven't made it that far" - A Thematic Analysis Exploring First-Time Mothers of Very Pre-Term Babies' Experiences of Other Women's Pregnancies.

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Abstract

Introduction: Mothers of pre-term babies are at an increased risk of mental health difficulties due to distress associated with their baby requiring care from a Neonatal Intensive Care Unit (NICU) and often traumatic birth experiences. This can impact on their transition into their role as a mother both psychologically and socially. Despite this, pre-term mothers are found to access mental health support less than full-term mothers. New mothers are encouraged to join groups with other mothers throughout pregnancy and beyond due to the benefits of social support and connection through shared experiences. However, for pre-term mothers, their sometimes differing and complex experiences of pregnancy and early motherhood can instead lead to feelings of disconnect in these environments. Less is known about how pre-term mothers experience other women's pregnancies.

Method: Fifteen mothers of pre-term babies born at 32 weeks gestation or less completed semi-structured interviews. This data was analysed using Braun and Clarke's Reflexive Thematic Analysis.

Results: Six themes and six sub-themes were identified through analysis: 1. The complexity of emotion, 1.1 Jealousy and shame, 1.2 The bittersweet, 2. Fear, 2.1 Fear for her, 2.2 My experiences are a source of fear for others, 3. Am I in or out the group?, 3.1 The unspoken communication between us, 3.2 Exposure in hospital, 4. Am I enough of a mother?, 5. Grief, loss, and longing, and 6. Finding purpose.

Conclusion: Pre-term mothers' experiences of others' pregnancies can involve complex emotions, be impacted by interpersonal and wider social structures, and can shape motherhood identity.

Key words: Pre-term birth, NICU, Motherhood, Group Identity, Pregnancy

Introduction

Mothers of pre-term babies being cared for in NICU report feelings of anxiety, guilt, and ambivalence towards their infant and have an increased risk of experiencing post-partum depression and PTSD (Goutaudier et al, 2011). Additionally, follow-up research exploring mothers' experiences a year post-discharge from NICU found continued reports of mental health difficulties, negative perceptions towards their infant, and social isolation (Garel, Dardennes, & Blondel, 2007). Thus, providing evidence that mothers of pre-term babies can experience significant mental health needs beyond the perinatal period. Existing studies recommend further exploration into causality in future research to shape specialist care for this group of mothers.

Delivering a baby prematurely can illicit strong feelings of grief and loss for mothers as they are denied the experiences of the late stages of pregnancy and transition into motherhood in their hoped-for way (Wood & Quenby, 2010). This has been described as ambiguous loss, as their feelings of grief are contradicted by feelings of joy or relief for their surviving baby. This can result in mothers denying their grief, as communicating this to others can be complex and misunderstood (Golish & Powell, 2003). Mothers of very low birth-weight babies have been found to become socially withdrawn as they avoid sharing their feelings with others (Flacking et al, 2006). This could arguably be due to the complexity of their emotions associated with ambiguous loss, but perhaps also due to shame linked to the negative perceptions of having a low birth-weight baby, of which can be a source of envy or shame when pre-term mothers compare their babies to full-term babies. Further research explores how grief-related feelings can negatively impact on parent-infant attachment as mothers are observed to have fewer positive interactions with their babies and report less feelings of connectedness with them (Shah, Clements, and Poehlmann, 2011). As early

attachment is a key predictor in mental health outcomes for children, this is essential to gain a better understanding of, for both individuals and wider society (Parent-Infant Foundation, 2024).

Transitioning into the role of a first-time mother is a crucial process thought to begin in the third trimester of pregnancy. Psychologically, the mother develops a preoccupation towards their unborn infant to illicit strong feelings of care and underpin a connectedness between them, allowing the baby to feel safe and secure once born (Winnicott, 1958). This process may be deepened by the physical presence of the growing baby bump and as the mothers' bodily appearance changes, they become perceived as more 'motherly' by themselves and others (Clark et al, 2009). Socially, working women prepare for maternity-leave from their workplaces before their baby arrives, which can be important for their preparedness for identity transition (Ashforth, 2001). This process is known as "nesting", with some research describing this preparation as innate and biologically determined behaviours that pregnant women exhibit to prepare their environment for the protection of their baby, and others describing this as the fulfilment of social expectations for new mothers (Anderson & Rutherford, 2013; Shahvisi, 2020). When a baby is born prematurely and this expected transitional process is interrupted, mothers have reported difficulties with adapting into their new role, particularly when their newborn is under the care of professionals and they return home without a baby (Baum, Weidberg, Osher, & Kohelet, 2012). This study recommended social support from fellow mothers would be beneficial during this period, however as the literature suggests pre-term mothers struggle to share their feelings, further research is required into their needs and what could help with accessing more social support.

Expectant mothers are encouraged to attend antenatal groups, of which many report social benefits from making connections with other expectant mothers who are on a similar pregnancy trajectory (Tighe, 2010). Currently there is very little research into the experiences of mothers who deliver prematurely and therefore exit antenatal groups earlier than planned, so are no longer on the same trajectory as their support network. Studies suggest that one of the biggest protective factors against post-partum depression is social support, namely from others sharing similar experiences of becoming new parents in groups (Negron et al, 2013). Groups of this nature are also now accessible on social media. One study captured how feelings of failure pre-term mothers experience can be exacerbated by the presence of full-term mothers, both during post-natal ward experiences and support groups (Fowler et al., 2019). A limitation of this study is that it was completed via telephone and therefore lacks non-verbal information which can uncover alternative meanings.

Research has explored the role of group identity in motherhood and how new mothers integrate into this group. Seppälä et al (2022) completed a longitudinal narrative analysis and found that having similarities in motherhood experiences enhanced shared identity and integration into the local community of mothers. However, those who experienced complications in pregnancy or had a child with health concerns reported feelings of unrelatedness and social exclusion from other mothers in the group and would typically manage this by withdrawing in social situations (very pre-term mothers are likely to have experienced both challenges). Resultingly, they described relationships with other mothers as superficial rather than meaningful. Further research found that increased positive social interactions with other mothers improved new mother's social identification and in turn improved life satisfaction and wellbeing (Seppälä et al., 2023). This highlights the

importance of exploring social and interpersonal factors related to motherhood to support the mental health of mothers.

Perinatal and maternal mental health services are expanding nationally in line with recognition of the public health issues, including increased risk of mental health difficulties, experienced by women and children in previous absence of these services (NHS England, 2025). Despite this evidence of increased psychological distress, mothers of pre-term babies access these services less than mothers of full-term babies (Henderson, Carson, & Redshaw, 2016). Whilst reasons for this have been under-researched; poor experiences of healthcare as described above could contribute to feelings of mistrust or being misunderstood. It may also be due to fears of being grouped with mothers with very different experiences to them, increasing feelings of differences or unrelatedness. This could illicit feelings of not belonging to the 'in-group' of mothers, potentially causing distress and negatively impacting on their self-esteem and identity as a mother, as explained by social identity theory (Tajfel & Turner, 2004). Less is known in the literature about the experience of being a mother to a pre-term baby in the context of other pregnant women, however anecdotal evidence across online forums highlights the voices of many pre-term mothers describing feelings of envy, jealousy, and resentment towards other pregnant women. In line with the broader evidence base, it is known that these complex emotions arising from upward social comparison can negatively impact mental health (Mujcic & Oswald, 2018). Connecting these two concepts potentially places pre-term mothers at an increased risk of distress, which may be further compounded by their reduced access to support as described above. This construct is not currently reported on explicitly in research literature and highlights a gap for further exploration.

Aims

This project aimed to explore the unique and under-represented experiences of first-time mothers of very premature babies in the context of other women's pregnancies. It aimed to uncover the impact of this context on their lived experiences, exploring emotions, challenges, identity, and relationships. Through a broad and exploratory approach, this study hoped to identify common themes present in the experiences of this group to inform understanding in wider contexts, such as research literature and maternity care services. The research question was therefore open-ended: "How do first-time mothers of very pre-term babies experience other women's pregnancies?"

Methods

Study design

In this qualitative study, participants were recruited through social media using a purposive voluntary responsive sampling method. Data was collected through semi-structured online interviews. Braun and Clarke's (2006) six-stage model of reflexive thematic analysis was used to construct and explore themes across interviews.

Researcher positionality

This study was underpinned by a critical realist ontological framework, from a feminist epistemological standpoint. This recognises the interaction between biological and social factors that takes place within the construct of motherhood, through a female-centric discourse. The researcher is a female Trainee Clinical Psychologist holding a dual-role of healthcare professional and researcher, with aims of providing a platform for this currently underrepresented group of women in the evidence base. The researcher's clinical experiences

of working therapeutically with this population provided a somewhat insider perspective which allowed for familiarity of and sensitivity towards the experiences this group may have faced. Whilst the research was exploratory in nature, the researcher's prior experience may have influenced the lens in which the data was interpreted, for example by potentially placing emphasis on the narratives of trauma and psychological challenges that may have been present in their prior clinical experiences. Similarly, the researcher's feminist epistemological standpoint had the potential to increase attentional bias towards themes of marginalisation and disempowerment within discussion with participants.

In contrast, the researcher also held an outsider perspective as they did not have lived experiences of being a pre-term mother, which allowed them to maintain curiosity without assumptions when exploring the participants experiences, in line with the exploratory approach to the research. Furthermore, research rigour was maintained by the use of a reflexive diary and regular supervision throughout the research process, allowing for reflection and critical examination on potential biases held by the researcher. This ensured that the interpretation remained focussed on the participants accounts, whilst incorporating the subjectivity of the researcher's lens in qualitative research, in line with the reflexive thematic analysis approach and ontological stance.

Ethical approval

Ethical approval was gained from the University of East Anglia Faculty of Medicine and Health Sciences ethics committee (Appendix B – registration: ETH2425-0010). The research adhered to the British Psychological Society's Code of Human Research Ethics (BPS; 2010). Participant confidentiality was ensured through anonymisation of data and removing any identifiable information in line with GDPR. Participants are represented by number throughout the report (e.g. Participant 1, Participant 2, etc.). The research did not

cause harm to participants however considerations were made around potential distress arising around the emotive topic at the core of the research.

Terminology

Use of inclusive language has been considered and chosen thoughtfully in line with National Institute of Healthcare guidelines (NIH, 2024). The term 'birthing person' is a gender-affirmative and inclusive description used for people who give birth but do not identify as women, such as trans-men (Barcelona et al., 2023). This is used in healthcare settings to reduce discrimination and provide appropriate person-centred care to individuals. The term may also be used to describe other groups who give birth but do not identify as parents to that child, such as surrogates. Due to the potentially broad range of experiences of those identifying as a birthing person, the term 'mother' has been chosen for this research, which may be criticised for limiting inclusivity (Griggs et al., 2021). This will however allow for exploration of experiences in the unique social construct of 'motherhood' for those who identify as 'mothers' and uncovering shared themes within this. This decision is also in line with the epistemological underpinnings described in this paper and will support with increasing visibility of women in scientific literature. See extended methodology for further details on researcher positionality.

Participants

Two Patient and Public Involvement (PPI) members provided pre-study consultation on the project, and details of this are provided in the extended methodology of this thesis (Chapter 5). Fifteen first-time mothers of very premature babies completed online interviews via Microsoft Teams for approximately one hour each. Their babies were born between 6 and 18 months ago, between 24 and 32 weeks gestation, and some were present throughout the

interviews. Information regarding participant pre-existing mental health status and / or support was not collected or explored as part of this study as it was decided this would be beyond the scope of this doctoral research. Participant demographic information was collected to characterise the sample and is provided in Table 1 below.

Table 1

Participant demographic information (N=15).

Characteristic	Category	N
Age	25-34 years	10
	35-44 years	5
Ethnicity	White or White British	14
	Hispanic	1
Sexuality	Heterosexual/straight	15
Marital status	Married	12
	Living with a partner/ cohabiting	2
	Single	1
Disability	None	15
Religion	No religion	9
	Christian	4
	Catholic	1
	Jehovah's Witness	1
Highest level of education	Professional or doctoral qualification	3
	Postgraduate degree	4
	Undergraduate degree	4

	College / sixth form (A-Levels/BTEC)	4
Geographical location	London	2
	Midlands	2
	North East England	1
	North West England	1
	Scotland	4
	South East England	2
	South West England	2
	Wales	1

Recruitment and screening procedure

Following ethical approval, participants were recruited via purposive sampling techniques with the research poster (Appendix D) advertised on social media. The advert was posted in groups designed for peer support / providing information for mothers of premature babies, e.g. Miracle Moon and BLISS Charity on Facebook. Those interested in the research voluntarily opted to complete the screening questionnaire linked on the advert (Appendix E) to confirm their eligibility. With their pre-agreed consent, the screening questionnaire was also emailed to the group of mothers who originally expressed interest in the PPI process.

Participants that completed the screening questionnaire and met eligibility criteria (see Table 2) were contacted by email, provided a copy of the participant information sheet (Appendix F), asked to complete a consent questionnaire (Appendix G), and a demographics questionnaire (Appendix H). At this stage, non-human responses identified through the use of a “dummy question” were removed from the sample. Those that completed the final two

forms were contacted to arrange interview. Those that did not respond to emails were prompted 2 weeks later, and those that did not respond following this were removed from the participant pool. Those that were not eligible from screening were emailed to advise them of this outcome and thanked for their time and interest.

Table 2

Participant eligibility criteria.

Inclusion	Exclusion
Fluent English speaker.	Non- fluent English speaker.
A first-time mother.	Not a first-time mother.
Mother has delivered a very pre-term baby at 32 weeks gestation or less.	Mother delivered baby after 32 weeks gestation.
Baby was born between 6 and 24 months ago.	Baby was born before 6 months or after 24 months ago.
Mother did not suffer baby loss related this birth.	Mother suffered baby loss related to this birth.
Mother can recall and discuss their experiences of other women's pregnancies*	Mother cannot recall or discuss experiences of other women's pregnancies*
Access to device that with working video and microphone for video call.	Does not have access to device for video call.

*Definition of other women's pregnancies: This includes any pregnant woman who may be directly or indirectly associated with the participant that they can recall an experience of. For example this may include family members, friends, colleagues, or peers whom they have direct contact with. It may also include pregnant women seen in public, healthcare settings, on social media, or otherwise in the media e.g. television programmes, whom the participants do not have direct contact with.

Research procedure

All interviews were completed virtually using Microsoft Teams and lasted approximately 60 minutes each. At the start of each interview, informed consent and withdrawal procedures were reiterated and participants were provided information about the structure and plans for the interview. There was opportunity for participants to ask questions and given the nature of the research involving mothers of young infants, participants were encouraged to continue to tend to the needs of their baby as normal with the interview working flexibly around them.

Following the interview, a debrief conversation took place to review participant feedback of the interview and any emotional distress due to the sensitivity of the topic was explored and managed as necessary. Participants were thanked for their time, advised they would receive their reimbursement of a £10 Amazon e-voucher to their corresponding email address within seven days (paid by university thesis budget provided), and informed to get in touch with any post-interview questions/ concerns. All interviews were recorded and transcribed using the Microsoft Teams transcribing software. Transcriptions were later manually checked for accuracy and corrected as needed by the researcher through re-watching the interviews.

Interview design

The interviews followed a semi-structured approach using a brief topic guide. The topic guide (Appendix J) consisted of open-ended questions under broad headings designed to have further follow up questions / prompts based on participant responses. This approach allowed the researcher to hold a structure in mind whilst maintaining a free-flowing conversational style to ensure participants felt able to speak comfortably without constraints,

allowing opportunity for them to bring topics of conversation that may not have been anticipated by the researcher. In line with recommendations from PPI consultation, the interview included a section for participants to share their personal journey to provide context to their experiences, and to provide psychological safety in this unfamiliar space. The researcher took an empathetic and validating approach to exploring responses, particularly with those which elicited high levels of emotion from participants.

Data analysis

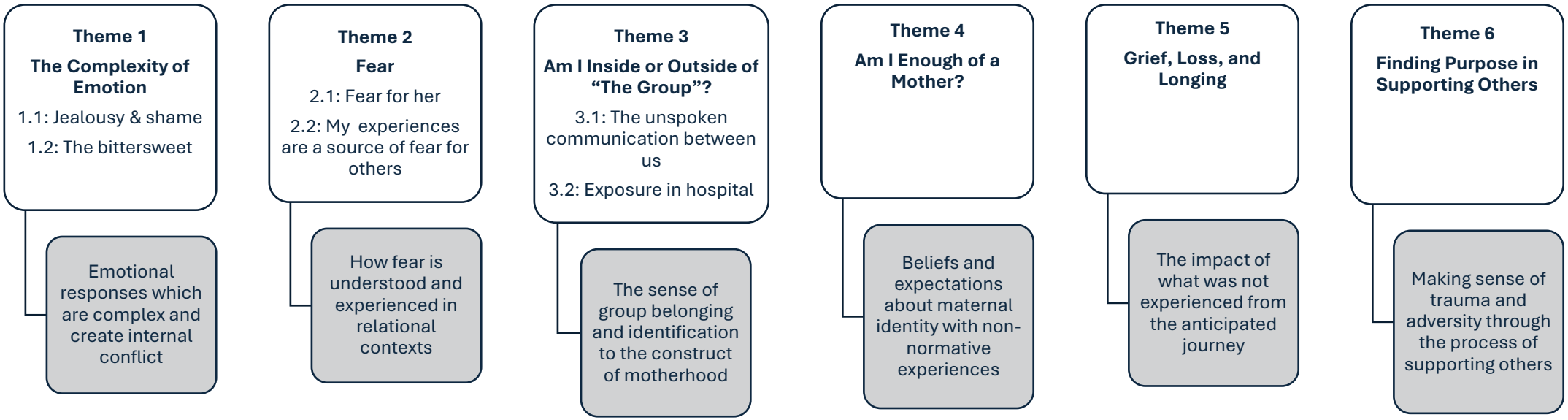
The interview data was analysed using Braun and Clarke's (2006) six-stage model of Reflexive Thematic Analysis (RTA). This primarily followed an inductive approach which was an unstructured exploration of the data. For transparency, it is important to acknowledge the presence of researcher subjectivity in coding, as their interpretation of the data will have been informed by their theoretical positionality and previous experiences, including their clinical and feminist perspectives on social concepts discussed. Codes were both semantic; identifying the surface meaning, and latent; exploring the underlying meaning. See extended methodology for further detail.

Results

Six themes, three with additional sub-themes, were constructed through reflexive thematic analysis. Each theme represents a distinct aspect of the experiences described by participants, whilst reflecting broader interconnecting concepts of emotion, identity, and social belonging across themes. These are presented below in Figure 1.

Figure 1

Diagram of themes with corresponding descriptions



1. The Complexity of Emotion

Theme 1 illustrates the emotional reactions that participants described. For some, having a strong emotional reaction was not unexpected and many sought out both professional and personal support in relation to this. Some reflected on the impact of their birth trauma on their mental health and how accessing relevant support allowed for normalisation of their complex emotions towards others' pregnancies related to this. For others, the onset of unexpected emotion left them questioning "am I normal?" and feeling that their emotional responses challenged their character and values, resulting in a conflicting internal experience. The complexity of emotion appeared to underpin various experiences and actions which informed subsequent themes in this research and how they are understood.

"I just feel like, just feel sad and like lost… It's really hard to put into words how you feel when you see them. But it's like a swirl of emotions and you just cannot stop looking. It almost makes us want to like touch my belly but I know he's not there." P6

"I felt very resentful. I felt very strongly. I was like, more than jealousy. It was almost a hatred towards [them]." P5

1.1 Jealousy and Shame

The topic of jealousy was prevalent throughout interviews and for many it was a difficult emotion to hold. It was often linked with the question of "why them and not me?" and many experienced self-blame within this. It seemed that there were secondary feelings of shame or disappointment when jealousy was present which led to questions about their character and values, with many wishing to make it clear that they do not feel aligned with this emotion. It also seemed to hold a disenfranchised element where mothers felt they were

not valid or allowed to feel jealousy as their baby is well now. This often meant that this feeling was kept hidden and for some only spoken aloud for the first time during this interview, which perhaps compounded the associated shameful feelings. Whilst not formally explored in this study, anecdotally those who reported accessing professional mental health support prior to the interview appeared to hold less shame regarding their feelings of jealousy, which may suggest that this support facilitated their processing of their experiences and resulting in greater acceptance and self-compassion.

"Not a nasty jealousy, but like jealous. Like I'm like, why not me?" P3

"I think it's just pure jealousy and I don't, I'm not really a jealous person, you know. I'm happy with what I've got most of the time. Apart from being jealous of them. But you know. So I think seeing that side of myself is quite hard to deal with." P1

"I just don't really. I don't like those feelings. I don't like that. It doesn't make me feel very good. And it does make me, like it does make me feel like a jealous person." P13

"I guess [I] sometimes get annoyed at myself for saying that as well because I'm like, God, can I not just be annoyed that she was early? Can I not just be jealous of these women without then following up a sentence by saying like I should just be grateful that she's here and I should just be happy that she's, she's healthy and safe so." P10

1.2 The Bittersweet

This sub-theme illustrates the bittersweet mix of co-existing emotions felt by the participants. This typically included happiness and excitement for another's pregnancy, particularly in the context of understanding the unique challenges that pregnancy can bring based on their own experiences. This was contrasted with feelings of sadness, envy, or disappointment as the other pregnancy can bring reminders of their own short and difficult pregnancy. Within this there was a sense of needing to withhold these feelings, particularly from the pregnant person themselves, who they wish to show support for. Similarly to the previous theme, perhaps it felt difficult to align with feelings that were not wholly positive as it could raise internal conflict about personal character and intentions, which could be a tiresome process.

"I think it's like, gutted, almost is the perfect description of how you feel sometimes and feel really happy for them but it is sad. It's hard because [you] kind of obviously wish that was you and it all went smooth." P7

"I still feel like so much joy for other people and yeah, excited for them while jealous for myself at the same time." P10

"It's like you're really happy for people that are pregnant, but it's always like a little part of you dies inside each time because the envy and the effort it takes to be positive and excited about for them." P12

2. Fear

Whilst Theme 1 focused on participant's emotional experiences, Theme 2 captures how these experiences are interpreted and responded to by participants, which is illustrated in two parts. Firstly, the fear held for the other pregnancy, and secondly the awareness that the participants' experiences made them a source of fear for other pregnant women, both of which are driven by the participant's perception. Across both sub-themes, fear appeared to add complex relational dynamics and changes in behaviour between the participant and the other pregnant woman. The degree of fear seemed to be compounded by the nature of their relationship to the pregnant woman, for example fear was exacerbated when the woman was a close friend or family member. Despite this, it seemed that the participants held a desire for involvement or investment in the other pregnancy, whether this was someone inside or outside of their immediate circle. 'Fear' is distinct from other emotions described in Theme 1 as it extends beyond the internal experience and became relational in nature, providing insights into the potential drivers behind challenges with social belonging described in the following theme.

"I feel like I get so invested even though I don't know these people [on social media] or like, I just need to know their babies are OK and you know?" P2

"It's the almost terror for her because it's that, that unknown." P15

2.1 Fear for Her

Many described that the knowledge from their own experience had resulted in them having a heightened sense of anxiety regarding others' pregnancies. There was a notion that the participants experienced a 'knowing too much' based on their own journey, and perhaps

witnessing another's pregnancy meant they relived their own traumatic experiences, understandably resulting in anxiety. They recognised the benefit of naivety to what complications could happen and not wanting to spoil this for someone not having the same experience as them, whilst balancing this with what appeared to be a new sense of duty to care and protect their pregnant friend or family member. Many described changes in their behaviour towards the pregnant woman with increased checking, worrying, and desire to share information so their journey has a different outcome to their own. However, this also elicited self-monitoring and worry about not projecting their own fears onto the pregnant woman as they recognised this could be unhelpful, resulting in an internal conflict.

"With her I'm more protective as in I want to make sure everything goes the way it should for her that it didn't go for me." P6

"She had the similar sort of experience the sort of back and forth on the IV drips, and that absolutely terrified me. And I feel like I very overly, intensely watched her like a hawk her entire pregnancy" P2

"I think I worry for them a lot more, like I think, I think because now I know how risky pregnancy can be, especially first time pregnancies as well…It's that, also that that thought of, like, what's going on inside you right now, because I've seen the baby that's inside of you because she was in an incubator next to me." P15

"I would never want to put my anxiety on them. I'm really cautious about that." P3

2.2 My Experiences are a Source of Fear for Others

Across interviews it was clear that the participant's pregnancy and pre-term birth could be described as the experience that no pregnant woman wishes for. Participants shared an awareness that they have become a source of fear due to their experiences, which at times had unwillingly changed their relationship with the pregnant woman. There was a common experience of avoidance from both positions, with some participants seemingly accepting a sense of exclusion from their friend or family member's pregnancy journey as they did not wish for their presence to burden the pregnant woman with fear. The concept of self-blame was striking here, with a sense that sharing their story could perhaps influence the course of the other's pregnancy and hence choosing to avoid this topic altogether. Others reflected on the narrative of "not scaring the pregnant woman" which they linked to their own experience of receiving a lack of information about pre-term birth or NICU prior to their own experiences of this, which appeared to be reinforced by withholding their story in this context. Whilst information may not be relevant to all pregnant women, keeping premature birth "taboo" may perpetuate the fear felt when pre-term birth happens, as many felt that healthcare professionals are also fearful of discussing pre-term birth for this reason. In contrast, some participants felt it was important to show a positive outcome following trauma and NICU admission to promote trust in healthcare, whilst recognising the delicate balance of how much of their own story to share with the pregnant woman. It seemed that fear-based avoidance led to disconnect between participant and pregnant woman at a time where there could be connection around this shared experience.

"Now [I] just hold my thoughts to myself because nobody wants to hear about my 25 weeker that came within two days. Because that's not helpful." P15

"I just don't talk about her [my baby's] story that much with women who are around the same gestation that I was when we had her. Because I don't want to scare them, basically… it's quite terrifying for people when they are pregnant to hear that" P12

"I'd avoid her. Very much avoid her, which was a bit sad, I guess. But I think she was avoiding me as well… I like to show pictures of him to them and show him off and things like that. And so she was a bit like I don't want to see that 'cause I'm worried it would happen [to me]." P1

"There's some level of not, not feeling able to share too much as well, because if, if they get worried something's gonna happen to them, then that's my fault." P10

3. Am I Inside or Outside of "The Group"?

Theme 3 captures how participants' sense of belonging and identification with the community of 'motherhood' is disrupted by their pre-term birth experiences, with other women's pregnancies acting as a powerful reminder of this. This theme illustrates the social construction of motherhood and how participants navigated their experiences of exclusion from the expected social norms within this in both interpersonal situations and broader societal contexts. This theme is distinct from previous themes as it encompasses the external influences on the participants' experiences, which extends beyond their individual emotional or behavioural responses described in previous themes. It seemed that the lack of shared experiences, teamed with comparison of their differences, led to many participants feeling marginalised and resultingly experiencing isolation. Many tried to find relatedness where possible, e.g. in the first trimester, but continued to feel like outsiders' and therefore reported withdrawing in conversations. It was not uncommon that participants felt subjected to

generalisations from others that “this is what mums go through” in these groups, particularly regarding the third trimester, when this was not their experience. This may have had a detrimental impact on their identification with motherhood, with many feeling uncertain with how to respond to this. In contrast, all participants reflected on the unexpected connections found with other mothers of pre-term babies or within NICU which had a positive impact on their sense of belonging seemingly due to the shared understandings between them.

“You're not kind of like a member of the normal pregnant mums club. You're a member of the club that no one wants to join.” P12

“It's a bit annoying that I can't like enter conversations about that because I don't know. I have no idea what it's like…It completely isolating because I'm sitting here as a mother of two [twins] and I can't talk to you properly about something very normal, which is the end of third trimester. I only got one week of it, so I don't actually know what it's like.” P8

“I'll talk like, I'm like, I've had a full-term pregnancy because I kind of just want to be involved in that conversation, I don't want them to like not involve me” P3

“My baby mums are the ones I met on the ward [NICU]. So I think that definitely having them to chat to on WhatsApp and meet up with like, there's three in particular, that really helped me, has majorly helped me get through any issues that I've had.” P9

3.1 The Unspoken Communication Between us

This sub-theme focuses on existing peer relationships and changes to them when the other is pregnant. It seemed there was often an unspoken agreement in these dyads to avoid

the topic, which evolved out of preservation of the relationship, and protecting each other from the comparison and difference that could cause conflict or division between them, illustrating the interaction between emotions and identity as described in themes above. Whilst for some this felt like the right dynamic, for others the unspoken communication could lead to wrong assumptions and misunderstandings made at times, as despite challenges with witnessing another's pregnancy, they wanted to remain involved and supportive. It was common that participants felt they needed to hide their feelings in order to not be left out or cause conflict in the relationship.

"I think she just knew without me saying it that I needed some space from her." P1

"We've almost kind of created this environment of mutual, not, we're not going to talk about it at the moment." P12

"She didn't communicate with me anymore about her daughter because she didn't want to make me, I think make me jealous and was very cautious of my feelings. But I kind of wanted to live through her experience because I wasn't getting it." P3

"Things like baby showers and celebrations of them I found quite difficult. But I think I would never really have told them that, I wouldn't [have] wanted them to feel like they couldn't talk to me either, 'cause like they are close friends" P10

3.2 Exposure in Hospital

Across interviews there was a stark contrast of how protected or unprotected the participants felt as newly post-partum mothers in hospital. Some felt their experience was

treated thoughtfully and they were given privacy away from other heavily pregnant mothers or those recently delivered with their healthy babies with them. Anecdotally, it seemed recognised by healthcare staff that this would be difficult experience for pre-term mothers, however often due to resource or capacity, providing alternative spaces was not possible. Others felt there was not a place suitable for them, and they were exposed to circumstances providing upsetting and traumatising reminders of their experience. This appeared to reinforce an 'outsider / not fitting in' role in this environment which led to curiosity about whether this contributes to their feelings of disconnection to 'motherhood' group identity once home with their baby, as seen in other themes. This suggests that group identity is underpinned by factors beyond the interpersonal experiences described above, such as structures in place outside of the participants' control. The devastation and potentially longstanding impact described by participants in this theme highlights a need for change to how pre-term mothers are treated in hospital.

"The NICU was a Level 4 but was a maternity unit. So you were constantly left waiting with people with either with babies or pregnant going for checkups and scans then." P5

"I would kind of dread seeing, like, the other women coming out with her massive bumps particularly." P13

"She was wheeled in with a crying very perfectly fine baby. To which I just completely broke down. And I just I was a mess. I had the curtain pulled round, but I was beside myself and my husband went out and told, found the head nurse and she was furious." P6

"You've got to walk through post-natals. Which, like you emotionally and mentally prepare for… I was like keep it together [name]. Nobody wants a crying woman, like as they're happily leaving hospital and I just remember completely collapsing into the wall" P15

4. Am I Enough of a Mother?

This theme focuses on the development of maternal identity and is distinct from other themes as it captures the participant's concerns on whether they had fulfilled the biological and social expectations associated with becoming a mother. Other pregnant women became representations of these dominant expectations of mothers, creating opportunities for self-evaluation and comparison of their own experiences which did not necessarily meet these expectations. There is a general pre-conception that being a birthing mother has an element of self-sacrifice linked to pregnancy, such as discomfort, body changes, and lifestyle restrictions. Participants in this study reflected on not experiencing self-sacrifice in the same way full-term mothers do and feeling guilt that their babies required external nurturing in NICU instead. This was teamed with feelings of failure and self-blame that their body let them and their baby down, feeling they could not fulfil their biological role as a woman, and leading questions of "was I pregnant enough?" and "am I enough of a mother?" Many participants received comments from other pregnant women that they were "lucky" to not endure late stages which seemed to be typically offered in good nature, however, were incredibly painful for them to hear. It was common for participants to find it very difficult to be in the company of women at later stages of or overdue in pregnancy as they felt this experience was taken for granted due to their limited knowledge about the suffering a pre-term birth encompasses, causing potential divides in this relationship. Whilst this theme is conceptually distinct from others as it centres on beliefs about identity, it can provide an important context to understand the following theme of grief, loss, and longing which is

likely to be closely linked to the participants' sense of not fulfilling expectations of the role of a mother and wishes to have had this.

"But I still feel that kind of, I guess, shame, that I didn't have the opportunity to, to try and to prove that my body could do what it was meant to do." P1

"I was happy for her, but I think I had to, like, work on myself a little and essentially, like, forgive myself 'cause, I think as a mother, like you blame yourself because you feel like it was your responsibility you know, look after your baby. And it was your body that let you down." P14

"[They said] You didn't get the pelvic floor issues or the, the kind of the muscle separating or the stretch marks or those things, like I would have given anything to have had those rather than her [my baby] go through that." P12

"People make a lot of comments about how lucky I was that I didn't get to be, you know, big or put on lots of weight. I would, I would give anything to have been massive and have stretch marks and have all of it because it would have meant the boys were in there for longer." P4

5. Grief, Loss, and Longing

This theme can be seen as underpinned by emotions but is distinct as it focusses on the impact of what participants did not experience, rather than the impact of the trauma that they did. It represents their grief for the anticipated journey through pregnancy and transition to motherhood that they expected, including the experiences, choices, and opportunities that

were no longer available to them. Participants described that others' pregnancies became significant reminders of the many rituals or rites of passage that come with pregnancy that they missed out on and now grieve for as they witness others experience them, such as baby showers or other important milestones. This was further compounded if the participant started the pregnancy journey with another pregnant woman but ended separately. There was a sense of longing and yearning for what "should" have been, and having a lack of choice or opportunity in comparison to other pregnant women held a striking impact on their feelings of loss. Many spoke about their lack of baby bump and the grief of this being felt so acutely, perhaps as "the bump" is arguably the main physical identifier of pregnancy for a birthing woman. Their grief could be described as ambiguous, as it was often mixed with confusion and a question of "am I allowed to feel this way?" as their baby had survived. For many, this theme extended beyond their current child and onto their potential future pregnancies, considering how this loss experience may repeat if they have another pregnancy, or in contrast eliciting feelings of hope, all of which were highlighted by the presence of another pregnant woman.

"I think it's like maybe a bit of like loss. Didn't lose him, but I lost the experience, and I lost my peace almost. I mean, I wouldn't say a pregnancy's a peaceful thing. But you should enjoy it. You should have a lovely time. You should glow. You should, you know, feel your bump and think, oh, this is my baby and like and I didn't [have] any of that. That wasn't enjoyable for me. It was, I was only pregnant the 24 weeks and then it was horrific. And I think I feel that loss quite acutely when I see especially quite far along pregnant ladies." P6

"She got to do the, you know, kind of hypnobirthing class that I really wanted to do and she got the no medication. And yeah, we'd, we'd planned together to drink raspberry leaf tea because it helps you and pregnant stuff like that. She's got to do it, and I didn't." P1

"Something that is so huge I think to women who have like premature babies is your lack of choice, and that's such a hard thing to see other women have choice, and you don't. I think that you feel a bit less human." P3

"So I didn't have a huge bump when I gave birth and when my water broke. And then I think to be in a room where there are seven other mums, some have huge bumps. It's just I think it's a part of the pregnancy that I really grieve is not having a bump." P11

"It's that kind of like, you look at a pregnant woman, you, you kind of see your past and your future almost…. it's that feeling of like, it's that loss again, like, but also the, you get a slight bit of hope for the further away you get from it because you're like that could be me." P15

6. Finding Purpose in Supporting Others

Despite the considerable distress and challenge described in the preceding themes, a powerful concept throughout the interviews was the desire and ability that the participants had to support other pregnant women who may be facing struggles. Many embodied a wise and compassionate role, holding valuable skills and knowledge which they credited to their experiences of pre-term birth. This aligned well with the theoretical underpinnings of post-traumatic growth as the participants reflected on finding meaning and purpose in their experience through helping others (Tedeschi & Calhoun, 1996; Ketley et al., 2024). It seemed

that in doing so, this validated what they went through and lost, allowing them to integrate their experiences and ongoing emotional challenges into positive change. This provided an unplanned but rewarding role in their relationships with other pregnant women and arguably could be a protective factor for issues raised above such as group identity disconnection.

"I just feel like, so ready to be, like, supportive almost now because it is really scary when you think that everything's fine and then it's not." P7

"And I remember just telling her everything like, like everything is normal, it's OK and it was nice being able to oh, I know how to help you. I know what to say. That was really, really nice." P8

"So I was sharing all of the advice that I could and extend the sharing my experience and answering questions you know, because unless you've been through a situation like that, you probably have a lot of questions…So I'm kind of supporting her through this time and I feel like that has also helped with my healing on what I went through." P14

"You want it to go well, but you also know all the things you can do for her to help her if it doesn't, and how you can be helpful and how, how you know that you were helped and would have been useful to have been helped." P15

Discussion

This qualitative research explored first time mothers of very pre-term babies' experiences of other women's pregnancies through a critical realist perspective. A reflexive thematic analysis of 15 semi-structured interviews was completed and revealed six themes and six sub-themes within the data including: 1. The complexity of emotion, 1.1 Jealousy and shame, 1.2 The bittersweet; 2. Fear, 2.1 Fear for her, 2.2 My experiences are a source of fear for others; 3. Am I in or out of the group? 3.1 The unspoken communication between us, 3.2 Exposure in hospital; 4. Am I enough of a mother? 5. Grief, loss, and longing; and 6. Finding purpose. The following section will discuss and critically appraise these findings, with considerations to clinical and research implications.

Emotions

The complex emotional experiences of pre-term mothers identified in this study could be explained by Social Comparison Theory (Festinger 1957; Caliskan et al., 2024). The absence of a normative trajectory in their pregnancy and start to motherhood could intensify the need for comparison with other's pregnancies due to the uncertainty and unfamiliarity in their experience, with a function of seeking reassurances for the fear that arises from this. It seemed that social comparison highlighted differences, rather than similarities, between the participant and the other pregnant woman, and may contribute to the feelings of "otherness" that were described. This experience seemed to result in further self-evaluation, often with a negative appraisal of how their emotions reflected on their character, for example not wishing to be perceived as a "jealous person" or questions around their worthiness in motherhood, resulting in a complex emotional experience.

The nature of the participants' relationship to the pregnant woman appeared to influence their emotional responses and carry different interpersonal meanings. For example, Theme 2: Fear, appeared to be more commonly described in regard to pregnant women who were close friends or family members ands was teamed with a behavioural response of protecting or avoiding. Whereas the emotion of jealousy and subsequent experiences of comparison or longing were more commonly described in regard to pregnant women outside of their direct contact, such as those seen in hospital settings. This suggests that results were influenced by relational factors that were not controlled for in the inclusion criteria, which was intentionally kept broad to encompass a wider range of experiences. Whilst many experiences did overlap across both direct and indirect relationships with the pregnant woman, holding clearer and explicit relational definitions in the inclusion criteria (e.g. defining either direct or indirect relationships with the pregnant woman) may have provided greater consistency and clarity in this study.

Motherhood Identity Construction

Through the lens of Stern's Motherhood Constellation theory (1995; 2020), it can be argued that very pre-term birth disrupts the psychological process of becoming a mother due to the barrier of NICU separation, which limits opportunities for the mother to physically protect their baby, develop emotional attunement to their baby's needs, and integrate their new role as a mother with their existing identity. The current research findings can be understood through this theory, as it seemed that other's pregnancies provided a representation of how the participants' motherhood constellation has not developed within the normative context of becoming a mother that provides opportunities for this, impacting their identification to the role of mother, as seen in Theme 4: "Am I enough of a mother?" The model of Family-Integrated Care was designed to mitigate barriers to parental involvement in

NICU and support with developing mother-infant attachment and maternal role attainment (Waddington et al., 2021), which is closely linked to the aforementioned factors constructing motherhood identity proposed by Stern. This suggests that factors beyond the control of the mother, such as policies or structures within NICU settings that reduce parental involvement in their baby's care, may be contributing to the findings in this theme and limiting motherhood identity. Whilst delivering Family-Integrated Care in UK NICUs was recommended following the 2019 Neonatal Critical Care Review (British Association of Perinatal Medicine, 2021), there is currently very limited data available on how consistently this is implemented across services nationally. Linking this to the findings of the current study suggests that improving understanding of how well-established Family-Integrated Care is in UK NICUs, and improving robust use of this, could be beneficial for pre-term mothers.

Stern argues that another key aspect of the developing motherhood identity is the enlistment of peer support and role models. For the mothers' in this research, it seemed that other's pregnancies did not provide this function but instead provided another reflection of their differences to the typical trajectory. This could be explained as an unspoken conditional acceptance into "motherhood" as a group which participants described not meeting due to their differing experiences to the dominant narratives generally held by mothers more broadly in society. This was observed in Theme 3: "Am I inside or outside of the group?" and suggests the important role of group identification to the construction of motherhood. Furthermore, the current research demonstrated how this process extends beyond interpersonal dynamics, with findings suggesting how wider structures are also influential. Theme 3.2: Exposure in Hospital showed that hospital environments and healthcare professionals at times contributed to the participants experiences of "otherness". From a trauma-informed perspective, these findings suggest that the maternity care experienced by

participants in this research may have contributed to feelings of exclusion and marginalisation from other mothers receiving care, resulting in distress and self-blame due to feeling a lack of belonging in these settings. This suggests a need for maternity care to become more trauma-informed to facilitate inclusivity and protection for pre-term mothers. Therefore, utilising trauma-informed care principles of promoting psychological safety and empowering individuals to make collaborative decisions about their care, whilst incorporating evidence provided through research such as this, can improve experiences for pre-term mothers.

Maternal Mental Health

As information regarding participants' historical and current mental health status or diagnoses was not formally collected as part of this research, interpretations regarding the impact of these factors should remain tentative. However, many of the participants reflected informally on the impact of the trauma and distress associated with pre-term birth and subsequent NICU journeys on their mental health during interviews. This suggests consistency with the evidence base which outlines that pre-term mothers are at higher risk of developing mental health difficulties, as illustrated in recent reviews (McKeown et al., 2023; Sandnes et al., 2024). Increasing our understanding of factors associated with mental health difficulties in this population is important due to the associations between maternal mental health and long-term outcomes for infants and children. For example, a global systematic review by Kingston, Tough, and Whitfield (2012) provides evidence for both pre-natal and post-natal mental health difficulties being associated with poorer cognitive, social, and emotional developmental outcomes for children. This is particularly relevant for pre-term babies who experience greater vulnerabilities to delayed development and health complications, which again can subsequently hold greater costs to both individual and wider

system levels (Anderson & Cacola, 2017), further highlighting the need to support this population of mothers.

The role of past or ongoing mental health support was also not formally explored as part of this research and therefore should not be over-interpreted in this discussion. However, many of the participants reflected anecdotally in interviews on the importance of accessing psychological support in managing their pre-term birth experiences and distress, and in line with the evidence base, it is possible that mental health support is a factor that could have influenced outcomes in this study, such as the presence of post-traumatic growth. The existing evidence base suggests that mental health support, including psychological interventions such as Cognitive Behavioural Therapy, can enhance coping and emotion regulation skills, increase cognitive flexibility, and result in improved resilience following treatment (Pinot, Veiga, & Macedo, 2024). Post-Traumatic Growth Theory suggests that these factors are relevant facilitators for the transformative process following trauma and adversity which can result in positive psychological changes for individuals (Tedeschi & Calhoun, 1996; Ketley et al., 2024). A systematic review provides further support for the association between mental health support and post-traumatic growth by illustrating how sharing 'negative' emotions with others, cognitive processing of events, and using positive coping strategies are factors that directly promote post-traumatic growth, which are also key processes and learnings that take place within psychological therapies (Henson, Truchot, and Canevello., 2021). This holds relevance to the current research findings illustrated in Theme 6: Finding Purpose in Supporting Others, suggesting the presence of post-traumatic growth for participants in this theme. Whilst this was not formally explored in this research, and factors outside of mental health support such as personality traits may also explain the presence of post-traumatic growth in this research, it is possible that mental health support

may have played a role which would be helpful to explore further in future research. Furthermore, the findings demonstrated in this theme suggest it would be useful to explore the role of perinatal peer support. The mothers demonstrated a huge amount of compassion and wisdom borne out of their experiences, with a strong desire to channel this into supporting new mothers. It seemed that being able to extend learnings to others provided opportunity to make sense of their own difficulties, many of which are present in other themes in this research too. It is possible that finding agency in a role where they have the unique skills and knowledge to support another allows them to manage the distress felt from their own preterm birth where they held very little agency or power, providing a mechanism for meaning-making and purpose. In combination, this can suggest how integrating professional and peer mental health support within this population may facilitate post-traumatic growth, which has been found to be a protective factor against the development of chronic mental health difficulties (Nelson, 2011).

Strengths, Limitations, and Areas for Future Research

To the best of the researcher's knowledge, this study is the first to explore this topic, making it a novel and original piece of research that adds to the evidence base. The participants provided raw, honest, and valuable accounts of their experiences which could be explained by strengths in the research design. This may include the interview schedule being designed well to operationalise the research question, and the interviewer style providing containment for the participants to comfortably share their thoughts. The PPI consultation process was an important factor in this and demonstrates robustness throughout the design and implementation of the research. On an individual level, many participants reflected on the validation and purpose felt from taking part in this research, which aligns well with both

the findings of the research, and the researcher's own values in wishing to provide a platform for unheard voices.

Using reflexive thematic analysis underpinned by a critical realist framework was a strength in this research as it allowed thorough exploration through the unique perspective of very pre-term mothers. It is possible that other approaches may have offered valuable insights. For example, Interpretive Phenomenological Analysis (IPA) (Smith, Larkin, & Flowers, 2021) may have offered more in-depth accounts of individuals experiences, however, can also be potentially viewed as too subjective or relativist in the context of this being a new area of research. Alternatively, a quantitative statistical approach would have accessed a wider dataset and potentially offered generalisability alongside being able to answer more specific research questions, however this would not feel appropriate due to the sensitive nature of the topic and on reflection could be too deterministic, ignoring the nuances and rich data that was gained through the interview process. Another strength of the research was that it remained well aligned with the feminist epistemological standpoint and met aims of providing a platform for an underrepresented group of women and holding considerations of researcher positionality throughout, which is key in research of this nature (Hesse-Biber, 2013). Future research may wish to explore this concept through lenses of other populations. Anecdotally in this research, participants reflected on how the experience also impacted their male partners/ spouses and it could be valuable to explore through a male-centric perspective.

Whilst the recruitment process and sample size may be seen as a strength of this research, it can also be seen as a limitation for two reasons. Firstly, the recruitment approach could be seen as narrow as it limits reach to those who can access social media and raises the question of who is not being represented outside of this. A better recruitment method may

have involved accessing a participant pool from NHS NICU settings which would allow direct contact with mothers in a perhaps more equitable way. Secondly, the sample is arguably not representative of the wider population based on demographics seen in Table 1. However, there was a broad national representation, meaning that perspectives were not limited to single localised maternity care experiences, and themes represent issues that are consistent across the UK. Despite this, the limited sample diversity in this research could be described as "WEIRD" i.e. Western, Educated, Industrialised, Rich, and Democratic, and be at risk of cultural biases (Henrich, Heine, & Norenzayan (2010). This may limit the generalisability of the findings as understandings, beliefs, and values associated with motherhood and other concepts discussed in this research are likely to differ due to the cultural constructions underlying them. This issue was illustrated through a systematic review exploring social norms regarding motherhood in WEIRD populations by Schmidt et al., (2023) which are consistent with the current research.

It is important to recognise that the UK population generally follows an individualistic culture, and approaches to motherhood tend to be orientated on personal responsibility and competence associated with the mother, which might be driving some of the social comparison experiences demonstrated in this study (Hays, 1996). In contrast, cultures that adopt a more collectivist approach to motherhood tend to consider pregnancy and motherhood as a shared and community responsibility which is known to reduce marginalisation (Kagitcibasi, 2017). Similarly, healthcare in these cultures may have a different model and provide a different experience to birthing women, which is not identified in this study (Armstrong & Swartzman., 2001). Future research exploring this topic through the lens of diverse cultural contexts would be an interesting and valuable addition to the evidence base.

It was a limitation that there was variation across participants who did or did not access mental health support both prior to or ongoing through the research period due to the researcher not collecting this data to define the sample as part of the research. Therefore, meaningful differences linked to the role of mental health support could not be interpreted. An improvement could have been to include this factor within study inclusion criteria as this may have provided interesting insights on whether outcomes and themes were impacted by this factor. It would therefore be useful for future research to more formally explore the role of mental health support, whether any specific model or treatment holds more benefit, and if there are long term outcomes for some of the difficulties the participants reported, which would be helpful to direct service improvement.

Clinical Implications and Recommendations

Whilst maternal mental health needs are recognised in the NHS long term plan (Department of Health and Social Care et al., 2025) pre-term mothers are known to access psychological support less than other groups. It is possible that the findings in this study such as the complexity of emotions felt, particularly those that might be disenfranchised, and complications related to motherhood identity could be barriers to accessing care. The evidence in this research about group identification can support this in a healthcare context as within the NHS, group intervention are often first-line treatments. An initiative that could be considered to target this issue is the involvement of peer support from pre-term mothers. As seen in this research, participants reported forming strongly valued connections with other pre-term mothers in NICU as they held a common understanding based on their shared experiences. Secondary to this, the participants demonstrated huge compassion, knowledge, and desire to support new mothers who might have similar difficulties, which provides a

sense of reward and purpose to them in return, facilitating the process of "meaning-making" which is a key factor in post-traumatic growth, suggesting the two-fold value for peer support.

Changes to healthcare structures and provisions could also be suggested as a result of this research. Several participants in the study reflected on the benefit of receiving mental health support, where this topic was able to be explored and helped them manage difficulties arising. Unfortunately, psychological provision was not consistently available across the UK which suggests an unequitable system and improvements needed. Additionally, several participants reported feeling that premature birth seemed an uncomfortable or unknown topic for lots of professionals which seemingly may have reinforced some of the difficulties outlined in this research, such as feelings of shame or not belonging. It is hoped that increased awareness and knowledge of the needs and experiences of pre-term mothers can support professionals in this area. Finally, the impact of others' pregnancies on pre-term mothers in hospital settings noted in this study highlights a need for improving maternity care environments with a trauma-informed approach, so women feel protected during times of huge vulnerability. This is consistent with findings in the literature, including a systematic review which identified eight recommendations for implementing trauma-informed care within the NHS (Benton et al., 2024) and a proposed framework, known as the EMPATHY framework, that was established following extensive research on trauma-informed maternity care (Cull et al., 2025). Both studies illustrate the needs of this patient group and the responsibility held by healthcare structures and professionals to ensure these are met.

Conclusion

This research provided novel insights into the inner world and interpersonal experiences of pre-term mothers in the context of other women's pregnancies. It also highlighted wider societal impact of healthcare systems for this group of women. Clinical implications include peer support interventions for pre-term parents, education for healthcare staff, and improvements to maternity care environments. Future research recommendations include exploration of this topic through other lenses such as male partner / spouses and broader cultures and demographics.

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Chapter Five: Extended Methodology

The following chapter will provide supplementary information for the empirical project. This includes further details on the philosophical framework of the research and researcher positionality, as well as extended recruitment and analysis information.

Research positionality

Ontology and epistemological standpoint

The construct of motherhood may be best explored through a critical realist framework due to its intersectionality between biological and social factors. From a realist perspective, research can provide insights on the determined behaviours and experiences women have through the physical and biological embodiment of motherhood. However, research of this nature is arguably outdated and reductionist as it fails to acknowledge the wider context and unique differences in which a mother's identity develops. Incorporating a critical standpoint allows for the understanding that motherhood is not experienced equally by all and perceptions of this will be shaped by positionality in the world. This is particularly relevant for pre-term mothers whose journey to motherhood is biologically and socially different to the dominant discourse typically held. This study is therefore informed by a critical realist ontology.

Historically, research has been presented through a male-centric lens, as women as both researchers and participants have been under-represented in scientific literature. This research aimed to explore this topic through a feminist epistemological standpoint by holding value on the experience of motherhood being unique to women and being led by a female researcher. It felt important for this position to be utilised to provide an accurate depiction of

these uniquely female experiences, whilst also increasing visibility of an under-represented group in the literature (Intemann, 2010).

Researcher reflexivity and rigour

To ensure research rigour, recommendations from Yardley (2000) were considered throughout the project, such as identifying the subjective lens that it has been explored through. As a Trainee Clinical Psychologist holding a 'dual role' working in research and clinical settings I considered my background of experiences and training that have shaped my perspective. I hold somewhat of an insider position to this group having worked clinically with pre-term mothers in mental health settings and come into this research with sensitivity to their emotional experiences. I also hold an outsider position as I do not have personal experiences of being a pre-term mother and therefore held little assumption about their responses, allowing for curiosity. For transparency, a reflexive diary was kept throughout the project to reflect on how my own biases and values impacted my role as a researcher. My commitment to carrying out meaningful research allowing under-represented voices to be heard and potentially contributing to wider contexts such as the evidence base and healthcare was a significant driver in becoming fully immersed as a researcher.

Participants and recruitment

Patient and Public Involvement (PPI)

Two experts-by-experience took part in the preliminary stages of this research through PPI consultation. Both were recruited through social media advertising (Appendix C) and were chosen as they met the participant criteria of the research and on a "first-come first-serve basis." Selecting PPI members from the potential participant pool felt important in order to represent the group being explored and to allow the researcher to begin connecting

with the experiences of this group, in line with the reflexive nature of this project (Dawson et al., 2020). There was lots of interest expressed from women keen to be involved at this stage which suggested women with this experience wanted to raise awareness on and support with.

The researcher met with both PPI members individually for a one-hour consultation. They shared details around their experiences, what they believed would be important to share regarding the research topic, and how they might feel to be interviewed on this. Themes around the sensitive nature of the topic and how to stay aligned to the research question in the interview were discussed and reflected on. The draft interview topic guide was reviewed by the PPI members and developed in line with their recommendations. They were paid £25 each for their time as per recommended guidelines (NIHR, 2023). Their insights and support for the project were invaluable.

Recruitment challenges

With the evolvement of artificial intelligence, I was aware that the screening questionnaire may be at risk of receiving non-human responses, particularly due to the financial reward available. A number of considerations were made based on recommendations from Brainard et al, (2022) to mitigate this risk. This included adding a simple maths question ("what is 5 +3?") that required a typed response. Wrong answers to this question, incongruent responses to the open-ended questions, and inconsistent completion times, allowed for quick detection of non-human responses which were immediately removed from the sample, see example (Appendix I).

Whilst meeting eligibility from the screening questionnaire, there were a number of potential participants whose email correspondence elicited a "gut feeling" in me that they

were non-human or disingenuous in some way. However, I did not have sure evidence of this and was simply recognising a difference in tone / structure to their writing that felt unusual but appeared to have a commonality between them. I decided that this alone was not rationale for withdrawing their participation and gave consideration to individual differences in communication and whether there were biases in my expectations around this that were active.

Subsequently, I began an interview with one of the participants I had concerns about and it quickly became clear that this was a fraudulent participant. They did not speak fluent English, their answers were inconsistent throughout, there was no evidence of a baby, and there were long pauses and disconnection issues which did not appear genuine. In the context of the very raw and honest accounts that true participants had provided, it was hugely disappointing for the integrity of the data to be almost compromised in this way. I later recognised that a trend across the participants I had concerns about having similar formulas to their email address (e.g. first name, surname, number @gmail.com) and all of these were entirely untraceable on the internet, which was not the case for other genuine participants and does not align with the online source of recruitment. This is an emerging phenomenon in which qualitative researchers are unfortunately experiencing and provides learning points for future researchers to consider (Mistry et al., 2024).

Analysis

The interview data was analysed using Braun and Clarke's (2006) six-stage model of Reflexive Thematic Analysis (RTA). The steps to this model included:

1. **Familiarisation with the data.** This step required the researcher to become immersed in the data through re-listening to interviews and re-reading transcripts. Repeated engagement with the data allowed the researcher to begin forming initial ideas and notes for further exploration, whilst developing a good understanding of the participant's experiences. This processed ensured research rigour.
2. **Generating initial codes.** The researcher used a complete coding method to identify initial codes relevant to the research question (Appendix K). This process involved capturing broad codes that were deemed to be interesting and meaningful by the researcher in order to avoid missing any data which may support the aims of the project. This was completed by the primary researcher only in line with the reflexive nature of the project to provide consistency with the stance that the project is aligned with.
3. **Generating initial themes.** Codes were extracted from each interview and printed to paper for the researcher to manually begin to construct meaning between them (Appendix L). This was a lengthy, but creative and valuable process. The researcher consulted with their reflective diary entries to make connections between the data and internal processes that they had at the time, to inform the lens that themes are developed through (Appendix M). This process allowed for explanation of how themes were constructed, supported by the consideration of alternative interpretations. A large amount of themes were developed at this stage.
4. **Reviewing potential themes.** The next stage included further review of themes, finding links emerging between them and discarding those not deemed relevant. This processed required ensuring connections to the wider dataset whilst acknowledging the researcher's positionality. Prominent themes and potential sub-themes were highlighted and seen in Appendix N.

5. **Defining themes.** Themes were finalised and named, ensuring that their header encapsulated the meaning wished to be portrayed. Academic supervisors were consulted to reflect on these and gain a reader's perspective to ensure intended communication was made. It seemed that many themes were not entirely distinct from each other and some overlap remains present, but dominant themes were chosen to represent this. Themes were reformed digitally for software use which supported with finalisation (Appendix O).
6. **Processing the report.** A written report was produced to convey the analysis in a coherent way whilst illustrating the reflexive process. Extracts / quotes from interviews were used to provide examples of theme origins. To ensure representation from all participants and reduce biases, extracts were selected across the entire dataset. In writing the report, the order in which themes are presented were considered to underpin the narrative of the research.

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Chapter Six: Discussion and Critical Evaluation

This final chapter aims to provide a discussion and critical appraisal of the thesis portfolio which consisted of a systematic review of the literature and an empirical research project. This chapter will begin with an overview of findings and interpretation of these together in the context of the wider thesis. This will be followed by a critical appraisal of the portfolio, considering its strengths, limitations, and broader implications, guided by the Critical Appraisal Skills Programme (CASP) tools for qualitative research and systematic reviews (2024). This chapter ends with a reflective account from the researcher.

Overview of findings

The systematic review explored the barriers and facilitators to mother-infant attachment in UK neonatal intensive care units (NICU). Twelve qualitative and mixed-methods studies met the eligibility criteria and were included in the narrative synthesis. A critical appraisal was also completed of these studies. The findings from this review concluded that factors that acted as barriers or facilitators to mother-infant attachment in NICU were existent within the individual experience of the mother and mother-infant dyad or more broadly within the wider healthcare system. These were:

1. Physical proximity between mother and baby
2. Motherhood identity and role attainment
3. Mother's psychological experiences
4. Role of professionals
5. The NICU environment.

The empirical project explored first time mothers of very pre-term babies' experiences of other women's pregnancies through a critical realist perspective. A reflexive thematic analysis of 15 semi-structured interviews was completed and revealed six themes and six sub-themes within the data. These included:

1. The complexity of emotion
    1.1 Jealousy and shame
    1.2 The bittersweet
2. Fear
    2.1 Fear for her
    2.2 My experiences are a source of fear for others
3. Am I in or out of the group?
    3.1 The unspoken communication between us
    3.2 Exposure in hospital
4. Am I enough of a mother?
5. Grief, loss, and longing
6. Finding purpose.

A shared finding across both chapters was the presence of complex emotional and psychological experiences which shaped behaviours for mothers of pre-term and NICU babies. An example of this are the avoidance behaviours driven by fear and self-protection, illustrating one coping strategy developed by this group of mothers, but with the secondary outcome of reduced connections with both their infant and with their peers. The systematic review highlighted how this interacts with the mother-infant relationship, with papers describing how mother's making sense of their own traumatic birth experiences can increase capacity for emotional connection with their baby. The systematic review also highlighted the

complex interplay between mothers' depression, bonding with baby, and their physical proximity to baby, where in the context of NICU it was not possible to define which was the originating factor, but rather that they co-exist and interact with each other, influencing the mother-infant relationship. In the empirical project, several themes encompass the multi-faceted emotional experiences pre-term mothers had in the presence of other pregnant women, highlighting how these manifests in a social context extending beyond NICU. This included complex psychological processes around social comparison and questioning of their own identity as a mother, which suggests the importance of improving understanding of these emotional experiences to reduce risk of worsening outcomes for this group of mothers. The empirical project also gave insight to a different coping strategy of supporting new mothers. This allowed pre-term mothers to process and channel their own experiences and skills learnt from their experiences into helping others, instilling a sense of purpose in the difficulties they faced.

Another shared finding was that experiences of motherhood, in the context of NICU and pre-term birth, are shaped by wider social and structural processes that extend beyond the individual. It appeared that this is underpinned by expectations and assumptions of the normative experience of motherhood, which when not met, reshapes the relational positionality of mothers in society, healthcare, and within the mother-infant dyad. Motherhood identity was a prevalent example of this across both chapters. The systematic review illustrated how identity in NICU is underpinned by engagement in care activities for baby, as would be expected in the normative narrative of mothering taking place outside of NICU. In the empirical paper, mothers questioned their identity as a mother in the themes "am I enough or a mother?" and "am I in or out of the group [of other mothers]" as their experiences differed from the normative experience they saw in others, repositioning them as

separate from the collective ‘motherhood’. Together, the findings in both chapters suggest that those outside of the normative experience of motherhood experience a sense of marginalisation both within clinical settings and beyond this in societal structures, highlighting that the development of mother identity takes place more broadly beyond the biological transition of becoming a mother.

The interaction between healthcare and mothers of pre-term or NICU babies was prevalent across both chapters. In the systematic review it was found that the NICU environment and the role of professionals were dominant factors that could act as barriers or facilitators for mother-infant attachment. Similar factors were highlighted in the empirical paper where the mothers described their exposure to other pregnant women and full-term mothers in maternity wards, with the understanding that the environment and professionals were mediators in how protected or unprotected the mothers felt. Underlying both chapters are concepts of visibility and belonging within healthcare systems. When the sense of visibility and belonging is low, this group of mothers face painful reminders of how their non-normative experience can be perceived and treated by others, reducing feelings of acceptance into the ‘motherhood’ group. This is an important finding as the experiences of healthcare were found to shape the mother-infant relationship and how pre-term mothers felt about other’s pregnancies, suggesting the wider impact of healthcare beyond the newborn period. Further to this, due to the medical complexities that result from pre-term birth, it is not uncommon that mothers or their babies have long-term healthcare needs, and without safety and containment in healthcare, there is risk of reduced access to necessary care and poorer outcomes. Additionally, negative experiences of healthcare risk reinforcement of fear narratives related to pre-term birth, which can impact wider societal beliefs and maintain marginalisation for pre-term mothers, as is seen across both chapters.

Strengths and Limitations

A main strength of this thesis portfolio is that, to the best of the researcher's knowledge, it contains novel and original pieces of research. Additionally, both pieces of research demonstrate robust designs, meaning they are valid and reproducible. For example, the systematic review was prospectively registered on the international database of systematic reviews, PROSPERO, which allowed the researcher to ensure its originality and promote research transparency (Booth & Stewart, 2013). The quality appraisal process and the use of an independent second reviewer in the systematic review also reduced risk of bias. The empirical project benefitted from the use of PPI members that were representative of the participant pool, meaning that that project maintained reflexivity from the early design planning stages of the research in line with the overall stance and to reduce researcher subjectivity biases.

A limitation of the portfolio is that the specific focus on birthing mother's experiences alone could arguably be perceived as ignoring the nuances of modern day experiences of being a woman and motherhood (Baltes-Löhr, 2021). Some may argue that in doing so, this research could be perceived as non-inclusive to wider forms of motherhood which somewhat challenges the concept of motherhood as a social construction discussed in this paper, potentially reducing broader perspectives. Similarly it may be seen as non-inclusive to broader forms of parenting that exist beyond traditional biological experiences and could potentially contribute to reinforcement of heteronormative discourses that are dominant in scientific research (McInerney, Creaner, & Nixon, 2021). However, as stated in the empirical paper, the decision to focus on birthing mothers' experiences alone was well-considered in order to best align with the critical realist ontology. In doing so, this recognised the embodied experiences specific to birthing women, through a unique lens of pre-term mothers,

recognising that there is a complex interplay between deterministic and a constructionist stances, which constitutes one group's perception of motherhood through the critical realist stance.

There are both advantages and disadvantages to the overall qualitative methodology of the thesis portfolio. For the empirical paper, the qualitative approach allowed for rich and meaningful data collection of a topic which currently has a limited evidence base. Further to this, the interviewer-interviewee dynamic was an important element of this research due to the complex and sensitive nature of the topic. With the overarching themes linked to marginalisation and feelings of 'otherness' experienced by the participants, the interactive nature of interviewing allowed for the researcher to adapt their communication style with validation, compassion, and curiosity to reduce activation of feelings of shame, which there is risk of with research of this nature (Silverio et al., 2022). The researcher's clinical training positioned them well to manage this as there is overlap in skills for completing research interviews and clinical assessments, however this can raise other challenges as an interviewer, which are discussed in the reflective account below (Thompson & Russo, 2012). The interview process also allowed for the researcher to clarify discussion points and alleviate risks of misunderstandings, ensuring accurate representation of the participants' experiences. A quantitative approach may have been less appropriate and resulted in a reductionist outcome ignoring the nuances that are felt and observed through a dynamic interview process.

In contrast to this, a quantitative approach may have added more value to the systematic review. It was discussed in the earlier chapter that the term 'attachment' may be seen as ambiguous and be defined differently by different populations. Attempts to mitigate this issue were made through the use of university librarian consultation to develop search

terms. However, it remains a potential weakness in this systematic review as it included research articles from perspectives of mothers, fathers, and professionals, whom all may interpret the term attachment differently. Research supports the presence of an inadequate definition of attachment, with mothers seemingly more likely to describe attachment as feelings of love or connectedness to their baby and NICU nurses instead describing mother-infant attachment as physical presence and care participation (Bialoskurski, Cox, & Hayes, 1999; Feeley et al., 2016; Stoodley et al., 2025). Therefore, alternative use of quantitative papers including validated outcome measures underpinned by standardised definitions of attachment would have improved validity of the present review. However, as these were not found to be available, explanations for this may be related to the lacking definition of attachment identified here, meaning it is more challenging to use in quantitative research. This resulted in the systematic review containing largely qualitative papers with small sample sizes which risks reducing generalisability.

Theoretical implications

The findings of this thesis contribute to our understanding of pre-term and NICU mothers experiences which to date have been under-researched. It provided novel insights into the interaction between biological, psychological, and social processes in becoming a mother through a non-normative journey. More specifically, it explored the social identity and positionality of motherhood and how this is shaped between peers and more broadly through societal structures and healthcare systems beyond the individual, having direct influences on the mother-infant relationship and peer relationships with other mothers. The systematic review added to classical understandings of attachment and how this develops between mother and baby in the modern day NICU. The empirical paper developed understanding of social comparison theory processes in the context of pre-term motherhood and demonstrated

how post-traumatic growth operationalises in this population, adding to the existing knowledge base of these theories.

Clinical implications

This thesis illustrated pre-term mothers' experiences of marginalisation from their peers and within healthcare settings, providing a potential explanation for why pre-term mothers access support from health services less than full-term mothers. It demonstrated a need for psychologically informed care within NICU, such as mental health support to be provided in-house whilst babies are admitted. This would allow mothers to stay close and develop their relationship with their babies which is beneficial for their health as well as their baby's growth and development. The thesis highlighted the beneficial role of shared experience in pre-term journeys which shaped recommendations around implementing peer-support within NICU, which would be useful for current NICU mothers as well as being a rewarding and valued experience for post-NICU mothers. Finally, the overarching findings on the impact of wider structural and systemic influences on pre-term mothers suggests a need for a top-down approach to improving health services. An example of this is the data informing the re-design of hospital environments, including NICU and maternity / post-natal settings, to become more trauma-informed and supportive to pre-term mothers and those who do not have the 'normative' experience. The results can also inform policymakers to consider improving standardised guidance to support NICU professionals to provide consistent and confident care. In addition to this, increasing psychology provision in NICU can support with staff training and bridging the gap between research and practice.

Future research

As this thesis focussed on UK populations only, repeating both parts of the research exploring data from different countries with different cultures and healthcare structures could provide useful insights and learnings. Similarly, exploring other parenting experiences in this area such as fathers and other non-birthing parents could provide information on their specific support needs, as has been demonstrated in this thesis for birthing mothers. Exploring demographic factors further may also provide useful insights into how healthcare systems can provide support beyond the expected Westernised care, incorporating culturally sensitive interventions. Finally, additional quantitative research may complement the qualitative results reported here and provide further evidence and rationale for recommendations given.

Feedback

As part of the interview debrief process in the empirical research, participants were encouraged to share feedback on their experience. Many reflected on this being a positive experience which allowed them to share openly and feel validated in their pre-term journey. Many also described a sense of duty and gladness to contribute to the research field and ultimately support other pre-term mothers, which aligned closely with the final theme discussed of 'finding purpose.' Throughout the course of completing interviews, I received correspondence from a Clinical Psychologist in another region of the UK who had been made aware of my research through a parental advisory group and shared positive feedback they had heard from those who had taken part. This suggests that despite reservations some researchers may have with carrying out research on topics of a sensitive nature, particularly with those from under-represented groups and those which may have added complexities

such as the presence of babies, participants found it a valuable and positive experience to take part.

Researcher reflections

During interviews several mothers were curious about my role as a trainee clinical psychologist which they were aware consisted of carrying out this research alongside working clinically in the NHS. Some had encountered clinical psychologists in their NICU journey and overall, this was perceived positively, seemingly supporting with rapport building during interviews. However, I found myself balancing a conflict of feeling disappointed and frustrated at some of the very difficult NHS experiences participants described, holding a sense of being a representation of NHS professionals and the awareness of the limitations that exist in this system that are often beyond control of the individuals working in it.

My dual role also elicited a draw towards a therapeutic standpoint during interviews which at times felt challenging to refrain from, particularly in emotive conversations with mothers recalling their distressing experiences. I was aware that at times this led to deviating away from the topic guide, yet it felt necessary to allow space for mothers to share what felt important to them to create safety and containment, particularly for those who had not engaged with any psychological support for their experiences. Recognising the interaction of my research and clinical identities was an important part of the reflexive process to understand the lens in which I was interpreting the results.

Before this project I had less research experience and aligned more closely with my clinical aspects of my role. At times throughout the interview process I would experience

feelings of helplessness in not providing support to the mothers in the way that would be familiar to me in my clinical roles. This was particularly active when hearing the ongoing trauma mothers were experiencing, as well as witnessing the long-term complications experienced by their babies who were often present during interviews, reminding me of their lifelong journeys resulting from pre-term birth. This allowed me to recognise my ethical responsibility as a researcher in providing a platform for their experiences to be heard on a wider scale in the evidence base, which felt incredibly meaningful and increased my connection to my research identity. I have learnt invaluable research skills through this project and developed my reflexive capacity, which I have felt mirrored in my clinical practice and recognised in my overall development as a Clinical Psychologist.

Conclusion

This thesis portfolio provided novel insights into motherhood following pre-term birth and experiences of NICU. It found that a complex interplay of factors at individual, interpersonal and broader structural and societal levels shaped the mother-infant relationship and the pre-term mother's experiences of other pregnant women. It highlighted concepts of group belonging and marginalisation for those who face a non-normative journey, shaping their identity as a mother, and owing a greater recognition of motherhood as a social construction.

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Appendices

Systematic review

Appendix A – Search terms

Barriers and facilitators terms: Barrier* OR Facilitat* OR Obstacle* OR Promot* OR Support* OR Influence* OR Impact*

AND

Mother-infant terms: Mother* OR "Mother-infant" OR "Mother-baby" OR "Mother infant" OR "Maternal Infant" OR Dyad

AND

Attachment terms: Attachment OR Relation* OR Connect* OR Bond OR Interaction OR Engagement OR Attune*

AND

NICU terms: "Neonat* intensive care" OR "Special care baby unit" OR NICU OR "Neonat* critical care" OR "Neonat* admission" OR SCBU

Appendix B – MMAT critical appraisal tool (Microsoft Word - MMAT_2018_criteria-manual_2018-08-08.docx)

Part I: Mixed Methods Appraisal Tool (MMAT), version 2018

Category of study designs	Methodological quality criteria	Responses			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	S1. Are there clear research questions?				
	S2. Do the collected data allow to address the research questions?				
	Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.				
1. Qualitative	1.1. Is the qualitative approach appropriate to answer the research question?				
	1.2. Are the qualitative data collection methods adequate to address the research question?				
	1.3. Are the findings adequately derived from the data?				
	1.4. Is the interpretation of results sufficiently substantiated by data?				
	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?				
2. Quantitative randomized controlled trials	2.1. Is randomization appropriately performed?				
	2.2. Are the groups comparable at baseline?				
	2.3. Are there complete outcome data?				
	2.4. Are outcome assessors blinded to the intervention provided?				
	2.5 Did the participants adhere to the assigned intervention?				
3. Quantitative non-randomized	3.1. Are the participants representative of the target population?				
	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
	3.3. Are there complete outcome data?				
	3.4. Are the confounders accounted for in the design and analysis?				
	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?				
4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the research question?				
	4.2. Is the sample representative of the target population?				
	4.3. Are the measurements appropriate?				
	4.4. Is the risk of nonresponse bias low?				
	4.5. Is the statistical analysis appropriate to answer the research question?				
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				
	5.2. Are the different components of the study effectively integrated to answer the research question?				
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				

Appendix C

Link to website for journal author guidelines: Infant Mental Health Journal: Infancy and Early Childhood

Empirical paper

Appendix A - Author guidelines for JCASP

Link to website: Journal of Community & Applied Social Psychology

Appendix B - Ethical approval

University of East Anglia
Norwich Research Park
Norwich. NR4 7TJ

Email: ethicsmonitor@uea.ac.uk
Web: www.uea.ac.uk

Study title: Mothers of Very Pre-Term Babies Experiences of Other Women's Pregnancies

Application ID: ETH2425-0010

Dear Grace,

Your application was considered on 4th December 2024 by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee).

The decision is: **approved**.

You are therefore able to start your project subject to any other necessary approvals being given.

If your study involves NHS staff and facilities, you will require Health Research Authority (HRA) governance approval before you can start this project (even though you did not require NHS-REC ethics approval). Please consult the HRA webpage about the application required, which is submitted through the IRAS system.

This approval will expire on **31st October 2026**.

Please note that your project is granted ethics approval only for the length of time identified above. Any extension to a project must obtain ethics approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) before continuing.

It is a requirement of this ethics approval that you should report any adverse events which occur during your project to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) as soon as possible. An adverse event is one which was not anticipated in the research design, and which could potentially cause risk or harm to the participants or the researcher, or which reveals potential risks in the treatment under evaluation. For research involving animals, it may be the unintended death of an animal after trapping or carrying out a procedure.

Any amendments to your submitted project in terms of design, sample, data collection, focus etc. should be notified to the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) in advance to ensure ethical compliance. If the amendments are substantial a new application may be required.

Approval by the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee) should not be taken as evidence that your study is compliant with the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018. If you need guidance on how to make your study UK GDPR compliant, please contact the UEA Data Protection Officer (dataprotection@uea.ac.uk).

Please can you send your report once your project is completed to the FMH S-REC (fmh.ethics@uea.ac.uk).

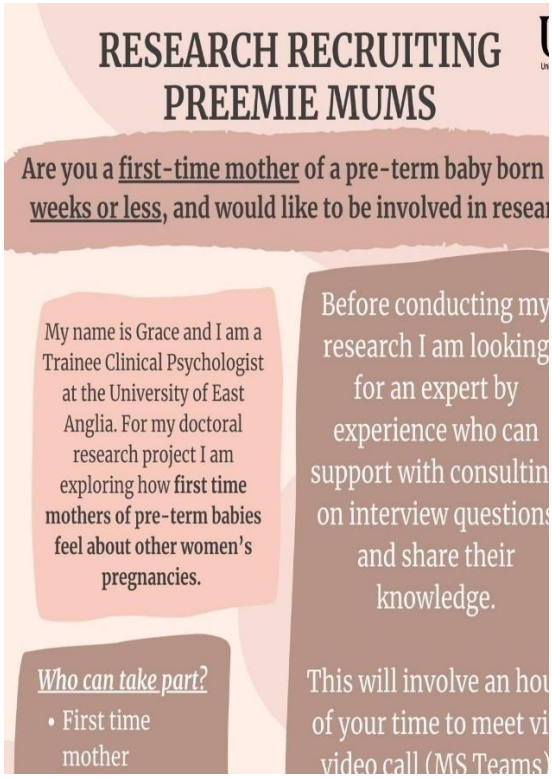
I would like to wish you every success with your project.

On behalf of the FMH S-REC (Faculty of Medicine and Health Sciences Research Ethics Subcommittee)

Yours sincerely,

Dr Paul Linsley

Appendix C – PPI Advert



Appendix D – Research advert



Appendix E – Screening questionnaire (as appears on Microsoft Forms)

Screening questionnaire

Thank you for your interest in taking part in this research project exploring first-time mothers of pre-term babies' experiences of other women's pregnancies. Please read the below Participant Information Sheet and if you are happy please click onto the next page where you can complete the screening questionnaire so I can check your eligibility to be a participant.

Participant information sheet

> Insert PIS <

Questionnaire

About your pre-term birth:

1. Are you a first-time mother? Yes, no
2. Have you delivered a pre-term baby between 6 and18 months ago? Yes, no
3. What is their date of birth? Date selector
4. Did you experience baby loss during / after your pre-term delivery? Yes, no
5. Do you have experiences of being around other pregnant women after your pre-term delivery that you can recall and discuss? (e.g. pregnant family members, friends, colleagues, at baby groups etc) – yes, no

About you:

6. Would you like to be considered to take part in research involving an online interview with a trainee clinical psychologist lasting approx. 1 hour? Yes, no
7. Are you a fluent English speaker? Yes, no, unsure
8. Do you have access to a computer/laptop with a working microphone and camera? Yes, no
9. Are you happy to have your interview recorded for research purposes? Yes, no
10. Are you available between the dates of……: yes, no, possibly
11. Please enter your contact details: type email and telephone
12. Where did you see this poster advertised (e.g. Facebook, Instagram, sent to me by a friend, etc) type answer

Thank you for taking the time to complete this questionnaire. If you meet eligibility criteria of the project I will be in touch with further information about the next steps in due course. Those who do not meet criteria will not be contacted further and your information provided here will be removed from my database in line with GDPR processes. If you have any questions please contact me on g.keyte@uea.ac.uk.

Best wishes,

Grace Keyte

Trainee Clinical Psychologist

University of East Anglia

https://forms.office.com/e/eHk1bkivCs

Appendix G – Consent form

Participant Consent Form

1. I confirm that I have read the through the participation information sheet and have had the opportunity to consider the information given about the study, ask questions and have had these answered satisfactorily. I confirm that I understand the information given.
2. I understand that my participation in this study in voluntary, and I can withdraw at any timepoint before, during, or up to 2 weeks after my interview.
3. I agree to my online interview being recorded and stored securely for research purposes.
4. I understand that the data I provide will be kept anonymously, confidentially and
securely, and will be used for the purpose of this research study.
5. I understand that in any report on the results of this research my identity will remain anonymous. This will be done by changing my name and disguising any details of my interview which may reveal my identity or the identity of people I speak about.
6. I understand that the data I provide may be used anonymously in published research and reported at research conferences.
7. I understand that I am free to contact any members of the research team to seek further clarification and information at any point throughout the project.

I consent to participate in this study (tick box)

Name: (typed)

Date: (date selector)

This study has received ethical approval from the University of East Anglia Faculty of

Medicine and Health Sciences.

https://forms.office.com/r/Rw5bSHRiRa

Appendix H – Demographics form

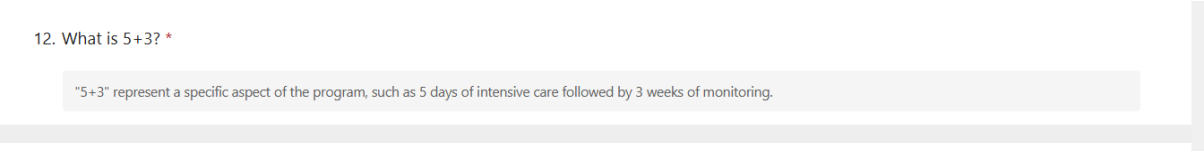
Demographics questionnaire

1. What is your age?
   Type in text box
2. What is your gender?
   Male, female, other (type in text box), prefer not to say
3. Do you identify as the sex you were assigned at birth?
   Yes, no
4. Which of the following best identifies your sexual orientation?
   Heterosexual/straight, lesbian/gay, bisexual, asexual, prefer not to say, other (type)
5. What is your first language?
   Type in text box
6. What is your marital status?
   Single, living with a partner/cohabiting, married, prefer not to say, other (type in text box)
7. Do you consider yourself to have a disability?
   Yes – please specify (type in text box), no, prefer not to say
8. What is your religion?
   No religion, Christian, Catholic, Jewish, Muslim, Buddhist, Jehovah's witness, Sikh, Hindu, Other (type in text box), prefer not to say
9. What is your ethnicity/ racial identity?
   Asian or Asian British, Black or Black British, Mixed, White, Other (type in text box), Prefer not to say
10. What is your highest level of education?
    Primary school, secondary school (up to age 16), college/ sixth form (a-levels/BTEC), undergraduate degree, post-graduate degree, professional or doctoral qualification, prefer not to say
11. What area of the UK do you live?

East of England, East Midlands, London, North East, North West, Northern Ireland, Scotland, South East, South West, Wales, West Midlands (Or postcode option?)

https://forms.office.com/r/L0m3kj0H92

Appendix I – Robot responses on screening example



Appendix J – Topic Guide

Settling in / plans

- Hello and intro and thank you
- Please tend to baby if needed
- An hour – have some questions to ask but loose structure and will go with flow – might be times I move along – please don't be offended
- £10 amazon voucher will send to the email address you've been contacting me on – within a week
- Any questions?

Interview schedule

Plan: 1-hour semi-structured interview via video meeting

1. Hearing your story and own experiences/ feelings/ thoughts during this (approx. 10 minutes)
    a. Pregnancy and pre-term birth journey
    b. NICU & recovery
    c. Mental health and support offered / accessed at the time – either from professionals or support network

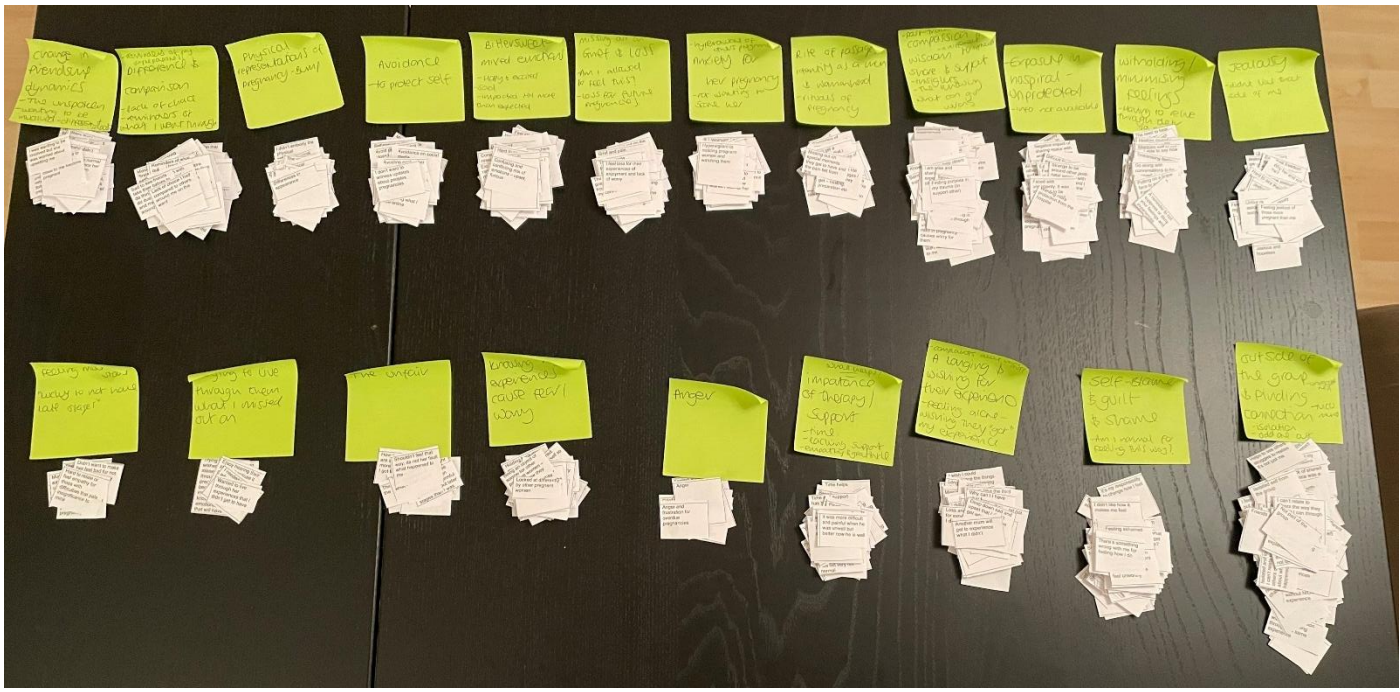
2. Feelings/ thoughts/ experiences/ actions when around other pregnant women (approx. 20 minutes)
    a. Your relationship to them and/or general experiences
    b. Finding out they were pregnant
    c. Reaching milestones/ dates – e.g. the timepoint in pregnancy when your baby was born and when they reached that timepoint too but remained pregnant
    d. Throughout the pregnancy
    e. At time of birth – story about their delivery
    f. Post-birth / recovery / newborn weeks
    g. ?Feelings - jealousy, anger, grief, worry, sadness, avoidance, fitting in with other mums, identity as a mum
3. How you manage the feelings/ experiences (approx. 20 minutes)
    a. What is this experience like to live with / what is the impact on your own wellbeing
    b. Do you cope alone, speak with someone close, speak with that pregnant woman, discuss with professionals
    c. Did your relationship with that person change and how
    d. If you spoke about it during therapy/ other mental health support what was that like - did this help or worsen your feelings towards others
4. What would have been / would still be helpful (approx. 10 minutes)
    a. What would you like others to know?
    b. Do services have a role to play in this? Are there wider systemic issues?
5. Any other information or hopes for where this research will go?

- 2 weeks to withdraw
- Let me know if you want to review transcript
- Would you like to be kept up to date with outcomes
- Debrief for any emotional distress and research feedback

Appendix K - TA Stage 2: Generating initial codes example

Yeah, just so envious that people, other people had what I didn't have. And then a lot of it was blame for a long time that it was, I blamed myself. So I think that's two of the things that I felt and carried for a long time was, yeah, and then they're not nice feelings, especially the envy part. I hated that I could see a pregnant lady, or a newborn baby and feel or think things that were I thought were horrible. And then I thought I was an awful person, I really didn't feel good about that. And then which me feel not good about myself. So it was just not a nice thing to carry around with you for a long time.	It's my fault that others have what I can't ?Shame about the feeling I'm a bad person Not liking who I am The heaviness of carrying it all

Appendix L - TA Stage 3: Generating initial themes process

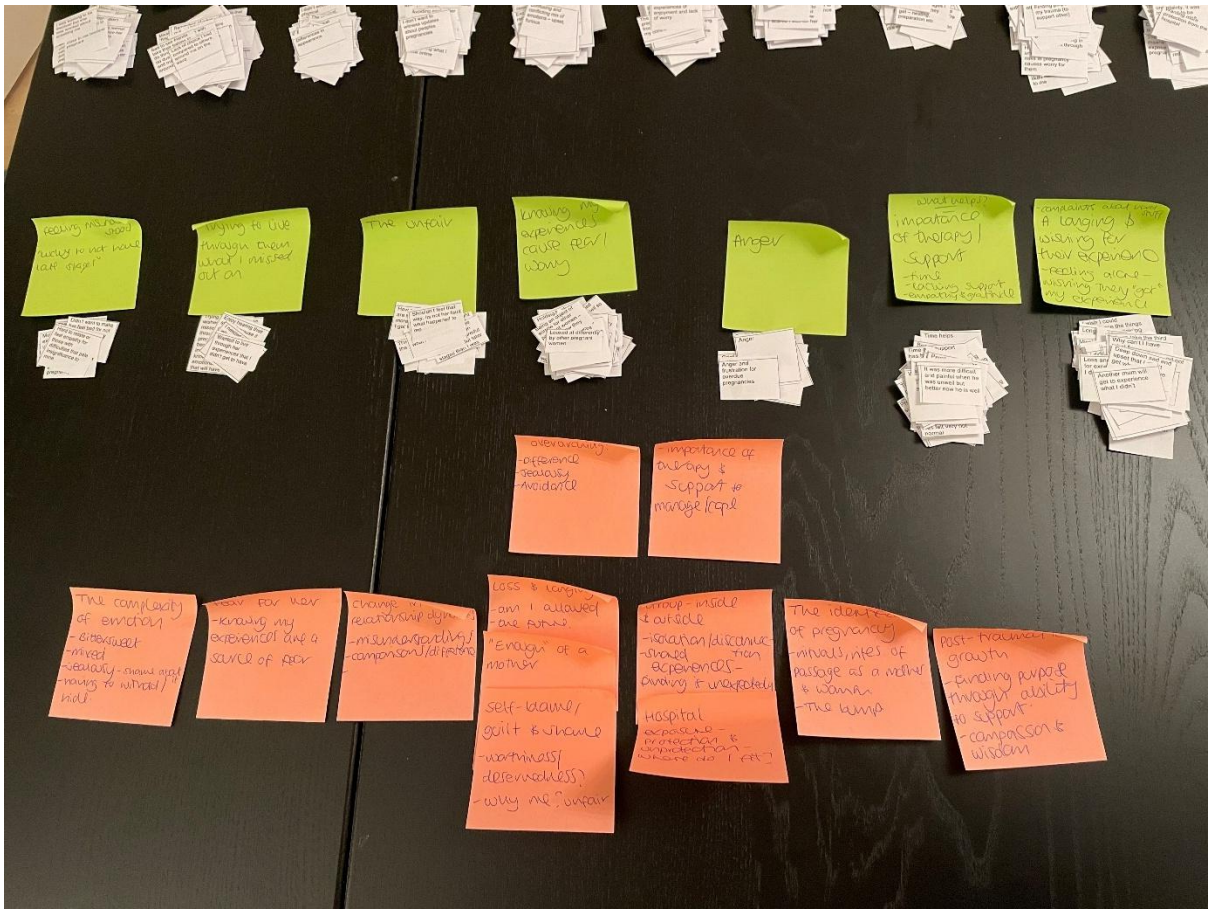


Appendix M – Reflective diary entry examples

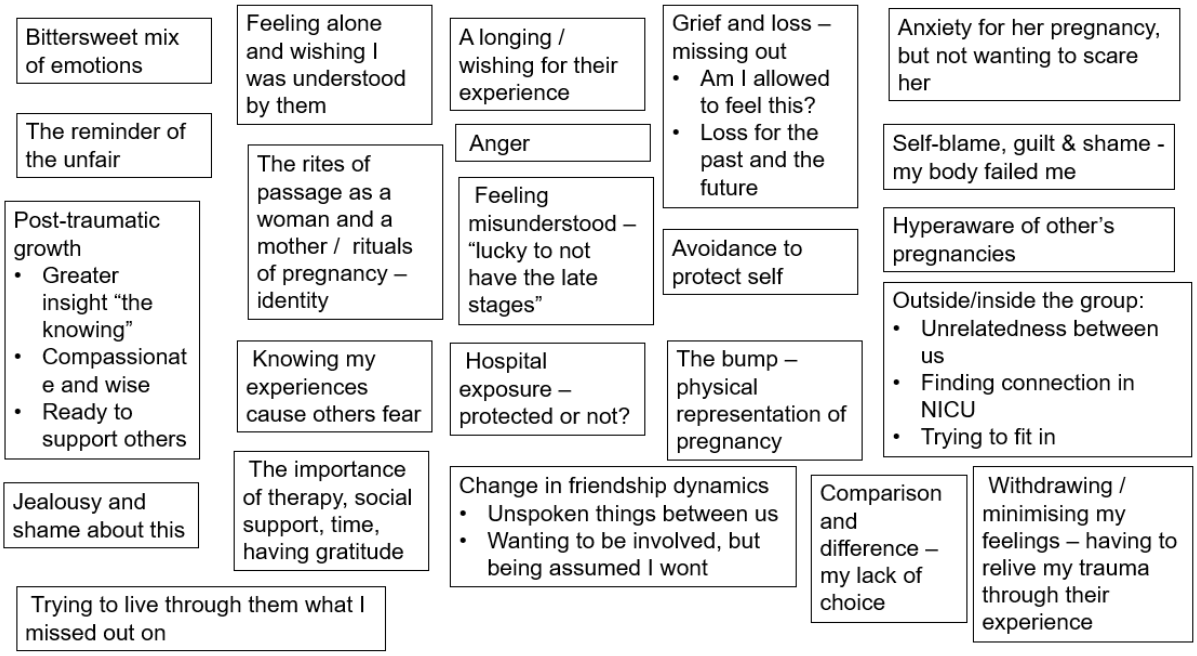
- 06/06/2025: Considering my interview style – was it adapted due to presence of

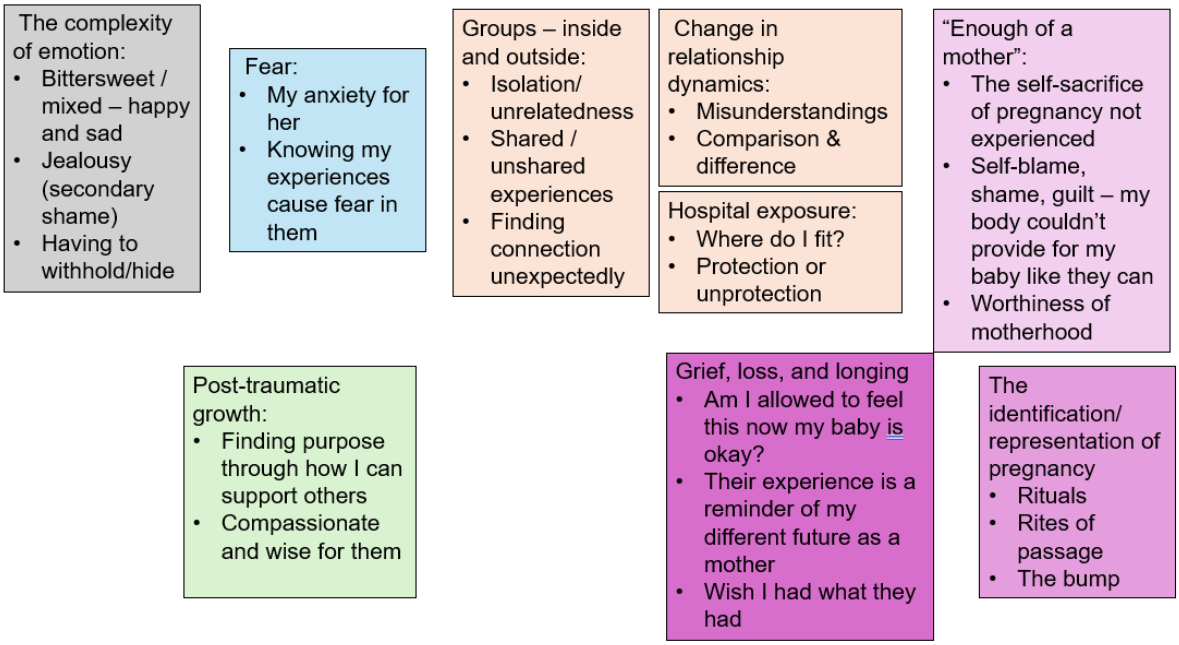
- 27/06/2025 - Thinking about the role of hospital care – I'm feeling angry/ frustrated at the limited capacity/ resources of staff and services that are exposing women to trauma in their most vulnerable states. What changes can be made? How can my research voice this?

Appendix N - TA Stage 4: Reviewing potential themes process



Appendix O – TA stage 5: Defining themes




The complexity of emotion:
• Bittersweet / mixed – happy and sad
• Jealousy (secondary shame)
• Having to withhold/hide
Fear:
• My anxiety for her
• Knowing my experiences cause fear in them
Groups – inside and outside:
• Isolation/ unrelatedness
• Shared / unshared experiences
• Finding connection unexpectedly
Change in relationship dynamics:
• Misunderstandings
• Comparison & difference
Hospital exposure:
• Where do I fit?
• Protection or unprotection
"Enough of a mother":
• The self-sacrifice of pregnancy not experienced
• Self-blame, shame, guilt – my body couldn't provide for my baby like they can
• Worthiness of motherhood
Post-traumatic growth:
• Finding purpose through how I can support others
• Compassionate and wise for them
Grief, loss, and longing
• Am I allowed to feel this now my baby is okay?
• Their experience is a reminder of my different future as a mother
• Wish I had what they had
The identification/ representation of pregnancy
• Rituals
• Rites of passage
• The bump

END