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E-mail: docritikkashwani@yahoo.com
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Beyond survival: Age-linked symptom burden and body image disturbance among breast cancer survivors in an urban Indian tertiary care setting

Jeyakomala Palani[1], Shankar Shanmugam Rajendran[2,*], Anandhi Duraikannu[1], Easter Raj[1], Immanuel Jeyaraj[3], Amaravathy Rasu[1], Bharathi Shankar[1] & Sailaja Easter Raj Emmanuel[3]

[1]Department of Medical Surgical Nursing, College of Nursing, Madras Medical College, The TN Dr MGR Medical University, Chennai, Tamil Nadu, India; [2]Department of Child Health Nursing, College of Nursing, Madras Medical College, The TN Dr MGR Medical University, Chennai, Tamil Nadu, India; [3]Department of Community Health Nursing, MGM Health Care Pvt Ltd. , Chennai, India; *Corresponding author

Affiliation URL:
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Author contact:
Jeyakomala Palani - E-mail: koushi.rk1@gmail.com
Shankar Shanmugam Rajendran - E-mail: shankarshaki@yahoo.com
Anandhi Duraikannu - E-mail: danandhi01@gmail.com
Easter Raj - E-mail: shailajacaru@gmail.com
Immanuel Jeyaraj - E-mail: jerecare@gmail.com
Amaravathy Rasu - E-mail: amarajjeevan@gmail.com
Bharathi Shankar - E-mail: bharathiiuma@gmail.com
Sailaja Easter Raj Emmanuel - jerecare@gmail.com

Abstract:
Breast cancer survivors may experience persistent symptoms and body image concerns affecting confidence and quality of life. Therefore, it is of interest to assess the symptom burden, body image disturbance, their correlation and associated socio-demographic and clinical factors among 100 survivors in Chennai. A descriptive cross-sectional study was conducted using the ESAS-r and Body Image Scale, with data analysed using descriptive and inferential statistics. Most participants had low symptom burden (85%) and low body image disturbance (67%), with a significant positive correlation between symptom burden and body image disturbance ($r = 0.35$, $p = 0.05$). Age, cancer stage and residence were significantly associated with the study variables, supporting age-sensitive symptom screening and psychosocial nursing interventions.

Keywords: Breast cancer survivors, body image, age-related symptoms, symptom assessment, survivorship care, nursing oncology

Background:
Breast cancer is no longer viewed only through the lens of diagnosis and treatment; it is increasingly a survivorship condition with continuing physical and emotional consequences. Globally, an estimated 20 million new cancer cases and 9.7 million cancer deaths were recorded in 2022, with female breast cancer remaining the most commonly diagnosed malignancy worldwide **[1].** The American Cancer Society further estimated 310,720 new invasive breast cancer cases among women in the United States and documented a 44% decline in breast cancer mortality between 1989 and 2022, reflecting both therapeutic progress and the expanding need for survivorship care **[2].** In India, the National Cancer Registry Programme estimated 14,61,427 incident cancer cases in 2022, with breast cancer the leading cancer site among females **[3]** and Indian population-based data show a 5-year age standardised relative survival of 66.4% across 11 geographic areas, highlighting the urgent need to improve life after treatment as much as survival itself **[4].** GLOBOCAN-based projections indicate that breast cancer may exceed 3 million new cases and 1 million deaths globally by 2040 if current demographic trends persist **[5].** Such projections demand a re-examination of how nurses and families can sustain meaningful recovery in the years that follow. Surviving breast cancer, however, is only the beginning. Symptoms such as pain, tiredness, depression, anxiety, appetite loss and breathlessness may persist after treatment and may differ by age, treatment exposure, stage and coping resources; a Chinese latent class analysis identified distinct age-specific symptom clusters during chemotherapy, with fatigue, depression and pain interference dominating in young, middle and elderly aged groups respectively **[6].** Body image disturbance, the deliberate cognitive and emotional renegotiation of bodily self after treatment-related changes, has emerged as a central concept in breast cancer survivorship research; conceptual work describes body image alteration as a multidimensional experience involving bodily change, emotional meaning and social response **[7].** Symptom burden and body image rarely move in isolation: a multi-site analysis of breast cancer survivors identified a definable high symptom burden subgroup with measurably worse psychological and functional outcomes **[8]** and wider oncology evidence has documented age-related differences in symptom distress that map directly onto fatigue, anxiety and emotional well-being **[9].** Therefore, it is of interest to assess the age-related symptom burden and body image disturbance among breast cancer survivors, determine their correlation and examine their association with selected sociodemographic and clinical characteristics.

Materials and Methods:
A quantitative, non-experimental, descriptive cross-sectional design was employed. The study was conducted in the Department of Medical Oncology, Rajiv Gandhi Government General Hospital, Chennai, Tamil Nadu, India, over four weeks. The accessible population comprised breast cancer survivors attending the oncology outpatient department who fulfilled the selection criteria during the data-collection period. A total of 100 participants were recruited through non-probability convenience sampling. Women willing to participate, able to comprehend Tamil or English and willing to provide informed consent were included, irrespective of comorbidities not interfering with participation. Women with metastatic or advanced disease, cognitive impairment, psychiatric illness, other major chronic illness at the time of data collection, pregnancy or lactation, or breast reconstruction within the previous six months were excluded. Three instruments were used: a structured socio-demographic and clinical proforma capturing age, marital status, education, occupation, income, family type, residence, religion, living arrangement, dietary pattern, breast cancer type, stage at diagnosis and time since diagnosis; the Edmonton Symptom Assessment System Revised (ESAS-r); and the Body Image Scale

(BIS). Content validity was obtained from a panel of nursing and medical oncology experts. After Institutional Ethics Committee approval and written permission from the Head of Medical Oncology, eligible survivors were approached individually. The purpose, voluntary nature and confidentiality safeguards were explained and written informed consent was obtained. A pilot study on 10% of the sample preceded the main study; pilot participants were excluded from the final analysis. Data were coded in Microsoft Excel and analysed in IBM SPSS Statistics. A p-value ≤ 0.05 was considered statistically significant.

Results:

Of the 100 participants, the majority (51.00%) were aged 40-49 years and 27.00% were aged 50-59 years; 91.00% were married, 61.00% had completed higher secondary education and 48.00% were homemakers. A monthly income below ₹10,000 was reported by 65.00%, 54.00% lived in nuclear families, 54.00% resided in urban areas and 75.00% identified as Hindu. Most (48.00%) lived with their children and 86.00% followed a non-vegetarian diet. Clinically, ductal carcinoma was reported by 75.00% and lobular carcinoma by 25.00%; stage II disease was most common (77.00%), followed by stage III (12.00%), stage me (7.00%) and stage IV (4.00%). Most survivors (68.00%) were within one year of diagnosis. The mean ESAS-r score was 15.25 ± 6.51 out of 100, representing 15.25% of the maximum score. Anxiety emerged as the dominant age-linked symptom, reported by 50.00% of women aged 20–29 years, 50.00% aged 30–39 years, 64.71% aged 40–49 years, 74.07% aged 50–59 years and 66.67% aged 60–69 years. Pain was reported by 54.90% of the 40–49 group and 62.96% of the 50–59 group, while tiredness affected 58.82% and 51.85% respectively. The majority of survivors (85.00%, n = 85) had a low and 15.00% (n = 15) a moderate level of symptom burden; none reached the high-burden category. The mean BIS score was 6.99 ± 2.44 out of 27 (25.89%). The highest item-level mean was feeling self-conscious about appearance (1.41/3; 47.00%), followed by avoiding people because of appearance (1.26/3; 42.00%) and feeling less physically attractive (1.14/3; 38.00%). Overall, 67.00% (n = 67) had low and 33.00% (n = 33) moderate body image disturbance; none reached the high score**.** Distribution of body image disturbance levels among the breast cancer survivors (n = 100). Karl Pearson's correlation revealed a statistically significant positive fair correlation between symptom burden and body image disturbance (r = 0.35, p = 0.05), indicating that as the symptom score increased, body image disturbance also rose. Symptom burden was significantly associated with age (χ^2 = 11.59, p = 0.05) and stage of cancer at diagnosis (χ^2 = 23.36, p = 0.001), while body image disturbance was significantly associated with age (χ^2 = 9.80, p = 0.05) and place of residence (χ^2 = 7.09, p = 0.05). Other variables such as marital status, education, occupation, monthly income, family type, religion, living arrangement, dietary pattern, type of breast cancer and time since diagnosis did not show statistically significant associations **(Table 1).**

Table 1: Association between the level of symptom burden and body image disturbance with selected sociodemographic and clinical variables (n = 100).

Demographic variable	Category	n	Symptom Burden χ^2 (p)	Body Image χ^2 (p)
Age (years)	20–29	6	**11.59 (0.05)***	**9.80 (0.05)***
	30–39	10		
	40–49	51		
	50–59	27		
	60–69	6		
Stage at diagnosis	Stage I	7	**23.36 (0.001)*****	2.41 (0.49) NS
	Stage II	77		
	Stage III	12		
	Stage IV	4		
Place of residence	Urban	54	3.18 (0.20) NS	**7.09 (0.05)***
	Semi-urban	13		
	Rural	33		

**Statistically significant at p ≤ 0.05; ***highly significant at p ≤ 0.001; NS = Not significant.*

Discussion:

The present study showed that 85.00% of breast cancer survivors had a low and 15.00% a moderate symptom burden, while 67.00% reported low and 33.00% moderate body image disturbance, with no participant reaching the high-disturbance category. A statistically significant positive fair correlation was observed between symptom burden and body image disturbance (r = 0.35, p = 0.05), suggesting that physical and psychological recovery move together rather than in isolation. This pattern aligns with symptom burden research demonstrating that breast cancer survivors continue to experience clinically meaningful symptom clusters even after the completion of treatment **[8]** and with wider oncology evidence showing that age related differences shape patterns of fatigue, anxiety and emotional well-being among cancer patients **[9].** The finding that anxiety was high across age groups, peaking at 74.07% among women aged 50–59 years, is particularly instructive for nursing practice. Anxiety can intensify symptom perception, reduce social confidence and make appearance-related changes harder to accept. Indian evidence following modified radical mastectomy has reported depression, anxiety, stress and body image issues as common survivorship problems and has recommended their inclusion in routine follow up care **[10].** The present study similarly identified self-consciousness, avoidance of people and feeling less physically attractive as the most affected body image items, echoing the qualitative texture of that earlier Indian evidence. Significant associations of symptom burden with age and cancer stage and of body image disturbance with age and urban residence were observed in the present study. These findings are clinically plausible because advanced stage typically involves more intensive treatment and a heavier fear of recurrence burden. Studies on mastectomies survivors have identified body image and self-esteem as core aspects of psychosocial recovery **[11, 12]** and work among young breast cancer patients has linked body image concerns and psychological distress with poorer overall quality of life **[13, 14].** Social support has emerged as an important buffer, with recent evidence among young women with breast cancer showing that perceived social support moderates the relationship between coping strategies and positive body image, particularly when combined with problem focused or avoidant coping **[15, 16].**

Wider umbrella reviews of cancer survivorship similarly support addressing psychosocial factors as part of quality of life care **[17].** Together, these findings reinforce that symptom screening and body image assessment should not be conducted in isolation; nurses in oncology outpatient settings should screen survivors for physical symptoms and appearance related distress and design age-sensitive interventions, structured belief focused counselling, partner inclusive discussions, ESAS-r-based symptom review and culturally appropriate follow up **[18, 19]**. Limitations include a single-centre convenience sample, self-reported responses, possible selection bias toward outpatients well enough to attend and a cross-sectional design that precludes causal inference; larger longitudinal multi centre studies are warranted.

Ethical approval:
Approval was obtained from the Institutional Ethics Committee, Madras Medical College, Chennai and written informed consent was obtained from all participants in accordance with the Declaration of Helsinki.

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Conflicts of interest: The authors declare no conflicts of interest.

Conclusion:
Breast cancer survivors experienced low overall symptom burden and body image disturbance, although anxiety, pain, fatigue and social avoidance persisted. The positive correlation between symptom burden and body image disturbance highlights the need for integrated, nurse-led physical and psychosocial care. Routine screening, age-sensitive counselling and structured survivorship support are essential to improve emotional well-being and quality of life.

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