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The relationship between surgical treatment (mastectomy vs. breast conserving treatment) and body acceptance, manifesting femininity and experiencing an intimate relation with a partner in breast cancer patients

Marcin J. Jabłoński[1], Joanna Streb[2], Beata Mirucka[3], Agnieszka J. Słowik[2], Robert Jach[4]

[1] Institute of Psychology, Faculty of Philosophy, Jesuit University Ignatianum in Krakow
[2] Department of Oncology, Jagiellonian University Medical College
[3] Department of General and Clinical Psychology, Faculty of Pedagogy and Psychology, University of Bialystok
[4] Department of Gynecologic Oncology, Jagiellonian University Medical College

Summary

Aim. The aim of the study was to verify the following hypotheses: (1) Do women who have undergone surgical treatment for breast cancer differ from healthy women in the way they experience their body (body self)?; (2) Does the surgical technique (mastectomy vs. breast conserving treatment) differentiate the group in terms of experiencing their body after the surgery?; (3) Do demographic variables, BMI, breast size and the evaluation of the scar differentiate the group in terms of experiencing their body self after the surgery?

Method. In order to gain some insight into how women experience their body after breast surgery, the Body Self Questionnaire designed in 2005 by Beata Mirucka was used. The analysis included data from 50 women who completed surveys. This data were compared to the control group. Data were analyzed using IBM SPSS Statistics package, version 24, with a one-way analysis of variance (ANOVA).

Results. Statistically significant differences were obtained between the entire group of women after breast surgery (mastectomy and BCT, jointly) and the control group of healthy women in three aspects of the Body Self Questionnaire: body acceptance, manifesting femininity and experiencing an intimate relation with a partner.

Conclusions. Surgical treatment of breast cancer is significantly associated with the way patients experience their body, which is expressed in three dimensions of the body self in treated women.

Key words: body self, breast cancer, mastectomy, self-acceptance

Introduction

On a global scale, breast cancer is the second most common cancer with more than 1 million of new cases per year [1, 2]. A similar frequency rate of new cases occurs in the USA [3]. In Poland, breast cancer is the most frequent malignant cancer in women and, according to the Polish National Cancer Registry data of December 2014, the number of new cases has exceeded 16,500 and has increased in the past two decades by about 10,000. After lung cancer, breast cancer is also the second most common cancer-related cause of death among Polish women (approximately 5,500 deaths per year) [4]. Recent decades show a significant progress in the treatment of breast cancer through early diagnosis, the application of systemic and hormonal treatment methods, and breast-conserving surgical techniques. Still, surgical treatment of breast cancer entails physical changes that may have adverse effects on the self-confidence and intimate relationships in women [1, 2]. This is due to the fact that surgical treatment of breast cancer, especially mastectomy, concerns a very special area of the body in terms of physiology, esthetics, emotions and symbols. Therefore, invasive treatment can affect the patient's body image, mood and quality of life [2, 5–13]. The issue of body image is of potentially high importance for female patients operated for oncological reasons [3].

The research carried out by Polish authors indicates that 32% of respondents after mastectomy can feel less confident about their body and their self-esteem may decrease [14, 15]. Also foreign publications widely discuss the image of the body in women who obtained surgical treatment for breast cancer. The tools created to investigate this issue [16–20] include special surveys covering a comprehensive description of the body image along with its affective, behavioral, cognitive, functional, sexual, and emotional aspects [18, 21–24]. Usually, they refer to a classical understanding of the image of the body as a phenomenon which is shaped based on the integration processes of emotional, perceptive, and socio-cultural standards of beauty [25], attributing less importance to the subjective aspect of experiencing one's body [26]. The image of the body, besides the body schema, is the main mental representation of the "body self" responsible for experiencing the body as a source of corporeal experiences building up to more complex structures, such as feelings and body states, developing the final sense of a subjective body**,** which is the body self (Self) [27–30]. The subjective perspective of the body self is a way of experiencing oneself in the body together with one's sexuality, whereas the objective perspective constitutes a collection of mental representations of the body. In subjects undergoing proper development processes these two dimensions of the body self create an integrated system, which is one of the most fundamental systems of the Self [31–34].

The concept of the body self was analyses in groups of women suffering from eating disorders [35–37], women staying in attachment relationships or suffering from trauma [38], and in the context of anxiety disorders in women with the ACoA trauma syndrome [39]. The present study analyses the body self of women with breast cancer. We have made an attempt to address the following research questions:

(1) Do women who have undergone surgical treatment for breast cancer differ substantially from healthy women in the way they experience their body (body self)?
(2) Does the nature of the surgical technique (breast conserving therapy – BCT vs. mastectomy), and thus the extent of treatment (breast conserving surgery vs. removal of a breast) differentiate the tested group of women with breast cancer in terms of the body self?
(3) Do demographic variables: BMI, breast size from before the surgery and the subjective evaluation of the appearance of the post-operative scar differentiate the tested group of women with breast cancer in terms of experiencing their body after the operation?

The presented results are part of a larger project carried out by the Department of Gynecologic Oncology, Jagiellonian University Medical College, Krakow, Poland and the Department of Oncology, Jagiellonian University Medical College, Krakow, Poland under the common title: "Subiektywny obraz ciała – «Ja cielesne», a poziom satysfakcji seksualnej u kobiet poddanych zabiegom ginekologicznym i onkologicznym" ("Subjective image of the body – *Body self* and the level of sexual satisfaction in women undergoing gynecological and oncological treatment"). The study was approved by the Bioethics Commission of the Jagiellonian University KBET/96/B/2013.

Research method

The conducted study was a cross-sectional survey. It was carried out in the Department of Oncology between March and December 2015. The inclusion criteria were as follows: women aged 18 to 65 years with an early breast cancer diagnosis, after primary surgery of nipple tumor due to invasive cancer (mastectomy or breast conserving treatment), without the characteristics of generalized cancer, who have agreed to take part in the survey and were mentally able to answer the questions of the *J-C questionnaire*, scoring between 0 and 1 points in the ECOG (Eastern Cooperative Oncology Group) performance status. The exclusion criteria were as follows: patients not meeting the age criterion; patients with stage IV breast cancer where cancer has metastasized and inoperable patients (e.g., due to a poor general condition, inflammatory breast cancer, etc.); patients admitted to the unit but unwilling to participate in the survey; patients mentally unable to complete the *J-C questionnaire* unassisted, as well as patients scoring between 2 and 5 points in the ECOG performance status.

In order to gain some insight into how women experience their body after breast surgery, the *J-C Questionnaire* (*Body-Self Questionnaire*) was used. The survey, designed by Beata Mirucka [34], comprises 41 statements assigned to four scales identified on the basis of a factor analysis. The A Scale identifies the primary aspect of the body self, which is the acceptance of one's body defined by the level of women's

satisfaction with their appearance and current body shape. High scores on this scale indicate a high level of acceptance of the subject's own body, appearance and body shape. Low results indicate serious difficulties in the acceptance of the subject's body as well as treating the body as a burden or experiencing – due to this fact – problems in everyday life. Indirectly, they also suggest that the patient experiences disintegration of the self and views her body as remaining in opposition to the Self and being a source of negative feelings. The M Scale describes the way of experiencing oneself in an intimate, sexual relation with a partner. High scores on this scale are indicative of positive experiences in sensual and emotional relations with people of the opposite sex and the ability to experience satisfaction and pleasure coming from a physical intimacy with the other person while maintaining one's own distinctness (sense of one's self). Low results may suggest experiencing anxiety and tension in intimate situations. They also could account for a tendency to avoid such situations. The K Scale concerns the acceptance and stressing (manifesting) one's femininity. It allows to determine to what extent the fact of being a woman is a source of positive experiences and motivation to further exploration of womanhood. High results suggest a high level of acceptance of oneself as a woman and willingness to accentuate femininity with clothes or make-up. Low results reveal difficulties in identifying and showing femininity, experiencing anxiety and tension which result in hiding the attributes of femininity and, finally, in the rejection of femininity. The E Scale describes a woman's attitude to food intake and weight maintenance. Low results indicate difficulties in controlling the quantity of consumed food along with excessive attention attached to weight maintenance and the followed diet. They suggest that a given woman focuses on matters related to her diet and weight, and most of the time is preoccupied with controlling herself with respect to "what, where and when I can eat". Persons with high results on this scale treat eating food adequately, as one of the many equivalent aspects of daily living. Eating and controlling one's food intake are not treated as problematic. People satisfied with their weight do not feel the need to stick to particular diets, to fast or to do extensive weight-loss-oriented workouts. If they do sports, they do so to maintain a good physical condition, rather than in order to get rid of unnecessary calories.

These four aspects constitute the basis of the overall description of the body self, which comprises the results of the four scales of the questionnaire: A Scale – Body acceptance, M Scale – Experiencing intimacy with the opposite sex, K Scale – Manifesting femininity, and E scale – Attitude to food and body weight. The questionnaire has a high criterion validity which is 0.723 for the tool as a whole, whereas for particular scales it takes the following values: A Scale = 0.78, M Scale = 0.58 K Scale = 0.29, and E Scale = 0.43. Cronbach's alpha for the whole scale is 0.93 and for the individual scales it is as follows: A Scale $\alpha_A = 0.89$, M Scale $\alpha_M = 0.88$, E Scale $\alpha_E = 0.83$, and K Scale $\alpha_K = 0.74$. Split half reliability, assessed by the Guttman Split-half and the Unequal-length Spearman-Brown, is uniform and equals to 0.83; for the first part it reaches 0.90 and for the second 0.88 [36].

Statistical analysis

Data were analyzed using an IBM SPSS Statistics package, version 24, with a one-way analysis of variance (ANOVA).

A description of the group of women with breast cancer and the control group

From among the pre-qualified women, 11 patients failed to meet the required ECOG performance status, 6 had IV stage cancer, 5 did not agree to take part in the survey, while 8 patients failed to submit questionnaires despite having expressed their consent to participate in the study. Eventually, the analysis included data collected from 50 women who completed surveys. The youngest patient was 32 years old and the oldest was 65. The majority of respondents were professionally active women, inhabitants of big cities. Women with secondary education slightly outnumbered other groups. The patients' BMI (Body Mass Index) was calculated and other diseases apart from cancer were recorded. Table 1 presents detailed characteristics of the tested group split into subsets of women after mastectomy and breast conserving treatments (BCT).

Table 1. **The characteristics of the two groups: women after BCT and women after mastectomy**

Variables	BCT N = 26	Mastectomy N = 24
Age		
Mean	51.54	52.17
Standard deviation	9.09	9.14
Minimum	33	32
Maximum	65	64
Place of residence		
Large city (above 100 thousand inhabitants)	14 (53.8%)	12 (50%)
Small town (up to 100 thousand inhabitants)	4 (15.4%)	4 (16.7%)
Village	8 (30.8%)	8 (33.3%)
Education		
Higher	8 (30.8%)	8 (33.3%)
Secondary	10 (38.5%)	10 (41.7%)
Vocational	7 (26.9%)	5 (20.8%)
Primary	1 (3.8%)	1 (4.2%)
Other diseases		
None	11 (42.3%)	13 (54.2%)

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Circulatory disorders	10 (38.5%)	7 (29.2%)
Metabolic disorders	1 (3.8%)	1 (4.2%)
Endocrine disorders	2 (7.7%)	2 (8.3%)
Motor organ disorders	1 (3.8%)	0
Nervous system disorders	1 (3.8%)	1 (4.2%)
Professional activity		
Yes	16 (61.5%)	20 (83.3%)
No	10 (38.5%)	4 (16.7%)
BMI		
Mean	28.06	26.32
Standard deviation	4.82	5.78

The bra cup size was registered and a subjective evaluation of the post-operative scar was recorded on the scale from 0 to 3 (0 – good; 1 – average; 2 – poor; 3 – neutral). Table 2 presents the characteristics of a control group created for the study against the group of women after breast surgery.

Table 2. **A comparison of the treated group and the control group in terms of demographic data**

Variables	Women after breast surgery N = 50	Control group N = 54
Age		
Mean	51.54	48.72
Standard deviation	9.03	8.91
Minimum	32	32
Maximum	65	65
Place of residence		
Large city (above 100 thousand inhabitants)	26 (52%)	27 (50%)
Small town (up to 100 thousand inhabitants)	8 (16%)	9 (16.7%)
Village	16 (32%)	18 (33.3%)
Education		
Higher	16 (32%)	12 (40.7%)
Secondary	20 (40%)	24 (44.4%)
Vocational	12 (24%)	6 (11.1%)
Primary	2 (4%)	2 (3.7%)

Results

Statistically significant differences were obtained between the entire group of women after breast surgery (mastectomy and BCT, jointly) and the control group of healthy women in three aspects of the *J-C questionnaire*: Body acceptance, Manifesting femininity and Experiencing intimacy. Patients after breast surgeries, regardless of the extent of their surgery, showed significantly lower results in the two categories of the *J-C questionnaire*: Body acceptance and Experiencing intimacy. A substantially higher mean value was recorded for the category representing Manifesting femininity in favor of treated patients when compared with the control group of healthy women. No significant statistical difference was observed between the treated group and the control group in terms of attitude to food and body weight (see Table 3).

Table 3. **A comparison of the group of women after breast surgery and the control group in terms of the body self: ANOVA**

Body self	Group of women after breast surgery N = 50				Control group N = 54				Significance of differences	Effect size
	M	SD	Min.	Max.	M	SD	Min.	Max.	F(1, 102)	η^2
Body acceptance	40.97	11.38	6	60	55.83	14.52	21	78	33.40***	0.25
Manifesting femininity	32.97	10,46	12	60	19.20	6.17	4	31	67.93***	0.40
Experiencing intimacy	43.37	11.16	17	60	52.83	12.85	19	72	15.97***	0.13
Attitude to food and weight	40.30	10.36	23	60	39.57	9.63	21	56	0.14	-

M – arithmetic mean; SD – standard deviation

No differences were revealed between women after mastectomy and women after breast conserving treatment (BCT), neither in the summary result, nor in the particular categories of the *J-C questionnaire* (see Table 4).

Table 4. **A comparison of the groups: BCT and after mastectomy in terms of the body self: ANOVA**

Body self aspects	Groups		Significance of differences	
	BCT N = 26	Mastectomy N = 24	F(1; 48)	p
	M (SD)			
Body acceptance	41.82 (10.81)	40.83 (12.19)	0.01	0.94
Manifesting femininity	33.14 (9.78)	32.78 (11.36)	0.01	0.90

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Experiencing intimacy	42.92 (10.75)	43.85 (11.80)	0.09	0.77
Attitude to food	38.77 (10.53)	41.96 (10.14)	1.19	0.28
Body self	162.08 (34.24)	167.33 (38.08)	0.17	0.68

M – arithmetic mean; SD – standard deviation

No links were observed between demographic differences, BMI, breast size before the surgery or the subjective evaluation of the scar esthetics after surgical treatment and the results of the *J-C questionnaire*.

Discussion

The research on the psychological context and psycho-social consequences of breast surgeries in women with a cancer diagnosis has a long history. However, in view of the continued improvement of surgical techniques as well as changes in the understanding of psychological mechanisms affecting the quality of life and performance in women with breast cancer, the analysis of the above-mentioned issues sustains a steady interest from researchers [3, 5, 18, 40]. Studies of this kind include works dedicated to the analysis of the theoretical construct of the body image as such [41–43], the assessment of the relationship between the body image and the quality of life [44–46], the feeling of happiness [47], the progression of cancer [9], sexuality [48], quality of the relationship with the partner [49, 50], and social performance of women after breast surgeries [51, 52]. It is worth mentioning that although over the years a number of concepts of the body image were created, the term has not yet been defined for the purposes of the scientific research [43]. The authors of this study identify the strongest with the concept of the body image defined as "the perception, thoughts and feelings of the person about their body" [33, 53]. In the context of cancer, the body image is often used to refer to psychological aspects such as sexuality, self-assessment and stigma. The way a woman experiences her body is subjective and often is the result of her thoughts, perceptions and feelings [43]. Furthermore, considerations on the importance of body image in oncological patients are not only theoretical because, as Pikler and Winterowd [9] claim, those women with breast cancer who describe their body image more favorably cope better with the course of the illness. In addition to this, the area of female breasts is traditionally associated with psychosocial issues and such attributes as: sexual identity, sexuality, maternity, attractiveness, and femininity [9, 54]. Montazeri [44] demonstrated that the sexual performance in women with breast cancer is an area which requires more attention, especially in younger cancer survivors. The author also stressed the fact that younger women with breast cancer may require psychosocial interventions which would help them deal with problems with relationships, menopausal problems, sexual performance and body image.

The results we have obtained have not revealed distinguishable differences in the body image in women depending on the extent of the surgical treatment. This result

differs from the observation of other authors who suggested that women who have undergone BCT have a better body image than women treated with mastectomy [48]. Despite the lack of differences in the total result of the *J-C questionnaire*, in the group of women who have undergone surgical treatment, regardless of the type of surgery, a definitely lower result in the category of body acceptance (A scale) was observed when compared with the control group. Low results in this category indicate a low acceptance of the body in treated women, a critical evaluation of their appearance and body shape as well as experiencing problems in everyday performance due to their body. Indirectly, the results could account for the ego-dystonic nature of thoughts about their body, which may trigger negative emotions. In this regard, our result is similar to current observations of other researchers carrying out studies in groups of women with breast cancer who describe symptoms of constant anxiety and prolonged distress due to the changes to the body image and body stigma associated with the oncological treatment [41, 55, 56]. When a woman cares a great deal about her appearance, the treatment of cancer may considerably increase the discrepancy between the expected and the actual appearance. The prolonged period of this discrepancy may manifest itself by constant tension and distress [57–59]. Our next observation in the group of treated women, regardless of the type of surgical operation, concerns the fact of recording significantly higher results in the category representing Manifesting femininity (K scale) in comparison with healthy women from the control group. High results in this category suggest a high level of acceptance of the self as a woman and a great involvement in manifesting femininity with the help of clothes or make-up. Taking into account the fact that the esthetics of the scar and the extent of the surgery (mastectomy vs. BCT) do not differentiate the treated group in terms of the intensity in celebrating femininity, the obtained result may indicate a deeper intrapsychological level of this experience, as well as an attempt to compensate for the loss or the mutilation of the breast by manifesting other feminine attributes. Our results point to a trend which stands in opposition to the work of other authors. For instance, Koçan and Gürsoy [60] carried out an interesting qualitative study which depicted cases of women after mastectomy who, when asked to describe their appearance, were more willing to use negative rather than positive statements about their appearance. According to the authors of the article mentioned above, the removal of the breast reduces women's self-esteem and may result in attempts to hide this loss by modifying the way they dress. The majority of participants from this study declared that they wanted to hide the loss of the breast by modifying the way they dressed and by wearing loose-fitting clothes. As a result, they achieved lower results in the area of manifesting femininity [60].

Another observation concerns experiencing intimate relationships with partners. The women examined for the purpose of this study, regardless of the type of the surgery, exhibited lower values in the area of experiencing intimacy (M scale) than women from the control group. Lower results in this category may speak for fear and tension in intimate situations with the opposite sex. They also account for a tendency to avoid such situations. As other authors suggest [50], many single

women having undergone breast cancer treatment report difficulties in developing romantic relationships with men. These women also exhibit a high level of fear when arranging to go out with someone new along with the dissatisfaction with their body and low self-esteem in the area of interpersonal competence. Koçan and Gürsoy [60], in the qualitative study of women after mastectomy, also observed that some patients declared a significant deterioration in intimate relationships with their husbands and the fact of avoiding social interactions. Thus, one may conclude that the results we have come up with using the *J-C questionnaire* are consistent with the data presented in the cited studies.

Another aspect of the body self analyzed in our study was the attitude to food and body weight. We have not observed significant differences between the treated group and the control group for this variable. No significant relations were shown between the initial BMI of the treated women and their body image. These results should be seen against the background of other authors' reports discussing long-term patterns of body weight increase after cancer treatment [61] and treating the dissatisfaction with the weight gain as an important factor in the increase in mental suffering in women post mastectomy [45].

Conclusions

1. Surgical treatment of breast cancer is significantly connected to the way patients experience their body, which is expressed in three dimensions of the body self in surveyed women.
2. Both after mastectomy as well as after BCT there is a similar risk of low self-acceptance and deterioration in experiencing intimate relationships with the partner.
3. Women treated due to breast cancer reveal higher values in the category of manifesting femininity, which may reflect the compensation mechanism for a lost or mutilated attribute of womanhood (= breast) and an attempt at reconstructing one's self-esteem.
4. No changes were observed in the fourth aspect of the body self: attitude to food and body weight in women after surgical treatment of breast cancer due to oncological reasons.

The authors declare no conflict of interest.

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Address: Marcin J. Jabłoński
Institute of Psychology, Faculty of Philosophy, Jesuit University Ignatianum in Krakow
31-501 Kraków, Mikołaja Kopernika Street 26
e-mail: marcinjablonski@interia.pl