

# BODY IMAGE AND SELF-ESTEEM IN WOMEN WITH BREAST CANCER PARTICIPATING IN A PSYCHOSOCIAL INTERVENTION PROGRAM

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*One of the issues of major interest in relation to breast cancer has been patients' adjustment to the changes in body image that treatment produces. The goals of the present study are related to various aspects of body image and self-esteem. These objectives include: a) to examine the effectiveness of a psychosocial intervention designed to enhance body image and raise self-esteem, by comparing an intervention and a control group at each of three measurement points: pre-treatment, post-treatment and follow up, and b) to analyze the influence of sociodemographic and medical (type of surgery and type of treatment) variables on body image and self-esteem. Results show that, in terms of body image, the intervention group scores higher in post-treatment and follow-up, whereas for self-esteem the difference only shows up in the follow-up, the time elapsed variable being relevant. In relation to type of surgery, women with a tumorectomy had a more positive body image than women with a mastectomy.*

**KeyWords:** *Body image, breast cancer, self-esteem, mastectomy*

*En el tema del cáncer de mama, uno de los aspectos que ha suscitado mayor interés se refiere a la adaptación a los cambios en la imagen corporal que su tratamiento conlleva. Los objetivos que persigue nuestro trabajo se refieren a varios aspectos relacionados con la imagen corporal y la autoestima, como son: a) comprobar la eficacia de un programa de intervención psicosocial que incide sobre la mejora de la imagen corporal y la autoestima, comparando dos grupos de intervención y control en cada uno de los momentos pre-tratamiento, post-tratamiento y seguimiento y b) analizar la influencia de las variables socioeconómicas y médicas (tipo de cirugía y tipo de tratamiento) en la imagen corporal y la autoestima. Los resultados muestran que para la imagen corporal, el grupo de intervención obtiene puntuaciones más elevadas que el grupo control en el postratamiento y seguimiento, mientras que para la autoestima, las diferencias solo se dan en el seguimiento y aparece la relevancia de la variable tiempo transcurrido. Ninguna de las variables sociodemográficas fue significativa. En cuanto al tipo de cirugía, las mujeres tumorectomizadas tuvieron una mejor imagen corporal que las mastectomizadas.*

**Palabras clave:** *imagen corporal, cáncer de mama, autoestima, mastectomía.*

## INTRODUCTION

The diagnosis and treatment of breast cancer involves a stressful situation, not only from the physical point of view, but also, and especially, from the psychological one, since, apart from having to cope with the illness and its treatments –and indeed the potential threat to life– the patient has to adapt to significant loss in relation to various aspects, such as those related to changes in her body image and to the feelings and attitudes necessarily associated with this. Such alterations due to the cancer have a negative influence on the image one has of one's body (Anderson & Johnson, 1994; Carlsson & Hamrin,

1994; Freedman, 1994; Stanton & Reed, 2003), as well as causing affective disorders and changes in relation to sexuality and self-esteem (Baider, Andritsch, Uziely, Ever-Hadani, Goldzweig, Hofmann, et al., 2003; Derogatis, 1986; Hopwood, 1993; Hopwood & Maguire, 1988; Koleck, Bruchon-Schweitzer, Cousson-Gelie, Gilliard & Quintard, 2002).

Although the majority of cancer types have significant physical consequences, and in many cases the necessary treatment (surgery, radiotherapy, chemotherapy, etc.) causes substantial body changes, particular attention has been paid in the literature to the subject of body image and breast cancer, probably for two reasons: a) its epidemiological importance and its –increasingly– chronic nature, and b) the significant psychosocial connotations it has for the woman. In this regard, the breast is of crucial importance in female identity. For many women, the breasts are what primarily define them, and the loss of a breast equals the loss of

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femininity (Carver, Pozo-Kaderman, Price, Noriega, Harris, Derhagopian, et al., 1998). Moreover, the woman's breast is strongly associated, in our culture, with the sphere of sexuality and physical attractiveness; it is an element that is valued and appreciated for its sexual content and erotic qualities and for being a source of pleasure; finally, the breast is also associated with maternity and lactation, and for some women, suffering the illness means renouncing their desire to have children. Moreover, it should not be overlooked that, in Western societies, a woman's physical image constitutes an important part of how society appraises her, and is a substantial component of her identity (Sebastián, Bueno & Mateos,

2002). Thus, we can observe greater susceptibility in women compared to men in the matter of their image or physical attractiveness and their worth, which is also reflected in the aspect studied here (Roberts, Piper, Denny & Cuddeback, 1997).

Furthermore, and from the perspective of psychology, body image is a construct that implies how one thinks and feels and how one perceives and acts in relation to one's own body (Cash, 1994; Cash & Pruzinsky, 1990). Body image is conceived, moreover, as part of self-concept (Mock, 1993), which can be understood as the set of a person's perceptions or references about oneself, and includes appraisals of behaviours, abilities and external appearance (Shavelson & Bolus, 1992). Self-esteem is another aspect of self-concept, referring to a positive or negative attitude/feeling toward oneself, based on the assessment of one's own characteristics, and includes feelings of satisfaction with oneself (Rosenberg, 1965). As regards our position here, we understand body image as the woman's appraisal, both cognitive and emotional, of her body at given moment. For its part, self-esteem refers to a person's appraisals, positive and negative, of themselves. Although their study has been associated above all with aspects related to eating disorders, an analysis of the variables that can affect women with breast cancer and suggestions for intervention can be found in Fernández (2004).

The type of surgery used in the treatment of breast cancer has been an important factor for the body image of women who are affected (Avis, Crawford, Manuel, 2004; Bryan, 2004; Carpenter, 1994; Carver et al., 1998; King, Kenny, Shiell, Hall, Boyages, 2000; White, 2000). Until not long ago, the commonest form of treatment was mastectomy (total extirpation of the breast), while today in many cases conservative surgery is used, referred to as tumorectomy. The tumorectomy option

has greatly improved the clinical results with regard to body image and sexuality (Finney, 1992), though not so much in relation to psychological adjustment or morbidity (Moyer, 1997; Vos, Garssen, Visser, Duivendoorden & de Haes, 2004). Therefore, the type of surgery, mastectomy versus tumorectomy, significantly affects the woman's degree of satisfaction with her body and with herself after the operation, mastectomized women being those with the poorer body image and lower self-esteem, compared to those who have undergone a tumorectomy (Kiebert, Hanneke, de Haes, Keivit & van de Velde, 1990; Margolis, Goodman & Rubin, 1990; Mock, 1993; Yurek, Farrar & Andersen, 2000). Moreover, various studies have suggested that the women who experience greatest dissatisfaction with their body image after breast cancer treatment are those who believe their breasts are important to their femininity and attractiveness, who value their physical appearance and who consider themselves highly feminine (Carver et al., 1998; Petronis, Carver, Antoni & Weis, 2003; Wellisch, DiMateo & Silverstein, 1989).

It is important to note that systematic treatment with chemotherapy or radiotherapy also affects women's body image, as well as their libido and their fertility (Sebastián, 2003). The loss of hair experienced by the majority of women receiving chemotherapy can be highly traumatic. Moreover, many women having chemotherapy, enter the menopause, especially if they were close to it at the time of the treatment, and although they may no longer want children, they may perceive the onset of the menopause as indicating a significant loss of femininity (Avis et al., 2004), leading to more problems with their body image (Hunter et al., 2004). Likewise, chemotherapy and hormonal therapies, in addition to reducing libido, can cause vaginal dryness, often resulting in a significant reduction in sexual activity.

One of the most complex issues in research on body image is that of assessment. It is no exaggeration to state that almost all the studies published on this subject employ different instruments, and this can affect the generalization of results. As Hopwood (1993) and Yurek et al., (2000) point out, there are both conceptual and methodological difficulties, because body image partly coincides with sexuality and also with the broader concept of self-image or self-concept. Aspects such as physical attractiveness, femininity/masculinity or self-confidence can all be important for the concepts of body image or self-esteem.

Various generic scales have been used for measuring body image in women with breast cancer, while specific

scales are of recent development, but still scarce. Among the specific scales, the most well known is the BIS by Hopwood, Fletcher, Lee and Al Ghazal (2001), and among the non-specific scales, the MBA by Carver et al., (1998). At the outset of the present study (in 1997) none of these were available, and those considered on the basis of the review carried out were subject to problems in relation to procedure, content and response modes, so that we opted to draw up our own instrument that covered those aspects we considered of primary importance. In the creation of this instrument we had to take account of the most important aspects in research at that time, which were reflected in Hopwood's (1993) work on the foremost elements in the area of body image in women with breast cancer: a) Dissatisfaction with appearance, b) Loss of femininity, c) Avoiding looking at oneself naked, d) Feeling less attractive, e) Adverse effects of treatment, f) Worry about appearance, g) Dissatisfaction with scar or prosthesis. For each one of these elements a series of items was drawn up. In the case of self-esteem, the majority of studies have used Rosenberg's (1965) Self-esteem Scale (Carpenter, Brockopp & Andrykowski, 1999; Helgeson, Cohen, Schultz, Yazco, 1999), and it was also used by our team, given that it was appropriate, short and easy to apply.

Finally, we should like to stress the importance of group psychological treatments in the improvement of body image and self-esteem in the field of psychooncology. There have been relatively frequent attempts to develop group intervention programmes for improving the quality of life of women with breast cancer (Sebastián, 2003b). However, despite some of these programmes being fairly well known (Cunningham et al. 1995; Fawzy & Fawzy, 1994; Greer et al. 1992; Spiegel et al. 1999), very few of them purport to work on body image and self-esteem as specific elements of intervention, and even fewer apply assessment instruments before and after the implementation of the programme. Among those covering the subject of body image are the works by Bryan (2004), Classen et al. (2001) and Roberts et al. (1997); those incorporating self-esteem include the works of Edelman, Bell and Kidman (1999), Linn, Linn and Harris (1982), Van de Borne et al. (1987), and Spiegel, Bloom and Yalom (1981); only a few deal with both aspects (Helgeson et al., 1999; Sebastián, Bueno, Mateos and García, 1999). The commonest result is the improvement of body image and self-esteem in women receiving the intervention programme, compared to the control group women. Unfortunately, although we have

access to a general description of the goals set and of the general procedures employed, we have no information on other aspects related to the methodology or the specific techniques applied with respect to these variables.

We shall now explain some aspects of interest related to our intervention programme, which has functioned for 8 years (from 1997 to 2004), and has the general goal of improving quality of life and promoting good adaptation to the illness, from a multidimensional perspective, its specific goals including aspects related to body image and self-esteem. Thus, the Psychosocial Intervention Programme for Women with Breast Cancer has the following specific goals: a) To reduce the emotional response to the cancer diagnosis, the surgery and the side effects of the chemotherapy; b) to train patients to accept their new body image; c) to provide patients with communication strategies for avoiding sexual and relationship problems; d) to develop adequate coping strategies for the cancer (controlling negative thoughts); e) to help the management of fear related to the illness: relapse, death, abandonment, disfiguration, pain, etc; f) to stimulate the expression of emotions and feelings; g) to enhance self-esteem and promote changes related to personal and social appraisals.

The programme was designed to be carried out in group format. The only exception was the first session, which took place individually and with the family. Groups were as homogeneous as possible with regard to age and state of the illness. The programme consisted of 14 weekly two-hour sessions.

The programme content was divided in five blocks:

#### *1. Preparation for Chemotherapy.* (1 session)

Deals with the following aspects: clarification of the information, familiarization with the scenario and learning of the chemotherapy coping strategies (techniques of distraction and relaxation and self-instructions).

#### *2. Education for Health* (in 5 partial sessions)

Deals with the following aspects: review of the information on patient's illness and treatments, reinforcement of her confidence in medical staff, providing patient with information on physical consequences of the treatments (surgery, chemotherapy, radiotherapy, etc.) and showing and encouraging use of the care necessary for palliating these effects (special exercises, relaxation, etc.)

### 3. *Body image* (in 5 partial sessions)

This block involves exploration of the woman's concerns about the scars, about presenting herself to others and about changes in her sexuality, with a view to facilitating acceptance of her new body image. She was provided with information on self care, the prosthesis, the special underwear, etc, at the same time as work on the experience of her own body and the influence this was having on sexual relations and on self-esteem. Finally, she was provided with information on a possible breast reconstruction.

### 4. *Stress Management and Personal Coping Skills* (in 5 partial sessions)

Deals with the following aspects: explanation of the importance of stress for physical and mental health, identification of situations, thoughts and behaviours that cause the woman psychological distress, teaching and helping to put in practice active coping strategies: stop thinking, cognitive restructuring, problem-solving, learning of progressive muscle relaxation, etc.

### 5. *Communication Skills and Setting of Goals* (in 3 partial sessions)

Deals with the following aspects: learning of communication skills that will facilitate the expression of emotions and feelings with one's partner children or others, emphasis on the importance of the expression of emotions, motivating women to plan their goals and helping them to solve problems that may arise, redefinition of cancer as a life that forces them to reassess, accept and maintain a combative spirit.

The goals of our work are in relation to various aspects associated with body image and self-esteem. First of all, we set out to examine the effectiveness of a psychosocial intervention programme, assessing whether the women who participated in it had a more positive body image and significantly higher self-esteem in the post-treatment measure and in the follow-up than those women who did not take part. And secondly, we were interested in analyzing the influence of socioeconomic and medical (type of surgery and type of treatment) variables on the body image and self-esteem of women with breast cancer, at each time point under study.

## **METHOD**

### ***Participants***

The sample was made up of women who had undergone operations for breast cancer (non-metastatic) by the medical team from the Mammary Pathology Service of

the Department of Obstetrics and Gynaecology at the "La Paz" maternity hospital in Madrid (Spain). The recruitment period for the sample was 1997 to 2004, both inclusive.

The number of women who eventually participated in the study was 188, aged 27 to 65 (mean 48 years). Where necessary for the analyses, the women were divided in three groups: group 1 = age 27-44, group 2 = age 45-54, group 3 = age 55-65. With regard to the sociodemographic variables, data for the total sample showed that the vast majority of women were married (78.2%), the majority were educated to elementary or primary level (45.2%), and most were employed outside the home (52.6%).

Of these women, 107 made up the intervention group and 81 the control group. In the post-treatment, the sample remained intact with 188 persons, whilst in the follow-up 13 women (8 from the control group and 5 from the intervention group) dropped out, so that the final number of participants was 175. Reasons for drop-out were varied, and included change of registered medical centre, loss of contact due to change of appointments, inconvenience of timetable, lack of motivation, and so on.

As regards type of surgery, 65 women underwent a mastectomy and 121 had a tumorectomy. In no case did mammary reconstruction take place at the time of the surgery, nor during the period covered by the study.

Specific medical criteria were used in the selection of participants: a) women must be receiving a breast cancer diagnosis for the first time, b) they should not be experiencing metastasis, c) number of ganglia affected must not exceed four, that is, diagnosis type would be T1, d) treatment received must be chemotherapy with CMF and/or radiotherapy and/or hormone therapy (women who had other treatments with chemotherapy were excluded, due to the fact that frequency of administration of the cycles and/or appearance of significant side effects hindered attendance on the intervention programme, e) they must not have any psychiatric problems, and f) they must be aged 25 to 65.

### ***Instruments***

A) Sociodemographic questionnaire.- Through a series of questions we recorded the patients' sociodemographic characteristics, such as age, marital status (which was eventually recoded in two groups, 1= no partner, and 2=with partner), educational level and employed outside the home (yes/no).

B) Body image questionnaire.- The scale drawn up by the research team at the beginning of the study includes the questions that Hopwood (1993) proposes as fundamental for body image in women with breast cancer. The final scale consists of 12 items, responses being made on a Likert-type scale with four options, from 1= not at all, to 4 = strongly. Items are related to six areas:

- a) Degree of satisfaction with appearance when clothed, both with oneself and with others' opinions (*"I am satisfied with my appearance when I am dressed"*, and *"I think others like my appearance"*).
- b) Loss of femininity (*"I feel I have lost part of my attractiveness as a woman"* and *"I feel less feminine since the operation"*).
- c) Degree of satisfaction with appearance when naked, both with oneself and with others' opinions (*"When I have a bath or a shower I avoid looking at my scar"*, *"I am satisfied with my appearance when I am naked"* and *"I try to avoid others seeing my scar"*).
- d) Feelings about sexual attractiveness (*"I think the breast plays an important role in sexual relationships"*, *"Since my operation I see myself as less sexually attractive"* and *"I feel fear or shame about a potential sexual relationship"*).
- e) Loss of bodily integrity (*"I feel a bit mutilated or deformed"*).
- f) Degree of satisfaction with the scar (*"I find the scar repugnant"*).

Maximum possible score is 48 points. The higher the score, the more problems the woman has in relation to her body image. To obtain the total score we inverted the values of 3 "positive" items (which appear with negative charges in Table 1).

To confirm the conceptual validity of this instrument we carried out a factor analysis (one-factor; principal components method; varimax rotation). Table 1 shows the items making up the Body Image Scale and the weight of each one in the factor. The percentage of variance explained by these 12 items was 44.7%. Reliability of the Body Image Scale, using the internal consistency index (Cronbach's alpha) was 0.880.

C) Self-esteem.- For the assessment of self-esteem we used Rosenberg's (1965) Self-esteem Scale. This scale consists of 10 items, five in positive form and five in negative form. Responses are made on a Likert-type scale from 1= not at all, to 4 = strongly.

Rosenberg conceived self-esteem as a one-dimensional aspect of the person that contains the positive and negative appraisals one has of oneself. In accordance with this theoretical framework we carried out a factor analysis (one-factor) to explore the relationship of the items to this single factor.

In the factor analysis carried out on the Self-esteem Questionnaire (one-factor; principal components method; varimax rotation), two items appeared with a weight below the required minimum of 0.3, and were eliminated (*I don't think I have much reason to be proud and I feel I am a person worthy of respect, at least to the same extent as others*). Table 1 shows the eight remaining items of the scale and their weight in the factor. Total variance explained was 35.7%, and internal consistency of the scale (Cronbach's alpha) was 0.813.

D) Medical variables.- These were taken from the medical files:

Type of surgery: Initial values (tumorectomy / tumorectomy plus lymphadectomy / mastectomy /mastectomy plus lymphadectomy) were subsequently grouped in two large blocks: (1) a group of women who underwent a tumorectomy, with or without lymphadectomy, and (2) another group of women who underwent a mastectomy, with or without lymphadectomy.

**Table1**  
Factor weights of each item from the Body image questionnaire and the Self-esteem questionnaire

<i>Body image questionnaire items</i>	<i>Weight</i>
Since my operation I see myself as less sexually attractive	.868
I feel I have lost part of my attractiveness as a woman	.865
I feel a bit mutilated or deformed	.807
I try to avoid others seeing my scar	.708
I feel fear or shame about a potential sexual relationship	.684
When I have a bath or a shower I avoid looking at my scar	.675
I find the scar repugnant	.657
I am satisfied with my appearance when I am naked	-.640
I feel less feminine since the operation	.604
I am satisfied with my appearance when I am dressed	-.466
I think others like my appearance	-.454
I think the breast plays an important role in sexual relationships	.389
<i>Self-esteem questionnaire</i>	<i>items</i>
I tend to think that on the whole I am a failure	.785
Sometimes I feel completely useless	.707
I take a positive attitude towards myself	-.696
Sometimes I think I am good for nothing	.684
In general, I am satisfied with myself	-.640
I would like to feel more respect for myself	.633
I think I have several good qualities	-.609
I can do things as well as most people	-.527

Type of treatment: The values were grouped in four blocks: (1) chemotherapy (including patients who received a combination of chemotherapy and tamoxifene), (2) radiotherapy (including patients who had received a combination of radiotherapy and tamoxifene), (3) a group of women who received chemotherapy plus radiotherapy, with or without tamoxifene, and finally (4) those who received only tamoxifene made up another group.

### Procedure

So that the women could become familiarized with the presence of the psychologist, she visited them in the wards after the operation. Before they were discharged from hospital the women took part in an individual interview in which they were explained the importance of studying their process of adaptation to the illness and in which the pre-treatment measure was carried out, if the patient consented. Therefore, the first assessment took place between 10 and 15 days after the surgery and one week before the patients went to collect the result of the pathological anatomy. Once the results of the

pathological anatomy were known, if the criteria were met the patients were offered the possibility of participating (active or passive) in the programme for improving their quality of life. The women who agreed to participate actively made up the intervention group, whilst those who agreed to participate passively made up the control group.

Next, we applied the psychosocial intervention programme to the patients who had decided to participate in it. The psychosocial intervention took place in groups of 3/4 women, and was carried out by two (female) psychologists following the same protocol. Between 20 days and one month after termination of the programme, approximately 3 months after the surgery, the second measure of the study variables was carried out in both groups of women. Finally, 6 months later, that is, 9 months after the surgery, came the third measure –or follow-up measure of the variables.

We were obliged to desist from an experimental design (distribution of our participants at random between the intervention and control groups) for pragmatic and moral reasons. First of all, the medical team were fairly unsupportive of the project –in contrast to the nursing team, from whom we received a good deal of help–, so that on forming the groups we knew that we would have to work with the women who in the end participated voluntarily. And second, we considered that the women who agreed to participate actively had great emotional needs, and that we should offer them a possibility of psychosocial support, should they request it.

Variable	Intervention (N=107)	Control (N=81)	Statistic
<b>Marital status</b>			
With partner	87	60	$\chi^2(1)=1.415$ $p>0.05$
Single	20	21	
<b>Educational Level</b>			
Primary	48	37	$\chi^2(2)=0.210$ $p>0.05$
High school	35	28	
University	24	16	
<b>Work status</b>			
Working	53	46	$\chi^2(1)=0.974$ $p>0.05$
Unemployed	54	35	
<b>Type of surgery</b>			
Tumorectomy	67	54	$\chi^2(1)=0.330$ $p>0.05$
Mastectomy	40	27	
<b>Social support</b>	m=17.06 SD=3.13	m=17.91 SD=2.88	$t(152)=-1.706$ $p>0.05$
<b>Age (years)</b>	m=48.54 SD=7.87	m=46.20 SD=7.77	$t(186)=-1.835$ $p>0.05$
<b>Body image</b>	m=37.31 SD=7.23	m=37.44 SD=6.82	$t(186)=-.122$ $p>0.05$
<b>Self-esteem</b>	m=25.37 SD=4.08	m=25.82 SD=4.58	$t(186)=-.715$ $p>0.05$

	Mean (Standard deviation)			Effect (ANOVA)		
	Pre-treatment	Post-treatment	Follow-up	Group	Time	Groupx Time
<b>Body image</b>						
Intervention group	37,41 (7,34)	38,85 (5,97)	39,57 (5,12)	,010	n.s	,000
Control group	37,52 (6,70)	36,04 (7,11)	34,94 (7,06)			
<b>Self-esteem</b>						
Intervention group	25,28 (4,11)	22,23 (3,46)	23,62 (3,04)	,023	0,000	,000
Control group	25,54 (4,69)	21,17 (4,14)	20,83 (3,66)			

n.s.= non-significant  
Body image and self-esteem means and standard deviations (in brackets) for both groups

**Determination of the similarity between the control and intervention groups in the pre-treatment measure**

In order to determine whether there were differences between the intervention group and the control group in a series of sociodemographic variables, we used the Pearson chi-squared test for the categorical variables and the t-test for independent samples in the case of variables with interval scale measures. The results can be seen in Table 2.

As it can be seen (Table 2), in the pre-treatment measure there are no statistically significant differences between the control and intervention groups in the variables of age, marital status, educational level, work outside the home (work status), social support, body image or self-esteem.

**Effectiveness of the programme in relation to body image and self-esteem**

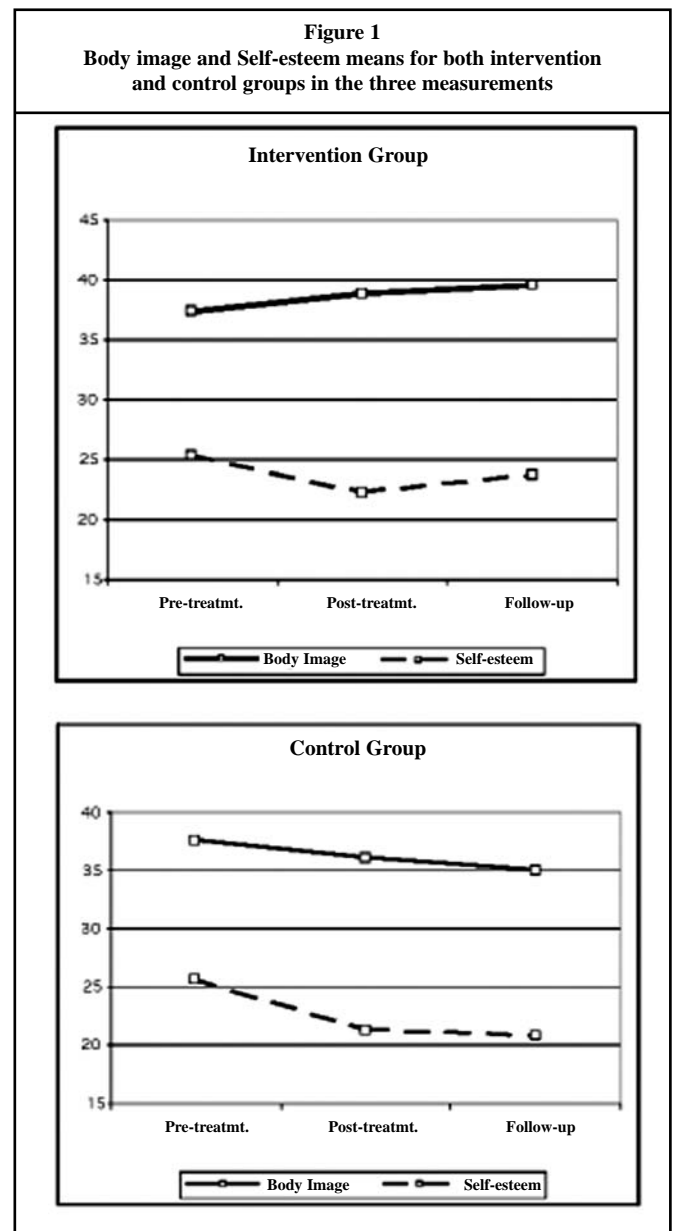
To determine whether the women who had participated in the Intervention Programme had a more positive body image and significantly higher self-esteem in the post-treatment and follow-up measures than the women who had not participated in the Programme, we carried out a two-factor analysis of variance with repeated measures in one factor (time) (see Table 3).

As it can be seen in Table 3, for body image, the ANOVA (group x time) revealed a significant main effect of group  $F(1,171) = 6.801, p=0.01$  (Partial Eta squared = 0.038) and a significant effect of the interaction of time and group  $F(1, 171) = 27.468, p<0.01$  (Partial Eta squared = 0.138). The time variable did not reach significance  $F(1, 171) = 1.272$ . Pairwise comparison tests with the Bonferroni adjustment showed that this interaction was significant between the pre-treatment and post-treatment and between post-treatment and follow-up. Given that SPSS does not offer the possibility of post-hoc tests in the case of significant interactions, we proceeded to analyze the interactions from their graphical representation, which indicates that the score in the body image instrument increased over the course of the three measures for the intervention group, while it gradually decreased for the control group.

With regard to self-esteem, the analysis of variance showed significant main effects for group  $F(1,172) = 5.257, p<0.05$ , (Partial Eta squared = 0.030); for time  $F(1,172) = 140.808, p<0.01$  (partial Eta squared = 0.450); and for the interaction of time and group,  $F(2,171) = 20.408, p<0.01$  (partial Eta squared = 0.106). Moreover, the within-subjects contrast tests showed that

the effect of time and the effect of the interaction were significant between the pre-treatment measure and the post-treatment measure, as well as between the post-treatment measure and the follow-up measure. The interaction time x group suggested that in the case of the control group women their self-esteem decreased from the pre-treatment measure to the post-treatment measure, and once again at the 6-month follow-up, whilst for the intervention group women their self-esteem decreased, contrary to expectations, after the Intervention Programme, to rise slightly again in the follow-up measure.

Figure 1 shows the means for the scales of body image



and self-esteem, for the two groups and for the three measurement points.

**Comparison between control and intervention groups at each time point**

Given that the previous test did not provide these data, to determine whether in the measures carried out post-treatment and in the follow-up there were differences between the intervention and control groups, we used the t-test for independent samples. The results can be seen in Table 4.

In the post-treatment measure, the t-test was significant for body image, but not for self-esteem, with the intervention group obtaining a higher score ( $m = 38.76$ ,  $SD = 6.04$ ) than the control group ( $m = 35.93$ ,  $SD = 7.07$ ).

Therefore, the women who participated in the Intervention Programme had a more positive body image than the women who did not participate.

	t	df	sig
Body Image (post-treatment)	2.950	186	.004*
Self-esteem (post-treatment)	1.465	186	.145
Body image (follow-up)	4.743	122	.000*
Self-esteem (follow-up)	5.473	172	.000*

\*p<0.05. Significant difference between intervention and control groups

Pre-treatment	Age			Marital status			AgexMarital Status			Ed. level			Work St.			Ed. LevelxWork Stat.		
	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p
Body image	1.834	2	.163	.005	1	.946	.325	2	.723	.792	2	.454	.061	1	.805	.097	2	.907
Self-esteem	1.14	2	.246	.004	1	.952	.391	2	.677	1.457	2	.236	.441	1	.507	1.476	2	.231

\* p<0.05

Results of analysis of variance group x age x marital status																					
Post-treatment	Group			Age			Marital Status			AgexMarital Status			GroupxAge			GroupxMarital Status			GroupxAgeMarital Status		
	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p
Body Image	6,725	1	.010*	1,668	2	.191	.264	1	.608	1,092	1	.338	.018	2	.982	1,306	1	.255	.975	1	.379
Self-esteem	2,261	1	.134	.746	2	.476	1,261	1	.263	.253	1	.769	.288	2	.750	.915	1	.340	.766	1	.462
FOLLOW-UP																					
Body Image	13,041	1	.000*	2,513	2	.084	0,14	1	.905	1,823	2	.165	.298	2	.743	.704	1	.403	.680	1	.508
Self-esteem	18,227	1	.000*	1,280	2	.281	.571	1	.451	.908	2	.405	.039*	2	.962	2,25	1	.114	.313	1	.732
Results of analysis of variance group x educational level x work status																					
Post-treatment	Group			Educational Level			Work Status			Ed.LevelxWork Stat.			Groupx Ed. Level			GroupxWork Stat.			GroupxEd. LevelxWork Stat.		
	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p
Body Image	5,524	1	.020*	.054	2	.947	.884	1	.348	.146	2	.864	.634	2	.532	.476	1	.491	1079	2	.342
Self-esteem	3,507	1	.063	.449	2	.639	.765	1	.383	1,388	2	2,52	.227	2	.797	3,037	1	.083	.434	2	.649
FOLLOW-UP																					
Body Image	13,397	1	.000*	.052	2	.949	.012	1	.914	.206	2	.814	1,316	2	.271	.305	1	.581	.814	2	.445
Self-esteem	26,832	1	.000*	.563	2	.571	1,205	1	.255	.792	2	.455	.512	2	.600	1,655	1	.200	.419	2	.658

\* p<0.05



In the follow-up measure, the t-test was significant for both body image and self-esteem. As for body image, the intervention group scored significantly higher ( $m = 39.57$ ,  $SD = 5.12$ ) than the control group ( $m = 34.94$ ,  $SD = 7.06$ ); with regard to self-esteem, the intervention group obtained a significantly higher mean score ( $m = 23.62$ ,  $SD = 3.04$ ) than the control group ( $m = 20.83$ ,  $SD = 3.66$ ). All these data indicate that the women who participated in the Programme had, at the 6-month follow-up, a more positive body image and higher self-esteem than the women who did not participate in the Programme.

### ***Influence of sociodemographic variables on body image and self-esteem***

We also wanted to explore the possible effects of a series of sociodemographic variables (age, marital status, work status and educational level) on our dependent variables. To this end we carried out ANOVAS *age x marital status*, on the one hand, and *work status x educational level*, on the other, for all the dependent variables in the pre-treatment measure (Table 5). In the post-treatment and follow-up measures, the analyses of variance were carried out taking into account participation in the intervention group, so that the ANOVAS performed were *group x age x marital status* and *group x work status x educational level* (Table 6).

In all our analyses, when the ANOVA showed a significant main effect, the Tukey post-hoc test was used

where there was homogeneity of variances, and the Games-Howell post-hoc test when there was no equality of variances.

As it can be seen in Tables 5 and 6, the results of these analyses indicate that for body image and self-esteem, contrary to expectations, there was no significant effect of the sociodemographic variables age, marital status, educational level and work status at any of the three measurement points.

### ***Influence of medical variables on the body image and self-esteem of women with breast cancer***

In order to analyze the influence of the medical variables (type of surgery and type of treatment) on body image and self-esteem, and to ascertain whether they interacted in any way with the psychosocial intervention, we carried out an ANOVA *surgery x treatment* for all the dependent variables. Once again in the post-treatment and follow-up measures the ANOVA carried out was *group x surgery x treatment* (see Table 7).

For the variable body image, in the pre-treatment measure we found a significant main effect of type of surgery  $F(1,178) = 5.33$ ,  $p < 0.05$  (partial Eta squared = 0.029). Women with tumorectomy had a more positive body image ( $m = 39.47$ ) than women with mastectomy ( $m = 33.60$ ). There was no significant effect of treatment or of the interaction type of surgery x type of treatment ( $F < 1$ ).

Continuing with this same variable, we also found a

**Table 7**  
Analysis of variance examining the effect of the medical variables in the post-treatment and follow-up measurements

Pre-treatment	Surgery			Treatment			Surgery x Treatment														
	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p			
Body image	5.333	1	.022*	.413	3	.744	.493	2	.612												
Self-esteem	.634	1	.427	1.096	3	.352	.336	2	.715												
Post-treatment	Group			Surgery			Treatment			SurgeryxTreatment			GroupxSurgery			Groupx			SurgeryxTreatment		
	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p
Body image	3.606	1	.059	5.656	1	.018*	.101	3	.958	.161	2	.852	1.082	1	.300	.808	3	.491	1.189	1	.277
Self-esteem	3.760	1	.054	.674	1	.413	1.084	3	.357	1.313	2	.272	1.667	1	.198	.856	3	.465	.765	1	.383
Follow-up	Group			Surgery			Treatment			SurgeryxTreatment			GroupxSurgery			Groupx			SurgeryxTreatment		
	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p	F	df	p
Body image	19.231	1	.000*	9.158	1	.003*	.188	3	.904	.332	2	.718	.140	1	.708	.288	3	.834	.380	1	.538
Self-esteem	14.892	1	.000*	1.599	1	.208	1.101	3	.350	1.304	2	.274	1.120	1	.292	5.24	3	.666	1.811	1	.180

\*  $p < 0.05$

significant main effect solely for type of surgery both in the post-treatment measure  $F(1,172) = 5.656, p < 0.05$ , (partial Eta squared = 0.032) and in the follow-up measure  $F(1,159) = 9.158, p < 0.01$  (partial Eta squared = 0.054). In the post-treatment measure the women with tumorectomy had a more positive body image ( $m = 39.27$ ) than the women with mastectomy ( $m = 34.5$ ), and the same occurred in the follow-up measure (tumorectomy  $m = 39.28$ ; mastectomy  $m = 34.55$ ).

As regards self-esteem, the analysis of variance carried out at the three measurement points (pre-treatment, post-treatment, follow-up) showed no significant effect of the medical variables type of surgery and type of treatment.

## DISCUSSION

The main goal of the present research is the study of body image and self-esteem in women with breast cancer from different aspects. First of all, our primary interest lay in determining the effectiveness of a Psychosocial Intervention Programme for women with breast cancer through the comparison of two groups: those who had voluntarily participated in the programme (intervention group) and those who had not been involved in it (control group). Although the programme covers more areas of intervention, on this occasion we analyzed the variables body image and self-esteem, which were measured at three points: pre-treatment, post-treatment (approximately three months after the surgery) and follow-up 6 months after the end of the Programme (approximately nine months after the surgery).

Initially, we found no differences between the two groups with regard to the sociodemographic variables (age, marital status, work status and educational level), the medical variables (type of surgery and type of treatment), self-esteem, body image or social support, indicating the similarity of between the intervention group and the control group, even though they were not constituted at random.

The results of the analyses carried out showed that body image of the women in the intervention group improved progressively from one measure to the next, whilst for the control group body image became poorer across the three measures. The women who took part in the programme had better body image than the women who did not participate, in both the post-treatment measure and at the 6-month follow-up. These results are in line with those of previous studies which found that psychosocial interventions almost always succeed in helping to maintain a positive body image (Bryan, 2004;

Classen et al., 2001; Farash, 1979; Helgeson et al., 1999; Roberts et al., 1997), and validates the work carried out in this area within the group intervention programme developed.

With regard to self-esteem, the influence of the programme was not so clear. For the intervention group self-esteem decreased in the post-treatment, only to increase again at the follow-up. For the control group women, self-esteem also decreased in the post-treatment, and was still falling at the follow-up. Comparing the two groups, we found that in the post-treatment there were no significant differences between them; however, at the follow-up, the intervention group women had significantly more self-esteem than the women in the control group. Moreover, in the statistical analyses carried out, time emerges clearly as a relevant variable for self-esteem, indicating that it fell between pre-treatment and post-treatment and increased between post-treatment and follow-up (this latter result being due exclusively to the intervention group).

The fact that in the post-treatment measure no differences were found between the intervention group and the control group in self-esteem may have various causes, such as lack of efficacy of the intervention programme (indeed, we expected it to be a result that emerged from the work in all the other areas, since we had not pre-set specific techniques for it), or that the point at which the measure was taken was such a difficult time (it decreases in both groups) that it was scarcely liable to change via the programme, even though the intervention was on the right track (despite lacking forcefulness). In any case, we understand that this aspect should be reviewed for future work. Even so, time can be understood as simply the time elapsed or as representing a specific phase in the process of the illness, that in which we extracted data again –a situation with potentially stressful specific characteristics that we have not taken into account in the post-treatment measure. On the other hand, the fact that in the follow-up the two groups are clearly distinguished in self-esteem can be seen as a positive result of the programme which contrasts with those discussed above.

Another finding that merits consideration is that the effect size of the group factor on self-esteem and body image is very small (approximately 4%), whilst the effect size of the time factor on self-esteem attains a value of 45%.

Although self-esteem has not been studied as much as body image in relation to breast cancer, our results are similar to those which have indicated that group

intervention programmes can have positive effects on patients (Edelman et al., 1999; Helgeson et al., 1999; Linn et al., 1982; Van de Borne et al., 1987).

In our analyses we also considered a series of variables that could affect body image and self-esteem, which were: the sociodemographic variables age, marital status, educational level and work status; the medical variables type of surgery and type of treatment; and the perceived social support variable. The sociodemographic variables showed no effect on body image or self-esteem at any of the points at which they were measured, which is surprising, since the literature suggest that age and marital status tend to be associated with variations in these variables (Bloom, Stewart, Chang & Banks, 2004; Moyer & Salovey, 1996). However, type of surgery showed an expected result: the women with tumorectomy had a more positive body image than the women with mastectomy, and this was repeated at all the measurement points and in the different groups. These results are in the line of various previous findings indicating that tumorectomy affects body image less than mastectomy (Avis et al., 2004; De Haes & Van Knippenberg, 1985; Finney, 1992; Polivy, 1997; Schain, 1986; Vos et al., 2004).

Thus, as aspects to highlight, we can conclude that women with breast cancer who received the Psychosocial Intervention Programme experienced a highly positive change with regard to their body image and a quite acceptable change, though not so substantial, in their self-esteem. Time elapsed is another variable to take into account, and which –by itself in the case of self-esteem and in interaction with intervention for both variables– emerges as significant. Finally, type of surgery also emerges as a relevant variable for body image.

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