

The Women of the Cardiovascular Imaging Department of the Brazilian Society of Cardiology: Career and Family Challenges

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Abstract

Introduction: The “DIC Mulheres” working group was created to research and discuss the role of women working in cardiovascular imaging in Brazil.

Objectives: to map the challenges faced by women in the Cardiovascular Imaging Department of the Brazilian Society of Cardiology (DIC-SBC) in managing their careers and families.

Methods: A questionnaire with 29 questions on careers and family was made available between March and April 2024, inviting women from DIC-SBC to participate anonymously. The questions addressed age, medical training, career, family relationships, and mental health status. Data obtained were described in the form of categorical variables in percentages.

Results: A total of 321 women responded to the questionnaire, representing 25% of DIC members. Most respondents are between 30 and 50 years old and work with echocardiography. Approximately 66% combine imaging activities with clinical cardiology, and 47% report a workload of more than 40 hours per week. Only 39% hold management positions, but more than 50% have published scientific production. Regarding motherhood, 73% have children and almost half of them did not stop working after the birth of their child. Regarding mental health, 63% reported symptoms, the most common being burnout (22%), anxiety (17%) and depression (17%).

Conclusion: Women face challenges in balancing their careers with family responsibilities, which can take a toll on their mental health. This study highlights the need for institutional policies that support motherhood, provide mentorship, and develop mental health programs specifically for those working in cardiovascular imaging.

Keywords: Women; Cardiac Imaging Techniques; Mental Health.

Introduction

The history of women in Medicine is ancient and marked by moments of marginalization, struggles and achievements. The first woman to have a medical license was Elizabeth Blackwell in 1849 in New York City.¹ In the 20th and 21st centuries, there has been a growing increase in the number of women working in the medical field. In Brazil, data from the Regional Medical Councils show that the number of female doctors has been steadily increasing since 2009. According to the 2023

Medical Demography report, by 2024, women are expected to outnumber male doctors.²

Regarding cardiology, 13% of cardiologists are women in the United Kingdom³ and, in the USA, the proportion is similar.⁴ In Brazil, according to data from the Brazilian Society of Cardiology (SBC), 29% of members in good standing are women.⁵ In the Department of Cardiovascular Imaging of the SBC (DIC-SBC), 44% of members are female.

In 2022, during the 11th DIC-SBC Congress in São Paulo, Dr. Samira Saady Morhy brought together several women from the department to discuss the history of female cardiologists working in cardiovascular imaging in Brazil. On this occasion, the DIC-SBC women’s working group, called “DIC Mulheres”, was created. The discussion focused on the role of women in medical education institutions, leadership positions in associations and hospitals, and their daily professional challenges in the field. In 2023, DIC-SBC launched its first survey targeting its female members, aiming to understand their motivations and identify the barriers they

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Central Illustration: The Women of the Cardiovascular Imaging Department of the Brazilian Society of Cardiology: Career and Family Challenges

92% work in echocardiography



54% work in teaching and research areas



73% have children



56% have published articles



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face during medical training and practice. The survey resulted in an editorial that outlined a brief profile of female doctors at DIC-SBC, highlighting issues they encounter, such as lack of motivation, discrimination, moral harassment, impostor syndrome, and depression.⁶

This study aims to build on that previous initiative, mapping the challenges faced by female cardiovascular imaging specialists at DIC-SBC in areas like medical training, professional practice, family relationships, and mental health.

Methods

From March 1st to April 30, 2024, an online questionnaire was available on the DIC-SBC website, inviting specialists in cardiovascular imaging — such as echocardiography, vascular ultrasound, cardiac CT, cardiac magnetic resonance imaging (MRI), and nuclear medicine — to voluntarily participate. Additionally, invitations were sent via email and messaging app, covering the entire national territory. The online questionnaire was administered anonymously via Google Forms, with no option for identification. There was no financial or material compensation in exchange for participation in the research. The questionnaire consisted of 29 mandatory questions (<http://bit.ly/dicmulheres2024>) covering age, medical training, area of expertise in medical imaging, environment and type of work performed (hospital or non-hospital; imaging exams alone or associated with the practice of clinical cardiology), as well as academic activities, monthly income, discrimination, family relationships, and mental health. The full questionnaire can be found in “Supplementary Material”. As recommended by Resolution 510 of the National

Health Council, this questionnaire was not submitted for evaluation by the CEP/CONEP system, given that this was a public opinion survey with unidentified participants. The data collected were presented as categorical variables, described by absolute values and percentages or proportions.

Results

General aspects

A total of 321 women accessed and responded to the questionnaire, which is equivalent to 25% of the women in the DIC. Most of the questionnaire respondents were between 30 and 50 years old (67%) and 71% were married (Figure 1).

Medical training

Sixty-seven percent of the women are specialists, 29% have a master's and/or PhD and 4% are in medical residency. The time since graduation varied from less than 10 years in 9%, 10 to 20 years in 42%, 20 to 30 years in 27%, and more than 30 years in 22%.

Career

The area of expertise in echocardiography was reported by 92% of the sample (59% adults, 33% pediatrics), with tomography/MRI in 5.5%, vascular ultrasound in 1.5%, and nuclear medicine in 1%. (Figure 1) Reported workplace status was mixed, comprising hospital and non-hospital environments, in 68% of women. Similarly, 66% provide care in clinical cardiology and cardiovascular imaging exams at the

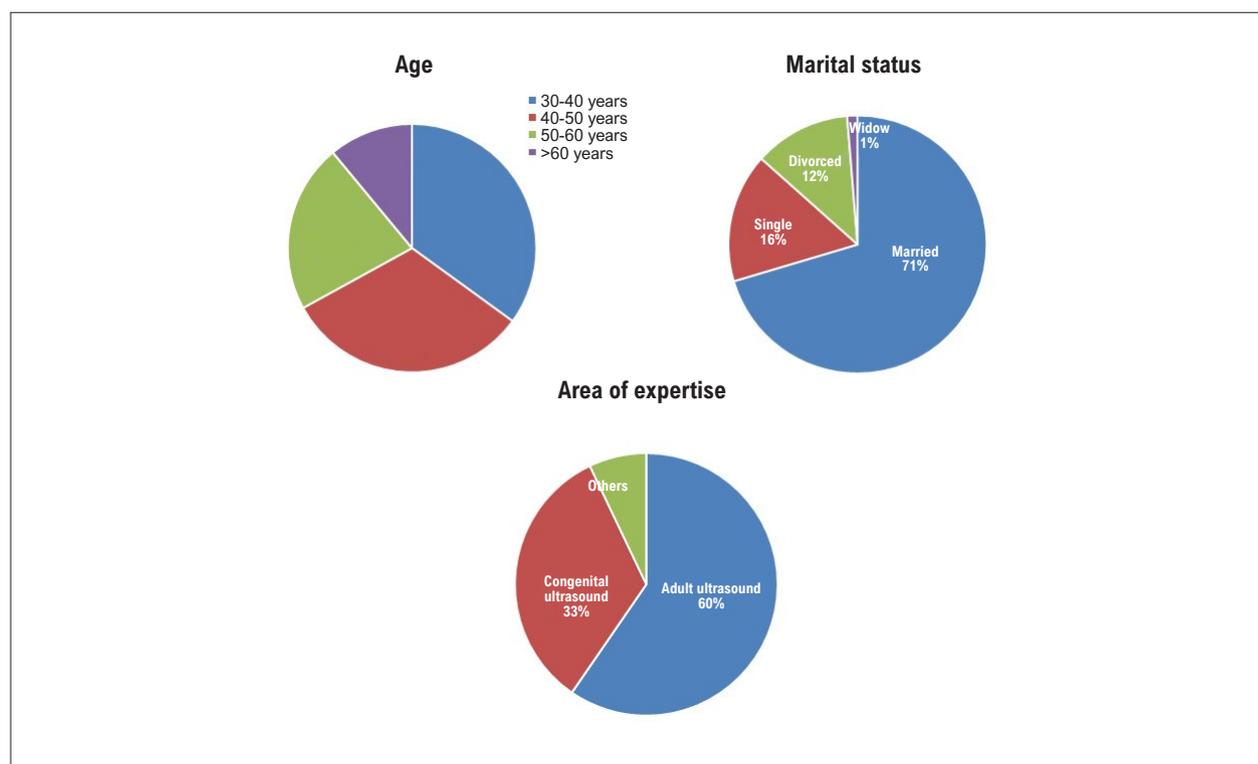


Figure 1 – Percentage distribution of age group, marital status, and area of expertise

same time. Approximately 34% work with cardiovascular imaging exams only. Working hours total more than 40 hours per week for 47% of women. The predominant work regime (49%) is an individual and/or legal entity; however, 47% have multiple regimes, including those within the framework of the Brazilian Consolidation of Labor Laws (CLT) and statutory public service. Only 39% hold a management position in their area. Regarding scientific publications, 56% responded that they had published articles and 54% worked in teaching and research areas. Approximately 37% of women felt discriminated against at work for being mothers. The average monthly income was less than BRL 10,000.00 in 3%, BRL 10,000 to 20,000.00 in 26%, BRL 20,000 to 30,000.00 in 41%, and more than BRL 30,000.00 in 30%.

Family and mental health

Most of the women in the DIC have children (73%). In this group (n = 235), 98% of them worked during pregnancy, 48% did not stop working after the birth of their child, and the interruption for 43% did not exceed 12 months. The majority (52%) have two children, while 38% have only one child and 10% have more than two children. In response to the question of whether being a mother had a negative impact on their career, 60% answered “no.” In contrast, 53% answered that there was no negative impact on their relationship with their child due to working outside their home (Figure 2). On the other hand, 35% reported that their family had discriminated against them due to working outside their home. The majority (93%) answered that there is no support structure for taking

care of children in the workplace. Women who are responsible for household chores comprise 89% of the sample, and 100% participate in paying the household bills. Seventy-nine (79%) percent of respondents reported being satisfied with their balance between career and family life. Regarding mental health, 63% of women reported related symptoms, including burnout syndrome in 22%, generalized anxiety disorder in 17%, depression in 17%, and others in 7% (Figure 3).

Discussion

This national survey offers an unprecedented look at women who work with cardiovascular imaging in Brazil, highlighting the relationship between career, family, and mental health. Although women make up 44% of DIC-SBC members, only 25% participated in the survey. While this participation rate is acceptable, it suggests that future studies could aim for greater involvement to increase representation. The data reveal a profile of women primarily between the ages of 30 and 50, a stage of both professional and personal consolidation, similar to what Morhy observed.⁶ These women manage heavy workloads, often exceeding 40 hours per week, and work in both hospital and non-hospital settings, showcasing their ability to balance clinical practice with imaging exams. Most of them work in echocardiography, which reflects the global membership of DIC-SBC. More than half of the respondents have published articles in scientific journals, which reflects the growing female protagonism in academic production in recent years.⁷ Even so, only 39% hold management positions, indicating that, despite their advances in academic participation,

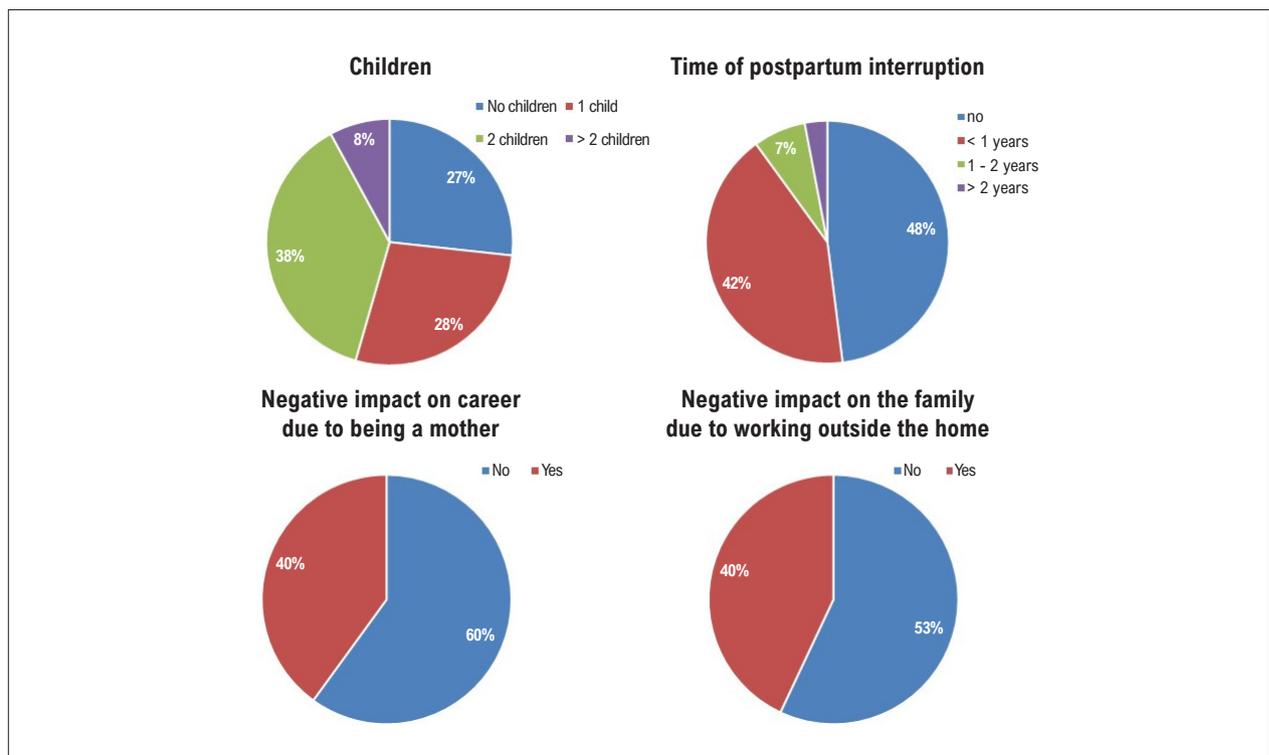


Figure 2 – Percentage distribution of number of children, time of career interruption, and negative impact on career and family

rising to leadership positions remains a challenge. Most of the participants have children, and data reveal that motherhood impacts both professional and family life. Although 60% do not perceive negative effects on their careers due to motherhood, more than a third reported discrimination in the workplace for being a mother. At the same time, approximately a third felt discriminated against in the family environment for working outside the home. Another notable trend is the swift return to work after childbirth, with fewer women taking more than a year off from their careers. This early return to work reflects the limitations of labor laws in protecting self-employed physicians.

Most of the women surveyed contribute to household chores, and all of them help financially with household expenses. Although this study lacks salary data for men from DIC-SBC to offer a direct comparison, previous research has shown a significant link between being male and falling into higher income brackets among Brazilian cardiologists.⁹ The dual demands of professional work and domestic responsibilities may contribute to the mental health challenges faced by women in the cardiovascular imaging field. The study revealed a high prevalence of symptoms attributed to burnout, anxiety and depression. Academic institutions and employers must create support policies, such as mentoring programs, leadership training, and support networks for working mothers. Compared to European data from European Association of Cardiovascular Imaging (EACVI),⁹ our findings reflect a broader global reality, highlighting the challenges of balancing mental health with career and family responsibilities. Although specific data on harassment were not collected in our study, previous research points to this issue as a significant challenge.^{6,9} Despite these

challenges, the majority (79%) of participants felt satisfied with their career-family balance, which suggests a sense of professional fulfillment.

Limitations

This study involved a relatively small sample of DIC members, which may limit the generalizability of the results. Additionally, it was not possible to assess regional or racial differences, which could have provided a more diverse and nuanced view of the challenges faced by different groups of women. Mental health-related symptoms were reported spontaneously, without the use of specific questionnaires.

Conclusion

The research indicates that women working in cardiovascular imaging in Brazil face significant challenges in balancing their careers with family responsibilities. Despite their remarkable dedication, there is a clear need for more institutional support and policies that help women reconcile their professional and personal lives. Recognizing the burden of both professional and family duties on female doctors should be a priority for employers and educational institutions, with the goal of creating healthier work environments that focus on the well-being of women.

Author Contributions

Conception and design of the research: Barberato MFA, Rassi DC, Beck ALS, Uellendahl M, Morhy SS, Barberato

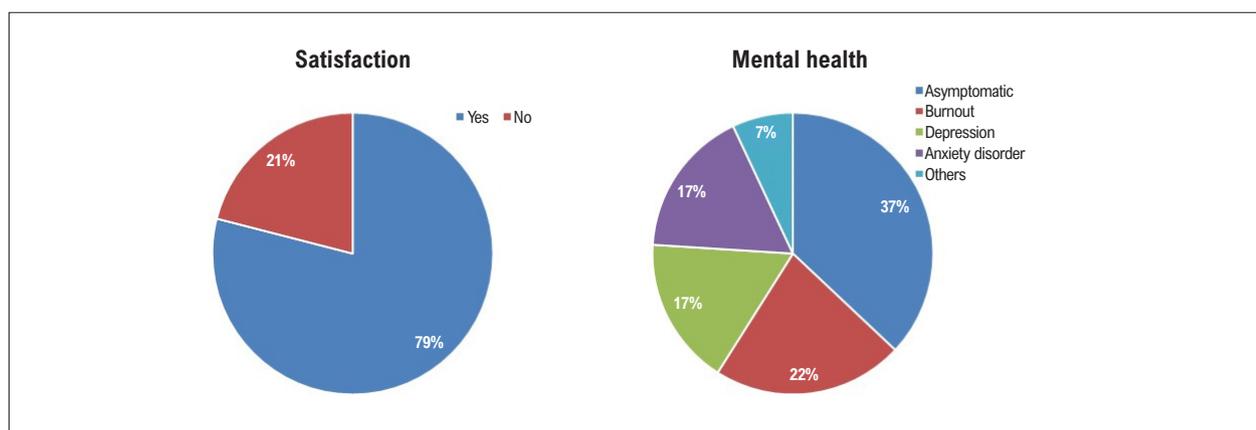


Figure 3 – Satisfaction and mental health

SH; acquisition of data: Barberato MFA; analysis and interpretation of the data: Barberato MFA, Rassi DC, Barberato SH;

Statistical analysis, writing of the manuscript and critical revision of the manuscript for intellectual content: Barberato MFA, Barberato SH.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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Study Association

This study is not associated with any thesis or dissertation work.

Ethics Approval and Consent to Participate

This article does not contain any studies with human participants or animals performed by any of the authors.

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