A Cross-Sectional Study of Body Image Dissatisfaction and Self-Esteem Among Breast Cancer Patients in Rawalpindi/Islamabad

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ABSTRACT

This study is intended to find out the relationship between body image dissatisfaction and self-esteem among breast cancer patients in Rawalpindi/Islamabad using cross-sectional research design with correlational analysis. Literature suggests that breast cancer patients experience body dissatisfaction and low self-esteem after physical changes which can negatively affect the treatment process as well. As the onset of breast cancer in Pakistani women is increasing rapidly, it is important to highlight the psychological concerns which can serve as a baseline in developing intervention in this area and plan strategies to help these patients manage their body image concerns. Female participants (n = 150) were selected through purposive sampling from government and private hospitals within Rawalpindi and Islamabad. After voluntary consent, Urdu versions of Rosenberg Self-esteem Scale and Appearance Anxiety Inventory were administered on this sample. The results were then analyzed using SPSS version 26. The results showed that there is a negative and significant relationship between body image dissatisfaction and self-esteem. Demographic variable of marital status is shown to produce a significant difference in self-esteem but other demographics such as age and socio-economic status do not affect it. The results indicated a significant negative correlation between body image dissatisfaction and self-esteem (r = -0.490, p < .01), confirming the primary hypothesis. Additionally, marital status showed a statistically significant effect on self-esteem (χ^2 = 8.883, p = .031), whereas age and socioeconomic status did not yield significant differences (p > .05). These findings underscore the need for psychological support programs that address body image and self-esteem in breast cancer care, with a focus on marital and social support structures.

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1.   Introduction

Cancer is a global illness that can affect anyone, though its type and rate vary across regions due to cultural factors such as diet and smoking (Abbas et al., 2020). Its unpredictable nature causes widespread fear (Brandão, Schulz, & Matos, 2017). Cancer begins when abnormal cells multiply uncontrollably, forming tumors. Benign tumors grow but do not spread, while malignant tumors are aggressive and can be life-threatening (Sharma et al., 2010). Breast cancer is the most prevalent in Pakistan, accounting for 14.5% of all new cases and 75.6% of cancer-related deaths, with an annual mortality rate significantly higher than the global average (Global Cancer Observatory, 2022). Breast cancer originates in breast tissue,

with types classified based on location and invasiveness. Ductal and lobular cancers are the most common (Weinberg, 1996). Non-invasive breast cancer (stage 0) remains within ducts, while invasive types (stages I–IV) spread to surrounding tissues (Sharma et al., 2010). Self-esteem, a key psychological construct, influences emotional well-being and confidence (Rosenberg, 1965). Maslow and Rogers emphasize its role in motivation and personal growth (Maslow, 1987; Rogers, 1959). High self-esteem fosters self-belief and resilience, while low self-esteem leads to self-criticism and dependence on external validation (Hamachek, 1992). Body image dissatisfaction, a negative perception of one's appearance, contributes to emotional distress, especially in oncology (Hamamoto, Suzuki, & Sugiura, 2022). It consists of perceptual and affective components, where individuals misjudge their body size or experience emotional discomfort due to discrepancies between their ideal and perceived selves. Cancer treatments alter physical appearance, impacting self-esteem, particularly in women due to societal beauty standards (Alhusban, 2019). This leads to a cycle of low self-worth and dissatisfaction, reinforcing psychological distress (Jafar, 2020; Leite, Nogueira, & Terra, 2015; Macêdo Uchôa et al., 2020).

Breast cancer has significant physical and psychological impacts on women, affecting their overall health and well-being. The treatment process, including surgery, chemotherapy, and radiation therapy, leads to various physical challenges such as pain, fatigue, lymphedema, and changes in body weight. Pain is a common experience due to surgeries like mastectomy, with some women facing persistent discomfort from nerve damage or scar tissue. Fatigue, another major issue, is characterized by an overwhelming sense of tiredness that persists even after rest, affecting daily functioning. Additionally, body weight fluctuations due to hormonal changes, chemotherapy, or emotional distress can impact self-esteem and long-term health outcomes (Bower, 2014; Koo et al., 2016; Montazeri et al., 2016; Olasehinde et al., 2019). Psychological distress among Pakistani women with breast cancer is shaped by cultural factors, including modesty, traditional gender roles, and societal stigma. The disease often evokes emotions such as fear, anxiety, sadness, and anger, with stigma exacerbating these feelings. Physical changes, such as mastectomy and hair loss, challenge cultural notions of femininity and modesty, leading to body image dissatisfaction and low self-esteem. Studies indicate that women perceive a loss of femininity and face increased psychological distress due to societal expectations. The stigma surrounding breast cancer contributes to isolation and limited social support, worsening emotional well-being. The reluctance to discuss the disease openly adds to these psychological struggles (Ahmed et al., 2006; Raza, Sajun, & Selhorst, 2012; Saeed, Asim, & Sohail, 2021).

Mastectomy has a profound impact on body image, especially in Pakistani society, where breasts symbolize femininity, beauty, and motherhood. Women undergoing mastectomy often struggle with feelings of unattractiveness and fear of rejection, leading to self-consciousness and psychological imbalance. Chemotherapy-related hair loss, weight changes, and altered physical appearance further contribute to body dissatisfaction and low self-esteem. Younger women, in particular, face greater emotional instability, as they place higher importance on their body image. Socioeconomic status also plays a role, with women who undergo breast reconstruction reporting higher self-esteem than those who cannot afford the procedure. Negative body image influences psychological adjustment, social interactions, and treatment outcomes, highlighting the need for psychological support for breast cancer patients (Davis et al., 2020; Van Oers & Schlebusch, 2020). In addition to the influence of modesty, Pakistani society places a strong emphasis on traditional gender roles and societal expectations for women. Breast cancer-related physical changes can disrupt these expectations, leading to a loss of femininity and a negative impact on body image and self-esteem. A study conducted by MAHMOOD, ZAFAR and KHAN (2020) highlighted that Pakistani breast cancer survivors perceived a loss of femininity due to mastectomy and reported lower self-esteem as a result. The pressure to conform to societal ideals of femininity can intensify the psychological distress experienced by Pakistani women with breast cancer. Furthermore, the stigma surrounding breast cancer in Pakistani culture can significantly impact the psychological well-being of women. Breast cancer is often associated with misconceptions, fear, and shame, leading to isolation and limited social support for affected women. The reluctance to openly discuss the disease and the cultural taboo surrounding health-related discussions can further compound the psychological impact(Wided, 2024).

2.   Methods

2.1.   Operational definition

- Body Image Dissatisfaction: Negative attitude towards one's own physical appearance (Heider, Spruyt, & De Houwer, 2018).
- Self-esteem: self-esteem is one's positive or negative attitude toward oneself and one's evaluation of one's own thoughts and feelings overall in relation to oneself (Park & Park, 2019).
- Breast Cancer: Breast cancer is a disease in which abnormal breast cells grow out of control and form tumors (World Health Organization, 2024).

2.2.   Hypothesis

- There will be a negative relationship between body image dissatisfaction and self-esteem among breast cancer patients.
- There will be significant differences of age, marital status and socio-economic status in self-esteem among breast cancer patients.

2.2.   Research design

This quantitative study is intended to find out the relationship between the two variables: body image dissatisfaction and self-esteem among breast cancer patients. Hence, cross-sectional study design is used and data has been analyzed using correlational analysis.

2.3.   Setting

Government and private hospitals in Rawalpindi and Islamabad with oncology departments were selected through purposive sampling to ensure access to breast cancer patients. Ethical approval was obtained from Capital University of Science and Technology (CUST) IRB and institutional support were obtained from hospital administrations to facilitate data collection.

2.4.   Participants

A sample of 150 females having breast cancer with the age range of 25 and above was selected. The study included female breast cancer patients aged 25 and above, at any stage of the disease, undergoing various treatments. Women of all marital statuses were selected to ensure diverse perspectives and experiences.

2.5.   Sampling strategy

Purposive sampling was used, and participants were approached based on the inclusion criteria. Random sampling was not feasible due to logistical constraints, including the clinical setting, limited patient availability, and the ethical necessity of involving only those patients who provided informed consent voluntarily and were psychologically stable to participate. As a result, the findings are particularly relevant to similar hospital-based populations but may not be fully generalizable to all breast cancer patients in the broader community or in non-clinical settings.

2.6.   Measures

Informed Consent Form: Used to ensure ethical conduct and protect participant rights per APA guidelines; included details about the researcher, study purpose, procedures, scales used, data confidentiality, and potential research benefits

Demographic Sheet: Collected data on age, education, income, marital status, cancer stage, year of diagnosis, mastectomy surgery status, and current treatment to understand participants' background and medical profiles.

Rosenberg Self-Esteem Scale (Rosenberg, 1965) (Urdu translation by Rizwan et al. (2017)): A 10-item self-report scale using a 4-point Likert scale to assess self-esteem; includes both positive and negative items with internal consistency of .773 and test-retest reliability of .808. In addition to reliability, the Urdu Rosenberg Self-Esteem Scale has established strong construct validity through factor loading and pattern matrix analysis, confirming its global and two-factor structure (positive and negative self-esteem). Furthermore, the URSES demonstrates adequate convergent validity, as evidenced by its significant correlations with

depression, anxiety, stress, and perceived social support, and is supported by findings of acceptable content validity based on item relevance and theoretical alignment. Appearance Anxiety Inventory (Veale et al., 2014): A 10-item self-report scale with a 5-point Likert format to assess cognitive and behavioral aspects of distorted body image; includes Avoidance and Threat Monitoring subscales; Cronbach's Alpha of .86 and cut-off score of 19.

2.7. Procedure

Participants were thoroughly briefed on the study's purpose, potential benefits, and their right to withdraw at any time. Informed consent was obtained through a detailed document outlining the study's purpose, procedures, risks, benefits, and confidentiality. Participants then completed a demographic sheet and two Urdu-translated scales without any time restrictions, allowing for thoughtful and accurate responses.

3. Results

The chapter aimed to highlight the findings of the main study. The chapter is divided into four sections.

- Section 1: Scale Reliability; Assessed the internal consistency of URSES and AAI using Cronbach's Alpha.
- Section 2: Sample Description; Presented frequencies, means, and standard deviations of participant's demographic variables.
- Section 3: Distribution curve; Examined the normality of data distribution through distribution curves.
- Section 4: Inferential Statistics; Tested main hypotheses using Spearman's rho and Kruskal-Wallis analysis across demographics.

3.1. Section 1: Scale Reliability

Results of the cross-sectional study on (N=150) are presented in the tables given below. Table 1 shows the reliability analysis of the study.

Table 1: Mean, and Standard Deviation and alpha reliabilities (N=150)

Scale	N	M	SD	α	Range Actual	Potential
URSES	10	16.81	4.66	.84	10-30	10-30
AAI	10	16.55	7.66	.94	2-38	0-40

Note: N= no. of items, M= mean, SD= standard deviation, α= alpha reliability, URSES= Urdu Rosenberg Self-Esteem Scale, AAI= Appearance Anxiety Inventory.

Table 1 also show that according to (Nunnally & Bernstein, 1994) criteria, both the scales are reliable with URSES (α= .84, M= 16.81, SD= 4.66) and AAI (α= .94, M=16.55, SD= 7.66).

3.2. Section 2: Sample Description

The frequencies, mean, and standard deviation of the demographic characteristics of the participants are presented in this section. The main data was based on N = 150. The characteristics included in the study were age, education level, marital status, monthly income, stage of cancer, year of diagnosis, mastectomy surgery status, and current treatment, and are explained by analyzing their frequencies, mean, and standard deviation.

Table 2 displays the frequencies and percentages of the demographic characteristics of the participants (N = 150). The largest proportion of participants (28.7%) fell within the 25–35 age group (n = 43), followed by the 36–46 age group (25.3%, n = 38), 47–57 (22.0%, n = 33), 69–79 (13.3%, n = 20), and 58–68 (10.7%, n = 16). In terms of education, 12.0% (n = 18) of the participants were uneducated, 19.3% (n = 29) had completed matriculation, 24.0% (n = 36) had completed intermediate education, 30.7% (n = 46) held a bachelor's degree, and 14.0% (n = 21) had completed a master's degree. Regarding marital status, 17.3% (n = 26) of the participants were unmarried, 53.3% (n = 80) were married, 9.3% (n = 14) were divorced, and 20.0% (n = 30) were widowed. In terms of employment, 72.0% (n = 108) of participants were unemployed, while 28.0% (n = 42) were employed. As for monthly income, 31.3% (n = 47) of participants earned below Rs. 60,000, 48.7% (n = 73) earned between Rs. 60,001 and Rs. 180,000, and 20.0% (n = 30) earned above Rs. 180,000. With respect to current treatment status, 26.0% (n = 39) were undergoing radiotherapy, 34.0% (n = 51) were

receiving chemotherapy, and 40.0% (n = 60) were attending follow-up appointments. Stage-wise, 24.7% (n = 37) were diagnosed with stage I cancer, 39.3% (n = 59) with stage II, 30.7% (n = 46) with stage III, and 5.3% (n = 8) with stage IV. Finally, 82.7% (n = 124) of participants had undergone mastectomy surgery, while 17.3% (n = 26) had not.

Table 2: Descriptive analysis of demographic variables of the study participants (N=150)

Demographic variables	f	%
Age		
25-35	43	28.7%
36-46	38	25.3%
47-57	33	22.0%
58-68	16	10.7%
69-79	20	13.3%
Education Level		
Uneducated	18	12.0%
Matric	29	19.3%
Intermediate	36	24.0%
Bachelors	46	30.7%
Masters	21	14.0%
Marital Status		
Unmarried	26	17.3%
Married	80	53.3%
Divorced	13	9.3%
Widow	40	20.0%
Job Status		
Unemployed	108	72.0%
Employed	42	28.0%
Monthly income status		
Below Rs. 60,000	47	31.3%
Rs.60,001- Rs.180,000	73	48.7%
Above Rs. 180,000	30	20.0%
Current treatment		
Radiotherapy	39	26.0%
Chemotherapy	51	34.0%
Follow ups	60	40.0%
Stage of breast cancer		
1	37	24.7%
2	59	39.3%
3	46	30.7%
4	8	5.3%
Underwent Mastectomy surgery		
Yes	124	82.7%
No	26	17.3%

Note: f= frequency, %= percentage

Table 3: Descriptive statistics: Mean, Median, Mode, SD, Skewness, Kurtosis, KS

	M	Median	Mode	SD	Skewness	Kurtosis	KS
URSES	16.91	17	17	3.56	.70	1.01	.000
AAI	16.55	16	20	7.66	.59	.52	.003

Note: M= mean, SD= standard deviation, KS= Kolmogorov-Smirnov, URSES= Urdu Rosenberg Self-Esteem Scale, AAI= Appearance Anxiety Inventory

Table 3 presents the descriptive statistics of URSES and AAI. URSES shows (mean= 16.91, SD= 3.56) and AAI shows (mean= 16.55, SD= 7.66). AAI scale shows normal distribution with respect to (skewness= .59) and (kurtosis= .52) values respectively. While URSES show non-normal distribution with respect to (skewness= .70) and (kurtosis= 1.01) values. KS value shows non-normal distribution (p> .05) for both scales.

3.3. Section 3: Distribution curve

The normality of data distribution was assessed using skewness, kurtosis, and the Kolmogorov-Smirnov (KS) test. For the URSES (Urdu Rosenberg Self-Esteem Scale), skewness was 0.70 and kurtosis was 1.01, while for the AAI (Appearance Anxiety Inventory), skewness was 0.59 and kurtosis was 0.52. These values suggest a moderate positive skew and a slight

departure from the normal bell-shaped distribution, especially in the case of self-esteem scores. Moreover, the KS test yielded statistically significant results ($p < .05$), indicating that the distributions of both URSES and AAI scores significantly deviate from normality. In light of these findings, parametric tests like Pearson's correlation and ANOVA were deemed inappropriate due to their underlying assumption of normal distribution. As a result, non-parametric tests were selected; Spearman's rho for correlation analysis and Kruskal-Wallis H tests for comparing group differences. These tests do not assume normality and are robust for analyzing skewed or ordinal data, making them appropriate for this study's dataset. However, it is important to note that while non-parametric tests are more flexible, they may be less powerful than their parametric counterparts, and the findings should be interpreted accordingly.

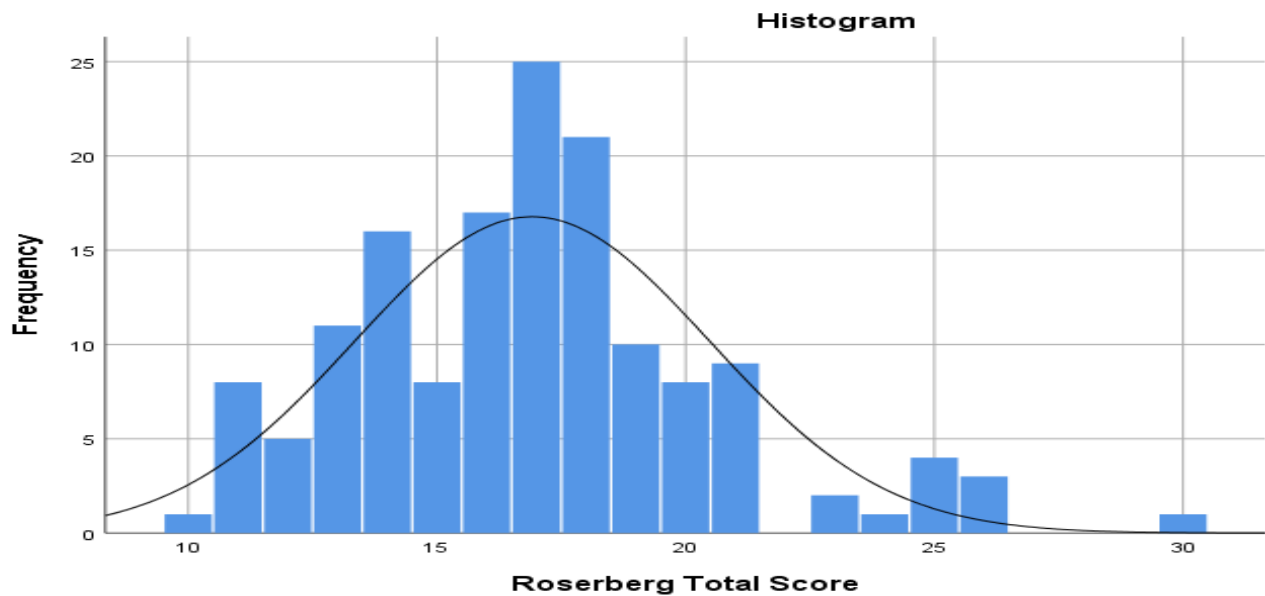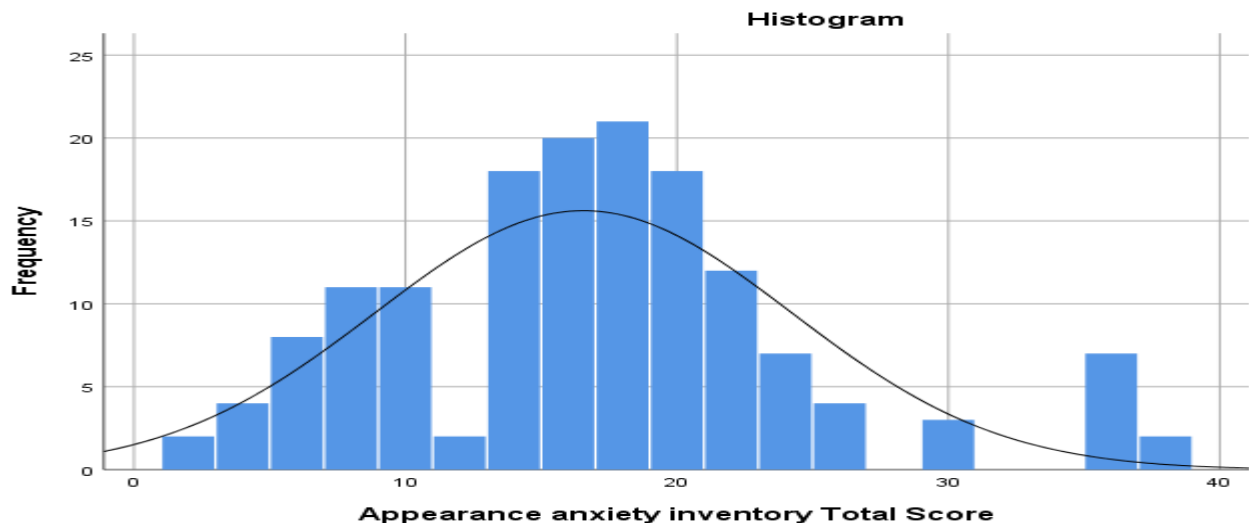**Figure 1: Histogram for Urdu Rosenberg Self-Esteem Scale**

Figure 2: Histogram for Appearance Anxiety Inventory

3.4. Section 4: Inferential Statistics
Table 4: Relationship between URSES and AAI using Spearman's rho

Variables	n	M	SD	1	2
URSES	150	16.91	3.56	-	-.490**
AAI	150	16.55	7.63	-.490**	-

*Note: **p<.01, correlation is significant at 0.01 level (1-tailed), n= no. of participants, M= mean, SD= Standard deviation*

Spearman's rho correlational analysis was used to analyze the relationship between a sample of (n=150) participants using Urdu Rosenberg Self-Esteem Scale and Appearance

Anxiety Inventory as the data was non-normally distributed. Results show that URSES (M = 16.91, SD = 3.56) and AAI (M = 16.55, SD = 7.63) are negatively and moderately correlated (r= -.490**) with highly significant correlation at 0.01 level (p<.01). Hence, hypothesis 1 is accepted which states that there will be a negative relationship between body image dissatisfaction and self-esteem in breast cancer patients.

Table 5: Kruskal Wallis analysis for Marital status

	Marital Status				χ^2	*P*
	Unmarried (26)	Married (18)	Divorced (14)	Widowed (30)		
URSES	57.56	83.88	61.93	75.03	8.883	.031

Note: χ²= chi-square, p= asymptomatic significance level, URSES= Urdu Rosenberg Self-Esteem Scale

A Kruskal Wallis test was conducted to compare the differences of marital status groups on self-esteem. The Kruskal-Wallis test revealed a statistically significant difference in self-esteem across marital status groups (χ² = 8.883, p = .031). The effect size, calculated using epsilon-squared, was small (ε² ≈ 0.04), indicating that marital status accounts for approximately 4% of the variance in self-esteem ranks. The results also revealed variations in the mean ranks across the groups. The unmarried group (N = 26) had a mean rank of 57.56, the married group (N = 80) had a higher mean rank of 83.88, the divorced group (N = 14) had a mean rank of 61.93, and the widow group (N = 30) had a mean rank of 75.03.

Table 6: Kruskal Wallis analysis for Age range

	Age Range					χ^2	*p*
	25-35 (43)	36-46 (38)	47-57 (33)	58-68 (16)	69-79 (20)		
URSES	67.80	81.62	77.09	82.53	72.18	2.715	.607

Note: χ²= chi-square, p= asymptomatic significance level, URSES= Urdu Rosenberg Self-Esteem Scale

A Kruskal Wallis test was conducted to examine the difference between age range and self-esteem. The mean ranks of self-esteem varied across the age range groups. Participants in the 36-46 age range had the highest mean rank of (n= 43, Mean rank= 81.62), followed by the 58-68 age range with a mean rank of (N= 16, Mean rank= 82.53). The 47-57 age range had a mean rank of (n= 33, Mean rank= 77.09), the 69-79 age range had a mean rank of (N= 20, Mean Rank= 72.18), and the 25-35 age range had the lowest mean rank of (N= 43, Mean rank= 67.80). However, the Kruskal Wallis test did not yield a statistically significant difference in self-esteem across the age range groups, (χ² = 2.715), p = .607. These results indicate that there is no significant difference between age range and self-esteem.

Table 7: Kruskal Wallis analysis for Socioeconomic status

	Socioeconomic status			χ^2	p
	Below 60,000 (47)	Rs. Rs.60,000-Rs.180,000 (73)	Above Rs.180,000 (30)		
URSES	77.22	70.77	84.32	2.201	.333

Note: χ²= chi-square, p= asymptomatic significance level, URSES= Urdu Rosenberg Self-Esteem Scale

A Kruskal Wallis test was conducted to examine the relationship between monthly income status and self-esteem. The mean ranks of self-esteem differed across the income status groups. Participants in the Below Rs. 60,000 group had a mean rank of (N= 47, Mean rank= 77.22), those in the Rs. 60,001 - Rs. 180,000 group had a mean rank of (N= 73, Mean rank= 70.77), and those in the Above Rs. 180,000 group had the highest mean rank of (N= 30, Mean rank= 84.32). However, the Kruskal Wallis test did not reveal a statistically significant difference in self-esteem across the income status groups, (χ²= 2.201), p = .333. These findings suggest that there is no significant association between monthly income status and self-esteem.

4. Discussion

This study examined the association between body image dissatisfaction and self-esteem among breast cancer patients. A total of 150 participants were recruited from oncology departments in Rawalpindi and Islamabad using purposive sampling. The study utilized the

Urdu versions of the Rosenberg Self-Esteem Scale (URSES) and the Appearance Anxiety Inventory (AAI). Demographic characteristics revealed that the highest proportion of participants (28.7%) belonged to the 25-35 age group. Most had a bachelor's degree (30.7%), were married (53.3%), and unemployed (72.0%). Income distribution indicated that 48.7% earned between Rs. 60,001 and Rs. 180,000. Treatment distribution showed 40.0% were on follow-ups, while 34.0% and 26.0% were undergoing chemotherapy and radiotherapy, respectively. The majority (39.3%) were at stage 2 cancer, and 82.7% had undergone mastectomy. The study hypothesized a negative correlation between body image dissatisfaction and self-esteem, confirmed by Spearman's rho correlation ($r = -0.490$, $p < .01$). This aligns with previous research indicating that physical changes due to breast cancer treatment can negatively impact self-esteem, particularly in societies emphasizing physical appearance. The Kruskal-Wallis H test examined mean differences in self-esteem based on socioeconomic status, age, and marital status. Socioeconomic status ($\chi^2 = 2.201$, $p = .333$) and age ($\chi^2 = 2.715$, $p = .607$) did not significantly impact self-esteem. However, marital status showed a significant difference ($\chi^2 = 8.883$, $p = .031$), with married participants reporting higher self-esteem compared to unmarried and divorced participants.

It is important to consider that marital status is associated with various psychosocial and support-related factors that can impact self-esteem. For instance, married individuals may have access to emotional support, companionship, and tangible assistance from their partners, which can contribute to higher self-esteem levels (Shrout et al., 2021). Moreover, a study in 2015 examined the association between marital status and psychosocial outcomes in breast cancer survivors. The findings indicated that married individuals reported better psychological well-being, including higher self-esteem, compared to those who were unmarried. The study also highlighted the potential benefits of spousal support and the importance of social connections in influencing self-esteem in this population (Guan Ng et al., 2015). A study by Davis et al. (2020) explored the impact of marital status on psychological well-being in breast cancer survivors. The findings indicated that married individuals reported higher levels of psychological well-being, including self-esteem, compared to those who were divorced, separated, or widowed. These results align with the present study's findings, suggesting that being married may be associated with higher self-esteem in breast cancer patients. These findings highlight the psychological challenges faced by breast cancer patients. Understanding the negative relationship between body image dissatisfaction and self-esteem can aid in developing interventions to enhance psychological well-being. The study underscores the importance of marital support and cultural factors in shaping self-esteem, suggesting that targeted psychosocial interventions could improve the mental health and quality of life of breast cancer patients.

5.   Conclusion
This study explored the relationship between body image dissatisfaction and self-esteem among breast cancer patients in Rawalpindi and Islamabad. The findings revealed a statistically significant, moderately strong negative correlation between body image dissatisfaction and self-esteem, indicating that higher dissatisfaction is associated with lower self-esteem in this population. Additionally, a significant difference in self-esteem was found across marital status groups, with married women reporting higher self-esteem compared to unmarried, divorced, or widowed counterparts. These results highlight the potential protective role of marital support and underscore the psychological vulnerability that breast cancer patients may experience due to changes in physical appearance and relational contexts. No significant differences in self-esteem were observed based on age or socioeconomic status, suggesting that psychosocial factors may play a more influential role in shaping self-perception and mental well-being.

Despite its valuable contributions, the study is not without limitations. The use of purposive sampling, a restricted geographical scope, a relatively small sample size, and hospital-based data collection reduce the generalizability of the findings. Future research is encouraged to address these limitations by recruiting larger, more diverse samples across various regions of Pakistan and employing random sampling where feasible. Additionally, incorporating variables such as social support, coping mechanisms, or treatment stage could provide a more comprehensive view of the factors affecting self-esteem. Experimental or longitudinal studies may offer insights into causality, while qualitative research could enrich our understanding of cultural, emotional, and social influences. The present findings hold practical significance for healthcare professionals and mental health practitioners, informing the

development of culturally sensitive, psychosocial interventions that address body image concerns and promote psychological resilience among breast cancer patients.

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