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REVIEW SUMMARY

The needs of multiple birth families during the first 1001 critical days: A rapid review with a systematic literature search and narrative synthesis

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Abstract

Objective: Supporting families during the first 1001 days from conception to the age of two is vital for setting the emotional, cognitive, and physical building blocks for children's futures. Families with twins, triplets, or higher order multiples (multiple birth families) have unique challenges due to caring for more than one baby at the same time. Therefore, identifying the needs of multiple birth families is necessary to provide optimum support during the first 1001 critical days.

Design: A rapid review was undertaken to synthesize knowledge of the needs of multiple birth families in the United Kingdom (UK) during the first 1001 critical days. Findings from five databases (MEDLINE, APA PsycArticles, APA PsycInfo, CINAHL, and Web of Science) for peer-reviewed studies and grey literature published between 2012 and 2022 were synthesized. Fifteen studies were reviewed using narrative synthesis.

Results: Multiple birth families have unique and complex emotional and practical needs across the first 1001 critical days, and in particular, the first-year post birth, impacted further by complicated pregnancies and prematurity. Needs were identified within the four key themes: high risk pregnancy and birth; transformed reality of raising multiples; inadequate support; and positively affecting experiences. Health professional support was inconsistent and particularly lacking in intrapartum, postnatal, and community care including transition.

Conclusion: Multiple birth families' needs should be considered in the design and delivery of care within the first 1001 critical days, especially within the first year after birth. Multiples specific advice across the first 1001 critical days is needed and training for health professionals to adapt universal advice for this population is one way to achieve this. Further research is needed to ensure this advice is evidence based and effective.

KEYWORDS
early intervention, families, multiple births, parents, public health nursing, multiple pregnancy, twins

1 | INTRODUCTION

The first 1001 days from conception to the age of two is recognized as a crucial time in setting the building blocks for a child's future; it can set the foundation for emotional, cognitive, and physical development (Leach, 2017; Leadsom et al., 2013). These first 1001 days are critical because they take a person from potential to actual, from conception to the age of two. During this time, the brain is growing and developing extremely rapidly. This means it is more open to and dependent on outside influence than it will ever be again. Optimal brain development during the first 1001 critical days gives a child the best possible start in life that impacts on the rest of their life (Leach, 2017; Sheridan & Nelson, 2009). This period is also recognized in UK policy with the government framing the 2021 Early Years Healthy Development Review Report around a vision for "the 1001 critical days" (HM Government, 2021).

A loving, nurturing relationship with a primary caregiver can impact positively on providing the best start for a child and shaping their future (Bowlby, 2005; Shonkoff & Phillips, 2000). A nurturing environment begins during pregnancy whereby the emotional and physical wellbeing of the mother is important to the baby's healthy development; the fetus in the womb is susceptible to the environment around the mother (Glover, 2015). Improving wellbeing at all ages is a global concern (United Nations, 2015). Despite this, millions of children both in the UK and around the world experience wide disparities (Marmot, 2010; Marmot et al., 2020; UNICEF, 2017). Helping children have the best start in life is a global agenda. For nations, not investing in these critical early years can lead to intergenerational cycles of disadvantage, hindering economy with a greater burden on health, education and welfare systems. The earliest years of life is the time to invest in the future strength of nations, economies, and communities (UNICEF, 2017). Supporting families during this time is shown to be vital; skillful and supportive relationships by professionals with families is central to identifying and supporting child and family needs. In the UK, the Healthy Child Program (Department of Health, 2009) is the key public health service to improve health and wellbeing of children, led by health visitors. Health visitors provide a vital infrastructure to families during the early years (Cowley et al., 2018; HM Government, 2021).

"Multiple birth families" are families who have twins, triplets, or higher order multiples. Globally, there has been an increasing number of multiple births over the past 30 years with global twinning rates increasing by a third from 9.1 to 12.0 twin deliveries per 1000 deliveries (Monden et al., 2021). In 2021, there were 9397 multiple births in the UK (ONS, 2022). Multiple birth families can experience emotional, physical, practical, and economic challenges due to caring for two or more children of the same age (El-Toukhy et al., 2018; Heinonen, 2015; Leonard & Denton, 2006). The first-year post birth can be particularly demanding, and many multiples are born pre-term adding another dimension to the challenge (Harvey et al., 2014). Between 2016 and 2020 in the UK, the risk of being stillborn was over twice as high in twins and the risk of neonatal death was over three times higher, compared to those pregnant with one baby (Draper et al., 2020). Despite these complex difficulties experienced by multiple birth families, they can be overlooked in research and policy, with the UK Government and Public Health England's "The Best Start for Life" not mentioning multiple birth families.

A recent study by the Elizabeth Bryan Multiple Births Centre (EBMBC) and The Institute for Health Visiting (iHV) (Turville et al., 2021) explored current practice and perceptions of health visitors working in the UK with multiple birth families as well as exploring the extent of education and professional development received by UK health visitors on the unique needs of these families. The authors found that most health visitors (88%) have twins on their caseload yet 63% had not received any specific training to improve their knowledge and skills when working with multiple birth families during their initial health visiting training. The study also highlighted the challenges health visitors faced and lack of recognition in their current workload configuration of the needs of multiple birth families.

Growing recognition of the importance of the first 1001 critical days of a child's life and the challenges experienced by multiple birth families, against the backdrop of the pressures experienced by the health visiting workforce means it is vital to understand the needs of multiple birth families during this critical time to provide quality early years care. Therefore, a rapid review was conducted to explore the needs of multiple birth families- focusing on conception to age two- to inform the evidence base.

The research question of this review is: what are the needs of multiple birth families during the first 1001 critical days from conception to age two?

The aim is to identify, explore and synthesize relevant evidence for the needs of multiple birth families during the first 1001 critical days from conception to age two with the intention of determining what research has already been conducted and to identify future research priorities to further explore how these needs can be met and supported.

2 | METHODS

Rapid review methodology was adopted in light of our goals of providing a timely and focused narrative synthesis of evidence for decision makers and help support evidence-based decision making (Khangura et al., 2012; Peterson et al., 2016). Cochrane rapid review method recommendations were used to guide the process: setting the research question; setting eligibility criteria; searching; study selection; data extraction; risk of bias assessment and a narrative synthesis (Garritty et al., 2021). The rapid review process was systematic and rigorous yet performed in a timely manner with a streamlined search process of UK-based literature from the past 10 years. The process is described in detail below.

2.1 | Eligibility criteria

A systematic search strategy was employed with dates searched being limited to between 2012 and 2022, focusing on UK-based literature.

TABLE 1 Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Families with twins, triplets or more under the age of five.	Families with twins, triplets or more who are over the age of five.
Where the study's focus was on support needs of multiple birth families during the first 1001 critical days (conception through to age two) but where studies may have researched up to pre-school age (age five).	Breastfeeding needs due to a recent National Guideline Alliance Evidence Review (NICE, 2021) which outlined a significant evidence gap.
UK based peer-reviewed academic journal articles with full text access; primary research.	Literature from outside the UK (due to rapid review and narrowing focus on UK based care)
Grey Literature including reports, dissertations and theses.	Clinical interventions for specific conditions, specific-condition related studies or medical/other intervention that focuses on medical outcomes and does not have aims/outcomes focussing on support needs of multiple birth families.
	Bereavement of one or more infant/s during pregnancy or the neonatal period.

These search dates were chosen to reflect the most recent literature due to the review focusing on informing early years care and a contemporary reflection of multiple birth family needs and service provision. UK-based literature was reviewed to reflect the recent evidence regarding UK-based service provision and need.

Peer reviewed publications were searched for in the initial instance including quantitative, qualitative and mixed-method studies. The search was then expanded to unpublished literature/grey literature. Grey literature can reduce publication bias, increase the comprehensiveness of the review and help to create a balanced picture of the evidence (Paez, 2017). Table 1 outlines the Inclusion Criteria and Exclusion Criteria for this Rapid Review.

2.2 | Information sources

Structured searches were conducted to identify key evidence. The electronic databases MEDLINE, APA PsycArticles, APA PsycInfo, and CINAHL Ultimate (via EBSCO) and Web of Science were searched, focussing on English language peer-reviewed studies published between January 2012 and August 2022. Reference lists of screened studies on these databases were also searched for relevance.

Grey literature was searched for via the UK Government website, Charity Choices online directory, EThOS for Dissertations and Theses, World Cat and the Elizabeth Bryan Multiple Births Centre internal SharePoint hosting publications and reports on multiple births.

2.3 | Search strategy

Search terms were developed based on discussions with the research team. Information sources were searched using the following combination of keywords: "twin*" or "triplet*" or "multiples" or "multiple birth" or "multiple pregnancy" or "multiple birth famil*" and "perinatal" or "postnatal" or "prenatal" or "antenatal" or "postpartum" or "maternal" or "pregnan*" or "1001" or "health visit*" or "family nurse" or "needs" or "intervention" or "mental health" or "father*" or "mother*" or "family" or "families" or "parent*". Searches were also carried out using subject headings. Articles were initially gathered by document title using the keywords and later expanded to abstract search. Filters and limits included peer reviewed articles published in English between 2012 and 2022, human populations only and UK based studies. A similar process was followed for searching grey literature with adaptation depending on the search engine requirements.

2.4 | Selection process

References were managed using EndNote Online. The initial search was carried out by one reviewer (M.B.) and duplicates removed. Title and abstract screen were completed (M.B.). Remaining full texts were reviewed independently (L.M., M.B.). Results were compared and a third reviewer (N.T.) was consulted, and any uncertainties resolved. Grey literature was reviewed independently (L.M., M.B.) and then compared. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA: Page et al., 2021) checklist was used to guide the search process and report the results.

2.5 | Quality appraisal

To determine the quality of the peer-reviewed articles, the relevant category of a Mixed Method Appraisal Tool (MMAT) (Hong et al., 2018) was used. In line with Hong et al.'s (2018) guidance, quality appraisal is presented using stars (*): one star (*) being of the lowest quality, up to five stars (*****) being of the highest quality.

To determine the quality of the grey literature, the AACODS (Authority, Accuracy, Coverage, Objectivity, Date, and Significance) Appraisal Tool was used (Tyndall, 2010) which evaluates and scores each paper from 0 to 6, including the risk of bias.

Quality assessment was carried out by one reviewer (MB) due to the rapid nature of the review. Studies were not excluded from the review due to quality but were critically appraised.

2.6 | Synthesis methods

Narrative synthesis was conducted to bring together broad knowledge from a variety of methodologies and approaches, identifying key themes and concepts using words and text to summarize and explain the findings of the synthesis (Popay et al., 2006). The steps outlined by Popay et al. (2006) were used to systematize the process. Developing a preliminary synthesis, exploring relationships within and between studies and assessing the robustness of the synthesis were steps followed according to the guidance of Popay et al (2006). Developing a theory was not conducted due to the exploratory nature of the research question.

Preliminary synthesis involved extracting the descriptive characteristics of the studies presented in a table. Next, thematic analysis was applied to inductively identify key themes across the studies. Each paper was read and re-read to build familiarity. Initial codes were then created independently by two researchers (L.H., M.B.). Findings were then compared and corroborated, and codes were formed into themes and where appropriate, subthemes (L.H., M.B.). A conceptual map was iteratively constructed to provide a visual representation of the evidence found, linking the evidence that had been extracted across the studies to highlight the needs of multiple birth families and gaps in these needs that require further research and recommendation for support (Figure 2).

3 | RESULTS

Overall, there were 15 papers included in this review. Figure 1 displays the selection process and results in a PRISMA flow diagram. The descriptive characteristics of the 15 papers that were selected are displayed in Table 2. Needs of multiple birth families were identified within four key themes: high risk pregnancy and birth; transformed reality of raising multiples; inadequate support and positively affecting experiences. This reflects the unique challenges faced by multiple birth families and the support that is needed. The conceptual map (Figure 2) provides a visual representation of the needs of multiple birth families, highlighting where further research is required as well as to map the recommendations made by authors on how to support the families' needs.

One study was a randomized controlled trial (RCT) to assess the efficacy of an intervention and 14 were exploratory/assessing the needs of multiple birth families. Four studies made recommendations for further interventions for multiple birth families. All studies made recommendations to some form of further support for multiple birth families. Additional support in Figure 2 refers to the need for support that goes beyond standard support given to singleton families with reference to the need for recognition of multiple birth families' unique circumstances and need for multiples-specific guidance.

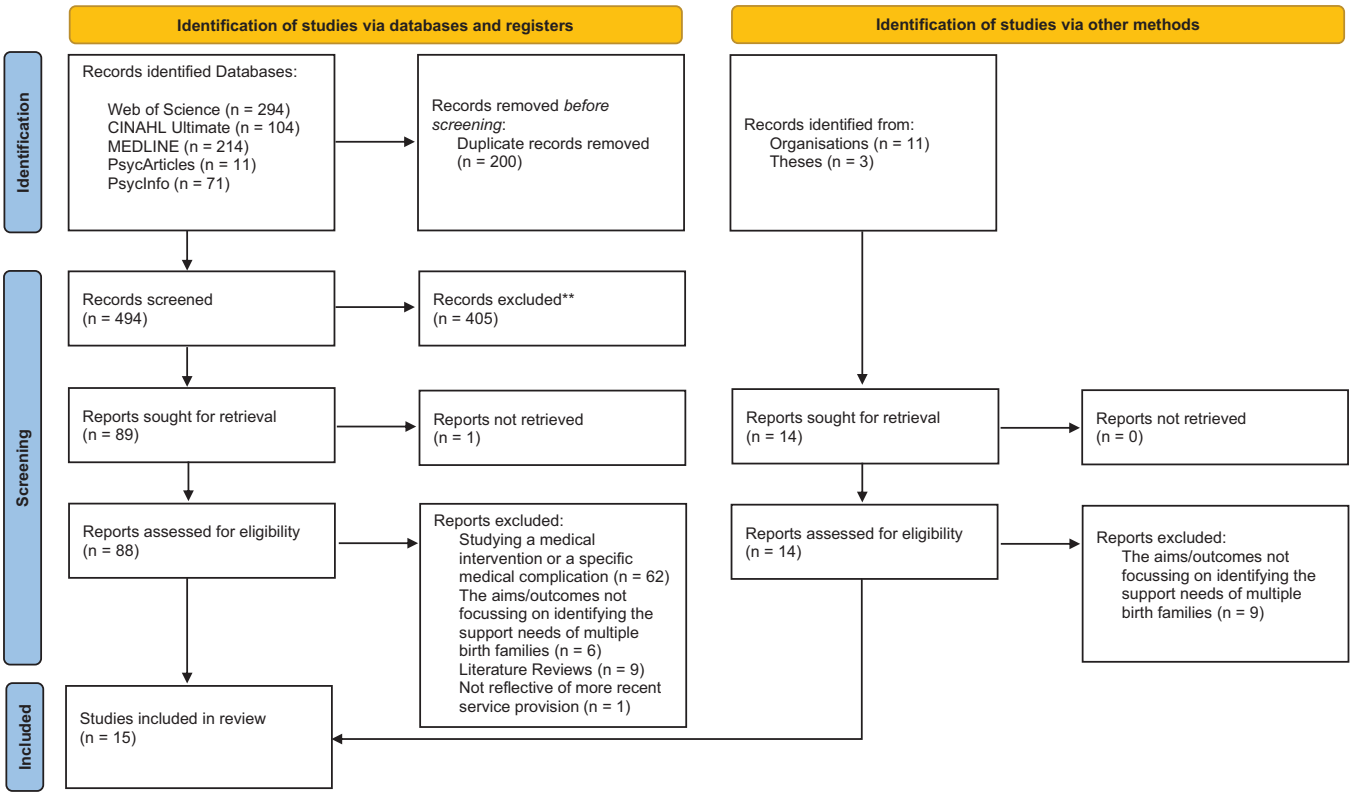

FIGURE 1 PRISMA 2020 flow diagram. [Color figure can be viewed at wileyonlinelibrary.com]

TABLE 2 Descriptive characteristics of included studies.

Literature type	Author & Year	Method & design	Study aim	Age/type of multiples	Main results	Recommendations	Study quality
1 Peer-reviewed	Alamad et al., 2018	Exploratory qualitative study using focus groups and one interview	To provide insight into health visitors' experiences supporting families with multiple births and their education and professional development needs.	Multiples up to pre-school age	Complex role of health visitors working with multiple birth families. Direct accounts of the difficulties health visitors face, but also the positive aspects of their experiences.	To provide the basis for a nationwide survey of health visitors, scheduled for early 2019.	MMAT*****
2 Peer-reviewed	Beer et al., 2013	Cohort Study	To explore if mothers of very-preterm twins experience higher levels of stress than mothers of singletons and if mother–twin infant dyads experience poorer quality interactions.	Very preterm infant twins (under 32 weeks gestation)	Very preterm twins present a greater challenge than singletons as their mothers experience high levels of parenting stress leading to less responsiveness to their infants.	Tailored, educational interventions to promote more effective interactions in unstructured settings. Additional support to ensure mothers have the time to interact effectively with both infants.	MMAT ****
3 Peer-reviewed	Carrick-Sen et al., 2014	Randomised Controlled Trial	To determine whether a midwife-led intervention improved preparation for twin parenting and maternal psychosocial outcome.	Uncomplicated twin pregnancy. Intervention between 24 and 34 weeks, postnatal session 6–8 weeks after birth.	No significant difference in maternal postnatal depression, anxiety, or parenting stress. Improved postnatal maternal wellbeing, mood, self-confidence, reaction to motherhood, better prepared mothers to parent twin infants.	Midwife-led psychosocial interventions can improve adaption to parenting and maternal wellbeing. Maternity units to consider increased midwife involvement during twin pregnancy to optimise maternal psychological outcomes.	MMAT ***
4 Peer-reviewed	Gent et al., 2020	Cross-sectional survey	To identify variation in the antenatal management of multiple pregnancy	Those pregnant with multiples	Significant consistency exists in many aspects of antenatal care provided for multiple pregnancies, however, variation is also evident.	Exploration into why some units appear unable to implement national recommendations. Improve local resources or provide greater centralization of multiple pregnancy care.	MMAT ***
5 Peer-reviewed	Gowling et al. 2021	Interpretative Phenomenological Analysis. Qualitative semi-structured Interviews	To explore mothers' lived experience of early bonding with their twins	Twins aged between 6 months and 2 years	The experience of bonding with twins can be complex and take longer than anticipated, with mothers reporting the experience as being different from their expectations.	Having a greater understanding and information about the complexities of bonding with twins would be beneficial for both mothers and professionals working with them.	MMAT *****

(Continues)

TABLE 2 (Continued)

Literature type	Author & Year	Method & design	Study aim	Age/type of multiples	Main results	Recommendations	Study quality
6 Peer-reviewed	Harvey et al., 2014	Phenomenological approach. Qualitative semi-structured Interviews	To explore the experiences of mothers of twins to identify their health and social care needs	Twins aged up to 5 years	Challenges experienced by mothers of twins: Assumptions versus reality; Worries and concerns; Impact on self; Impact on others; Sources of support.	A need for healthcare professionals to be better informed about the advice and support needed by multiple birth families.	MMAT *****
7 Peer-reviewed	Kehoe et al., 2016	Cross-sectional survey	To model factors associated with parenting stress of newly-born twins: Transactional Model of Stress.	Newly born twins	Parents of newly-born twins regardless of the mode of conception should be considered an risk group for parental distress.	Support groups such as Twins Trust important in providing social interaction and support to help emotional well-being of parents of twins.	MMAT ****
8 Peer-reviewed	Mackie et al. 2020	Cohort Study	To assess antenatal and postnatal parental attachment and depressive symptoms in those with pregnancies affected by Twin to Twin Transfusion Syndrome (TTTS)	Pregnancies affected by TTTS and studied day before ablation, 4 weeks post ablation, and 6–10 weeks postnatally	Maternal attachment increases in the postnatal period, and depressive symptoms decrease in the postnatal period, whereas paternal scores do not appear to change over time.	Health care professionals monitoring parents following Fetoscopic Laser Ablation (FLA) for depressive symptoms, particularly those with history of mental health problems. Additional psychological support for high-risk pregnancies undergoing invasive procedures.	MMAT ***
9 Grey Literature	Mclasan Fraser with TAMBA (now Twins Trust)	Online survey with parents of multiples	To explore the extent to which parents of multiples are able to access their maternity and paternity rights.	Multiple birth families during pregnancy and returning to work after birth	There is a need to recognize that families of multiples have additional needs and demands.	Lobby for legislation to be multiple friendly. Support campaigns that affect vulnerable parents of multiples.	AACODS 5
10 Grey Literature	Joint report NCT and TAMBA (now Twins Trust) 2015	Research Report: survey with parents of multiples	To measure parent experiences of maternity care and how well NICE guidelines for multiple pregnancies are being implemented across the UK.	Quality of antenatal and postnatal care, and neonatal care arrangements	Additional challenges in preparation for labor, birth, antenatal and postnatal care. NICE guidelines slowly addressing inequalities of care and additional needs. Further progress required.	Rapid implementation of NICE guidance. Planned extension of NICE Multiple Pregnancy guidelines to cover intrapartum. Clear guidelines for postnatal. Access to an appropriately trained team during pregnancy and birth.	AACODS 5

(Continues)

TABLE 2 (Continued)

Literature type	Author & Year	Method & design	Study aim	Age/type of multiples	Main results	Recommendations	Study quality
11 Peer-reviewed	Reissland et al., 2021	Prospective Cohort Study	To assess the effects of maternal mental health factors on fetal twin compared with singleton movement profiles	Mothers pregnant with twins (with a healthy pregnancy)	Twin fetuses more vulnerable to adverse maternal mental health factors. Maternal mental health, namely, stress and depression, affects the way fetuses experience prenatal touch.	A need for mothers with a multiple pregnancy to have greater mental health support.	MMAT *****
12 Grey Literature	Turville et al., 2022	Research report from the EBMBC-qualitative study using photo-elicitation	To explore the parenting journey of parents of multiples from pregnancy to starting school through the medium of family photographs.	Pregnancy through to school age	The early years challenging emotionally and practically. Health care professional support was limited. Pregnancy and the first year particularly challenging due to prematurity, illness and lack of multiple specific professional guidance.	Call for recognition of the needs of multiple birth families.	AACODS 6
13 Peer-reviewed	Turville et al., 2021	Cross-Sectional, descriptive, online survey	To explore the current practice and perceptions of health visitors in supporting multiple birth families.	Health visitors currently practicing in the UK	Health visitors uniquely positioned to support multiple birth families during the challenging early years. Many health visitors aware that care and support they provide falls short of meeting needs.	To pursue greater recognition of the individualized needs of multiple birth families.	MMAT *****
14 Grey Literature	TAMBA (now known as Twins Trust) 2012	Healthcare Survey with parents of multiples	To explore levels of antenatal care, parent education, special care, feeding decisions, postnatal depression and help received in the first 6 months.	Antenatal care and postnatal care during the first 6 months	Positive experiences by mothers of health professionals that support them through pregnancy. Declining rates of postnatal depression and fewer families of multiples being split up immediately after birth.	There remain issues of concern to be addressed across the NHS to ensure the health, wellbeing and happiness of the babies, their mothers, and their families.	AACODS 5
15 Grey Literature	Twins Trust, 2019	Research Report-online survey and interviews with parents of multiples. Survey with health professionals working in multiple pregnancy care	To assess current practice regarding the care of multiple pregnancies in the UK from the parent and clinician perspective and compare to NICE Guidance. Reflect on progress made.	Antenatal, neonatal and postnatal care	Care practice not always enables parents to make birth planning decisions. More could be done to prepare parents for premature babies. Continuity of care supports effective decision making. Parents' experience of care not as positive as professionals think. Adherence to NICE guidelines slow, still wide variation in adherence.	Recommendations to parents on questions to ask and what advice to receive. Recommendations to health professionals, NHS, government and policy on how best to support parents of multiples and their maternity care are needed.	AACODS 5

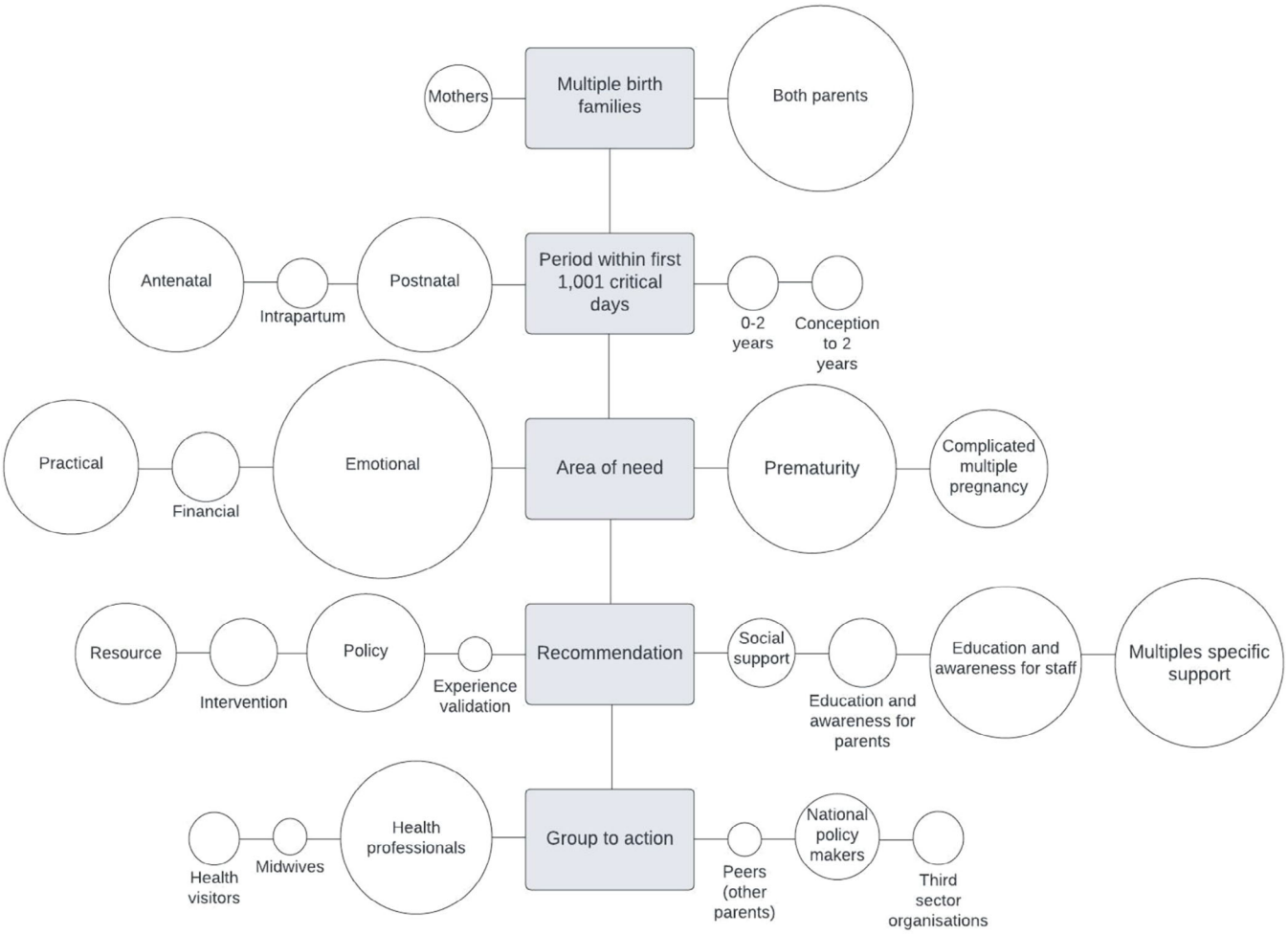

FIGURE 2 Conceptual map. The conceptual map was created on a grid. The size of the circle is determined by the number of squares it occupies on a grid, which is directly proportional to the number of studies it represents. For example, there were four studies where the participants were mothers. This means that the circle is made up of a total of 16 squares (four squares across multiplied by four squares down). This allows for a visual differentiation between topics based on the number of studies associated with each one, providing a clearer understanding of the distribution and importance of different topics on the conceptual map. The larger the circle, the more studies that featured the topic in terms of what they researched, the evidence they found and what recommendations they made based on this evidence. [Color figure can be viewed at wileyonlinelibrary.com]

3.1 | Quality appraisal

Grey literature appraised using AACODS all scored highly (5 and 6). Four out of five studies, which were all charity reports, did not identify bias and so scored less for objectivity. However, all four charity reports had access to high sample numbers. Table 3 gives a breakdown of the AACODS scores.

For peer-reviewed studies that were appraised using MMAT, methodological quality ranged from three stars (***) to five stars (*****). All three qualitative studies rated five stars (*****) and were of sound methodological quality. For quantitative studies, methodological quality ranged from three stars (***) to five stars (*****). Sampling strategy was clear across all. However, it was unclear if confounders had been accounted for in two non-randomized studies. For two quantitative descriptive studies, it was unclear if the risk of nonresponse bias was low. Furthermore, it was unclear if one of the quantitative descriptive studies had piloted their questionnaires. Due to the nature of the RCT, outcome assessors were not able to be blinded to the intervention provided. There was loss in response rate at postnatal follow up for the RCT trial and one non-randomized study that both started in the antenatal period and followed up with participants in the postnatal period. Table 4 gives a breakdown of the MMAT appraisal scores.

3.2 | Thematic analysis

Thematic analysis was conducted across 15 papers to research the needs of multiple birth families during the first 1001 critical days. Four themes were generated: (i) high risk pregnancy and birth; (ii) transformed reality of raising multiples; (iii) inadequate support (sub themes of inconsistent care across the first 1001 critical days and lack

TABLE 3 AACODS appraisal for grey literature.

Study	Authority	Accuracy	Coverage	Objectivity	Date	Significance	Total
Mclasan Fraser with TAMBA (now Twins Trust) 2013	Yes	Yes	Yes	No	Yes	Yes	5
NCT & TAMBA (now Twins Trust) 2015	Yes	Yes	Yes	No	Yes	Yes	5
Turville et al. (2022)	Yes	Yes	Yes	Yes	Yes	Yes	6
TAMBA (now Twins Trust) 2012	Yes	Yes	Yes	No	Yes	Yes	5
Twins Trust (2019)	Yes	Yes	Yes	No	Yes	Yes	5

of multiples specific support); and (iv) positively affecting experiences (sub themes of improving practices and positive experiences and social support and coping).

3.2.1 | Theme 1: High risk pregnancy and birth

Multiple birth pregnancies can be complex (4, 8, 9, 10, 12, 14, 15). Prematurity is a frequent challenge for multiple birth families, and a consequence of multiple birth pregnancies being high risk (1, 2, 4, 6, 9, 10, 12, 13, 14, 15). This can lead to health complications with one or more babies with a longer hospital stay and the potential for the babies to be placed at different hospital locations (9, 14, 15). Prematurity presents emotional challenges for parents; the birth can be emotionally traumatizing, prematurity can curtail antenatal education opportunities which can cause anxiety and stress, and special care baby units can be overwhelming and lead to sensory overload or a loss of parental control (1, 2, 6, 13). Extended hospital stays can impact on maternity and paternity leave with parents having to take additional leave (9). Mothers were frequently concerned about the long-term impact of premature birth for the children (6).

High risk multiple birth pregnancies can require invasive procedures and there is a need for parents to have additional psychological monitoring and support during this time (8). Mothers may also experience ill health during pregnancy (9, 12). Furthermore, twin fetuses seem more vulnerable to adverse maternal mental health factors and therefore, additional mental health support would be of benefit antenatally (11).

3.2.2 | Theme 2: Transformed reality of raising multiples

Raising multiples is challenging both practically and emotionally (1, 5, 6, 9, 10, 12, 13); the first-year post birth is recognized as particularly difficult (6, 10,12, 13). There is a need to be better prepared for the realities of raising multiples during the postnatal period (1, 5, 6, 10, 12). Mothers found it very challenging to fulfil both the practical demands and bond with their babies, which could lead to guilt (5). Shame and concern that their bonding experiences were atypical, prevented mothers from talking about it to friends or spouses (5). The practical and emotional challenges can lead to isolation, particularly for single mothers or those without close family (1, 12). The mothers expressed a sense of loss of the mother they hoped to be had they had just one baby, although this was eased by seeing the twin-to-twin bond (5). Furthermore, mothers felt they had lost their own individual identity (6). Mothers with very preterm twins (under 32 weeks gestation) were found to have high levels of parenting stress (2).

Raising multiples meant parents had to transform their existing lifestyles. Having more than one baby at the same time is financially challenging (1, 9, 12). Consequently, partners often had to work long hours or parents had to cut parental leave short. Multiple birth parents often requested flexitime or part time work. Self-employed parents

TABLE 4 MMAT appraisal of studies.

Study	Screening questions		1. Qualitative studies					2. Randomized controlled trials					3. Non-randomized studies					4. Quantitative descriptive studies				
Alamad et al., 2018	Yes	Yes	Yes	Yes	Yes	Yes	Yes															
Beer et al., 2013	Yes	Yes											Yes	Yes	Yes	Can't tell	Yes					
Carrick-Sen et al., 2014	Yes	Yes						Yes	Yes	No	No	Yes										
Gent et al., 2020	Yes	Yes																Yes	Yes	Can't tell	No	Yes
Gowling et al., 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes															
Harvey et al., 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes															
Kehoe et al., 2016	Yes	Yes																Yes	Yes	Yes	Can't tell	Yes
Mackie et al., 2020	Yes	Yes											Yes	Yes	No	Can't tell	Yes					
Reissland et al., 2021	Yes	Yes											Yes	Yes	Yes	Yes	Yes					
Turville et al., 2022	Yes	Yes																Yes	Yes	Yes	Yes	Yes

S1. Screening questions S1. Are there clear research questions? S2. Do the collected data allow to address the research questions?
1. Qualitative studies 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. 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. 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. 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?

were particularly vulnerable as they were not entitled to the same financial benefits (9). Additionally, older siblings were impacted by the birth of the multiples, it could be a difficult transition for older siblings with a transformed reality (6, 12).

The additional care needs of looking after more than one baby along with isolation and difficulty getting out the house impact on multiple birth mothers being twice as likely to develop postnatal depression as mothers of singletons (9).

3.2.3 | Theme 3: Inadequate support

Inconsistent care across the first 1001 critical days

Experiences of care across the first 1001 critical days is not consistent for multiple birth families (4, 10, 12, 15). There has been some consistency with antenatal care across the UK (4,10,14); however, intrapartum and postnatal care is lacking (4, 10). Parents were unprepared for the realities of the early postnatal period and health professional support seems to drop off at this point, leaving this need unmet (10). Investment in postnatal care is needed to provide advice and support to families, including emotional support (10, 14, 15). Better preparation is also needed during the antenatal period for oncoming parenting of multiples by increasing midwife involvement helping maternal psychological outcome (3), as well as preparation for potential preterm birth and neonatal care as many parents did not feel prepared for having premature babies (15).

Transitions from antenatal to postnatal, neonatal and community care is an important need (15). Uniformity and continuity of care (having a consistent team) is needed across the UK (14, 15), which would also help with informed decision making for parents (15). Access to a multi-disciplinary team with specialist knowledge of multiple pregnancy would be of benefit (6, 10). It was proposed it could be beneficial to develop specific interventions to minimize distress of multiple birth families (3, 7). Mothers reported a lack of community support from health professionals; there is a need for further research into early intervention via community health services and preventive public health programs that identify the health and social needs of parents with twins (6).

Lack of multiples specific support

Multiples specific support was described in papers and reports as "lacking" (1, 4, 6, 10, 12, 13). There was an unmet need of multiples specific support both within hospital and post-discharge, increasing anxiety for parents; professionals and parents recognized that multiples specific guidance and support is needed (1, 2, 3, 4, 6, 7, 12, 13, 14, 15). There was an unrecognized need of the impact of having more than one baby at the same time (12). The mismatch between support needed and support received negatively impacted the wellbeing of parents, their children and wider family (6).

There is an awareness from health visitors that support provided to multiple birth families falls short of the need due to their large caseload, lack of time and lack of care pathways (1, 13). Health visitors, General Practitioners and families lack information about the wider support available in communities, which would be useful to signpost to (1, 13). Mothers reported most community care was via health visitors and General Practitioners but that this care was inconsistent and did not address the specific needs of individual families (6). More awareness and understanding around the complexities of multiple birth families is needed for health professionals across the 1001 critical days (1, 5, 6, 7, 8, 9, 12, 13, 15). Conversations with health professionals and others to help validate multiple birth parents' experiences would help parent's emotional wellbeing (5).

3.2.4 | Theme 4: Positively affecting experiences

Improving practices and positive experiences

Three Twins Trust reports (two with surveys with multiple birth families and one with surveys with multiple birth families and health professionals) have suggested that for multiple birth families, professional support, including support within the National Health Service, are slowly improving (10, 14, 15). There is more consistency in care during the antenatal period (4, 10, 14) with antenatal screening being generally good, alongside advice on preparation for birth from midwives and obstetricians (10).

Parents have reported some positive experiences with staff, often when clear communication was provided to parents about risks, health, or multiples care (10, 12, 15). An intervention from specialist midwives aimed at preparation for multiple birth parenting during the antenatal period was valued and accepted by parents (3). Health visitors were often able to recognize the practical and emotional challenges experienced by multiple birth parents (1, 13).

Social support and coping

Social support is important to help the emotional wellbeing and isolation of multiple birth parents, particularly spousal support (5, 6, 7, 12, 14). The value of social interaction suggests an emotional or informal type of support could be helpful (7). Parents valued a supportive network, including access to multiples groups, to help isolation (12). Mothers described using a range of emotional coping strategies during the early years including crying, laughter and humour (12). As the multiples grew, parents found it easier to look back and see the positive experiences they had, as well as pride in being a multiple birth parent (5, 12).

3.3 | Conceptual map of the needs of multiple birth families during the first 1001 critical days

The needs of multiple birth families across the 15 studies were extracted and compared using conceptual mapping. The purpose of conceptual mapping was to provide a visual representation of the research carried out so far on the needs of multiple birth families during the first 1001 critical days to highlight where further research is required as well as to map the recommendations made by authors on how to support the families' needs. Figure 2 displays the final

conceptual map that was produced to provide a visual understanding of the needs of multiple birth families found in the literature. The map includes: studies that were carried out with either mothers, fathers or both parents; which studies covered which period of the first 1001 critical days; the need identified by studies; the support recommended by the authors based on their research and who this support should be carried out by. This helps to visually show how many studies have researched which need and where the study similarities and differences are. The conceptual map indicates that a large proportion of the literature identified the emotional needs of multiple birth families across the span of the first 1001 critical days. The emotional need was also tied in to all the other needs and the impact they could have. Education and awareness for health professionals on the needs of multiple birth families was a common recommendation by the literature. Although many studies were carried out with both parents, none of the included studies in this review explicitly focussed on the father or other partner. There were also no studies that explicitly looked at other seldom heard groups within the multiple birth community such as single parents, LGBTQIA+ parents, families from different ethnicities or socioeconomic backgrounds. Complicated multiple pregnancy was included in some studies. However, only one study focussed solely on complicated multiple pregnancy (pregnancies affected by twin-to-twin transfusion syndrome [TTTS]) (Mackie et al., 2020). Many studies made recommendations towards education and awareness of staff, policy and resource across a broad range of health professionals involved in the care of multiple birth families during the first 1001 critical days. Multiples specific support was the most common recommendation across the literature.

4 | DISCUSSION

This rapid review provides the first narrative synthesis of the needs of multiple birth families, primarily looking at the first 1001 days, a period deemed *critical* both in research and UK health policy (HM Government, 2021). Although the focus of the rapid review approach was on the UK, findings may be of interest to the international multiple birth community. Needs were identified within the four key themes: high risk pregnancy and birth; transformed reality of raising multiples; inadequate support and positively affecting experiences. This reflects the unique challenges faced by multiple birth families and the need for health care services to understand these challenges to provide multiples specific support for the critical early years. The emotional needs of multiple birth families were clearly highlighted across all themes and the journey of becoming a multiple birth parent, with emphasis on difficulties present during the first year following birth. Universal support is not sufficient to meet these emotional needs, and this is clear from the evidence presented. Informal as well as formal support is evident as a recommendation in this review. Midwives, health visitors, other health professionals and third sector organizations such as Twins Trust (UK charity) are recommended as support.

4.1 | Limitations

This was a rapid review and therefore some aspects of systematic review methodology were not conducted, to produce a review in a rapid time frame. Evidence was limited to 2012 to 2022 to ensure a more recent understanding of experiences and service provision as well as current policy and practice. The review was limited to UK based studies to explore evidence relevant to UK context of early years care. It is therefore suggested interpretation to other settings should be done with caution. However, the needs, support, and recommendations for multiple birth families within the UK could help inform understanding, support, and provision in other nations. The quality appraisal and initial search was carried out by one reviewer. To reduce researcher bias throughout the review, three reviewers were involved in the search and selection process and two reviewers were involved in the thematic analysis.

Most excluded papers in the review search were studies surrounding specific medical conditions/intervention for multiple birth families (mostly during pregnancy). This highlights the medically complex nature of multiple pregnancy. Although medical need is important, this rapid review highlights the dearth of support for psychological and social needs, that can often be a result of the medical complications and can significantly impact on family functioning.

The grey literature was searched but due to time constraints, this may have impacted the amount of literature that was found and reviewed; the time required to review and locate it can be considerable. However, the authors decided that it was important to include grey literature, as it has helped to enhance understanding and provide a balanced view. Furthermore, a quality appraisal on the included papers met accepted thresholds. The charity reports that were included lacked objectivity but provided large sample sizes and helped to provide important results on multiples support across the UK during the first 1001 critical days.

There was a mix of peer reviewed qualitative and quantitative studies in this review; each of these methods comes with limitations. A quality appraisal of each included peer reviewed study met accepted thresholds. The qualitative studies had small sample sizes, yet they brought forward the parent voice. Alongside the quantitative studies, this provided a clear and consistent picture of parental need.

4.2 | Future research

This rapid review will inform future planned research looking in depth at the needs of multiple birth families during the first 1001 critical days and putting together recommendations for support for UK services. The studies identified in this review clearly indicate the needs (mostly unmet) of multiple birth families yet lack research into intervention. Research is needed to find effective ways to meet the needs identified, as well as long term postnatal follow up.

Many studies in this review included both parents yet mostly focussed on the maternal perspective; none were purely from the

paternal perspective. Research has acknowledged the lack of the paternal perspective (Burgess & Goldman, 2022). It is important to explore this further to understand the father's experiences and needs as a multiple birth parent as the father's involvement in their children's lives can positively impact on wellbeing and family functioning (Cabrera et al., 2018; WHO, 2007). In addition, research to understand the experiences and needs of other seldom heard groups within the multiple birth family community is of significance, including different ethnicities, single parents, and LGBTQIA+ parents.

A review exploring the service provision and needs of multiple birth families across other countries would be beneficial, to learn from potential transferable examples of effective service provision.

Although excluded from this review, bereavement of one or more babies during pregnancy or the neonatal period for multiple birth families is recognized as important for further study and understanding of the family's needs. We propose a further review to explore the needs of multiple birth families who have experienced bereavement.

4.3 | Clinical implications

Providing a bridge from evidence into practice is needed. The literature did recognize the lack of capacity and resource for health professionals and therefore falling short of meeting multiple birth family needs. There were positive experiences of antenatal care in maternity services. However, this remains variable and there is a need for consistency in care across the UK. Intrapartum, postnatal and community care were lacking leaving parents with unmet needs; recommendations from the research include more understanding of the needs of multiple birth families during this time as well as multiples-specific training and Continuing Professional Development for health professionals. Continuity of care and support negotiating transitions between services is important pre-birth to post-birth. In addition, aligning parental expectations with the realities of multiple birth parenthood to better prepare parents is needed. Therefore, health professionals would first benefit from multiples-specific education and awareness to understand these realities. Sensitivity and validation of multiple birth families' experiences, such as empathizing with their circumstances, are minor changes that could make an enormous difference to care and meeting needs. This links back to the importance of supportive relationships from professionals with families, improving family wellbeing and impacting lifelong wellbeing of the children (HM Government, 2021). More understanding and development of targeted interventions is also needed as well as more clarity around the specific roles of health professionals in supporting multiple birth families.

The first-year post birth has been recognized in this review as a particularly challenging time for parents. In the UK, health visitors are uniquely placed to provide support during this time and provide care beyond hospital. This helps to bridge the gap between hospital care and community care, providing vital support post birth during the realities of parenting and the impact this can have on family wellbeing. Furthermore, it is important that the needs of multiple birth families are not overlooked in research and policy regarding the first 1001 critical days and that this difficult first year post birth for multiple birth families is the most critical time for the direction of this resource.

5 | CONCLUSION

This review highlights the unique challenges and needs of multiple birth families and the requirement for evidence-based multiples-specific support from conception onwards, to best support the family and their wellbeing during a critical time in their lives that could impact on their future. There is research interest into the first 1001 critical days and its influence on neurodevelopment and lifelong wellbeing. It is crucial that multiple birth families are not excluded from this research and that interventions are developed with consideration for parents raising more than one baby at the same time with their unique challenges and needs.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, Martha Burlingham, upon reasonable request.

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