Mental Health and Lifestyle Journal

Year 2023
Volume 1
Issue 2

The Relationship Between Breast Cancer Stigma and Body Image Concern on Psychological Distress in Breast Cancer Patients: A Mediating Role of Perceived Social Support

Azadeh. Rezazadeh Fazeli[1], Mohammadreza. Zarbakhsh Bahri[2*], Hamid. Sharif-Nia[3]

1 Department of Psychology, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran.
2 Associate Professor, Department of Psychology, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran.
3 Psychosomatic Research Center, Mazandaran University of Medical Sciences, Sari, Iran Department of Nursing, Amol Faculty of Nursing and Midwifery, Mazandaran University of Medical Sciences, Sari, Iran
*Correspondence: M.zarbakhsh@iau.ac.ir

Article type:
Original Research

Article history:
Received 05 September 2023
Revised 08 November 2023
Accepted 21 November 2023
Published online 31 December 2023

ABSTRACT

Psychological distress is prevalent among individuals with breast cancer and can range from feelings of sadness and vulnerability to more serious issues like depression and anxiety. As more people survive cancer, there is a growing interest in studying factors that may predict psychological distress in these patients. This study aims to evaluate the mediating role of perceived social support in the relationship between breast cancer stigma and body Image concern and psychological distress among Iranian breast cancer patients. This cross-sectional study was conducted February to June 2023, using a correlational design with a sample size of 298 women with cancer selected through convenience sampling. Participants filled out a five-part questionnaire namely breast cancer stigma, body image concern, psychological distress and perceived social support. Descriptive statistics and correlation analyses were used for data analysis. Breast cancer stigma positively correlated with psychological distress (r=0.708, p-value < 0.001) and negatively with perceived social support (r=-0.318, p-value < 0.001). Body image concern positively correlated with psychological distress (r=0.432, p-value < 0.001) and negatively with perceived social support (r=-0.672, p-value < 0.001). Perceived social support mediated the relationship between stigma and psychological distress (b=-0.116, p-value=0.046) and body image concern and psychological distress (b=0.554, p-value<0.001). The mediation model explained 34.0% of the variance in stigma and body image concern, with a significant full effect of stigma and on psychological distress (b=0.373, p-value<0.001) and body image concern on psychological distress (b = 0.576, p-value < 0.001). Perceived social support is essential in assisting cancer patients in coping with psychological distress, body image concerns, and stigma. A mediation model has revealed that perceived social support explains 34.0% of the variance in psychological distress among Iranian breast cancer patients. This underscores the significance of implementing interventions that enhance social support to diminish psychological distress outcomes within these patients.

Key words: Social support, Psychological distress, Stigma, Body Image Concern, Breast Cancer Patients.

How to cite this article:
Rezazadeh Fazeli, A., Zarbakhsh Bahri, M., & Sharif-Nia, H. (2023). The Relationship Between Breast Cancer Stigma and Body Image Concern on Psychological Distress in Breast Cancer Patients: A Mediating Role of Perceived Social Support. *Mental Health and Lifestyle Journal, 1*(2), 1-14. https://doi.org/10.61838/mhlj.161

Introduction

Breast cancer remains the most commonly diagnosed malignancy among women worldwide and continues to impose a major public health burden due to its rising incidence, psychosocial complications, and long-term consequences for survivors. Recent global epidemiological assessments indicate that more than 2.3 million new cases were identified in 2020, accompanied by considerable geographic variation in disease distribution and mortality (1). Current projections demonstrate that the incidence will continue to rise in the coming decades, positioning breast cancer as not only a biomedical challenge but also a psychosocial and societal concern. In parallel, extensive etiological and pathogenesis research has highlighted the multifactorial nature of breast cancer, emphasizing genetic, hormonal, lifestyle, and environmental risk factors that shape disease progression and response to treatment (2). In Iran, breast cancer is consistently reported as one of the leading malignancies among women, and its epidemiological profile continues to evolve as the country undergoes demographic transitions and lifestyle changes (3). The World Health Organization similarly underscores breast cancer as a global priority, given its profound physical, emotional, and social implications across diverse cultural contexts (4).

Although major advancements in early detection and treatment have significantly increased survival rates, psychosocial issues continue to be highly prevalent among patients and survivors. Psychological distress represents one of the most common mental health outcomes associated with breast cancer, manifesting through a constellation of symptoms including anxiety, depression, hopelessness, and emotional instability (5). Studies show that distress is not limited to a specific treatment phase; rather, it can emerge at diagnosis, intensify during surgical or chemotherapeutic interventions, and persist long after remission (6). Research consistently notes that a substantial number of women experience clinically significant distress during illness trajectories, and a lack of proper identification and psychological support may exacerbate functional impairments and overall burden (7, 8). The role of psychological distress in shaping coping, treatment adherence, cognitive functioning, and quality of life has also been widely documented, with early findings emphasizing its influence on women's decision-making abilities and daily functioning (9). More recent investigations further reveal that elevated distress levels may hinder adaptive coping responses, reduce emotional resilience, and increase vulnerability to negative body image and stigma-related outcomes (10, 11).

Body image has emerged as a central psychological construct in breast cancer research, as treatments such as mastectomy, lumpectomy, radiation therapy, chemotherapy, and hormonal interventions often result in physical changes that directly affect women's sense of femininity, identity, and self-esteem. Conceptual analyses of body image following breast cancer illustrate its dynamic and multifaceted nature, with disturbances ranging from dissatisfaction with physical appearance to profound disruptions in self-concept (12). A broad review of the literature shows that body image dissatisfaction may begin early in treatment and persist for years, affecting interpersonal relationships, sexual functioning, and emotional well-being (13, 14). Evidence suggests that women who undergo surgical removal of the breast, particularly mastectomy, experience elevated levels of body image distress due to visible and symbolic alteration of the body (15). Empirical findings demonstrate that negative body image perceptions are strongly correlated with psychological distress, often mediated by self-conscious emotions, reduced self-worth, and avoidance of social situations (16). In comparative research, women across varied sociocultural backgrounds have

reported significant concerns regarding scarring, loss of symmetry, and changes in physical attractiveness, ultimately influencing their self-evaluation and emotional responses (17). In Iran, qualitative and quantitative assessments similarly confirm that body image remains an important predictor of psychosocial adjustment among women with breast cancer (18, 19).

Stigma constitutes another key psychosocial factor that adversely affects breast cancer patients, shaping their emotional experiences, coping patterns, and social interactions. Cancer stigma consists of internalized, enacted, and perceived forms, each contributing uniquely to psychological outcomes (20). Systematic reviews reveal that stigma may arise from misconceptions about breast cancer, perceived bodily disfigurement, assumptions about physical limitations, and fears of social rejection (21). Stigmatizing attitudes often lead women to conceal their diagnosis, avoid social engagement, or withdraw from supportive networks, thereby intensifying feelings of isolation and vulnerability (22). In many cultural settings, stigma is compounded by gendered expectations and symbolic meanings associated with the female body, ultimately reinforcing psychological distress (23). Recent evidence from Iranian contexts also shows that cancer-related stigma may impair coping mechanisms and reduce patients' willingness to seek social or emotional assistance (24). Furthermore, stigma may disrupt intimacy, interpersonal trust, and sexual satisfaction, adding complexity to the emotional burden faced by survivors (25). Because stigma is both culturally embedded and psychologically internalized, its consequences reverberate across multiple domains of patient well-being.

The role of social support in moderating the adverse effects of distress, stigma, and body image concerns has been a central focus in psychosocial oncology research. Social support theory suggests that individuals who perceive adequate support from family, friends, or significant others are more capable of managing stress and maintaining psychological stability (26). Numerous studies affirm that high levels of perceived social support are associated with reduced anxiety, depression, and emotional distress among breast cancer patients (27). Conversely, low or unsupportive social interactions may exacerbate distress symptoms and contribute to feelings of helplessness or self-blame (28). During active treatment phases, social support becomes especially crucial in facilitating coping, improving adherence to treatment protocols, and strengthening emotional resilience (29). Qualitative research in Iran indicates that the availability of empathic, consistent, and culturally aligned social support enhances women's capacity to navigate treatment-related hardships and adjust to body image changes (30). Furthermore, empirical studies show that social support often serves as a protective factor in the relationship between stigma and psychological functioning, reducing the negative emotional impact of cancer-related stereotyping or perceived discrimination (31). A similar buffering role has been observed in resilience models, in which social support mediates the relationship between internal psychological resources and health-related quality of life outcomes (32).

The literature also highlights the interconnected nature of body image, social support, and stigma. For example, women who feel stigmatized may perceive reduced social support, which in turn intensifies body image concerns and psychological distress (33). Longitudinal and cross-sectional studies alike show that deficits in perceived social support contribute to greater vulnerability to body image disturbance and emotional instability during and after treatment (34). Furthermore, women with negative body image perceptions often report withdrawal from social interactions, reducing opportunities for supportive engagement and reinforcing cycles of distress (35). The mediating mechanisms underlying these

relationships are increasingly being explored through advanced statistical models, including structural equation modeling, which help clarify how psychosocial factors interact to influence mental health (36, 37). Mediation analysis has proven particularly effective in disentangling direct and indirect effects, with methodological advancements allowing for more robust interpretation of complex psychosocial pathways (38). At the same time, measurement tools such as the Kessler Psychological Distress Scale (K10) and the Multidimensional Scale of Perceived Social Support (MSPSS) continue to demonstrate strong psychometric properties across cultural contexts, ensuring reliable assessment of key constructs (39-43).

Despite extensive research on psychological distress, stigma, and body image, the combined and mediating roles of social support within these relationships remain insufficiently understood, particularly in Iranian women. Sociocultural factors—including collectivist norms, religious values, traditional gender expectations, and family-centered coping styles—shape how Iranian women interpret cancer-related changes and seek support (44). Existing findings confirm that social support can operate as a mechanism that reduces distress by enhancing cognitive appraisals, emotional stability, and adaptive coping behaviors (31). However, disparities in the availability, strength, and perceived adequacy of social support remain, and structural factors such as socioeconomic status may also influence psychological outcomes (45). Thus, there is a pressing need to examine these variables collectively to provide a more holistic understanding of mental health determinants in breast cancer populations. Therefore, the present study aims to examine the mediating role of perceived social support in the relationship between breast cancer stigma, body image concern, and psychological distress among Iranian women diagnosed with breast cancer.

Methods and Materials

Study Design and Participants

This cross-sectional study was conducted using correlational, descriptive design between February to June 2023 to explore the mediating role of perceived social support in the relationship between stigma and body image concern and psychological distress among women with breast cancer in Iran.

A previous calculation for sample size was conducted to identify the minimum number needed to prevent type I and type II errors. According to the analysis, a minimum of 298 samples was necessary, taking into account three latent variables, 56 observed variables, a significance level lower than 0.05, a power level of 0.8, and an effect size of 0.22 (36, 46). A total of 298 Iranian women diagnosed with breast cancer met the inclusion criteria and successfully completed the questionnaire.

The research participants consisted of women diagnosed with breast cancer, who were randomly chosen from medical centers in Mazandaran province, Iran using a convenience sampling method. Criteria for inclusion involved being over 18 years old, having a confirmed breast cancer diagnosis, and having performed surgery as part of their treatment. Criteria for exclusion included having had a bilateral mastectomy during their treatment and being pregnant at the time of evaluation.

Measures

***Demographic information form*:** This data collection form featured questions regarding age, place of residence, occupation and level of education.

Breast Cancer Stigma Scale: In 2022, Bu et al established a 15-item scale aimed at assessing cancer stigma. Each item on this instrument is evaluated using a 4-point Likert-type scale, where responses vary from 1 ("strongly disagree") to 4 ("strongly agree"). The scores from this scale can range between 24 and 96, with higher scores reflecting an increased perception of stigma. The overall scale showed strong internal consistency, achieving a Cronbach's α of 0.86. Furthermore, the scale displayed high test-retest reliability, evidenced by an intra-class correlation coefficient of 0.947, and strong split-half reliability, indicated by an intra-class correlation coefficient of 0.911. In conclusion, the Breast Cancer Stigma Scale created by Bu et al is a reliable and valid tool for evaluating the stigma faced by cancer patients in both clinical and research environments. The findings from the study affirm the scale's validity and reliability, making it a significant measure for understanding perceived stigma within this demographic (47).

Body Image Concern Inventory (BICI): This scale was designed to evaluate individuals' fear levels concerning their body image. It includes 19 self-report items that participants respond to using a five-point Likert scale that ranges from 1 (never) to 5 (always). The scores on this scale can vary from 19 to 95, with higher scores reflecting increased concern about body image. This assessment tool has shown strong reliability and validity. The creators assessed the scale's reliability by employing the internal consistency method, finding a Cronbach's alpha coefficient of an impressive 0.93. This high reliability in dicates that the scale effectively and consistently measures body image concern (48).

Kessler Psychological Distress Scale (K10): The Kessler Psychological Distress Questionnaire, developed by Kessler and colleagues in 2002, is a 10-item questionnaire designed to assess the mental well-being of patients over the past month. Respondents answer questions using a Likert scale w ith five options ranging from "never" to "always," scored between 0-4, with a maximum score of 40. The questionnaire does not target a specific psychological disorder but provides an overall indication of the level of anxiety and depression symptoms experienced by the individual in the past week (49, 50). Numerous studies have demonstrated the validity and reliability of this questionnaire (51). Research conducted by Vasiliadis and colleagues in 2015, as well as Anderson and colleagues in 2011, has shown a strong correlation between high scores on the Kessler Psychological Distress Questionnaire and the diagnosis of mood and anxiety disorders using the Composite International Diagnostic Interview (CIDI) diagnostic interview form (52, 53).

Multidimensional Scale of Perceived Social Support (MSPSS): The Multidimensional Scale of Perceived Social Support (MSPSS) is a psychometric assessment developed by Zime et al. This scale is designed to measure perceived social support from three main sources: family, friends, and significant others. Comprised of 12 items, each rated on a seven-point Likert scale ranging from completely disagree (1) to completely agree (7), the MSPSS assigns each set of four items to one of the social support sources. In addition, the results of the Zimet study demonstrated that the MSPSS has good internal and test-retest reliability as well as moderate construct validity (26). In Bruwer et al.'s study, the psychometric properties of the multidimensional scale of perceived social support were examined using confirmatory factor analysis. The results indicated that the three-factor structure of the MSPSS (significant others, family, and friends) demonstrated a satisfactory fit with the data (43).

Data Analysis

Initially, descriptive statistics were employed to analyze the demographic features, followed by the calculation of Pearson correlation coefficients to examine the connections among breast cancer stigma, concerns about body image, psychological distress, and perceived social support. A significance level was established at $p < 0.05$.

A mediation model was evaluated through regression analysis, accounting for possible confounding factors including age, residence location, job, and educational attainment. The direct impacts of breast cancer stigma and concerns regarding body image on psychological distress were examined, as well as the indirect influences of perceived social support on this relationship (38).

The general suitability of the mediation model was assessed using relevant fit indices (e.g., R^2) to evaluate how effectively the model accounts for the variance in psychological distress (54). The statistical analyses were performed using SPSS (version 26.0) and AMOS (version 27.0). All statistical tests were conducted with a two-tailed approach, and a significance threshold of less than 0.05 was established.

Findings and Results

A total of 298 women with breast cancer participated in the study, all of whom were included in the analysis. The mean age of the sample was 45.60 years (SD = 12.34). Participants varied in educational status, occupational background, and place of residence. All demographic variables were examined as covariates in the mediation model.

Table 1. Descriptive Statistics for Study Variables (N = 298)

Variable	M	SD	Skewness	Kurtosis
Breast Cancer Stigma	57.82	11.46	0.41	−0.32
Body Image Concern	48.73	13.25	0.56	−0.28
Perceived Social Support	48.12	10.84	−0.21	−0.47
Psychological Distress	23.95	8.62	0.63	−0.11

Descriptive analysis showed moderate levels of breast cancer stigma (M = 57.82, SD = 11.46) and body image concern (M = 48.73, SD = 13.25), both with mild positive skewness, indicating that a subset of participants reported higher-than-average stigma and body image difficulties. Perceived social support demonstrated a slightly negative skewness (M = 48.12, SD = 10.84), suggesting more participants reported relatively higher support. Psychological distress exhibited a moderate mean (M = 23.95, SD = 8.62) with a positively skewed distribution, implying that a meaningful proportion of the sample experienced elevated distress levels. Kurtosis values across variables were acceptable, indicating no substantial deviation from normality.

Table 2. Correlations Between Study Variables

Variables	1	2	3	4
1. Breast Cancer Stigma	—			
2. Body Image Concern	.512***	—		
3. Perceived Social Support	−.472***	−.672***	—	
4. Psychological Distress	.708***	.432***	−.318***	—

*p < .001

Correlation analysis revealed a strong positive association between breast cancer stigma and psychological distress ($r = .708$, $p < .001$), indicating that higher stigma is linked to greater distress. Body image concern was also significantly correlated with psychological distress ($r = .432$, $p < .001$). Perceived social support was negatively associated with both stigma ($r = -.472$, $p < .001$) and body image concern ($r = -.672$, $p < .001$), suggesting that individuals who perceived higher support reported lower stigma and fewer body image concerns. Additionally, perceived social support showed a negative correlation with psychological distress ($r = -.318$, $p < .001$), reinforcing its buffering role. Overall, the correlation matrix supported the hypothesized relationships among the constructs.

Table 3. Path Analysis Results for Mediation Model

Path	b	t	p
Breast Cancer Stigma → Psychological Distress	0.373	6.84	< .001
Body Image Concern → Psychological Distress	0.576	7.92	< .001
Perceived Social Support → Psychological Distress	−0.576	−8.11	< .001
Breast Cancer Stigma → Perceived Social Support	−0.116	−2.01	.046
Body Image Concern → Perceived Social Support	0.554	9.27	< .001

Path analysis indicated that breast cancer stigma had a significant positive direct effect on psychological distress ($b = 0.373$, $t = 6.84$, $p < .001$), while body image concern also showed a strong direct effect ($b = 0.576$, $t = 7.92$, $p < .001$). Perceived social support demonstrated a significant negative direct effect on psychological distress ($b = -0.576$, $t = -8.11$, $p < .001$), confirming its buffering function. The indirect effects showed that perceived social support significantly mediated the relationship between stigma and psychological distress ($b = -0.116$, $t = -2.01$, $p = .046$). Likewise, perceived social support significantly mediated the link between body image concern and psychological distress ($b = 0.554$, $t = 9.27$, $p < .001$). The final mediation model accounted for 34.0% of the total variance in psychological distress, indicating a substantial explanatory power.

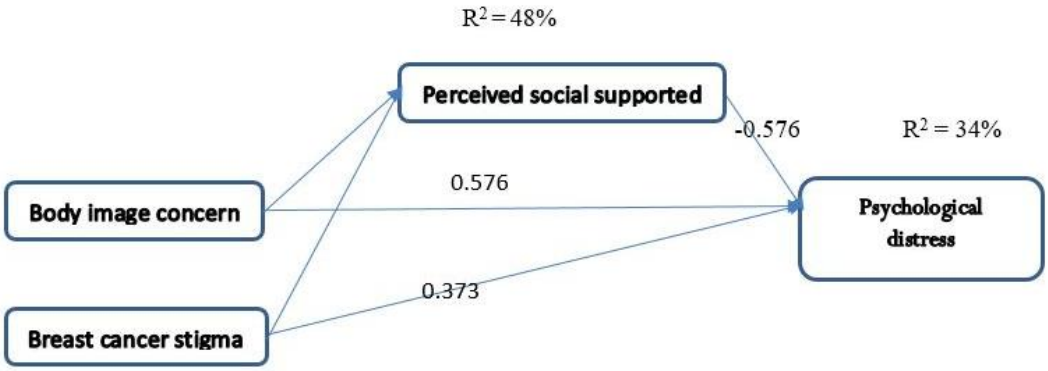

Figure 1. Final Model of the Study

Discussion and Conclusion

The present study examined the mediating role of perceived social support in the relationship between breast cancer stigma, body image concern, and psychological distress among Iranian women with breast cancer. The findings revealed several significant pathways that deepen our understanding of how psychosocial factors interact to shape emotional outcomes in this population. First, breast cancer stigma was strongly and positively associated with psychological distress, indicating that patients who perceived higher

levels of stigma experienced greater emotional suffering. This is consistent with extensive prior research demonstrating that stigma—whether internalized, enacted, or perceived—can heighten vulnerability to depressive symptoms, anxiety, and feelings of isolation among breast cancer survivors (21, 24). Stigma can prevent individuals from seeking help, disclosing their diagnosis, or relying on available social networks, thereby diminishing their emotional resources and intensifying distress. Similar findings have been reported in qualitative studies where stigma functioned not only as a psychological burden but also as a barrier to communication, social participation, and support seeking (23). The present study supports these conclusions, showing that stigma remains a potent predictor of poor psychological outcomes.

Body image concern also demonstrated a significant positive relationship with psychological distress. Treatments for breast cancer commonly result in visible and symbolic changes to the body, with implications for self-esteem, identity, and emotional well-being. The results align closely with conceptual analyses indicating that body image disturbance is not merely a cosmetic concern but a deeply personal psychological experience shaped by femininity, body autonomy, and perceived social value (12). Empirical studies have shown that bodily alterations from mastectomy, chemotherapy-induced alopecia, and scarring contribute to heightened anxiety, depressive symptoms, and social withdrawal among patients (15, 17). The association between body image concern and psychological distress documented in this study mirrors earlier work demonstrating that negative self-perception and perceived loss of attractiveness can trigger cycles of emotional distress, avoidance behavior, and reduced coping ability (16, 35). In addition, cross-cultural comparisons have highlighted that body image distress is particularly salient among women in societies where femininity and physical integrity are highly valued, adding cultural nuance to these findings (13).

One of the most meaningful findings of this study is the significant mediating effect of perceived social support. The analysis showed that social support acted as a buffer between both predictors —stigma and body image concern—and psychological distress. This reinforces longstanding theoretical models suggesting that the presence of supportive relationships can mitigate the emotional consequences of illness by enhancing coping mechanisms, strengthening cognitive reappraisal, and providing emotional validation (26). Empirical studies have consistently demonstrated that patients with higher levels of perceived social support report lower levels of anxiety, depression, and distress during treatment and survivorship (27). The current findings echo mediation models showing that social support reduces the harmful effects of stigma on well-being by increasing resilience, improving self-concept, and reducing social isolation (31, 32). Research also suggests that women who receive emotional, informational, or practical support are more likely to interpret their illness experience with hope, confidence, and adaptability, thereby moderating the influence of stigma or body image concerns on distress (20).

The negative relationship observed between perceived social support and psychological distress aligns with earlier findings demonstrating that support from family, peers, and healthcare providers reduces distress and enhances coping in breast cancer populations worldwide (5, 29). Studies conducted in Iranian contexts further confirm that social support is viewed as a crucial resource that helps women cope with treatment side effects, identity changes, and emotional uncertainty (30). This cultural dimension is particularly relevant, as collectivist cultures emphasize interdependence and familial involvement, which may amplify the psychological benefits of perceived social support. The present study provides additional

evidence that strengthening social networks can be a central mechanism in reducing distress among women coping with illness-related stigma and physical changes.

Furthermore, the positive direct effects of stigma and body image concern on psychological distress and the significant indirect effects through perceived social support align with the broader literature on mediation analysis in health psychology. Methodological research highlights the importance of understanding indirect pathways, as mediators often illuminate the mechanisms through which psychosocial variables influence one another (36, 38). Social support has been recognized as a robust mediator in various cancer-related psychological processes and is widely regarded as a protective factor across diverse populations (28). The present findings extend this work by demonstrating that social support is not merely an outcome variable or a correlate but an active mediator that can partially explain how stigma and body image concern impact psychological distress.

The study also aligns with earlier research emphasizing the importance of psychometric rigor in assessing psychological constructs in breast cancer populations. For instance, the use of measures such as the Kessler Psychological Distress Scale (K10), which has been validated for detecting distress in cancer and general populations, ensures reliable measurement of emotional outcomes (39, 41, 42). Similarly, the MSPSS has consistently demonstrated strong reliability and validity across various cultural contexts, supporting its use as a measure of perceived social support (43). The Breast Cancer Stigma Scale and Body Image Concern Inventory have also been validated among breast cancer survivors, further reinforcing the reliability of the constructs examined (55, 56). Together, these methodological strengths contribute to the credibility of the observed relationships and support the study's theoretical implications.

Notably, the mediation model explained 34% of the variance in psychological distress, indicating that stigma, body image concern, and social support collectively play substantial roles in shaping emotional well-being. These findings align with prior studies that similarly accounted for significant proportions of distress variance by integrating psychosocial predictors into multivariate models (7, 8). The inclusion of demographic control variables such as age, education, occupation, and residence further strengthens the internal validity of the findings, as demographic factors often influence perceptions of illness, access to support, and coping styles (45). The results also highlight the relevance of structural equation modeling guidelines, suggesting that adequate sample size and reliable model fit assessment are critical for interpreting complex mediation models (37, 57).

Overall, the results of the present study provide strong evidence that stigma and body image concern significantly contribute to psychological distress among breast cancer patients and that perceived social support plays an essential mediating role. These findings validate earlier conceptual frameworks and empirical studies while contributing new insights into the psychosocial experiences of Iranian women living with breast cancer.

Several limitations must be acknowledged when interpreting these findings. First, the study utilized a cross-sectional design, which prevents conclusions about causal relationships or changes in psychosocial variables over time. Second, all constructs were assessed using self-report questionnaires, which may introduce response bias, including social desirability or underreporting of distress or stigma. Third, the study was conducted within a single national context; therefore, cultural factors may limit the generalizability of the findings to other populations. Finally, the model, while explaining a significant

proportion of variance, does not capture all possible contributors to psychological distress, such as personality traits, illness stage, treatment regimen, or socioeconomic status.

Future studies should employ longitudinal designs to capture changes in stigma, body image concern, social support, and distress throughout the cancer trajectory. Research should also examine potential moderators such as coping styles, psychological resilience, or cultural values to provide a more nuanced understanding of individual differences. Expanding the research across diverse cultural and clinical settings would enhance generalizability, and incorporating qualitative methods may reveal deeper insights into the lived experiences of breast cancer survivors. Finally, intervention studies testing targeted psychosocial support programs would provide evidence for strategies that reduce distress and improve well-being.

Healthcare providers should prioritize routine screening for psychological distress, stigma, and body image concerns during treatment and survivorship. Multidisciplinary teams must incorporate psychosocial education, counseling, and body image–focused interventions to support patients' emotional well-being. Strengthening social support through family involvement, peer group facilitation, and community resources can significantly reduce distress levels. Clinicians should adopt a culturally sensitive approach that acknowledges patients' emotional needs and promotes open communication.

Acknowledgments

The authors express their deep gratitude to all participants who contributed to this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol complied with the ethical standards set forth in the Helsinki Declaration, which offers guidelines for conducting research with human subjects. Prior to data collection, participants were briefed on the study's objectives, and their voluntary involvement and data confidentiality were guaranteed. All participants and/or their legal guardians signed written informed consent. Proper permissions to utilize the data collection instruments were secured from their creators. All methods adhered to the applicable guidelines and regulations (Human Ethics Approval ID: IR.IAU.TON.REC.1401.070)

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

References

1. Arnold M, Morgan E, Rumgay H, Mafra A, Singh D, Laversanne M, et al. Current and future burden of breast cancer: Global statistics for 2020 and 2040. The Breast. 2022;66:15-23. doi: 10.1016/j.breast.2022.08.010.

2. Smolarz B, Nowak AZ, Romanowicz H. Breast cancer-epidemiology, classification, pathogenesis and treatment (review of literature). Cancers. 2022;14(10):2569. doi: 10.3390/cancers14102569.

3. Shamshirian A, Heydari K, Shams Z, Aref AR, Shamshirian D, Tamtaji OR, et al. Breast cancer risk factors in Iran: a systematic review & meta-analysis. Hormone Molecular Biology and Clinical Investigation. 2020;41(4):20200021. doi: 10.1515/hmbci-2020-0021.

4. World Health O. Breast Cancer 2022. Available from: https://www.who.int/news-room/fact-sheets/detail/breast-cancer.

5. Aitken LA, Hossan SZ, editors. The psychological distress and quality of life of breast cancer survivors in Sydney, Australia. Healthcare; 2022: MDPI.

6. Phoosuwan N, Lundberg PC. Psychological distress and health-related quality of life among women with breast cancer: a descriptive cross-sectional study. Supportive Care in Cancer. 2022:1-10. doi: 10.21203/rs.3.rs-153257/v1.

7. Carlson LE, Clifford S, Groff SL, Maciejewski O, Bultz BD. Screening for depression in cancer care. Screening for depression in clinical practice: An evidence-based guide. New York, NY: Oxford University Press; 2009. p. 265-95.

8. Mertz BG, Bistrup PE, Johansen C, Dalton SO, Deltour I, Kehlet H, et al. Psychological distress among women with newly diagnosed breast cancer. European Journal of Oncology Nursing. 2012;16(4):439-43. doi: 10.1016/j.ejon.2011.10.001.

9. Love A. The identification of psychological distress in women with breast cancer: National Breast Cancer Centre; 2004.

10. Khalifa MF. Impact of psychological distress in women upon coping with breast cancer. Iraqi National Journal of Nursing Specialties. 2022;35(1). doi: 10.58897/injns.v35i1.565.

11. Van Oers H, Schlebusch L. Breast cancer patients' experiences of psychological distress, hopelessness, and suicidal ideation. Journal of Nature and Science of Medicine. 2021;4(3):250-7. doi: 10.4103/jnsm.jnsm_136_20.

12. Ahn J, Suh EE. Body image alteration in women with breast cancer: a concept analysis using an evolutionary method. Asia-Pacific Journal of Oncology Nursing. 2023;10(5):100214. doi: 10.1016/j.apjon.2023.100214.

13. Rezaei M, Elyasi F, Janbabai G, Moosazadeh M, Hamzehgardeshi Z. Factors influencing body image in women with breast cancer: A comprehensive literature review. Iranian Red Crescent Medical Journal. 2016;18(10). doi: 10.5812/ircmj.39465.

14. Davis C, Tami P, Ramsay D, Melanson L, MacLean L, Nersesian S, et al. Body image in older breast cancer survivors: A systematic review. Psycho-Oncology. 2020;29(5):823-32. doi: 10.1002/pon.5359.

15. Guedes TSR, de Oliveira NPD, Holanda AM, Reis MA, da Silva CP, e Silva BLR, et al. Body image of women submitted to breast cancer treatment. Asian Pacific Journal of Cancer Prevention: APJCP. 2018;19(6):1487.

16. Nikita R, Rani R, Kumar R. Body image distress among cancer patients: needs for psychosocial intervention development. Supportive Care in Cancer. 2022;30(7):6035-43. doi: 10.1007/s00520-022-07049-8.

17. Thakur M, Sharma R, Mishra AK, Singh K, Kar SK. Psychological distress and body image disturbances after modified radical mastectomy among breast cancer survivors: A cross-sectional study from a tertiary care centre in North India. The Lancet Regional Health-Southeast Asia. 2022;7. doi: 10.1016/j.lansea.2022.100077.

18. Sharif Nia H, Firouzbakht M, Rekabpour SJ, Nabavian M, Nikpour M. The psychometric properties of the Persian version of the body image after breast cancer questionnaire: A second-order confirmatory factor analysis. Current Psychology. 2023;42(5):3924-34. doi: 10.1007/s12144-021-01741-4.

19. Sharif Nia H, Olyaie N, Payandeh M, Miri R, Moaiery H, Ghanei Gheshlagh R. Examining the psychometric properties of the Farsi version of the body image scale for breast cancer survivors. Indian Journal of Gynecologic Oncology. 2023;21(1):3. doi: 10.1007/s40944-022-00680-7.

20. Amini-Tehrani M, Zamanian H, Daryaafzoon M, Andikolaei S, Mohebbi M, Imani A, et al. Body image, internalized stigma and enacted stigma predict psychological distress in women with breast cancer: A serial mediation model. Journal of Advanced Nursing. 2021;77(8):3412-23. doi: 10.1111/jan.14881.

21. Tang Wz, Yusuf A, Jia K, Iskandar YHP, Mangantig E, Mo Xs, et al. Correlates of stigma for patients with breast cancer: a systematic review and meta-analysis. Supportive Care in Cancer. 2023;31(1):55. doi: 10.1007/s00520-022-07506-4.

22. Tripathi L, Datta SS, Agrawal SK, Chatterjee S, Ahmed R. Stigma perceived by women following surgery for breast cancer. Indian Journal of Medical and Paediatric Oncology. 2017;38(02):146-52.

23. Hasan Shiri F, Mohtashami J, Manoochehri H, Rohani C. Cancer Stigma and its Consequences and influencing factors in Iranian society: a qualitative study. Journal of Qualitative Research in Health Sciences. 2022;11(3):180-88. doi: 10.34172/jqr.2022.05.

24. Zamanian H, Amini-Tehrani M, Jalali Z, Daryaafzoon M, Ramezani F, Malek N, et al. Stigma and quality of life in women with breast cancer: mediation and moderation model of social support, sense of coherence, and coping strategies. Frontiers in Psychology. 2022;13:657992. doi: 10.3389/fpsyg.2022.657992.

25. Zhang Y, Zhao J, Jiang N, Wang T, Cao H, Wang Q, et al. Effects of stigma on the relationship between perceived social support and sexual satisfaction among breast cancer survivors. The Journal of Sexual Medicine. 2022;19(6):1002-11. doi: 10.1016/j.jsxm.2022.03.617.

26. Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. Journal of personality assessment. 1988;52(1):30-41.

27. Rizalar S, Ozbas A, Akyolcu N, Gungor B. Effect of perceived social support on psychosocial adjustment of Turkish patients with breast cancer. Asian Pacific Journal of Cancer Prevention. 2014;15(8):3429-34. doi: 10.7314/APJCP.2014.15.8.3429.

28. Sebri V, Mazzoni D, Triberti S, Pravettoni G. The impact of unsupportive social support on the injured self in breast cancer patients. Frontiers in Psychology. 2021;12:722211. doi: 10.3389/fpsyg.2021.722211.

29. Moyer A, Salovey P. Predictors of social support and psychological distress in women with breast cancer. Journal of Health Psychology. 1999;4(2):177-91. doi: 10.1177/135910539900400212.

30. Mokhtari L, Markani AK, Khalkhali HR, Feizi A. The perceived social support by Iranian women with breast cancer: a qualitative study. Supportive Care in Cancer. 2022;30(1):941-49. doi: 10.1007/s00520-021-06478-1.

31. Tindle R, Hemi A, Moustafa AA. Social support, psychological flexibility and coping mediate the association between COVID-19 related stress exposure and psychological distress. Scientific Reports. 2022;12(1):8688. doi: 10.1038/s41598-022-12262-w.

32. Zhou K, Ning F, Wang X, Wang W, Han D, Li X. Perceived social support and coping style as mediators between resilience and health-related quality of life in women newly diagnosed with breast cancer: a cross-sectional study. BMC Women's Health. 2022;22(1):198. doi: 10.1186/s12905-022-01783-1.

33. Kang NE, Kim HY, Kim JY, Kim SR. Relationship between cancer stigma, social support, coping strategies and psychosocial adjustment among breast cancer survivors. Journal of Clinical Nursing. 2020;29(21-22):4368-78. doi: 10.1111/jocn.15475.

34. Liu Y, Liu W, Ma Y, Yang X, Zhou H, Zhang T, et al. Research on body image cognition, social support and illness perception in breast cancer patients with different surgical methods. Frontiers in Psychology. 2022;13:931679. doi: 10.3389/fpsyg.2022.931679.

35. Oers Hv, Schlebusch L. Indicators of psychological distress and body image disorders in female patients with breast cancer. Journal of Mind and Medical Sciences. 2020;7(2):179-87. doi: 10.22543/7674.72.P179187.

36. Cohen J, Cohen P, West SG, Aiken LS. Applied multiple regression/correlation analysis for the behavioral sciences: Routledge; 2013.

37. Steiger JH. Understanding the limitations of global fit assessment in structural equation modeling. Personality and Individual Differences. 2007;42(5):893-98. doi: 10.1016/j.paid.2006.09.017.

38. VanderWeele TJ. Mediation analysis: a practitioner's guide. Annual review of public health. 2016;37(1):17-32.

39. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SL, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. Psychological Medicine. 2002;32(6):959-76. doi: 10.1017/S0033291702006074.

40. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. Archives of General Psychiatry. 2003;60(2):184-9. doi: 10.1001/archpsyc.60.2.184.

41. Furukawa TA, Kessler RC, Slade T, Andrews G. The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. Psychological Medicine. 2003;33(2):357-62. doi: 10.1017/S0033291702006700.

42. Andersen L, Grimsrud A, Myer L, Williams D, Stein D, Seedat S. The psychometric properties of the K10 and K6 scales in screening for mood and anxiety disorders in the South African Stress and Health study. International Journal of Methods in Psychiatric Research. 2011;20(4):215-23. doi: 10.1002/mpr.351.

43. Bruwer B, Emsley R, Kidd M, Lochner C, Seedat S. Psychometric properties of the Multidimensional Scale of Perceived Social Support in youth. Comprehensive Psychiatry. 2008;49(2):195-201. doi: 10.1016/j.comppsych.2007.09.002.

44. Sharif Nia H, Behmanesh F, Kwok C, Firouzbakht M, Ebadi A, Nikpour M. Breast cancer screening beliefs questionnaire: psychometric properties of the Persian version. BMC Women's Health. 2020;20:1-8. doi: 10.1186/s12905-020-01049-8.

45. Guadamuz JS, Ozenberger K, Qato DM, Ko NY, Saffore CD, Adimadhyam S, et al. Mediation analyses of socioeconomic factors determining racial differences in the treatment of diffuse large B-cell lymphoma in a cohort of older adults. Medicine. 2019;98(46):e17960. doi: 10.1097/MD.0000000000017960.

46. Westland JC. Lower bounds on sample size in structural equation modeling. Electronic commerce research and applications. 2010;9(6):476-87.

47. Bu X, Li S, Cheng AS, Ng PH, Xu X, Xia Y, et al. Breast cancer stigma scale: a reliable and valid stigma measure for patients with breast cancer. Frontiers in Psychology. 2022;13:841280.

48. Littleton HL, Axsom D, Pury CL. Development of the body image concern inventory. Behaviour Research and therapy. 2005;43(2):229-41.

49. Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand S-L, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. Psychological medicine. 2002;32(6):959-76.

50. Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, et al. Screening for serious mental illness in the general population. Archives of general psychiatry. 2003;60(2):184-9.

51. Furukawa TA, Kessler RC, Slade T, Andrews G. The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. Psychological medicine. 2003;33(2):357-62.

52. Andersen L, Grimsrud A, Myer L, Williams D, Stein D, Seedat S. The psychometric properties of the K10 and K6 scales in screening for mood and anxiety disorders in the South African Stress and Health study. International Journal of Methods in Psychiatric Research. 2011;20(4):215-23.

53. Vasiliadis H-M, Chudzinski V, Gontijo-Guerra S, Préville M. Screening instruments for a population of older adults: The 10-item Kessler Psychological Distress Scale (K10) and the 7-item Generalized Anxiety Disorder Scale (GAD-7). Psychiatry research. 2015;228(1):89-94.

54. Steiger JH. Understanding the limitations of global fit assessment in structural equation modeling. Personality and Individual differences. 2007;42(5):893-8.

55. Bu X, Li S, Cheng AS, Ng PH, Xu X, Xia Y, et al. Breast cancer stigma scale: a reliable and valid stigma measure for patients with breast cancer. Frontiers in Psychology. 2022;13:841280. doi: 10.3389/fpsyg.2022.841280.

56. Littleton HL, Axsom D, Pury CL. Development of the body image concern inventory. Behaviour Research and Therapy. 2005;43(2):229-41. doi: 10.1016/j.brat.2003.12.006.

57. Westland JC. Lower bounds on sample size in structural equation modeling. Electronic Commerce Research and Applications. 2010;9(6):476-87. doi: 10.1016/j.elerap.2010.07.003.