



# The Relationship Between Body Image and Psychological Well-Being with Post-traumatic Growth in Women with Breast Cancer and a History of Mastectomy

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## Abstract

**Background:** Despite the challenging nature of cancer, research has indicated that the battle against this illness can lead to positive transformations following diagnosis and treatment, a phenomenon known as post-traumatic growth.

**Objectives:** This study aimed to explore the association between body image and mental well-being and post-traumatic growth among women who have undergone breast cancer treatment and mastectomy surgery.

**Methods:** Employing a correlational research design, this study sampled 276 participants, focusing on married women in Tehran who have experienced mastectomy. The instruments used included McKinley and Hyde's Body Image Scale (1996), the Ryff Scale of Psychological Well-Being 1989 (RSPWB-18), and the Post-traumatic Growth Inventory (PTGI) by Tedeschi.

**Results:** Data analysis was conducted using Pearson's correlation test and multivariate regression analysis. The findings revealed a significant association between psychological well-being and post-traumatic growth in women ( $P < 0.01$ ).

**Conclusions:** The results underscore the importance of incorporating an understanding of the relationship between these variables into the development of educational and psychological interventions, integrating them with treatment plans for patients post-breast cancer surgery.

**Keywords:** Body Image, Psychological Well-Being, Post-traumatic Growth, Mastectomy Surgery, Cancer

## 1. Background

Breast cancer represents a multifaceted condition that precipitates significant physical and psychological changes in affected women (1). The disease engenders various social and psychological challenges, primarily due to its physical repercussions, among which psychological distress stands out as a critical factor impacting patients' quality of life (2). Following a breast cancer diagnosis, women may undergo one of two surgical interventions: Breast-conserving surgery, which involves the removal of the tumor and a margin of surrounding healthy tissue, or mastectomy, entailing the complete removal of the breast. These procedures can lead to body image disturbances, profoundly affecting patients' mental well-being (3).

For women with breast cancer, the experience of physical alterations leads to a shift in the perception of

physical attractiveness. Consequently, they may no longer view themselves as sexually or physically appealing, a change directly attributed to their altered self-image (4). Many women diagnosed with breast cancer experience psychological distress, which progressively diminishes their well-being. Psychological well-being is characterized by positive emotions and a comprehensive sense of life satisfaction across various domains, including family, personal, and social work (5).

Despite the adverse impact of cancer, research has highlighted that confronting the illness can lead to positive transformations post-diagnosis and treatment, a phenomenon known as post-traumatic growth (PTG) (6). Post-traumatic growth encompasses significant changes across multiple dimensions of life, such as a deeper understanding of life, enhanced personal strength, enriched social relationships, a heightened

interest in spirituality, recognition of personal resilience, and improved capacity for emotional expression and optimism about the future (7). Historically, the emphasis has been on recognizing and addressing the negative repercussions of cancer among survivors. Nonetheless, the constructive outcomes of post-traumatic growth, spurred by the cancer experience, its consequences, and its treatments, significantly enhance life and health quality. Consequently, exploring the relationship between psychological well-being and post-traumatic growth in women with breast cancer is of paramount importance.

## 2. Objectives

The present study aims to address the following questions: (1) Is there an association between body image and psychological well-being and post-traumatic growth among women with breast cancer who have undergone mastectomy surgery? (2) Which aspects of body image and mental well-being are predictive of post-traumatic growth in women with breast cancer and a history of mastectomy surgery?

## 3. Methods

### 3.1. Study Design and Participants

The study conducted is descriptive and correlational in nature. Data collection was carried out through both library and field methods. The library method involved reviewing background information from articles, books, and credible scientific websites. In the field method, after obtaining an introduction letter from the university and visiting medical centers (hospitals, clinics), the purpose of the research was explained to potential participants, and confidentiality of the information was assured, leading to informed and voluntary participation. Data collection was conducted by the researcher between the years 2021 and 2022. The statistical population comprised all women with breast cancer who sought treatment at specialized centers (Dey Specialized Hospital, Jihad University Breast Clinic of Tehran, Iranian Breast Surgeons Association) and had undergone mastectomy surgery. The initial sample size was 350 individuals. After applying the inclusion criteria (being married, having undergone mastectomy surgery, and having no history of mental illness), the final sample consisted of 276 participants who were analyzed. Participants who were willing to join the study were selected based on availability, and their responses to the questionnaires were analyzed. The inclusion criteria for

the sample were: (1) Undergoing mastectomy surgery; (2) being married; (3) absence of a history of experiencing or being diagnosed with a chronic and severe mental illness or disorder at the time of conducting the research or in the recent past (The General Health Questionnaire [GHQ] and a self-report form were utilized to assess the mental health status of participants).

### 3.2. Ethical Statement

The study received approval from the Ethics Committee of Islamic Azad University, Central Tehran Branch, Tehran, Iran (approval code: IR.IAU.CTB.REC.1401.141). All participants were asked to read an informed consent document and complete the questionnaires anonymously. They were also informed of their right to withdraw from the survey at any point.

### 3.3. Measures

#### 3.3.1. Body Image Questionnaire by McKinley and Hyde (1996)

To assess body image, the study utilized the Body Image Questionnaire developed by McKinley and Hyde (8) in 1996. This questionnaire comprises 2 dimensions: Body Control and Body Shame. Responses are recorded on a five-point Likert Scale, ranging from “completely agree” to “completely disagree”. The validity of the questionnaire’s main sections has been verified by its creators. Its validity is further supported by its correlation with variables such as appearance orientation, body esteem, restricted eating, and other appearance control behaviors. The internal consistency of the Body Control and Body Shame subscales, along with appearance control beliefs, has been reported with Cronbach’s alpha values of 0.89, 0.75, and 0.72, respectively (8). The validity of this questionnaire was also confirmed in a study by Norozi et al., where Cronbach’s alpha was employed to ascertain reliability. In their research, Cronbach’s alpha values for the dimensions of body image, specifically body surveillance and body shame, were 0.83 and 0.90, respectively (9).

#### 3.3.2. Ryff Psychological Well-Being Questionnaire (RSPWB-18)

The Psychological Well-Being Scale, developed by Ryff in 1989, initially comprised 120 items. Subsequent revisions introduced shorter versions with 84, 54, and 18 items. According to Ryff’s model, psychological well-being encompasses 6 dimensions: Self-acceptance (maintaining a positive self-view), positive relationships with others (forming warm, intimate connections and the ability to empathize), autonomy (experiencing independence and resisting social pressures), purpose in life (having goals

and finding meaning in life), personal growth (sensing continuous development), and environmental mastery (the capacity to manage one's surroundings) (10). In this study, psychological well-being is measured using the scores obtained from the abbreviated 18-item scale developed by Ryff and Keyes in 1995. The overall internal consistency of the test, as determined by the Cronbach's alpha method, is reported to be approximately 0.55 (11). Zanjani Tabasi assessed the reliability of this questionnaire using the internal consistency method, resulting in Cronbach's alpha coefficients for the subscales ranging between 0.62 and 0.90 (12).

### 3.3.3. Posttraumatic Growth Questionnaire Tedeschi & Calhoun (PTGI)

This self-report tool, designed by Tedeschi and Calhoun in 1996, consists of 21 items aimed at measuring post-traumatic growth. Respondents are asked to rate their experiences on a six-point Likert scale ranging from 0 ("I did not experience any change") to 5 ("I experienced a lot of change"). The questionnaire is organized into five subscales: (1) Relationships with others, (2) new possibilities, (3) personal strength, (4) spiritual changes, and (5) appreciation of life. In the study conducted by Tedeschi and Calhoun, the overall Cronbach's alpha coefficient of the questionnaire was reported as 0.90, with the subscales' reliability ranging from 0.67 to 0.85. Their findings indicated that individuals who had undergone psychological trauma scored higher on average ( $SD = 20.47$ ,  $M = 69.75$ ) compared to those without such experiences (13). In a separate study by Seyed Mahmoudi et al., the questionnaire's overall alpha coefficient was found to be 0.92, demonstrating optimal reliability through the test-retest method ( $r = 0.94$ ) (14).

### 3.4. Statistical Analysis

Statistical indicators and methods, such as mean, standard deviation, correlation coefficients, and regression analyses, were utilized to analyze the data. Furthermore, the significance level for this study was set at  $\alpha = 0.05$ , and data analysis was conducted using SPSS software, version 27.

## 4. Results

To address the first research question regarding the correlation between body image and psychological well-being with post-traumatic growth among women with breast cancer and a history of mastectomy, it was found that there is a significant positive relationship

between psychological well-being and post-traumatic growth in women who have undergone mastectomy surgery for breast cancer ( $P < 0.01$ ). Multiple regression analysis was employed to answer the second research question. The findings from the multiple regression analysis on the influence of body image dimensions on post-traumatic growth indicate that only one percent of the variance in post-traumatic growth can be predicted by the linear combination of Body Control and Body Shame (Table 1).

As illustrated in Table 1, the observed F value ( $F(2,273) = 1.64$ ) does not indicate a significant effect on post-traumatic growth; hence, it can be inferred that the dimensions of body image are not predictors of post-traumatic growth in women with breast cancer who have undergone mastectomy surgery. The details of the analysis are provided in Table 2. According to Table 2, the Beta coefficient for Body Control is 0.080, which is not significant ( $t = 0.127$ ). Similarly, the Beta coefficient for Body Shame is -0.127, which is also not significant ( $t = 1.800$ ). Therefore, there is no significant association between Body Control and Body Shame with post-traumatic growth in this group of women. Furthermore, the results from the multiple regression analysis on the impact of psychological well-being dimensions on post-traumatic growth revealed that 32% of the variance in post-traumatic growth can be predicted by a linear combination of self-acceptance, positive relationships with others, autonomy, environmental mastery, purpose in life, and personal growth (Table 2). The observed F value in Table 1 ( $F = 21.36$ ) signifies a substantial effect on post-traumatic growth; thus, it can be concluded that psychological well-being components, in general, are predictors of post-traumatic growth in women with breast cancer and a history of mastectomy surgery. The regression analysis details in Table 2 show that dimensions of self-acceptance ( $\beta = 0.112$ ), autonomy ( $\beta = 0.31$ ), and purpose in life ( $\beta = 0.316$ ), with consideration of the  $t$  statistic and a 95% confidence level, can predict changes related to post-traumatic growth. In other words, increases in self-acceptance, autonomy, and purpose in life are associated with enhanced post-traumatic growth in these women.

## 5. Discussion

The findings of this study indicate that there is no significant association between body image and its components, including body shame and Body Control, with post-traumatic growth. These results align with the

**Table 1.** Regression Analyses Predicting Post-traumatic Growth from Body Image in Women with Breast Cancer with A History of Mastectomy Surgery

Variables	Sum of Squares	df	Mean Square	F	P	R	R <sup>2</sup>
<b>Post-traumatic growth</b>	1158.96	2	579.48	1.64	0.195	0.109	0.005
	96320.80	273	352.82				
	97479.76	275					
<b>Post-traumatic growth</b>	31464.64	6	5244.10	21.36	0.001	0.568	0.308
	66015.12	269	245.40				
	76.97479	275					

**Table 2.** Influence Coefficients of Body Image and Subjective Well-Being on Post-traumatic Growth

Criterion and Predictor Variables	b	SEM	Beta	t	P-Value
<b>Post-traumatic growth</b>					
Body control	0.311	0.276	0.080	1.127	0.261
Body shame	0.424	0.236	0.127	1.800	0.073
<b>Post-traumatic growth<sup>a</sup></b>					
1	0.949-	0.462	0.112	2.054	0.041
2	-0.655	0.347	0.099	1.887	0.060
3	2.115	0.399	0.310	5.303	0.001
4	-0.128	0.451	0.022	0.404	0.686
5	-1.824	0.336	0.316	5.433	0.001
6	-0.622	0.464	0.075	1.340	0.181

<sup>a</sup>1, self-acceptance; 2, positive relationships; 3, autonomy; 4, mastery of the environment; 5, purposeful life; 6, personal growth.

findings of Izydorczyk et al. (15) and diverge from those of Kiarasi et al. (16). To interpret these findings, it can be suggested that a link between post-traumatic growth and body image might emerge when individuals exhibit high resilience. In other words, if resilience and other positive psychological factors act as mediators between body image and post-traumatic growth, the relationships between the research variables could become significant (17). Conversely, the lack of significant associations in this study could be attributed to various factors. Notably, protective psychological factors such as resilience were not considered, and the study was conducted shortly after the participants underwent mastectomy surgery, possibly preventing them from achieving relative adaptation. Additional influencing factors might include environmental support, particularly from spouses, quality of life, and the participants' level of welfare and well-being, each of which has been highlighted in previous research.

Changes in body image are positively associated with depressive symptoms. Concerns about body image may lead to increased psychological distress in women following mastectomy. However, factors such

as the passage of time and individual protective factors, including resilience, may influence these outcomes. While some women may adapt to the psychological distress and report higher levels of post-traumatic growth, others may experience intensified dissatisfaction with their bodies due to the surgery, exacerbating depression symptoms and leading to decreased adaptation and, consequently, lower levels of post-traumatic growth.

Furthermore, the study findings reveal a positive association between psychological well-being and its components (such as autonomy or independence, purpose in life, and self-acceptance) and post-traumatic growth. Research by Salehi and Desheiri (18) found that post-traumatic growth is positively and significantly related to variables of psychological well-being, mental spirituality, and hope. Additionally, the variables of psychological well-being and existential well-being, along with the component of hopeful outlooks, play a significant role in predicting post-traumatic growth.

Holtmaat et al. (19) demonstrated that post-traumatic growth is predicted by psychological well-being and personal meaning. Components of well-being, such

as interpersonal relationships and having goals and hope, imbue an individual's life with meaning. The belief in having a unique role or purpose is tied to taking responsibility for one's life. The ability to fully realize personal potential contributes to a sense of peace, satisfaction, and transcendence, facilitating the integration of life's adversities and challenges. Individuals with high psychological well-being are likely to maintain positive relationships with others, have a positive self-view, possess a sense of purpose, and exhibit resilience against difficulties. Since these attributes are integral to post-traumatic growth, psychological well-being can predict post-traumatic growth. Other commonalities between psychological well-being and post-traumatic growth include self-confidence and high self-esteem, which encourage engagement in innovative and challenging endeavors. People with high psychological well-being are often well-regarded by their family, friends, and peers, leading them to embrace challenging activities. As a result, following any adversity or trauma, they are poised for growth and excellence through the acquisition of new experiences, knowledge, and relationships.

Given that this study was conducted shortly after mastectomy surgery, future research is recommended to consider the time elapsed and overall adjustment. The proximity of the study to the treatment process could influence the research outcomes and findings.

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### Footnotes

**Authors' Contribution:** Study concept and design: S.A and M.T. and E.A.; Acquisition of data: S.A; Analysis and interpretation of data: S.A.; Drafting of the manuscript: S.A and M.T.; Critical revision of the manuscript for important intellectual content: M.T. and E.A.

**Conflict of Interests:** We have no conflicts of interest to disclose.

**Ethical Approval:** This study was approved by the Ethics Committee of Islamic Azad University, Central Tehran Branch, Iran (Code: [IR.IAU.CTB.REC.1401.141](#)).

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**Informed Consent:** All respondents were first asked to read an informed consent document and accept the terms. The participants answered the questionnaires anonymously and were free to withdraw from the survey at any time before confirming the final submission at the end of the questionnaire.

### References

- Burke EE, Kodumudi K, Ramamoorthi G, Czerniecki BJ. Vaccine Therapies for Breast Cancer. *Surg Oncol Clin N Am*. 2019;**28**(3):353-67. [PubMed ID: 31079793]. <https://doi.org/10.1016/j.soc.2019.02.004>.
- Wapnir IL, Price KN, Anderson SJ, Robidoux A, Martín M, Nortier JWR, et al. Efficacy of Chemotherapy for ER-Negative and ER-Positive Isolated Locoregional Recurrence of Breast Cancer: Final Analysis of the CALOR Trial. *J Clin Oncol*. 2018;**36**(11):1073-9. [PubMed ID: 29443653]. [PubMed Central ID: [PMC5891132](#)]. <https://doi.org/10.1200/JCO.2017.76.5719>.
- DeSantis CE, Ma J, Goding Sauer A, Newman LA, Jemal A. Breast cancer statistics, 2017, racial disparity in mortality by state. *CA Cancer J Clin*. 2017;**67**(6):439-48. [PubMed ID: 28972651]. <https://doi.org/10.3322/caac.21412>.
- Thakur M, Sharma R, Mishra A, Gupta B. Body image disturbances among breast cancer survivors: A narrative review of prevalence and correlates. *Cancer Research, Statistics, and Treatment*. 2022;**5**(1):90. <https://doi.org/10.4103/crst.crst.170.21>.
- Browall M, Kenne Sarenmalm E, Persson LO, Wengstrom Y, Gaston-Johansson F. Patient-reported stressful events and coping strategies in post-menopausal women with breast cancer. *Eur J Cancer Care (Engl)*. 2016;**25**(2):324-33. [PubMed ID: 25690645]. <https://doi.org/10.1111/ecc.12294>.
- Ochoa Arnedo C, Sanchez N, Sumalla EC, Casellas-Grau A. Stress and Growth in Cancer: Mechanisms and Psychotherapeutic Interventions to Facilitate a Constructive Balance. *Front Psychol*. 2019;**10**:177. [PubMed ID: 30778323]. [PubMed Central ID: [PMC6369350](#)]. <https://doi.org/10.3389/fpsyg.2019.00177>.
- Calhoun LG, Tedeschi RG. AUTHORS' RESPONSE: "The Foundations of Posttraumatic Growth: New Considerations". *Psychol Inq*. 2004;**15**(1):93-102. <https://doi.org/10.1207/s15327965plii501.03>.
- McKinley NM, Hyde JS. The Objectified Body Consciousness Scale. *Psychology of Women Quarterly*. 2016;**20**(2):181-215. <https://doi.org/10.1111/j.1471-6402.1996.tb00467.x>.
- Norozi A, Maleki A, Parsamehr M, Ghasemi H. [Investigating the effect of body image and body management on women's sports participation in Ilam province]. *J Appl Sociol*. 2018;**29**(4):99-122. Persian. <https://doi.org/10.22108/jas.2018.104379.1117>.
- Ryff CD. Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *J Pers Soc Psychol*. 1989;**57**(6):1069-81. <https://doi.org/10.1037/0022-3514.57.6.1069>.
- Ryff CD, Keyes CL. The structure of psychological well-being revisited. *J Pers Soc Psychol*. 1995;**69**(4):719-27. [PubMed ID: 7473027]. <https://doi.org/10.1037//0022-3514.69.4.719>.
- Zanjani Tabasi R. [Preliminary standardization of psychological well-being test] [dissertation]. Tehran, Iran: University of Tehran; 2004.
- Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: measuring the positive legacy of trauma. *J Trauma Stress*.

- 1996;**9**(3):455-71. [PubMed ID: 8827649]. <https://doi.org/10.1007/BF02103658>.
14. Seyed Mahmoudi SJ, Rahimi CH, Mohammadi Jaber N. [Psychometric Properties of Posttraumatic Growth Inventory in an Iranian Sample]. *Psychological Models and Methods*. 2013;**3**(vol 3/ no 12):93-108. Persian.
  15. Izydorczyk B, Kwapniewska A, Lizinczyk S, Sitnik-Warchulska K. Psychological Resilience as a Protective Factor for the Body Image in Post-Mastectomy Women with Breast Cancer. *Int J Environ Res Public Health*. 2018;**15**(6). [PubMed ID: 29874874]. [PubMed Central ID: PMC6025341]. <https://doi.org/10.3390/ijerph15061181>.
  16. Kiarasi Z, Emadian SO, Hassanzadeh R. [Comparison of the Efficacy of Compassion-Focused Therapy and Logotherapy on Death Anxiety in Females with Breast Cancer]. *Rooyesh-e-Ravanshenasi Journal*. 2021;**10**(8):185-96. Persian.
  17. Pila E, Sabiston CM, Taylor VH, Arbour-Nicitopoulos K. "The Weight Is Even Worse Than the Cancer": Exploring Weight Preoccupation in Women Treated for Breast Cancer. *Qual Health Res*. 2018;**28**(8):1354-65. [PubMed ID: 29683062]. <https://doi.org/10.1177/1049732318770403>.
  18. Salehi R, Dehshiri G. [Post-traumatic growth in cancer patients: the role of psychological well-being, spiritual well-being, subjective well-being, and hope]. *Journal title*. 2018;**12**(2):1-13. Persian. <https://doi.org/10.52547/rph.12.2.1>.
  19. Holtmaat K, van der Spek N, Lissenberg-Witte BI, Cuijpers P, Verdonck-de Leeuw IM. Positive mental health among cancer survivors: overlap in psychological well-being, personal meaning, and posttraumatic growth. *Support Care Cancer*. 2019;**27**(2):443-50. [PubMed ID: 29959577]. <https://doi.org/10.1007/s00520-018-4325-8>.