Pomeranian J Life Sci 2020;66(2):55-60 doi: 10.21164/pomjlifesci.698

Evaluation of women's quality of life after breast reconstruction surgery*

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ABSTRACT

Introduction: Breast cancer is the most common malignancy among women, and is usually treated surgically. Mastectomy has a great influence on the mental and physical condition of women. Breast reconstruction offers them a chance to improve their quality of life (QOL) and self-image.

The main aim of the study was to gain knowledge about the impact of breast reconstruction on the QOL of women following mastectomy, and an analysis of the QOL after breast reconstruction, in the context of prosthesis effect assessment.

Materials and methods: The study comprised 100 women following breast reconstructive surgery involved in 1 of the 7 "Amazon Clubs" (post-mastectomy women's associations) in the West Pomeranian Voivodeship, northwest Poland. The study was based on the author's questionnaire, and a shortened standardized version of the World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire. Statistical calculations were performed with StatSoft Statistica v10 software, adopting a significance level of $p < 0.05$.

Results: The women who decided to have breast reconstruction surgery, noticed improved well-being (67%) and experienced an increase in self-confidence (61%). The vast majority of the patients surveyed (93%) were satisfied with the effect of the prosthesis. Statistically significant differences in QOL were observed in the following spheres: rest and sleep, work capacity, negative feelings, and financial resources ($p < 0.05$) in relation to the evaluation of the prosthesis effect.

Conclusions: 1. Breast reconstruction has a positive influence on improvements in well-being, increasing self-esteem, and the assessment of a more attractive appearance in women of all ages. 2. Breast reconstruction surgery has a positive impact on QOL and health in the physical, psychological, and environmental domains, especially in the women who are satisfied with the effects of the surgery. 3. A negative assessment of the breast reconstruction effect has an adverse influence on QOL. Identifying the factors affecting dissatisfaction with the post-operative outcome is crucial for a complete understanding of the subject, and for implementing measures aimed at improving the QOL of these women.

Keywords: quality of life; mastectomy; breast cancer; breast reconstruction; breast surgery.

INTRODUCTION

Quality of life (QOL) is an interdisciplinary and multidimensional term, and thus difficult to define and evaluate in a clear and unambiguous way. While in everyday life we can understand it rather intuitively, science requires that the term be clear and explicit, to make it easier to exchange experiences, and interpret and compare research results. The general concept of QOL reflects such attributes as the functioning environment, as well as physical, moral, psychological and social aspects. In medical sciences, we also have to deal with health-related quality of life (HRQOL), which is the basis for assessing the influence of illnesses, disabilities and disorders on a patient's wellbeing. A patient's impressions about the various aspects of their everyday functioning constitute an important parameter for planning interdisciplinary and holistic care. A special form of care should be provided to patients who suffer from breast cancer, and whose only form of support frequently comes from other women, those associated with the "Amazon Clubs" (post-mastectomy women's associations), who share similar experiences.

An important point to remember is that breast cancer is the most frequently occurring malignancy in women, and the incidence rates are constantly rising. It is estimated that each year there are approx. 12,000 new breast cancer cases among Polish women [1]. It is a chronic disease that is usually treated surgically. Although more and more often the patients undergo breast conserving therapies (BCT), in certain cases breast amputation is still a necessary procedure. Unfortunately, breast loss has a considerable influence on a woman's mental and physical state, regardless of her age. Breast reconstruction surgery, which more and more frequently is becoming an integral part of the therapy process, increases the chances of improving the comfort of life and changing the way the woman perceives herself.

* This article contains, with the author's consent, fragments of a Master's thesis prepared by Ewelina Kolak, M.Sc., under the supervision of Dorota Branecka-Woźniak, D.H.Sc. at the Department of Gynecology and Reproductive Health, Pomeranian Medical University in Szczecin.

The main goal of the study was, therefore, to collect information about the impact of breast reconstruction surgery on QOL in post-mastectomy women, and specifically evaluating the effect of a breast prosthesis.

MATERIALS AND METHODS

The study included 100 women who had undergone breast reconstruction surgery and who were associated with any of the 7 "Amazon Clubs" located in the West Pomeranian Region in the northwest of Poland. The study was conducted between June and September 2015 using a diagnostic survey questionnaire. Participation in the study was voluntary, anonymous and with the patient's informed verbal consent. The study was performed using the following tools:

- a proprietary questionnaire of 21 questions about basic socio-demographic data and the patient's subjective impressions following breast reconstruction surgery,
- a WHOQOL-BREF (the World Health Organization Quality of Life-BREF) questionnaire consisting of 26 questions grouped into 4 domains (physical health, psychological, social relationships, and environment), representing functioning at the emotional, physical and social levels.

Statistical computations were carried out using StatSoft Statistica v10 software, adopting a significance level $p < 0.05$. Statistical inference was performed on the basis of a Shapiro–Wilk test, Mann–Whitney U test, Kruskal–Wallis test, and a Pearson's $\chi 2$ independence test. Spearman's rank correlation coefficient, Yates correction, Fisher's exact test, and Cramer's V statistic were also used to carry out statistical analysis.

RESULTS

The mean age of the women surveyed was 54. The majority of the patients had undergone a single mastectomy (84%), and the remainder a double mastectomy (16%). Forty-one percent of the women said it was been 1–5 years since they had been operated on, just over a quarter said the surgery had been 5–10 years before, and a small number (1%) said the surgery had been a year before. Most of the respondents (57%) said they had decided to undergo breast reconstruction surgery between 1–5 years after having the mastectomy. Only 5 women had breast reconstructive surgery 10 years after mastectomy. Sixty-two percent of the women said they had undergone breast reconstruction surgery 1–5 years before the survey (Tab. 1 and 2).

TABLE 1. Age of women participating in the study

Variable	n	M (±SD)	Min–Max	Q1–Q3	Me	W	p
Age	100	54.39 (±10.3)	30–75	48–62	54.5	0.984	0.287

n – number of valid cases; M ±SD – arithmetic mean ±standard deviation; Min–Max – minimum–maximum; Q1–Q3 – lower-upper quartile; Me – median; W – the Shapiro–Wilk test result; p – calculated test probability

TABLE 2. General information about the women participating in the study

Information about the sample group		Number and percentage of women	
		n	%
Place of residence	village	16	16
	city	84	84
	total	100	100
Education	primary/lower secondary education	2	2
	vocational	11	11
	upper secondary education	55	55
	tertiary education	32	32
	total	100	100
Marital status	single	19	19
	married	81	81
	total	100	100
Children	yes	86	86
	no	14	14
	total	100	100
Professional activity	yes	45	45
	no	55	55
	total	100	100
Mastectomy	single	84	84
	double	16	16
	total	100	100
Time elapsed since mastectomy	<1 year	5	5
	1 year	1	10
	1–5 years	41	41
	5–10 years	28	28
	>10 years	25	25
	total	100	100
Time elapsed between mastectomy and decision to undergo breast reconstruction surgery	<1 year after surgery	25	25
	1–5 years after surgery	57	57
	5–10 years after surgery	13	13
	>10 years after surgery	5	5
	total	100	100
Time elapsed since breast reconstruction surgery	<1 year	11	11
	1 year	7	7
	1–5 years	62	62
	5–10 years	14	14
	>10 years	6	6
	total	100	100

n – number of valid cases

The majority of the women (67%) said they had experienced an improvement in their well-being and an increase in self-confidence (61%). Half of the women (50%) said that the breast reconstruction had resulted in a more attractive appearance, and 31% reported an improvement in the relationship with their partner. A small number of the women (6%) said that the surgery had not changed anything in their life. Detailed results are shown in Table 3.

TABLE 3. Changes in life resulting from the breast reconstruction

Changes in life resulting from breast reconstruction		The surgery has not changed anything	Better well-being	More attractive appearance	Better relationship with the partner	Higher self-confidence	Other
Yes	n	6	67	50	31	61	2
	%	6	67	50	31	61	2
No	n	94	33	50	69	39	98
	%	94	33	50	69	39	98
Total	n	100	100	100	100	100	100
	%	100	100	100	100	100	100

n – number of valid cases

The vast majority of the women (93%) said that they felt good with the prosthesis after the breast reconstruction. Some of the women (7%) said that they could not accept it. The results are shown in Table 4.

The analysis of the QOL in relation to the prosthesis effect assessment revealed an occurrence of statistically significant differences in the women with breast reconstruction in the following facets: sleep and rest, work capacity, negative feelings, and financial resources ($p < 0.05$). Detailed results are shown in Table 5.

TABLE 4. Prosthesis effect assessment

Prosthesis effect assessment	n	%
I feel good with it	93	93
I can't accept it	7	7
Total	100	100

n – number of valid cases

TABLE 5. Quality of life in relation to prosthesis effect assessment

Domain	Facet	Prosthesis effect assessment	
		Z	p
Physical health	activities in daily life	0.642	0.521
	dependence on medicinal substances and medical aids	0.973	0.331
	energy and fatigue	1.060	0.289
	mobility	0.378	0.705
	pain and discomfort	0.500	0.617
	sleep and rest	2.249	<0.024
	work capacity	2.236	<0.025
Psychological	bodily image and appearance	1.067	0.286
	negative feelings	2.135	<0.033
	positive feelings	1.912	0.056
	self-esteem	0.757	0.449
	spirituality/religion/personal beliefs	1.520	0.129
	thinking, learning, memory, and concentration	0.966	0.334
Social relationships	personal relationships	-0.344	0.730
	social support	0.574	0.566
	sexual activity	1.878	0.060
Environment	financial resources	1.979	<0.048
	freedom, physical safety, and security	1.473	0.141
	health and social care: accessibility and quality	0.770	0.441
	home environment	0.122	0.903
	opportunities for acquiring new information and skills	1.844	0.065
	participation in and opportunities for recreation/leisure activities	0.763	0.445
	physical environment (pollution/noise/traffic/climate)	0.500	0.617
	transport	0.034	0.973

Z – the Mann–Whitney U test result; p – calculated test probability

The women who said they had accepted the prosthesis and felt good with it had better rest and sleep than the women who said they had not accepted it and who assessed their quality of rest and sleep as average (Fig. 1).

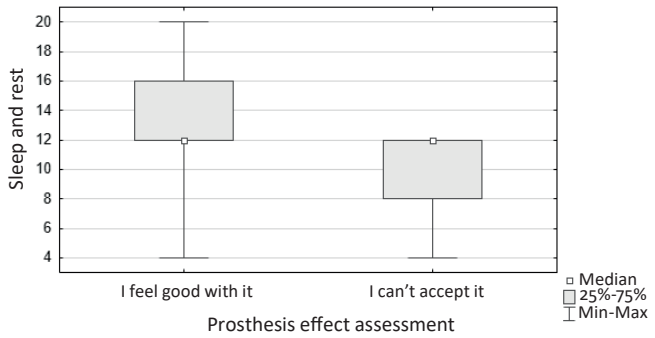

FIGURE 1. Rest and sleep in relation to the prosthesis effect

The study showed a considerably higher level of work capacity in the women who felt good with their prosthesis compared to the women who could not accept it (Fig. 2).

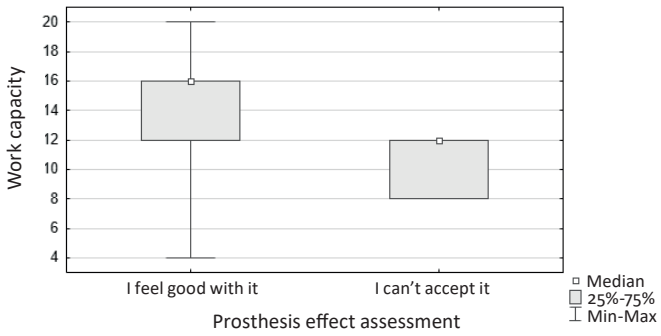

FIGURE 2. Work capacity in relation to the prosthesis effect

Financial resources were another aspect of the QOL that was assessed better by the women who were satisfied with the prosthesis effect. The women who negatively assessed the prosthesis effect had a significantly lower QOL in this subdomain (Fig. 3).

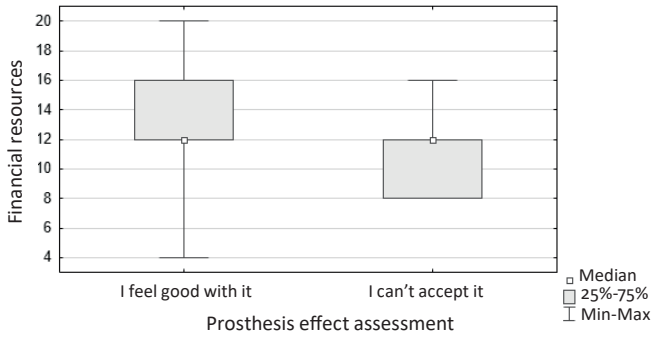

FIGURE 3. Financial resources in relation to the prosthesis effect

The subdomain of negative feelings was also characterized by a considerably higher intensity among those women who could not accept the prosthesis effect (Fig. 4).

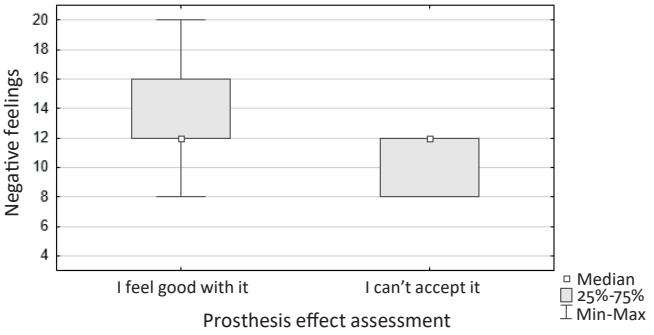

FIGURE 4. Negative feelings in relation to the prosthesis effect

DISCUSSION

In an age of a beauty cult and the obsession with perfect looks, breast cancer may become a painful experience. Radical treatment of breast cancers distorts the way a woman perceives herself, and the harmony and beauty of the body, and can result in a deterioration in the quality of her functioning. A mastectomy maims both the physical and mental realms, and negatively affects a woman's self-esteem, a very important motivational factor in the decision-making process [2]. Post-mastectomy breast reconstruction can play a crucial role in improving the QOL of patients, and most importantly relieve the psychological consequences of losing a significant body part [3]. More and more frequently, this decision becomes an integral part of a woman's breast cancer treatment.

Studies on the QOL in women following breast reconstruction are not very common in literature, particularly in Polish papers. Nevertheless, those few reports indicate the positive effect of reconstructive surgeries on the QOL of the patient in the mental, emotional and social spheres [4], which confirms our study findings. Mazurek showed that a woman's body image has an influence on her mental condition, regardless of her age, and performing breast reconstruction even in older women can help them create a positive self-image [5, 6]. This is an indication that appearance is important for patients of all ages [7, 8, 9]. Nowicki and Ostrowska proved in their study that the age of post-mastectomy women, among other things, is a crucial factor determining their decision on whether or not to undergo reconstructive surgery [10]. The authors argued that those patients who were active professionally would more quickly decide to undergo breast reconstruction than women at retirement age. Other authors indicated mastectomy and immediate reconstruction as yet another crucial factor that had a positive impact on the QOL [11, 12, 13]. The study results obtained by Nowicki and Ostrowska showed that the average time from breast removal to breast reconstruction was 4.8 years, which confirms our study findings, as the majority of the women surveyed said that they had undergone the procedure within a similar time range [10]. Immediate breast reconstruction performed directly after a mastectomy may, therefore, be an important way of avoiding an unfavorable emotional experience. This can lower the emotional and mental distress caused by breast loss, and result in better psychosocial functioning for these women.

de Oliveira et al. conducted a study on the relationship between the QOL in women after a mastectomy followed by immediate breast reconstruction, and the QOL in women after mastectomy only. Immediate breast reconstruction was essentially beneficial with regard to the psychological aspects of the QOL, while it did not have any influence on the physical functioning of the women [14]. This was also confirmed by scientists from the University of Toronto, who carried out a prospective analysis of 106 women who had undergone immediate or deferred breast reconstruction. They clearly observed that immediate breast reconstruction helped the women avoid mental trauma, low self-assessment of their bodies, and decreased rates of sexual well-being [15]. A woman's subjective assessment of the prosthesis effect, well-being, and appearance after breast reconstruction, constitute another important aspect which determines their QOL. The results of our study showed that the majority of the women expressed a positive assessment of the prosthesis effect within the above aspects, which confirms reports made by other authors [4, 16]. What is more, over a 3rd of the respondents claimed that the reconstructive treatment had a positive effect on the relationship with their partner. Half of the women were satisfied with their appearance, which they believed to be more attractive than before the reconstructive surgery, and every 6th woman stated that her confidence level had increased. Rzońca and Fronczak confirmed the studies carried out in this area, and their research revealed that as many as 80% of women were satisfied with the effect of the breast reconstruction. The most frequent changes observed among the women who had undergone breast reconstruction were an improvement in well-being, better physical appearance, and higher level of confidence [17]. In their research, Alfano and Rowland, and Roth et al. claimed that women who had undergone breast reconstructive surgery had a more coherent picture of their own body, demonstrated a higher sense of having an influence on regaining their attractiveness, and showed an increased overall level of self-esteem [18, 19]. Brandt and Przybyła-Basista revealed that among the responses given by women, the most frequently occurring reasons for satisfaction were an increased comfort of life and a higher sense of ease in social situations (48%). A 5th of the women (20%) said that they felt they had become more attractive and regained the femininity which they believed they had lost as a result of mastectomy [20]. Other authors revealed that patients who had undergone breast reconstruction surgery demonstrated a high level of emotional and physical well-being [21]. It can be stated, then, that reconstructive surgeries constitute a significant factor determining a woman's well-being, self-image, and the relationship with her partner.

The analysis of the QOL in relation to the prosthesis effect assessment conducted in our study also revealed statistically significant differences in the following spheres: sleep and rest, work capacity, negative feelings, and financial resources ($p < 0.05$). The women who stated that they were considerably less likely to accept the post-surgery effect, had to cope with sleep and recovery difficulties. The women who accepted the prosthesis effect also assessed their work capacity more positively than those who expressed difficulties accepting their prosthesis. The QOL in the sphere of financial resources was also more positively assessed by the patients who were satisfied with the reconstructive surgery, which may have been determined by their work capacity. A critical judgement of the prosthesis effect had a considerable impact on the increased intensity of negative emotions in the women. Therefore, it would be plausible to take action in order to identify the factors that have an effect on the women's dissatisfaction with the results of reconstructive surgery. Learning about the factors which determine the decision to undergo breast reconstruction seems to be another important subject from the perspective of psycho-social functioning.

To sum up, breast reconstruction surgery is a crucial factor that determines a woman's assessment of her post-mastectomy QOL, particularly in the physical, mental, and environmental domains. A woman's satisfaction with the post-surgery effect is of substantial importance in relation to her subjective assessment of the QOL. Unfortunately, no similar studies carried out on the basis of the WHOQOL-BREF questionnaire were found in relevant literature. The lack of a clear and unambiguous definition of the term "quality of life" makes it more difficult to compare the results of our study with others, as well as posing a challenge to discuss and interpret the results in relation to other authors and researchers.

CONCLUSIONS

1. Breast reconstruction has a positive influence on the improvement of well-being, self-esteem, and appearance in women of all ages.
2. Breast reconstruction surgery has a positive impact on QOL in the physical, psychological, and environmental domains, especially in women who are satisfied with the effect of the surgery.
3. A negative assessment of the breast reconstruction has an adverse influence on QOL. Identifying the factors which influence a woman's dissatisfaction with the post-surgery effect is key to a complete understanding of the subject, and to implementing measures aimed at improving women's QOL.

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