


BMJ Open Reproductive journey in women with congenital heart disease: a systematic review of mental health implications

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ABSTRACT

Objectives Advances in medical care have led to increased survival rates among individuals with congenital heart disease (CHD), enabling many women to pursue pregnancy and motherhood; however, their reproductive journey remains complex, involving intertwined medical and psychological challenges that are still not fully understood. This review aimed to explore the lived experiences of women with CHD as they navigate these reproductive challenges.

Design Systematic review of qualitative studies using Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. The Critical Appraisal Skills Programme checklist was used for quality assessment.

Data sources APA PsycArticles, Medline Ultimate, APA PsycInfo, APA PsycTests and CINAHL Ultimate were searched on 10 March 2025.

Eligibility criteria Studies were included if they examined the lived experiences of women with CHD, focused on reproductive health, used qualitative methods and were published in English without time or geographical limits. Exclusion criteria were studies focusing on family members, men or healthcare professionals; reproductive health in other non-communicable diseases; acquired cardiac disease; single case studies; or quantitative designs.

Data extraction and synthesis The data extracted from qualitative studies included author(s), aims, location, design, method, analysis, results and clinical implications. The synthesis followed the Thomas and Harden thematic synthesis approach to answer the review question.

Results Eleven studies met the inclusion criteria. Thematic synthesis identified four analytical themes: (1) the need for psychological support in high-stakes decision-making, including the emotional burden of parenthood; (2) challenges of receiving conflicting medical guidance; (3) balancing reproductive autonomy with health risks, including the influence of social norms and comparisons with peers; and (4) the impact of geographical location on access to support.

Conclusions Women with CHD face unique challenges within their reproductive health which is shaped by medical uncertainty, challenges with healthcare systems and high-stakes decision-making. Holistic care is crucial to support women through this journey and improve their outcomes.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Diverse geographical locations and experiences of women, which captured various cultural and socio-economic experiences of congenital heart disease.
- ⇒ The included studies were largely focused on the experiences of pregnancy and motherhood, with only four studies referring to contraception or puberty.
- ⇒ No additional input for the thematic synthesis may lead to methodological bias.

INTRODUCTION

Congenital heart disease (CHD) affects 1 in 100 live births globally and was the leading cause of death in the first year of life in 2021.^{1 2} CHD is defined as any structural abnormality of the heart or great vessels present from birth, excluding cases associated with syndromic illnesses, including extra-cardiac or neurocognitive manifestations in addition to cardiac malformations.¹ In recent years, the life expectancy of individuals born with heart defects has significantly increased due to advances in medical management, and as a result, there is a demographic shift, with the adult congenital heart disease population now surpassing the number of children living with CHD, growing at an estimated rate of 5% per year.³ This remarkable medical success, while life-saving for countless individuals, has concurrently created psychological implications for women in this population. The intersection of CHD and reproductive health remains an underexplored area of research, leaving significant gaps in our understanding of how these women experience their reproductive journeys.

Women face a higher cumulative effect from CHD,⁴ in part due to the distinct set of reproductive challenges faced throughout their lifespan. From adolescence, those with complex cardiac lesions or on anticoagulation therapy report menstrual irregularities.⁵ Yet, clinical discussions surrounding sexual



health, contraception and family planning are frequently insufficient or entirely absent in routine practice, potentially leading to unplanned pregnancies.^{6 7} Pregnancy causes substantial physiological stress on the cardiovascular system, marked by increased blood volume and cardiac output, which can significantly exacerbate pre-existing CHD.⁸ During menopause, the cardioprotective effects of oestrogen diminish, posing additional risks.^{9 10} For women with CHD, this transition can precipitate a worsening of their existing condition, heightening the risk of thromboembolism, weight gain, elevated cholesterol, diabetes and atherosclerosis.^{9 10} Even hormone replacement therapy, a common intervention for managing menopausal symptoms, presents a complex therapeutic dilemma, as it may contribute to further cardiac complications in those with moderate to severe CHD.¹¹

Beyond medical complexities, women with CHD encounter unique psychosocial challenges throughout their reproductive years.¹² The transition from paediatric to adult healthcare systems frequently occurs during adolescence and early adulthood, coinciding with critical periods of reproductive development and decision-making. Many women report inadequate preparation for reproductive health discussions, having received healthcare focused primarily on cardiac management rather than comprehensive reproductive planning.^{13 14} Family planning decisions for women with CHD involve multifaceted considerations extending beyond conventional reproductive counselling. These women must balance personal desires for motherhood against potential health risks, consider genetic implications of their condition for future offspring (if applicable) and navigate complex contraceptive decisions accounting for cardiac medications and haemodynamic considerations.¹⁵ The intersection of chronic illness identity and reproductive desires creates complex emotional terrain that women must navigate, often with limited specialised psychological support.

Existing research in this field has focused on clinical outcomes and risk stratification, especially quantitative measures of maternal and fetal morbidity and mortality. Although this clinical perspective is essential for medical management, it provides limited insight into the lived experiences of women with CHD as they navigate their reproductive journeys. The voices and perspectives of these women have been largely absent from research literature, creating a significant gap in understanding their needs, challenges and experiences beyond clinical risk assessment. Qualitative research approaches offer valuable insights into subjective experiences of illness and healthcare that quantitative measures cannot capture, thereby providing deeper understanding of how individuals make sense of their health conditions within their daily lives.

Given the physiological and psychological challenges in managing CHD throughout the reproductive lifespan, coupled with current gaps in research and clinical practice, there is an urgent need to understand the lived experiences of women with CHD during their reproductive

years. Here, we review the qualitative literature on reproductive health in women with CHD to identify key experiential elements and critical gaps across puberty, menstruation, contraception, pregnancy, childbirth and menopause. Our objective is to inform clinical practice and support more integrated, patient-centred care.

METHODS

The review was in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines¹⁶

Search strategy

A comprehensive search was conducted across multiple databases including APA PsycArticles, Medline Ultimate, APA PsycInfo, APA PsycTests and CINAHL Ultimate on 10 March 2025. Prior to the main search, the Cochrane Library was searched to determine whether a systematic review had already been conducted on this topic. The search strategy employed three main concept groups combined using Boolean operators: (1) “reproductive health” OR “pregnancy” OR “sexual health” OR “family planning” OR “contraception”; (2) “congenital heart disease” OR “congenital heart defect”; and (3) “qualitative research” OR “qualitative study” OR “qualitative methods” OR “interview”. The final search combined all three concept groups using AND operators (#1 AND #2 AND #3) (see online supplemental appendix table 1 for more details).

Inclusion and exclusion criteria

To determine the inclusion criteria, the sample, phenomenon of interest, design, evaluation and research type¹⁷ were used to determine inclusion and exclusion criteria.

Studies were included if they (a) included the lived experience of women with a congenital heart disease, (b) focused on any element of reproductive health for these women, (c) qualitative data studies, (d) published in English, (e) published in any time period and (f) published in any geographical location. Papers were excluded if they (a) focused on the experiences of family members or healthcare professionals or men; (b) focused on reproductive health in relation to other non-communicable diseases, such as cancer and diabetes; (c) did not focus on the lived experience of women with congenital heart disease going through a reproductive journey; (d) single case studies; (e) focused on acquired cardiac diseases during pregnancy; and (f) quantitative studies.

Study selection and data extraction

Title and abstract were independently reviewed by two reviewers (MEL and MA). Inconsistencies and conflicts in assessment were resolved by discussion and, if needed, resolved by a third reviewer (MDC). Full-text screening was performed by two independent reviewers (MEL and

MA). Data extracted included author(s), aims, location, design, method, analysis, results and clinical implications.

Quality assessment

To assess the methodological quality of the studies included in this review, the Critical Appraisal Skills Programme checklist¹⁸ was used. As this review focused on qualitative studies, the qualitative checklist was used to assess the relevance, credibility and rigour of each study.¹⁸ The checklist has ten broad questions which aim to systematically assess the relevance and trustworthiness of each study. The guidance on whether to accept or reject a study for synthesis based on its quality has been debated.^{19 20} Given that the guidance remains unclear and there are few studies in this area of research, the current review included all selected studies for synthesis regardless of their methodologies to prioritise gaining a comprehensive understanding of the topic (see online supplemental appendix table 2 for Critical Appraisal Skills Programme checklist).

Data synthesis

The synthesis followed the Thomas and Harden²¹ approach which involved line-by-line coding of the full results sections of the selected studies. Codes were organised to develop descriptive themes. The descriptive themes did not go beyond what the studies reported but rather summarised the findings from the primary studies. This enabled a summary of what different studies have found in relation to this topic area. Analytical themes were then generated to provide a deeper insight into the findings. These were generated by interpreting the descriptive themes to answer the review question.

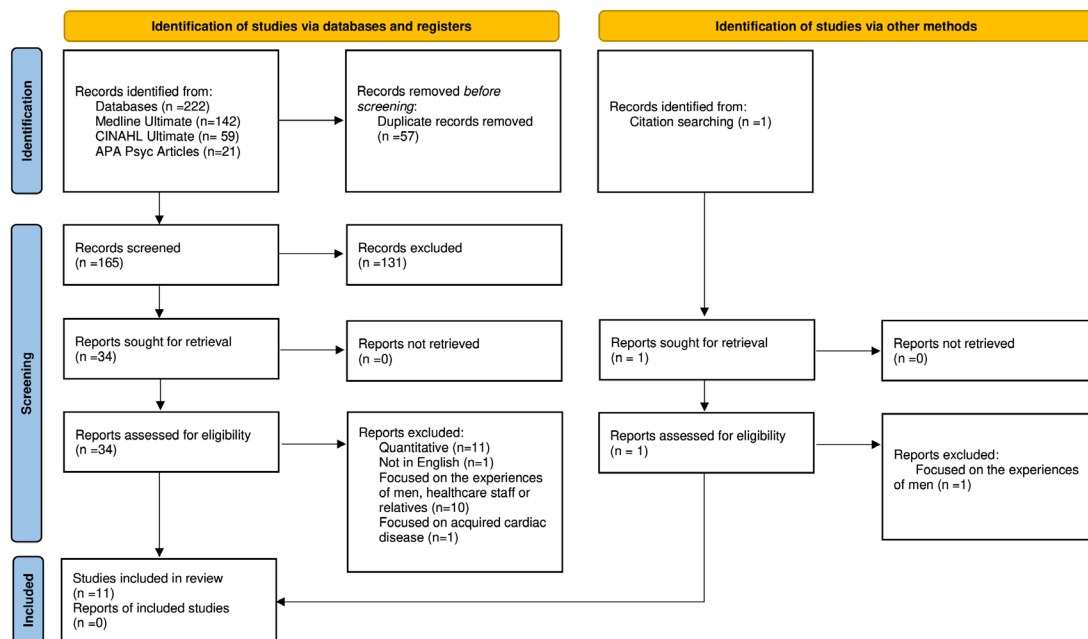
RESULTS

A total of 223 papers were identified, 222 in APA Psyc Articles, Medline Ultimate and CINAHL Ultimate and 1 was manually identified (figure 1). After removing duplicates, 165 title and abstract papers were assessed, of which 35 were included for full-text assessment. A final 11 studies met the inclusion criteria and were included in the systematic review (table 1). The studies were based in the USA (n=4), Italy (n=2), the UK (n=1), Australia (n=1), Taiwan (n=1), Japan (n=1) and Jordan (n=1). A total number of 152 women were interviewed across the studies. The sample sizes of the studies ranged from 7 to 25. Four studies used the telephone or an online platform to conduct the interviews, while the rest were conducted face to face. One study conducted the interviews in person where possible but offered telephone if face-to-face was not viable.²² All studies carried out one-to-one interviewing except one which conducted a focus group discussion.

The thematic synthesis of the included studies led to the development of four analytical themes.

The need for psychological support in high-stakes decision-making

Across all studies, multiple women highlighted the emotional implications of having to make high-stakes decisions about their reproductive health. Within this theme, women alluded to having to make life and death decisions about their health and their babies' health due to their CHD.²²⁻²⁸ The lifelong implications of choosing whether to have a child or not appeared to be held within cardiology care where there was an emphasis on medicalising decisions with little offering of psychological



Source: Page MJ, et al. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71.

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Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flowchart.

**Table 1** Summary characteristics of included studies

Author(s)	Aim	Location	Method	Analysis	Results	Clinical implications
Flocco <i>et al</i> ²³	To explore the lived experiences of women with CHD during pregnancy and early motherhood.	Italy	F2F 12 semi-structured interviews recruited using purposeful and consecutive sampling	Interpretative Phenomenological Analysis (IPA)	Three key themes were identified: (1) 'being a woman with CHD'; (2) 'being a mother with CHD'; and (3) 'don't be alone'.	Individual support is needed for women with CHD. Specialist prenatal and postnatal care which covers both physical and mental health support should be offered for CHD women. Family members should be involved in care, if appropriate.
Gant ³²	To explore what young women with CHD perceive as the impact of their disease on their sexuality, body image, sexual decision making and potential pregnancies.	USA	F2F 13 unstructured interviews using theoretical sampling	Grounded Theory	Three categories were identified: (1) 'growing up heartsick'; (2) 'growing up female'; and (3) 'living against the body'.	HCPs should be trained to understand these women's reproductive needs. HCPs to help CHD women with knowledge about contraception, pregnancy and childbearing to make their own decisions.
Ghizzardi <i>et al</i> ²⁹	To explore the barriers and facilitators impacting CHD mothers' experiences in pregnancy and early motherhood.	Italy	Secondary data analysis of Flocco ²³ study	Interpretative Phenomenological Analysis (IPA)	Barriers: (1) 'need for careful management of clinical risk during pregnancy'; (2) 'fear that children may have CHD'; (3) 'need for physical and psychological support in childcare'; (4) 'carrying the burden of their parents' concern'; and (5) 'uncertainty about future prospects'. Facilitators: (1) 'positive mental attitude'; (2) comparison with non-heart disease mothers'; (3) 'search for inner strength and hope in facing difficulties'; (4) 'involvement of children in dealing with the disease'; (5) 'acceptance of support from the partner and family of origin'; and (6) 'trusting relationship with healthcare providers'.	Psychological support is needed as women expressed worries around passing their condition on. Trusting relationships with clinicians and nurses is important.
Harb <i>et al</i> ³⁰	To explore the healthcare needs and experiences of Jordanian women with CHD during pregnancy.	Jordan	F2F 15 semi-structured interviews recruited using purposive sampling	Colaizzi Data Analysis	Three themes were identified: Three themes were identified: (1) 'a broad spectrum of health needs during pregnancy'; (2) 'not being cared for'; and (3) 'the healthcare journey'.	A holistic approach in healthcare is needed. Knowledge about CHD should be incorporated in the HCPs' training curriculum. HCPs should be skilled to work with CHD during pregnancy.
Liu <i>et al</i> ²⁸	To explore the lived experience of first-time mothers with CHD.	Taiwan	F2F 11 semi-structured interviews recruited using purposive sampling	Giorgi's Phenomenological Analysis	Six themes were identified: (1) 'recognising pregnancy risks'; (2) 'performing self-care for health'; (3) 'building self-worth from my baby'; (4) 'adapting to postpartum life and adjusting priorities'; (5) 'enjoying being a first-time mother'; and (6) 'the factors contributing to success in high-risk childbirth'.	Appropriate social support and psychological interventions are important. The findings highlight the emotional burden experienced by women with CHD during their pregnancy.

Continued

Table 1 Continued

Author(s)	Aim	Location	Method	Analysis	Results	Clinical implications
Nakamura <i>et al</i> ²⁴	To examine the perceptions of pregnancy and childbirth among adolescent girls with CHD.	Japan	F2F 12 semi-structured interviews recruited using purposive sampling	Grounded Theory	Three categories were identified: (1) 'the realisation that I live with CHD'; (2) 'I want to be someone who has sufficient knowledge of CHD'; and (3) 'the awareness of getting pregnant and birthing a child while having CHD'.	HCPs should assess adolescent girls' awareness of their disease before discussing pregnancy and childbirth risks. HCPs to provide support specific to the timing, stage and degree of pregnancy and childbirth. HCPs should continuously assess concerns around pregnancy and psychological issues alongside their CHD.
Ngu <i>et al</i> ²²	To explore the motivations of women with CHD to conceive.	Australia	F2F or telephone 20 semi-structured interviews using purposive sampling	Thematic Analysis	Four themes were identified: (1) 'influence of existing relationships'; (2) 'personal influences'; (3) 'biological influences'; and (4) 'cultural and social influences'.	Discussions with HCPs should begin in adolescence to support women with decisions about contraception and pregnancy.
Osteen <i>et al</i> ²⁵	To understand the childbearing decision-making and adaptation experiences of women with CHD.	USA	Telephone 17 semi-structured interviews using convenience and snowball sampling	Narrative Thematic Analysis	Five stages of childbearing decisions: (1) 'stimulus to consider childbearing'; (2) 'exploring childbearing options'; (3) 'considering childbearing options'; (4) 'choosing to bear or not to bear a child'; and (5) 'adapting to the childbearing decision'.	There is a need for HCPs to validate and support women's concerns, fears and grief around childbearing decisions.
Steiner <i>et al</i> ²⁶	To understand adults with CHD expectations for and experiences with pregnancy, including factors that influenced patients' perceived quality of care.	USA	25 semi-structured telephone interviews recruited using purposive sampling	Thematic Analysis	Four themes were identified: (1) 'expectations about pregnancy'; (2) 'testing, education and planning'; (3) 'balancing recommendations with logistical reality'; (4) 'importance of clinician confidence and communication'.	The confidence of the clinician caring for pregnancy in adults with CHD is important. Strong communication skills, multidisciplinary collaboration and counselling should be provided to all patients with CHD.
Stokes <i>et al</i> ³¹	To explore women's perceptions of pregnancy and family planning care as related to CHD	USA	20 semi-structured telephone interviews recruited using purposive sampling	Thematic Analysis	Five key themes were identified: (1) 'CHD impacted their reproductive health goals and decisions'; (2) 'women with CHD perceived a lack of safe contraceptive methods for their condition'; (3) 'women desired tailored, disease-specific sexual and reproductive health (SRH) information'; (4) 'women viewed their cardiologist as the primary source for SRH information and preferred provider-initiated discussions starting in adolescence'; and (5) 'women desire coordinated pre-pregnancy and intrapartum care between their cardiologists and women's health providers'.	Women with CHD may have limited information in relation to their reproductive health. Cardiologists should play a role in counselling, pre-pregnancy counselling and peripartum management. This should begin in early teenage years and continue through and after transition to adulthood. Interdisciplinary communication is important for successful patient experiences.

Continued

**Table 1** Continued

Author(s)	Aim	Location	Method	Analysis	Results	Clinical implications
Tylek <i>et al</i> ²⁷	To explore, examine and identify the experience that women with CHD face as they transition through adolescence into womanhood.	UK	Three focus groups on Microsoft Teams with seven participants recruited using snowball sampling	Thematic Analysis	Three themes were identified: (1) 'the impact of womanhood and the potential influence of motherhood on the young women themselves transitioning through adolescence with CHD, within medical and sociocultural contexts'; (2) 'the challenges of being a woman and undergoing heart surgery during adolescence on the young women's health before, during and after surgery'; and (3) 'the effect of existing online/offline healthcare and social structures on women's health during transitioning through adolescence'.	HPCs should provide CHD patients with practical, psychological and social support. Care plans should address women-specific issues and offer psychological support. Psychological support may be beneficial for young women transitioning through adolescence and should be embedded throughout the lifespan.

CHD, congenital heart disease; F2F, face-to-face; HPCs, healthcare professionals.

support in that process. The lack of psychological support in recognising the emotional burden of having to make such big decisions was detailed in multiple studies.^{23–25 27 29 30} Two studies suggested that women often used their own inner strength or support systems to seek emotional support during this time^{23 29} and this was their primary source of psychological support.

Subtheme: The emotional and psychological burden of parenthood

This theme expands further on the need for psychological support in high-stakes decision-making, highlighting how not only did participants describe having to make life-changing decisions but also their concerns about potentially passing on their CHD to future offspring.^{22 23 25 28 29 31} There were also fears of being in situations where their own or their baby's survival was at risk and having to make life or death decisions if complications arose.²⁶ This was later echoed in studies where fears and worries were translated into women not being alive long enough to see their child grow up and the burden of their own health needs exceeding their child's needs and health.^{23 29} The opportunities for parent-child interactions were another dimension which was perceived as important, in particular in relation to the potential physical limitation of their CHD to keeping up with the physical demands of playing with their children.³¹ The emotional impact of having to face these dilemmas appeared to exacerbate the usual anxieties that come with parenthood.

The challenge of receiving conflicting medical guidance

Several studies described conflicting medical advice among the healthcare teams.^{23–27 29 30} Some women recalled being told that having children would never be possible due to their CHD, yet later went on to have children after being informed that it was, in fact,

possible.^{27 29 31 32} Others reported having no conversations or discussions about contraception or pregnancy in relation to their CHD, which led to unplanned pregnancies that put their heart health at greater risk.^{28 31} There was a focus on these women needing professional expertise in understanding their CHD and how it impacts their body and their life, and this was not always available or was conflicting.^{23–27 29 30} There appeared to be a strong focus on the support from cardiologists which was often described as someone the women trusted for their understanding of their CHD.^{22 23 25 29 31} However, the understanding of their health needs and risks across different departments such as gynaecology and obstetrics was less understood and often participants reported a feeling of insecurity.^{26 27 30 31} Women felt that the complex nature of their CHD became even more confusing when other healthcare professionals did not have a good understanding of their needs. Studies which focused on contraception or puberty similarly highlighted the limited information around contraception from their GP and shared examples of being put on contraceptive pills that were associated with cardiac risks.^{24 27 28 31} The consideration of the intersections of participants' health needs (physical health, psychological health, reproductive health, medical care and personal circumstance) should be important factors in understanding the reproductive journey of women with CHD.

Balancing reproductive autonomy and health risks with congenital heart disease

Concerns around having little or no control over participants' decision to have children or not were often removed from their agency due to their CHD.^{24 28 29 31 32} Women felt that the decision to have children or not

was very personal and they wanted to have autonomy over their body and the decisions that they made for their family, which was not always possible.^{27 30} There were also concerns about the overall medicalisation of their pregnancy, and there was an overreliance on medical interventions compared with their own concerns or experiences.^{26 28} This was particularly relevant when women's birth plans had not been followed, or their hopes were not considered.²⁶ It was broadly suggested that women wanted healthcare professionals to hold optimistic and hopeful views so that they could feel empowered in their own ability to make the right decision.^{26 30} However, participants emphasised the importance of acknowledging their own limitations specifically on what would be safe for them.^{23 24 31} Therefore, placing greater emphasis on person-centred care could help women better manage the challenges of tolerating uncertainty, particularly if they are supported in making their own informed decisions.

Subtheme: social norms and comparisons of pregnancy experiences

Many women reported on the social comparisons between them and their non-CHD peers.^{22 24–27 29 30 32} Aligning with this, the concept of womanhood and societal expectations of being able to carry and birth a child were major concerns. This was apparent in two non-Western studies^{24 28} where there was a desire to become a mother, which could reflect cultural gender norms where women provide for children and household duties and men provide financial stability. This suggested an 'othering' that women with CHD may feel in relation to their identity and cultural norms. Despite the concerns with pregnancy, the desire to become a mother appeared to outweigh the potential fears of parenthood and the possible health implications.²⁹

Impact of geographical location on access to support

Several studies highlighted the importance of location in relation to having access to resources, with differences in support available depending on location. Women who lived in rural areas described having to travel far to be able to access specialist hospitals to manage the safety of their pregnancy and childbirth.^{26 30} Three studies^{27 28 30} highlighted the importance of a social network for these women which included family members, friends and peer support. The idea of having to move away for childbirth appeared to contribute to feelings of fear and isolation from their support network.^{26 28 30} This then contributed to some concerns of finances and employment which were detailed in two studies.^{26 30}

DISCUSSION

Globally, over 3 million women of reproductive age live with a congenital heart condition, one million more than in 1990. This is the first systematic review of qualitative studies exploring the lived experience of women

with CHD and the mental health burden posed by their reproductive journeys, from puberty to menopause. Overall, our findings identified a gap in the provision of psychological-based support for patients with CHD in their reproductive journey. The results highlighted the complex nature of health needs for women with CHD around their reproductive health.

There are clear health risks for this group of women such as increased risks of heart failure, arrhythmias, stroke and pulmonary hypertension during pregnancy.³³ As a result, women's desires and wishes may not always be accommodated, particularly around pregnancy. There is ultimately an ethical dilemma faced by healthcare providers which needs to balance patient safety and responding to reproductive choices. However, there did appear to be little consideration or support for the emotional and psychological impact of having to make critical decisions about reproductive health. Themes relating to 'the need for psychological support in high-stakes decision-making' and 'the challenge of receiving conflicting medical guidance' appear to overlap because receiving conflicting medical guidance is likely to exacerbate the emotional impact of the decision-making process. This may lead to doubt and uncertainty, ultimately diminishing confidence in the decision. To address these issues, previous studies have suggested a collaborative approach where women and their partners engage in conversations with cardiology about safe pregnancy.³⁴ Healthcare professionals and providers may be able to mitigate some of the stress experienced by this group of patients by increasing their own confidence and knowledge around reproductive health for women with CHD.

A common concern throughout the reproductive cycle included the woman's decisions around contraception. Results showed the frequent reports of contradictory advice around hormonal contraception, and examples were shared of women being on contraceptive pills that had risks for their CHD. Previous studies have highlighted the need for early consultation with healthcare providers regarding family planning decisions.³⁵ Women also reported that they relied on their own inner strength or support network. The emotional toll of having to make life-changing decisions appeared to be reinforced by the healthcare systems because of the limited emotional support available. While in some studies, women described their inner strength as a protective factor in their reproductive journey, other studies focused on the strength provided by other people, for example, family, friends or other women with similar experiences. Previous studies which have focused on other chronic conditions share similar findings in that sharing experiences with others with similar lived experiences is a major supportive factor.³⁶ However, due to the unique and complex nature of CHD, peer support needs to be integrated with professional guidance.

Despite studies recognising the importance of cardiology care for CHD, the same understanding within other disciplines, such as gynaecology and obstetrics, was not



always visible. Previous studies have found that family planning decisions are not consistently addressed for this population.³⁷

Our results showed a high degree of inequality in the lived experience of these patients both driven by social norms and geography. On the one hand, previous studies have found that individuals with chronic or long-term conditions strive to move away from feeling 'different' and aim to achieve a sense of normality.³⁸ The ability to have children may contribute to having a sense of normality³⁹ which reinforces the societal expectation that motherhood is a key aspect of womanhood. On the other hand, access to specialist support varies based on geographical location, with women who have limited access to healthcare facing greater challenges in attempting to achieve normalcy.

Finally, our results have shown an important gap in our understanding of the mental health burden of transitioning to menopause in this group of women. Women with CHD are more likely to experience a deterioration of their condition during menopause⁴⁰ with a higher risk of blood clots, weight gain, increased cholesterol and glucose and an increased amount of fat around the heart.⁴¹ Deterioration of the cardiovascular profile paired with hormonal changes associated with menopause may play a major role in the mental health profile of this group of patients. While a recent review⁴² suggests that increased risk of major depressive disorders during the menopause transition is observed predominantly in individuals with previous major depressive disorder, our understanding of the experience in women with CHD is minimal to nonexistent.

While this review was the first to explore the lived experiences of women with CHD through their reproductive journey, there were notable limitations. The majority of studies focused on pregnancy and motherhood, with only four referring to contraception or puberty.^{24 27 28 31} The decision to focus on the entirety of reproductive health was to capture all possible qualitative studies that focused on reproductive health for women with CHD. This was aimed at generating a comprehensive overview of the reproductive health experience for women with CHD and offering a holistic view of their reproductive journey. While the diversity of geographical locations and variations of cultural and socioeconomic experiences and norms of the studies included can be considered a strength, differences within healthcare systems across countries and regions as well as cultural norms and access to resources may result in the themes or subthemes not being of relevance in other contexts.

Lastly, although there was input from a second reviewer (MA) to screen studies, there was no additional input for the interpretations of the findings. This may have led to methodological bias. This was due to the nature of this research being conducted independently due to time restrictions under the conditions for which the review was being conducted.

In conclusion, this systematic review highlighted the significant role that healthcare providers play in women's

childbearing decisions and reproductive health among CHD patients. Despite the clear medical implications for these women, medical advances are not the only significant factor in decision-making for reproductive health concerns. This review highlighted the gap within healthcare for the psychological support available for women making life-changing decisions, not only for their health but for their families. The review revealed the importance of cardiologist care but also the need for a multidisciplinary understanding of reproductive health for women with CHD. Based on the findings of this review, consideration should be given to education and discussions about women's health within healthcare teams. Alongside this, psychological support should be available for women throughout their reproductive journey, for example, when going through puberty, decisions around contraception and pregnancy and postpartum periods.

Contributors MA and MDC conceived and designed the study. MA and MA performed literature searches and independently screened studies. MA extracted data, conducted the analysis and drafted the initial manuscript, with the support of MA. All authors critically revised the manuscript for important intellectual content. No authors were prohibited from accessing the data. All authors reviewed and approved the final manuscript. MDC is responsible for the overall content as guarantor and had final responsibility for the decision to submit the manuscript for publication.

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