

## Short Communication

# Exploring Psychosocial Correlates of Breast Reconstruction Post-Mastectomy in a Sample of Spanish Women

Carmen Bragado-Alvarez<sup>1</sup>, M. Jose Hernandez-Lloreda<sup>1</sup>, M. Luisa Sanchez-Bernardos<sup>1</sup>, Maria Herrera de la Muela<sup>2</sup> and Paloma Gomez-Campelo<sup>3\*</sup>

<sup>1</sup>School of Psychology, Complutense University of Madrid, Spain

<sup>2</sup>Department of Obstetrics and Gynecology, Hospital Universitario La Paz, Spain

<sup>3</sup>Platform Support Novel Research, Research Institute Hospital Universitario La Paz, Spain

**\*Corresponding author**

Paloma Gomez-Campelo, Hospital La Paz Institute for Health Research (IdiPAZ), Pº de la Castellana, 261, 28046, Madrid, Spain, Tel: 34-91-207-15-12; Fax: 34-91-727-75-24; Email: pgomez@salud.madrid.org

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- Mastectomy
- Breast reconstruction
- Psychological outcomes

**Abstract**

**Background:** It is generally accepted that breast reconstruction (BR) provides psychological benefits for women who had undergone mastectomy for breast cancer by restoring bodily changes caused by surgery. Spanish research on these issues is still scant, and the published studies reveal conflicting results. This study aims to explore the psychosocial correlates of BR in a sample of Spanish women who have undergone mastectomy.

**Method:** Body Image Scale, Rosenberg's Self-Esteem Scale, Beck Depression Inventory-I, Beck Anxiety Inventory, and European Organization for Research and Treatment of Cancer Quality of Life Questionnaire were administered to 50 women who have undergone mastectomy, that were distributed into three groups: those who had undergone reconstruction, those who planned to do so in the short-term, or those who had decided against reconstruction.

**Results:** Women who opted for no reconstruction tended to be older ( $p < .001$ ) and less concerned about body image changes ( $p = .037$ ) than those who had had reconstruction or those who planned to do so. **Conclusions:** This study shows that women who have undergone BR have greater concerns about body image than women who chose mastectomy without reconstruction. Patients who have undergone BR have similar outcomes with respect to anxiety, depression, and quality of life, than those obtained by women without reconstruction. Finally, women who are awaiting BR may be at risk of suffering psychological distress.

**ABBREVIATIONS**

BC: Breast Cancer; BR: Breast Reconstruction; QoL: Quality of Life; BCS: Breast Conservation Surgery; BIS: Body Image Scales; RSES: Rosenberg's Self-Esteem Scale; BDI-I: Beck Depression Inventory; BAI: Beck Anxiety Inventory; QLQ-C30-V2: European Organization for Research and Treatment of Cancer Quality of life Questionnaire.

**INTRODUCTION**

Mastectomy and reconstruction rates vary widely between and within countries, although the most frequently reported rates

show that around 40% of women receiving surgical treatment for breast cancer (BC) undergo mastectomy, but few of them (8%-29%) undergo breast reconstruction (BR) [1].

Usually, the decision to undergo BR or avoiding it has been related to the patient's socio-demographic characteristics. Women who undergo BR tend to be younger, with a higher educational level, employed and married, compared to women without BR [1-3]. The most common reasons that lead women with mastectomy to choose against reconstruction are their desire to avoid further surgery and the fear of future complications [1,3].

Regarding the psychological benefits attributed to BR over

mastectomy without reconstruction, the systematic and meta-analytic reviews offer a confused picture. For example, Lee et al. [4] analyzed 28 studies published between 1983-2007, concluding that patient-reported outcomes of mastectomy with BR are similar to outcomes of mastectomy without reconstruction. Furthermore, all of the higher quality studies reported consistent findings, showing that women who had undergone reconstructive surgery had equivalent or poorer quality of life (QoL), body image, or sexual outcomes than women who had mastectomy alone. Overall, the most favourable outcomes were obtained for breast conservation surgery (BCS). Similarly, Fang et al. [5] conducted a meta-analysis of 12 studies published between 1989-2010, focusing on the effects of reconstruction on body image. Their other findings revealed that women with BCS had a better global body image than women with BR. On the contrary, women with BR had a better body image than women with mastectomy alone. However, when the data were reanalyzed taking into account the different body image domains, it was found that both groups (BR, mastectomy) only differed from each other in concerns about the physical appearance domain but not in the body stigma domain (emphasizing the loss of body integrity). This result suggests that women with BR are less concerned about their physical appearance than those without reconstruction, but they still have difficulty in dealing with an imperfect and stigmatized body.

The aim of this paper is to explore the potential differences in socio-demographic characteristics, medical factors, and psychological outcomes in a sample of Spanish women who have undergone mastectomy, based on their BR status at the time of the study (had undergone BR, planned to do so in the near future, or had decided not to undergo BR). Despite the controversial results from previous research regarding the psychological benefits of BR, it is expected that women who have undergone reconstruction should obtain better outcomes than those who have not, especially in relation to body image.

## METHOD

### Participants

This study was conducted as part of a broader study described elsewhere [6], consisting in a cross-sectional study carried out in the Regional Cancer Center of Gregorio Marañón Hospital (Madrid, Spain) to examine the differences in psychological distress among women with breast or gynaecological cancer that had undergone radical surgery. To the purposes of this paper, we refer only to BC patients who underwent mastectomy ( $n=50$ ).

The inclusion criteria used for this group were: women over 18 years old with a confirmed diagnosis of primary BC; stages T1-T3; had undergone mastectomy; were on no current cancer therapy other than hormone therapy; had finished adjuvant treatment 24 months (maximum) prior to the study; and had signed an informed consent. The exclusion criteria were: not being born in Spain; having a previous diagnosis of a primary cancer in a different location; suffering severe chronic diseases or significant physical or cognitive disabilities that might invalidate the informed consent or interview outcomes.

### Measures

Patients completed the Spanish version of following questionnaires:

**Body Image Scale (BIS)** [7,8]. The BIS is a 10-item measure specifically designed to assess body image disturbance in cancer patients. It measures the impact of surgery on self-consciousness, physical and sexual attractiveness, femininity, satisfaction with body and scars, body integrity and avoidance behaviour. Items are scored on a four-point scale (0=not at all, 3=very much). The total score ranges from 0 to 30. Higher scores show greater concerns. In this study Cronbach's alpha was .97.

**Rosenberg's Self-Esteem Scale (RSES)** [9,10]. The RSES consists of 10-items that assess global attitudes towards oneself. Items are rated on a Likert four-point scale (1=strongly agree, 4=strongly disagree), providing a total score ranging from 10 to 40. Higher scores indicate better self-esteem. Cronbach's alpha was .96.

**Beck Depression Inventory (BDI-I)** [11,12] and **Beck Anxiety Inventory (BAI)** [13,14]. Both measures consist of 21 items, rated on a four-point intensity scale; total score ranges 0-63. Higher scores reflect more severe depression/anxiety. Cronbach's Alpha was .95 and 0.91, respectively.

**European Organization for Research and Treatment of Cancer Quality of life Questionnaire (QLQ-C30-V2)** [15,16]. It is comprised of 30 items which assess health related QoL of cancer patients. The questionnaire incorporates five functional scales (physical, role, cognitive, emotional and social functioning), three symptom scales (fatigue, pain and nausea/vomiting), a global health status/QoL scale and six single item scales that assess additional symptoms and the perceived financial impact of disease and treatment. All of the scales range from 0 to 100 points. For the purpose of this paper we analyzed the functional and the global health status/QoL scales. Higher scores indicate a high functioning level and better QoL. Cronbach's alpha was .81.

Sociodemographic and medical data were obtained through an *ad-hoc* questionnaire; further medical information was completed with medical records.

All patients provided an informed consent according to the hospital ethic guidelines. Research protocol followed ethical standards as outlined in the Helsinki Declaration.

### Statistical Analysis

Descriptive analysis was performed for each of the variables studied. Quantitative variables were analyzed using an analysis of variance with "BR modality" as independent variable, and sociodemographic characteristics, medical data and psychological outcomes as dependent variables. We tested for assumptions of normality and homogeneity of variances; if these were not satisfied, we performed the Kruskal-Wallis test. Post-hoc comparisons were performed with Fisher's LSD (Least significant difference) or Mann-Whitney's *U*, respectively. Qualitative variables were analyzed using Chi-square test.

Analyses were performed using the Statistical Package for the Social Sciences (SPSS for windows, version 19.0; IBM Corp, Armonk, New York, USA).

## RESULTS

The mean age of participants was 48.4 (SD=13.3; range=27-83), and they had spent a mean of 13.06 years in

education ( $SD=6.23$ ); the majority lived with a partner (62%) and was occupationally inactive (70%). Regarding medical data, time since diagnosis ranged from 5-38 months ( $M=15.6$ ,  $SD=8$ ,  $Mdn=13.5$ ), and the most frequent stages of disease were T1 and T2 (52% and 28%, respectively). All patients had received adjuvant treatment to mastectomy; the most frequent treatment was a combination of chemotherapy and radiotherapy (30%).

At the time of assessment, 22% of women had had BR, 40% had planned to do so, whereas 38% had decided against BR. The comparison among the three groups showed statistically significant differences in age [ $F(2,47)=9.28$ ,  $p<.001$ ,  $\eta^2=.28$ ] and body image concerns [ $F(2,47)=3.55$ ,  $p=.037$ ,  $\eta^2=.13$ ] (Table 1). Women who had decided not to undergo BR tended to be older and less concerned about body image changes than those who had already had BR or those who awaited it. There were

no statistically significant differences between groups in any other psychological variable (anxiety, depression, self-esteem, and QoL), although women who decided against reconstruction showed more favourable outcomes than the other two groups (Table 1).

In order to know which specific domains of body image concerned each group, we examined the differences in the 10 items of the BIS. The results showed that women who had had BR or those who awaited to do so felt significantly more self-conscious about their appearance [ $H=3.69(2)$ ,  $p=.032$ ,  $r=.23$ ], less feminine [ $F=4.34(2,47)$ ,  $p=.019$ ,  $\eta^2=.16$ ] and less sexually attractive [ $F=4.05(2,47)$ ,  $p=.024$ ,  $\eta^2=.15$ ] as a result of the disease or the treatment, and more dissatisfied with the appearance of the scar [ $H=4.82(2)$ ,  $p=.013$ ,  $r=.31$ ] than those who had decided against reconstruction.

**Table 1:** Differences among groups in study variables.

	Groups			Statistic <sup>a</sup>		
	Had BR n = 11	Planned BR n = 20	Decided against BR n = 19	Test [ $F(v_1, v_2)$ or $\chi^2(v_i)$ ]	<i>p</i>	Effect size ( $\eta^2, r, V$ )
<b>Socio-demographic variables</b>						
Age						
<i>M (SD)</i> , <sup>b**</sup> , <sup>c**</sup>	43.8 (9.3)	42.4 (9.5)	57.3 (14.2)	9.28 (2,47)	<.001	.28
<50 years old %	72.7	70	36.8	5.65 (2)	.059	.08
Marital status (Without partner) %	45.5	30	42.1	0.94 (2)	.625	.14
Education (years), <i>M (SD)</i>	13.9 (6.1)	14.1 (6)	11.5 (6.6)	0.93 (2,47)	.404	.04
Occupational status (Active) %	36.4	65	68.4	3.33 (2)	.189	.19
Socioeconomic status %				2.54 (4)	.637	.16
Low	15.4	25	46.2			
Medium	25	43.8	31.3			
High	37.5	37.5	25			
<b>Medical variables</b>						
Disease stage %				3.88 (4)	.422	.20
T1	15.4	50	34.6			
T2	21.4	35.7	42.9			
T3	40	20	40			
Time since diagnosis (months), <i>M(SD)</i>	17.45 (9.1)	12.45 (4.3)	17.95 (9.5)	2.89 (2,47)	.065	.11
Antineoplastic treatment %				11.51 (8)	.174	.17
Chemotherapy	45.5	15	15.8			
Radiotherapy	0	10	5.3			
Hormonotherapy	0	15	31.6			
Chemotherapy+Radiotherapy	45.5	30	21.1			
Other treatment combination	9.1	30	26.3			
Current secondary' symptomatology (number), <i>M (SD)</i>	2.91 (2.5)	3.58 (2.1)	2.32 (2.8)	0.55 (2,47)	.583	.02
Disease recurrence (Yes) %	20	30	50	0.81 (2)	.667	.13
<b>Psychological variables</b>						
Personal history of psychopathology (Yes)%	45.5	30	21.1	1.98 (2)	.372	.20

Body image concerns (BIS), ( <i>SD</i> ) <sup>b,c*</sup>	20.6 (9.3)	20.4 (9.6)	12.6 (11)	3.55 (2.47)	<b>.037</b>	.13
Self-esteem (RSES), <i>M</i> ( <i>SD</i> )	22.2 (8.5)	25.2 (9.4)	26.21 (8.9)	0.71 (2.47)	.497	.03
Depression (BDI-I), <i>M</i> ( <i>SD</i> )	28.4 (19.3)	23.6 (16.2)	19 (15.1)	1.16 (2.47)	.321	.05
Anxiety (BAI), <i>M</i> ( <i>SD</i> )	18.7 (10.7)	21.7 (13)	16 (14.7)	0.95 (2.47)	.393	.04
Quality of Life (QLQ-C30-V2), <i>M</i> ( <i>SD</i> )						
Global Health Status/Quality of Life	52.3 (29.4)	58.8 (23.8)	68.4 (24.9)	1.53 (2.47)	.228	.06
Physical functioning	76.4 (35.6)	83 (25.4)	72.6 (28.4)	0.64 (2.47)	.533	.03
Role functioning	80.3 (25.6)	70 (30.4)	76.3 (30.1)	0.49 (2.47)	.618	.02
Cognitive functioning	50 (30.7)	55 (28.7)	63.2 (35.8)	0.65 (2.47)	.525	.03
Emotional functioning	33.3 (34.4)	44.2 (34.1)	51.8 (35.9)	0.98 (2.47)	.384	.04
Social functioning	47 (45.2)	64.2 (35.6)	69.2 (37)	1.22 (2.47)	.305	.05

**Note:** BR: Breast Reconstruction; BIS: Body Image Scale; RSES: Rosenberg's Self-Esteem Scale; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; QLQ-C30-V2: EORTC Quality of life Questionnaire;

<sup>a</sup>: As required: ANOVA and eta squared ( $\eta^2$ ) for quantitative variables, and Chi-Square Test and Cramer's V for qualitative variables. <sup>b</sup>: Had undergone BR vs. had decided against BR. <sup>c</sup>: Planned BR vs. had decided against BR.

\*  $p < .05$ ; \*\*  $p < .01$

## DISCUSSION

We found few significant differences between groups regarding sociodemographic characteristics and medical factors. The only variable that yielded statistically significant differences was age, showing that women with BR and those who planned undergoing the procedure were younger (mostly under 50 years) than women who decided against reconstruction. This finding matches with previous research that has consistently pointed out that BR (immediate or delayed) is more likely to happen in younger women (usually below 50 years), while mastectomy without BR tends to be more frequent in older women (broadly above 50 years) [2,3,17].

A similar pattern showing no differences among the three groups of patients was obtained in regard to psychological outcomes. In fact, except for body image concerns no statistically significant differences were found in any other measure of distress (anxiety, depression, self-esteem, QoL) among women who had undergone BR, women who were waiting to do so and those who had no intention of undergoing reconstructive surgery. In addition, the first two groups showed a similar psychological profile, with worse scores on all psychological measures used, compared to the group of women who did not contemplate BR, who, in turn, showed the most favourable outcomes. Paradoxically, these same women reported significantly less concerns about their body image (self-consciousness, sexual attractiveness, femininity and scars) than the other two groups. Similarly, other researchers [18] have reported that women waiting for reconstructive surgery tend to experience more psychological distress (anxiety, depression and poorer body image) than those who decide against reconstruction, suggesting that waiting for additional surgery, along with the uncertainty about the outcomes of reconstruction, are themselves very stressful situations.

Contrary to expected, results from this study indicate that women who opted for no reconstruction had a significantly better overall body image than women who had had reconstruction or those who planned doing so in the short term. One possible explanation for this discrepancy is that these women are

less concerned about their physical appearance than their counterparts. Regarding this issue, research has shown that many women who refused reconstructive surgery alleged that reconstruction was not important to them [19], or they accepted body asymmetry and preferred to avoid further surgery [1,3]. Conversely, the most common reasons for reconstruction (immediate or delayed) are due to body image concerns and / or desire to feel whole again [19]. Age is another factor to consider when explaining these results, as research has shown that younger age is associated with more psychological distress regardless of the type surgery the participants had received [6,17], and that the importance of body appearance tends to decrease with increasing age [20]. In our study, women who opted against reconstruction were significantly older than those who had had BR or those were waiting to do so, which could explain why they were less concerned about their appearance.

The findings of this exploratory study must be interpreted cautiously because of the following limitations. Firstly, the sample size is limited, and therefore, further studies including a larger sample are necessary. Secondly, we did not consider some variables of interest such as the type of reconstruction performed (implants or autologous flaps; immediate, delayed, or two stage approach), time since surgery or satisfaction with the aesthetic outcomes of BR, issues that are regarded as important to assess the psychological effect of reconstruction [5]. Nevertheless, we have partially controlled these limitations (time since surgery/satisfaction) through the variable of time since diagnosis, which showed no statistically significant differences between groups, and two items of the BIS concerning the satisfaction with the body and the appearance of scars, which showed that women who opted for no reconstruction were less dissatisfied with scars than the other two groups.

Finally, the results of this study suggest some clinical implications for health care professionals. In the first place, women who receive BR should be informed in a realistic and detailed way of the feasible outcomes of reconstructive surgery in order to avoid future disappointments between the body image they foresee and that obtained after surgery. In the second place,

women who are waiting for BR may require special attention to help them coping with stress and uncertainty preceding surgery.

## CONCLUSIONS

To sum up, this study shows that women who have undergone BR have greater concerns about body image than women who chose undergo mastectomy without reconstruction. In regard to anxiety, depression, and quality of life, patients who have undergone BR have similar outcomes than those obtained by women without reconstruction. Finally, women who are awaiting BR may be at risk of suffering psychological distress.

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