



RESEARCH ARTICLE

Barriers and facilitators of experiencing pregnancy and motherhood with congenital heart disease: A secondary qualitative analysis

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Abstract

Aims: To explore and describe perceived factors that favour or hinder the challenges faced by mothers with congenital heart disease during pregnancy and motherhood.

Design: A secondary qualitative analysis, according to the interpretative phenomenological analysis approach.

Methods: A previous study by Flocco et al., 2020 led us to identify that this population share risks, fear, worries and challenges related to pregnancy. To better understand two a priori themes, barriers and facilitators, we adopted The Standards for Reporting Qualitative Research guidelines, and the processes of credibility, transferability and dependability guaranteed the rigour.

Results: The perceived barriers that were identified from the twelve semi-structured interviews were mainly identified in clinical and psychological risks, uncertainty about the future. The main facilitators were identified in positive mental attitude, self-motivation, trust in support by clinicians and nurses.

Conclusion: The study results confirmed two main a priori themes, revealing that CHD women perceive considerable obstacles and figure out facilitators to face the difficulties encountered in their path to become mothers.

KEYWORDS

congenital heart disease, motherhood, pregnancy, qualitative research, secondary analysis

1 | INTRODUCTION

Congenital heart disease (CHD) represents one of the most important health challenges, affecting approximately from 3% to 10% of live births (Bouma & Mulder, 2017) and representing 0.8%–1.2% of all congenital birth defects (Marelli et al., 2007). The life expectancy of patients with CHD has deeply changed over the past decades, thanks to the progress in diagnosis, the refinement of percutaneous and surgical interventions and devices, the discovery of biomarkers

and clinical research (Bouma & Mulder, 2017; Engelfriet et al., 2005). More than 85% of CHD children currently reach adulthood (Giamberti et al., 2016). Accordingly, a transition from childhood to adulthood has become a reality for most patients (Flocco et al., 2018, 2019), resulting in a new CHD adult population (Dellafiore et al., 2019).

Currently, the percentage of CHD women who are becoming pregnant is increasing worldwide (Opatowsky et al., 2012), and pregnancy and motherhood constitute a challenge for these women due to the high risk of complications associated with the complexity of

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CHD (Bianca et al., 2017). Moreover, the need for frequent follow-ups, the fear of passing CHD on, the risk of late diagnosis, the opportunity of complications after giving birth, improve the worries and burden during pregnancy and motherhood. In this scenario, it is evident that CHD women who decide to become mothers need careful health support to reduce the occurrence of risks and to be peacefully guided through an experience that should be among the most unforgettable for a woman. Specifically, the role of nurses is pivotal in conducting the caring and curing plans, favouring the cooperation between the different healthcare professionals (Sillman et al., 2017). Particularly, the care of adults with CHD results to be tailored, guaranteed and facilitated by nurse coordinators, that provide patients with CHD with educations and counselling. (Flocco et al., 2018, 2019).

However, the peculiarities that could favour or hinder the path from getting pregnant to being a mother has not been well investigated yet. Specifically, it is not known whether any aspects could facilitate the experience of pregnancy or make it harder. Thus, the distinctive features of this population and their actual healthcare needs are still undetermined. Investigating and examining the barriers or facilitators implemented by CHD women in the specific conditions of facing pregnancy and motherhood is pivotal to enhance evidence-based supportive strategies and to improve nurses' confidence and efficacy in caring for this patient population.

1.1 | Background

For many CHD women, even in situations of simple and moderate or corrected disease, where the organism could successfully tolerate the physiological changes related to pregnancy (Song et al., 2008), dealing with pregnancy involves a moderate to high risk for both mothers and offspring (Canobbio et al., 2017). CHD may cause maternal and neonatal mortality and morbidity both in the antenatal and postnatal periods (Manh et al., 2019). Hemodynamic and hormonal changes can destabilize the cardiovascular system, so pregnancy risks are important to be considered in presence of a condition of CHD (Haberer & Silversides, 2019). Some women may frequently run into cardiac complications like arrhythmias and congestive heart failure (Haberer & Silversides, 2019). The modified World Health Organization (mWHO) classification categorizes patients with CHD into four pregnancy risk classes, depending on the cardiac diagnosis, functional class, ventricular and valvular activity, existence of cyanosis, pulmonary artery pressures and other aspects (Regitz-Zagrosek et al., 2018). Clinicians should counsel against pregnancy patients with mWHO class IV risk; however, a pregnancy heart team should offer pre-pregnancy counselling to patients with mWHO II-III, III, to establish a delivery plan and a postpartum course (Regitz-Zagrosek et al., 2018).

Despite their health condition (Ntiloudi & Giannakoulas, 2019), the willingness to be a mother can provide CHD women with strong motivation to face their illness (Vallido et al., 2010), and with the chance to demonstrate that they do not have less chance to lead

a normal life (LaPierre et al., 2017). However, upon reaching child-bearing age, CHD women must receive support and counselling to be prepared to bear a pregnancy (Vallido et al., 2010). Preconception counselling and pregnancy risk assessment can lead women to make the future decision consciously and the cardiac condition may need to be optimized in the future perspective of pregnancy. Even if these women tend to be remarkably thorough about their safety during pregnancy, they remain insecure about their ability to maintain their health (Vallido et al., 2010).

During pregnancy, CHD mothers often experience feelings of fear for themselves and their future children (Niwa, 2018), and they have to struggle to be accepted as normal (Claessens et al., 2005). Additionally, through their transition from being childless to being mothers, they reported experiencing both positive and negative feelings. Sharing their fears and thoughts with other people is fundamental to strengthen their ability to face this burden (Flocco et al., 2020). Therefore, supportive care is needed to understand the patients' in-depth feelings and needs related to pregnancy and early motherhood (Dellafiore et al., 2019).

Although studies have been conducted to understand the risks (Dawson et al., 2018) and the experiences (Flocco et al., 2020) during pregnancy and motherhood, relatively little is known about the aspects that could favour or hinder CHD mothers' experiences. Thus, investigating and examining the barriers and the coping strategies or facilitators implemented by these women in this specific context is pivotal to improve evidence-based supportive strategies. Qualitative research projects aimed to enrich the current knowledge by reporting real-life and feelings related to motherhood and could also highlight the strengths of CHD mothers, offering healthcare providers the opportunity to delineate specific health needs and tailored interventions.

2 | THE STUDY

2.1 | Aim

This study explores and describes the perceived factors that could favour or hinder the challenges faced by CHD mothers during pregnancy and motherhood. Specifically, the research question leading the analysis is: (a) "What are the key factors that could favour or hinder CHD mothers in overcoming the challenges represented by pregnancy and motherhood?"

2.2 | Design

According to the interpretative phenomenological analysis (IPA) approach (Smith et al., 2009), a secondary qualitative analysis (Ruggiano & Perry, 2019) was employed to explore the research question. The Standards for Reporting Qualitative Research guidelines (O'Brien et al., 2014) guaranteed transparency throughout the study. As described by Brooks and colleagues (Brooks et al., 2015),

we identified some a priori themes to facilitate the study reporting. These two themes represent the barriers and facilitating factors related to pregnancy and motherhood, and the qualitative new findings have been presented in the study in the frame provided by these a priori themes. Thus, data analysis and results aimed to in-depth explore specific aspects related to experiences lived by these women (Flocco et al., 2020), which may lead to further investigation (Brooks et al., 2015).

2.3 | Study population and data collection

Women attending a hub centre for CHD treatment in Northern Italy participated in the previous study (Flocco et al., 2020). Purposive and consecutive sampling was employed to enrol participants more likely to provide meaningful dialogues and experiences. Women with diagnoses of CHD, able to give informed consent, who were pregnant or mothers and who spoke fluent Italian were included. Women younger than 18 years and patients with cognitive impairments were excluded (Flocco et al., 2020). New participants were enrolled as long as it was necessary to obtain the analytical process's information (Smith et al., 2009). According to the IPA methodology, the overall sample was small and homogenous (Smith et al., 2009). The participants were white Italian women aged between 32 and 54 years (mean = 40). Only one woman was 9 months pregnant, while the others were already mothers. Specifically, seven women had a lonely child, aged between 1 month and 20 years, while four women had two children, and their age varied between 7 months and 33 years. All women but one lived with a partner. According to the CHD classification, six women had moderate CHD, four had simple CHD and two had complex CHD.

In the primary study, data collection was performed by nurses experienced in qualitative research, between April and September 2018. After having received specific training in performing this technique, they conducted face-to-face semi-structured in-depth interviews. The interviews were audio-recorded and transcribed verbatim by the research team; the interviewer reviewed all the processes to guarantee accuracy. The interviews were never interrupted until participants had finished, nor open-ended questions gave rise to any new information (i.e. data saturation was achieved) (Saunders et al., 2018). Examples of questions asked to guide the interviews are presented in the primary study: women were asked questions as: "Please, can you describe your experience with the birth of your child?" or "What are the factors related to your CHD that, in your opinion, will influence the growth and life of your child?"

2.4 | Data analysis and rigour

In reviewing data from the previous study, researchers realized that CHD mothers reported some shared sensations, emotions and experiences that could have positively or negatively influenced their life. Consequently, to explore these new hypotheses, the authors

considered performing a secondary analysis, identifying a priori themes as a framework for the reporting (Brooks et al., 2015). In particular, further analysis was needed to understand what specific experiences could facilitate or burden CHD mothers' pregnancy and motherhood. Thus, to perform this secondary analysis, the data set was interrogated from an independent perspective. The study aimed to maximize the use of the data, critically evaluating them to gain a deeper understanding of the key experiences and the impact lived by these women.

As in the primary study, the qualitative text data were analysed following IPA methodology, translating identified leading themes into statistically significant and pertinent narrative descriptions. The purpose of the IPA methodology is to deeply explore the meanings attributed by the participants to their personal experiences (Smith et al., 2009). Thus, after having attended specific qualitative analysis training unrelated to the prior qualitative study, two independent researchers conducted this secondary analysis. The "bracketing" technique was applied before data analysis; researchers took notes about their preconceptions towards the hypothesis under investigation, suspending judgement and fully focusing on the transcript data (Tufford & Newman, 2012). Bracketing enhances the rigour of results, reducing the risk that the researchers' preconceptions will affect their insight into the participants' reports. Researchers read and re-read the transcripts to deep understand the meanings. Afterwards, they selected statistically significant phrases from each interview and grouped all the sentences, which referred to similar themes together. Thus, phrases were coded in themes and subcategories to capture their essential features and relevant meanings related to research questions. According to IPA methodology, themes were linked together to develop a coherent and organized thematic content of the phenomenon.

Moreover, the process of credibility, transferability and dependability (Crowe et al., 2015) guaranteed the rigour in this study. When all the themes and sub-themes had been defined, an additional and independent researcher performed the analysis' validity checks and interpretations; the removal and merge of redundant and/or overlapping themes gave back a list of preordained and subordinate topics (Tufford & Newman, 2012). Besides, clear summaries were provided for each interview to ensure "transparency and coherence" and allow methodological trustworthiness (Sandelowski, 2000). All the results were translated from Italian to English according to the recommendations for an optimal representation achievement of participants' experiences (van Nes et al., 2010); an English expert checked the contents.

2.5 | Ethical considerations

Ethical and informed written consent available from the primary study was aligned with the secondary analysis's objectives and scope (Ruggiano & Perry, 2019). Patients were informed that their involvement was based on voluntary participation, their confidentiality was ensured, and they were entitled to leave the study at any

time. The institutional review board of Ospedale San Raffaele approved the study (protocol number 136/INT/2017) and received an official notice about additional analysis. A code number (e.g. P1, P2, P3) was assigned to each participant to guarantee anonymity and confidentiality throughout the study; any confidential information was erased from the transcripts. The audio-recorded interviews and transcripts were saved on a password-protected computer, accessible only to authorized researchers.

3 | FINDINGS

Twelve semi-structured interviews were conducted by trained nurses until data saturation was achieved. CHD mothers' socio-demographic and clinical characteristics were described in the primary article (Flocco et al., 2020). The secondary qualitative analysis sought to explore the perceived barriers and facilitators encountered by CHD women in experiencing pregnancy and motherhood (Fig. 1).

3.1 | The perceived barriers

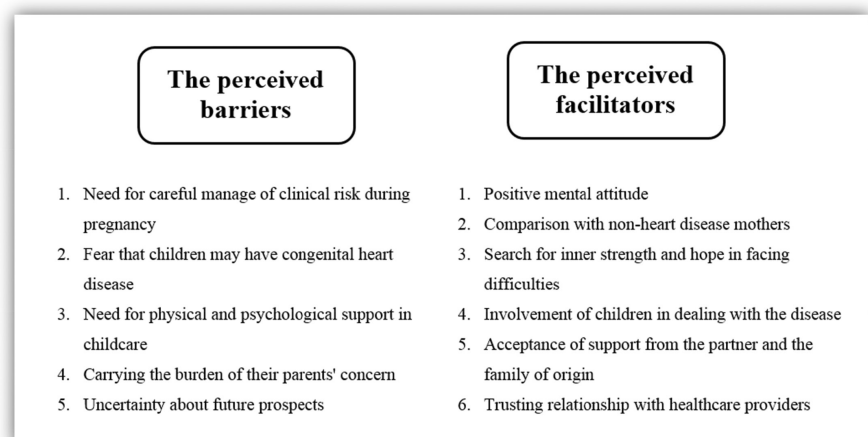
CHD mothers often face various troubles and predicaments during their pregnancy and after. Since they live with a disease diagnosed mainly in early life, most of them are used to be treated with an eye, but this overprotection reaches higher levels during pregnancy. Besides, they can experience an overriding sense of concern and fear in dealing with motherhood. The theme of the perceived barriers includes five sub-themes: (a) *need for careful management of clinical risk during pregnancy*, (b) *fear that children may have congenital heart disease*, (c) *need for physical and psychological support in childcare*, (d) *carrying the burden of their parents' concern*, and (e) *uncertainty about prospects*. These five sub-themes were identified by coding twenty-four statistically significant phrases.

- a. *Need for careful management of clinical risk during pregnancy*. Due to the statistically significant risks of worsening their medical

condition, CHD mothers require close monitoring during the gestation period. Thus, women request consultant advice to receive support: *"Since I did not know exactly how to manage pregnancy due to my heart disease, I have been looked after by a paid doctor"* (P1). Moreover, to better manage the risks, these women need to be referred to specialized facilities: *"I was welcomed at the high-risk pregnancy clinic, where they monitored my pregnancy with an eye on it"* (P5). Sometimes they have even been advised against pregnancy: *"We went around asking for some advice from cardiologists, to see if I could have tried with a pregnancy and everyone told me I could not"* (P7); *"I wanted kids, everyone wrote me off this possibility"* (P3). In some instances, when pregnancy may have represented a life-threatening condition, clinicians even suggested proceeding with the abortion: *"Pregnancy was physically and psychologically heavy, in the sense that any doctor I went to told me I should have had an abortion"* (P8).

- b. *Fear that children may have congenital heart disease*: Moreover, CHD mothers express a sense of apprehension and concern about the opportunity that also their children may have inherited congenital heart disease: *"I had the panic that something could happen to me but also the panic, which was the strongest one, of passing on anything to my child's heart"* (P9). This concern prompts them to perform targeted tests during pregnancy or shortly after their offspring's birth: *"I also had my children assessed, just to be quiet. I was afraid that they could have the same problem as me"* (P10). The awareness that children could inherit CHD causes negative emotions: *"I was anxious about my child and me, both before and after birth. I gave him a cardiological examination and various more targeted tests"* (P12).
- c. *Need for physical and psychological support in childcare*: CHD mothers experience statistically significant physical fatigue and major psychological commitment in growing their children up: *"Perhaps during adolescence, when my son was a little more turbulent, I had more difficulties...I seemed to have no energy"* (P12). This fact leads them to express their need for help and support from other people: *"I need help, I need someone to reassure me"* (P1). Family or friends' support was also required in case of hospitalization for heart surgery. This opportunity can raise statistically significant

FIGURE 1 Results of secondary qualitative analysis



concerns among mothers, highlighting fears and potential logistic issues in managing their children: "I needed someone to look after my son while I was in the hospital" (P4).

- d. *Carrying the burden of their parents' concern*: CHD mothers find themselves in the situation of having to reassure their parents -their mothers in particular-: "My mom was very worried, [she said:] 'do the caesarean section because I'm afraid of natural deliver'" (P1). The concern is about the daughters' health: "I told my mom it wasn't about me and my problem, but it was about my son and what I was facing, I was getting stressed out" (P4).
- e. *Uncertainty about prospects*: CHD mothers express concern and fear about the future: "If I am fine... let's say that factors related to my heart disease will not affect my child's life ... if I start to have health issues instead, I think these obviously will also affect him" (P12). They are afraid that a lower life expectancy would preclude them the opportunity of seeing their children's growth: "I strongly feel this matter that I have less chance than others to experience my son growing" (P1). The option to prematurely leave their children without a mother cause these women a deep sense of uncertainty: "I asked myself who will take care of my son if anything happens to me" (P4). In the process to maintain an acceptable health status to stay as long as possible with their children, CHD mothers accept all medical treatments: "I underwent my last surgery after my daughter was born and I did it for her, I would never have found the strength, and I did it because I wanted to experience her growing" (P8).

3.2 | The perceived facilitators

To address all the issues and concerns resulting from pregnancy and motherhood, CHD mothers shall put in place appropriate mechanisms and positive attitudes. Most of them choose to live their experience optimistically and in a very serene way by accepting aids and support, drawing strength from their limits. The theme of the perceived facilitators includes six sub-themes: (a) *Positive mental attitude*, (b) *Comparison with non-heart disease mothers*, (c) *Search for inner strength and hope in facing difficulties*, (d) *Involvement of children in dealing with the disease*, (e) *Acceptance of support from the partner and the family of origin*, (f) *Trusting relationship with healthcare providers*. These six sub-themes were identified by coding twenty-eight statistically significant phrases.

- a. *Positive mental attitude*: CHD mothers put in place self-defence mechanisms to more peacefully facing their condition: "I think that I will no longer feel bad, so the thought does not go further" (P7). Aware of their limits, they tend to exhibit an attitude of knowledge and acceptance of their disease and take action to improve their daily life without overdoing it: "I have learned to rest when my son rests, I try to ask myself not too much" (P1). Even when negative feelings may take over, CHD mothers find a way to protect themselves by acting upon their mood: "The anxiety of not being able to deal with this is a thought that I can detach, that I can keep

under control" (P8). They look for strategies to induce disease with motherhood and take the most for the present: "I try not to think about how my heart disease could have repercussions on my child's life, in this way I sort this thing out...It's useless to ruin your life on hypothesis...I live in the moment" (P12). Since CHD mothers are used to living with the disease, they are confident in managing it and recognize when to ask for support in performing their role as mothers: "I have learned to manage my heart disease well and not to be a hero; therefore, I ask for help when I need it. Apart from that I'm not gonna shake my head before I break it" (P9).

- b. *Comparison with non-heart disease mothers*: In dealing with non-heart disease mothers, CHD mothers emphasize that they do not feel different or penalized, relying on their strength and courage: "Being mothers with heart disease means that we are warriors, that we always win and that we are stronger than the others who are perfectly fine" (P7). Facing more challenging health issues than other mothers makes them feel blessed and grateful for life: "It was even more valuable to me to have a child than a person who has no heart problems" (P12). Since the day these women start aspiring to be mothers, they know they will meet far more difficulties than their counterparts without CHD, so achieving their goal imbues them with good sensations: "I consider myself lucky compared to other mothers" (P3).
- c. *Search for inner strength and hope in facing difficulties*: CHD mothers search for inner strength to cope with their disease: "I can be strong and aware that I can do this- pregnancy" (P1). This force, together with hope and bravery, is vital in reconciling their pathological condition with motherhood: "I had no intention of having an abortion, perhaps due to that strength you have when you are nineteen, or perhaps even due to unconsciousness" (P8). This attitude places them in a state of faith and serenity, pivotal to face the daily challenges and uncertainty about the future: "When I was pregnant I was hoping that things were going well until the end" (P12). Their positive disposition helps these women to live with confidence and prospect: "I have been confident and calm; my daughters watched me doing everything" (P2).
- d. *Involvement of children in dealing with the disease*: As soon as their sons or daughters are old enough to absorb the information, CHD mothers involve them in coping with the disease, trying to encourage the acceptance of the reality: "Since they were children, my daughters knew and understood, they did not give weight to my disease" (P2); "My son knows everything, he used to come to hospitals with me"(P3). Engaging children without trying to cover up the problem promotes the development of a free from fear and based on collaboration mother-child relationship: "When I have tachycardia, I keep my children close to me, they know that their mom has this problem" (P10). Finally, CHD mothers can deeply benefit from their offspring's support, enjoying moments and situations lived together, even during rough times: "I calmed down with the help of my son. I have to say that he supported me, no matter how little he was" (P4).
- e. *Acceptance of support from the partner and the family of origin*: Aware of their restrictions, CHD mothers accept physical and

psychological support and aid both from their partner and from people close to them: "My husband works, but if I need help I can find it without any problem, therefore also this is very reassuring" (P5). Having someone to count on makes CHD mothers conscious about being in a protected context: "I did not worry about anything regarding the management of the child, I still have parents, I had help day and night" (P3). They often get comfort from their mothers, deriving power and benefit from it: "My mom gave me a lot of strength and much help, also with the baby" (P8).

- f. *Trusting relationship with healthcare providers*: CHD mothers, due to their unstable and highly complex clinical condition, establish a founded on a trust relationship with cardiologists and other healthcare providers, who are their point of reference. This relationship gets stronger when they are pregnant and after childbirth: "I was so peaceful during my pregnancy because I trusted my cardiologist" (P2). Clinicians can also console CHD mothers when something psychologically difficult to bear related to their motherhood happens: "When I had to abort my second child, also doctors gave me the strength because I found special doctors in my path" (P8). They feel reassured and looked after by doctors and nurses in the best manner, and this let them live their motherhood experience as quietly as possible: "I always had my checks done by this consultant, and he made me experience becoming mother very peacefully" (P6).

4 | DISCUSSION

To the best of our knowledge, this is the first study aimed to describe the key experiential factors that could facilitate or hinder the overcoming challenges faced by CHD mothers during their pregnancy and early motherhood. Issues related to sexual health and reproduction should be identified (Manh et al., 2019) since cardiovascular disease results to be the main reason for non-obstetrical death during pregnancy (Haberer & Silversides, 2019). However, CHD mother's awareness to take important risks awakens certain feelings and behaviours that facilitate their path to become mothers. In this regard, the gaps in knowledge are still many. Specifically, it is still unknown whether any aspects could facilitate or make the pregnancy experience harder. Thus, the identification of distinctive features and actual healthcare needs typical of this population is undermined.

Starting from the previously published findings, a deep reflection has sprung, leading to identify two main a priori themes ("the perceived barriers" and "the perceived facilitators"). Since they experience difficulties related to pregnancy, CHD mothers are aware of risks or complications that may occur, which can constitute perceived barriers (Haberer & Silversides, 2019). These women often reported living in a protected context since their childhood, and this trend escalates when they get pregnant. In most cases, they are advised against pregnancy by clinicians since their teens (Regitz-Zagrosek et al., 2018), and sometimes they are even invited to have an abortion. Despite this, a study reported that only 51% of CHD mothers could remember receiving information from healthcare

professionals about contraceptives (Kovacs et al., 2008). However, they have to manage a complex clinical and diagnostic path for themselves and their foetus, needing careful management of clinical risk during pregnancy. Feelings of anxiety and uncertainty drive them to perform accurate prenatal testing and/or to have their children assessed right after birth.

These women have shown the ownership of the importance of regular check-ups, in contrast with the results reported by Wray and colleagues (Wray et al., 2013). Women involved in our research clearly said fear that children may have inherited congenital heart disease. The opportunity of transmitting a heart disease to offspring causes CHD mothers feelings like fears and concerns, which can impact their physical and mental health (Cauldwell et al., 2017). From adolescence, CHD girls express concern and anxiety about the future (Nakamura et al., 2018). Our participants thought about how a possible worsening of their disease would have affected their children's lives, pushing them to find solutions to protect their offspring if something happens to them, demonstrating uncertainty about prospects.

Participants overlooked the potential long-term risks for their children's future health, even if this option may even (Barker & Osmond, 1986). Patients with long-term illness conditions strive to move from diversity to normality (Dellafiore et al., 2021), and the chance to have children may help them feel "normal" (Tyer-Viola & Lopez, 2014). Our findings show that the desire to become a mother forces them to carry the burden of their parents' worry, in addition to request help for physical and psychological support in childcare.

According to the literature, young patients with CHD tend to implement positive coping strategies, which can be perceived as facilitators. Nakamura and colleagues' results show that these women develop methods to face their limitations and physical challenges (Nakamura et al., 2018). Our study found that CHD women can facilitate their co-existing with the disease, and this ability extends to their role as mothers, enabling them to feel as successful as their counterparts with no CHD. They believe to be even braver and stronger than other mothers due to their fight in pursuing their objective to have children, so they are unrivalled with non-heart disease mothers.

Since they start to feel the desire to have a child and grow up their offspring, CHD mothers overcome the barriers mentioned above by willingly accepting help and morale boost from close people: participants in our study stated to accept support from the partner and the family of origin.

Moreover, partner's involvement and economic and psychological support assist them with strength and hope in conducting their motherhood (Sood et al., 2018). Our results also show that CHD mothers are very well disposed to involve their children in managing their health issues, to tackle all together with the symptoms and worsening of the disease. Besides, they adopt a positive mental attitude, dealing with worry about their children's future perspectives.

These women demonstrated to draw strength, hope and trust from the relationship with healthcare providers. Almost all the

participants seemed to be resourceful and to have a strong social network: they cope quite well with the challenges, searching for inner strength and hope in facing difficulties. Unfortunately, in socioeconomic contexts less favourable than the Italian one, the reality could be tougher for these women. Thus, counselling and assessment from healthcare professionals before and during pregnancy and after giving birth become even more important.

The literature reports nurses and other health care professionals' effective engagement in improving patients' safety. Particularly, throughout all the care and cure processes, nurses cover a pillar and strategic role in optimizing team-based care (Sillman et al., 2017). Indeed, nurse coordinators are essential to organize, coordinate and facilitate the care of adults with CHD, holistically assess, educate and counsel patients with CHD and promote self-care management and self-advocacy (Sillman et al., 2017). The literature recognizes how the presence of a CHD nurse coordinator positively impacts clinical and psychological outcomes in patients with CHD, particularly in the transition phase (Flocco et al., 2018, 2019).

4.1 | Limitations, strengths and future prospective

There are strengths and limitations in the present study, which needed to be pointed out. Conducting a secondary analysis of existing data represented a strength (Cheng & Phillips, 2014) and is ethically sound, as it provides another interpretation to the perspectives of participants, who invested considerable time and effort in participating in the primary study. Usually, researchers who analyse data and those involved in the data collection process are not the same individuals (Cheng & Phillips, 2014), resulting in a potential lack of continuity in the research process. However, in our study, we did not meet this issue since all the process was conducted mainly by the same researchers. Additionally, CHD mothers in our study, all came from Italy, and they showed to have a similar strong social network. It is possible to hypothesize that the barrier and facilitator could differ with the social contexts, culture or resources. Therefore, it would be useful to deepen this topic considering more countries, areas and population groups.

The available data were not collected to specifically address our research question: this could be considered a limitation since it may reduce the results. Besides, we could have split the sample between women with mild CHD and women with moderate or severe CHD, obtaining more specific findings. However, the small number of patients did not allow this partition, which makes this topic worthy of further investigation.

Despite the limitations, our results highlighted that CHD mothers share thoughts and feelings in facing their pregnancy and motherhood experience by implementing coping strategies to face difficulties. This study constitutes a starting point, laying the foundations for further investigations to guarantee answers and support increasingly tailored and concrete. The implementation of specific tools to measure the identified themes described by the present study is to be considered for future research (Dellafiore

et al., 2020). Knowing which factors could influence or predict these women's health (such as mutuality or self-care) could impact clinical practice (Dellafiore, Borella, et al., 2018; Vellone, Dellafiore, Chung, & Alvaro, 2018; Vellone, Chung, Alvaro, Paturzo, & Dellafiore, 2018).

According to recent studies related to sex-related differences, we could assume that patients with CHD of both sexes experience their parenthood differently (Caruso et al., 2017; Dellafiore, Arrigoni, et al., 2018; Dellafiore, Conte, et al., 2018). Thus, an in-depth study to describe the impact of a diagnosis of CHD on the balance of married couples (Dellafiore, Rosa, et al., 2018) and on patients with CHD' offspring life would be very interesting. Moreover, considering the healthcare providers' confidence and efficacy in caring for this patient population would be prominent.

5 | CONCLUSION

For the first time, the study results described the specific factors that could favour or hinder the challenges faced by CHD mothers during pregnancy and motherhood. This secondary analysis of interviews employing CHD mothers confirmed two main a priori themes, revealing that they perceive considerable obstacles and figure out facilitators to face the difficulties encountered in their path. Further studies are needed to define strategic healthcare actions to better support CHD mothers during pregnancy, creating appropriate intervention plans for this population. Results from this study could be involved in healthcare practice and research studies; in fact, health professionals may apply our findings to enrich their knowledge about the shared concerns and feelings experienced by CHD mothers and the coping strategies they adopt. The themes that were identified might constitute an initial framework to give a unique contribution to this topic.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICAL APPROVAL

The research has been done in compliance with the World Medical Association's code of ethics (Declaration of Helsinki).

DATA AVAILABILITY STATEMENT

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

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