



Original/*Cáncer*

# Breast cancer and body image as a prognostic factor of depression: a case study in México City

María J. Aguilar Cordero<sup>1</sup>, Norma Mur Villar<sup>2</sup>, Marisol Neri Sánchez<sup>3</sup>, María L. Pimentel-Ramírez<sup>3</sup>, Arturo García-Rillo<sup>3</sup> and Eusebio Gómez Valverde<sup>4</sup>

<sup>1</sup>Facultad de Ciencias de la Salud. Universidad de Granada. Hospital Clínico San Cecilio de Granada. Spain. <sup>2</sup>Universidad de Ciencias Médicas de Cienfuegos. Cuba. <sup>3</sup>Facultad de Medicina. Universidad Autónoma del Estado de México. México. <sup>4</sup>Departamento de Patología Quirúrgica. Universidad de Granada. Spain.

## Abstract

**Introduction:** Being diagnosed with breast cancer is devastating for women because they face a “sense of loss”. Since this loss is observed by the women themselves as well as by those around them, this can often lead to depression.

**Objectives:** (1) To verify a possible association between body image and depression; (2) To establish a relation between depression and time since breast cancer diagnosis.

**Method:** The data came from the Beck Depression Inventory (BDI-II) and the Body Image Scale (BIS), which were used to evaluate the subjects. A random sample of n=120 women was divided into two groups. The women in Group 1 had been recently diagnosed with breast cancer, but had not at that time had any type of surgical treatment. The women in Group 2 had undergone a mastectomy over a year ago.

**Results:** The women in Group 1 were found to be more severely depressed, and a statistically significant association was detected between depression and body image ( $p < 0.05$ ). In contrast, in Group 2, even though many of the subjects also felt depressed because of a distorted or disturbed body image, their depression was milder ( $p > 0.05$ ).

**Conclusions:** The women in Group 1, the majority of whom were suffering from severe depression, had a disturbed body image even though they had not had a mastectomy. The women in Group 2, who had been operated, also suffered from similar body image problems, but their depression was not as intense.

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Key words: *Breast cancer. Body image. Depression.*

## CÁNCER DE MAMA E IMAGEN CORPORAL COMO FACTOR PRONÓSTICO DE DEPRESIÓN. UN ESTUDIO DE CASO EN CIUDAD DE MÉXICO

### Resumen

**Introducción:** El cáncer de mama constituye una patología de extrema prevalencia en la actualidad y con un alto impacto en la sociedad, tanto en los países desarrollados como en México, ésta patología ha aumentado en los últimos años. El diagnóstico es impactante para las mujeres porque se enfrentan al problema de “sentido de pérdida” y este hecho puede ser observado tanto por ellas como por otras personas, provocando con frecuencia alteraciones depresivas.

**Objetivos:** Relacionar la imagen corporal y la depresión. En segundo lugar, determinar la posible implicación entre la depresión y el diagnóstico reciente y tardío.

**Material y métodos:** Se recolectó información de datos a partir de la historia clínica, entrevista y aplicación del BDI-II (Escala de depresión de Beck) y el BIS (Body Image Scale) de 120 mujeres diagnosticadas y tratadas de cáncer de mama durante el periodo de Enero-Diciembre 2012. Se seleccionó la muestra aleatoria n=120 mujeres divididas en dos grupos. El grupo 1 con diagnóstico reciente sin intervención quirúrgica de la mama. El grupo 2 de mujeres mastectomizadas de más de 1 año.

**Resultados:** El grupo 1 presentó mayor severidad de la depresión y se encontró una asociación estadísticamente significativa entre la depresión y la imagen corporal ( $p < 0.05$ ). Sin embargo, en el grupo 2 la severidad de la depresión fue menor, aunque la percepción de su imagen corporal también fue incompleta ( $p > 0.05$ ).

**Conclusiones:** El grupo 1 presenta una percepción de la imagen corporal incompleta aunque no estén mastectomizadas y un mayor grado de depresión. Las mujeres del grupo 2 también se percibían su imagen corporal incompleta aunque presentaban menor grado de depresión.

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**Correspondence:** María José Aguilar Cordero.

Departamento de Enfermería.

Facultad de Ciencias de la Salud.

Av. Madrid s/n. 18071 Universidad de Granada. España.

E-mail: mariajaguilar@telefonica.net

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## Introduction

Breast cancer is currently the most common type of cancer in women in developed countries as well as in México. In 2008, there were approximately 1.38 million new cases diagnosed throughout the world<sup>1</sup>. In 2006, according to the Mexican Ministry of Health and the INEGI<sup>2</sup>, the incidence and mortality of breast cancer in México was higher than that of cervical-uterine cancer. In 2008, the incidence rate and mortality rate of breast cancer was, respectively, 27.2 and 10.1 per 100,000 inhabitants<sup>3</sup>.

Depression and anxiety, which are frequent in cancer patients, are factors that complicate treatment since they have a negative impact on both the physical and mental health of patients. In fact, they can cause the disease to advance more rapidly and even result in a high risk of suicide<sup>4</sup>. The early diagnosis and treatment of depression and anxiety can slow the progression of the disease, improve chances of survival, reduce healthcare costs, and improve the general quality of life of cancer patients<sup>5-9</sup>.

The appearance of a malignant breast tumour is a psychological blow to a woman's emotional and affective balance since breasts are regarded as a symbol of femininity and sexuality<sup>10</sup>. This means that having breast cancer (and particularly surgical treatment) is a traumatic experience because of its negative impact on the patient's body image, which can be defined as the subjective representation of a person's own physical appearance that he/she has formed both by self-observation and by noting the reactions of others. Since body image is a personal and internal representation of a person's own body, it can differ substantially from the way that others perceive it from a more external perspective<sup>11,12</sup>.

A body image factor that should be taken into account is how a woman's body feels when she sees it or touches it. For example, if mastectomy results in visible scars, chronic pain, loss of sensation in the breast skin, and muscle weakness, this will undoubtedly affect the way in which the patient experiences her body<sup>11</sup>. Body image is an important component of quality of life for women with breast cancer<sup>13</sup> and plays a crucial role in how they cope with or adjust to the disease<sup>14</sup>. The objective of this study was to establish a relation between body image and depression in female breast cancer patients.

## Materials and Method

Our research involved an observational, descriptive, prospective, and transversal study of 120 female subjects who had been diagnosed and treated for breast cancer in 2009-2012 at the *Centro Oncológico Estatal ISSEMyM* [National Cancer Institute of México]. The data were collected from interviews with the patients as well as from their medical histories. A random sample was selected of n=120 women, who were divided into two groups. Group 1 was composed of 60 women who had recently been diagnosed with breast cancer for the first time at the *Unidad Funcional de la Mama* [Functional Breast Cancer Unit] and had so far not received any kind of treatment. Group 2 was composed of 60 women who had had a mastectomy, and who had received chemotherapy, hormone replacement therapy (HRT), or radiation therapy in the year previous to the study.

Hopwood's Body Image Scale (BIS) (Table I) was used to identify and evaluate the patients' body ima-

**Table I**  
*Escala BIS (Body Image Scale) de Hopwood*

AREAS	Issues	Nothing	Little	Much	Quite
a) Satisfaction with himself and with others	1.- I am satisfied with my appearance when I'm dressed.				
	2.- I think other people like my looks.				
b) Loss of femininity	3.- I feel I have lost some appeal as a woman.				
	4.- I feel less feminine after surgery.				
c) Satisfaction with nude appearance, both with himself and with others	5.- When I shower or bath I avoid looking at me the scar.				
	6.- I avoid that others see my scar.				
	7.- I am satisfied with my appearance when I'm naked				
d) Feelings about sexual attractiveness	8.- I think the breast plays an important role in sex.				
	9.- Since my operation I feel less sexually attractive.				
	10.- I feel fear or embarrassment of a possible sexual relationship.				
e) Loss of bodily integrity	11.- I feel deformed or mutilated				
f) Satisfaction with the scar	12.- I hate the scar				

ge. This scale classified this image as complete or incomplete assessing six main areas: (i) the patient's satisfaction/dissatisfaction with her clothed/un clothed appearance; (ii) the patient's satisfaction/dissatisfaction with the perceived reactions of others to her body; (iii) perceived loss of femininity; (iv) the patient's feelings about her sexual attractiveness; (v) perceived

loss of physical integrity; (vi) degree of satisfaction with the scar.

Both groups of subjects also responded to the questions in the Beck Depression Inventory (BDI-II) (Table II) to identify the existence and degree of depression. A score of 13 points or less signified that the patient was suffering from depression, which

**Table II**  
*Beck Depression Inventory*

 V 0477	<b>Beck Depression Inventory</b> CRTN: _____ CRF number: _____	<b>Baseline</b> Page 14 patient initials: _____
		Date: _____
Name: _____ Marital Status: _____ Age: _____ Sex: _____		
Occupation: _____ Education: _____		
<p><b>Instructions:</b> This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the <b>one statement</b> in each group that best describes the way you have been feeling during the <b>past two weeks, including today</b>. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).</p>		
<p><b>1. Sadness</b></p> <p>0 I do not feel sad. 1 I feel sad much of the time. 2 I am sad all the time. 3 I am so sad or unhappy that I can't stand it.</p> <p><b>2. Pessimism</b></p> <p>0 I am not discouraged about my future. 1 I feel more discouraged about my future than I used to be. 2 I do not expect things to work out for me. 3 I feel my future is hopeless and will only get worse.</p> <p><b>3. Past Failure</b></p> <p>0 I do not feel like a failure. 1 I have failed more than I should have. 2 As I look back, I see a lot of failures. 3 I feel I am a total failure as a person.</p> <p><b>4. Loss of Pleasure</b></p> <p>0 I get as much pleasure as I ever did from the things I enjoy. 1 I don't enjoy things as much as I used to. 2 I get very little pleasure from the things I used to enjoy. 3 I can't get any pleasure from the things I used to enjoy.</p> <p><b>5. Guilty Feelings</b></p> <p>0 I don't feel particularly guilty. 1 I feel guilty over many things I have done or should have done. 2 I feel quite guilty most of the time. 3 I feel guilty all of the time.</p>	<p><b>6. Punishment Feelings</b></p> <p>0 I don't feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished.</p> <p><b>7. Self-Dislike</b></p> <p>0 I feel the same about myself as ever. 1 I have lost confidence in myself. 2 I am disappointed in myself. 3 I dislike myself.</p> <p><b>8. Self-Criticalness</b></p> <p>0 I don't criticize or blame myself more than usual. 1 I am more critical of myself than I used to be. 2 I criticize myself for all of my faults. 3 I blame myself for everything bad that happens.</p> <p><b>9. Suicidal Thoughts or Wishes</b></p> <p>0 I don't have any thoughts of killing myself. 1 I have thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance.</p> <p><b>10. Crying</b></p> <p>0 I don't cry anymore than I used to. 1 I cry more than I used to. 2 I cry over every little thing. 3 I feel like crying, but I can't.</p>	

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Table II (cont.)  
Beck Depression Inventory



V 0477

**Beck Depression Inventory**

CRTN: \_\_\_\_\_ CRF number: \_\_\_\_\_ Page 15 patient inits: \_\_\_\_\_

**Baseline**

<p><b>11. Agitation</b></p> <p>0 I am no more restless or wound up than usual.</p> <p>1 I feel more restless or wound up than usual.</p> <p>2 I am so restless or agitated that it's hard to stay still.</p> <p>3 I am so restless or agitated that I have to keep moving or doing something.</p> <p><b>12. Loss of Interest</b></p> <p>0 I have not lost interest in other people or activities.</p> <p>1 I am less interested in other people or things than before.</p> <p>2 I have lost most of my interest in other people or things.</p> <p>3 It's hard to get interested in anything.</p> <p><b>13. Indecisiveness</b></p> <p>0 I make decisions about as well as ever.</p> <p>1 I find it more difficult to make decisions than usual.</p> <p>2 I have much greater difficulty in making decisions than I used to.</p> <p>3 I have trouble making any decisions.</p> <p><b>14. Worthlessness</b></p> <p>0 I do not feel I am worthless.</p> <p>1 I don't consider myself as worthwhile and useful as I used to.</p> <p>2 I feel more worthless as compared to other people.</p> <p>3 I feel utterly worthless.</p> <p><b>15. Loss of Energy</b></p> <p>0 I have as much energy as ever.</p> <p>1 I have less energy than I used to have.</p> <p>2 I don't have enough energy to do very much.</p> <p>3 I don't have enough energy to do anything.</p> <p><b>16. Changes in Sleeping Pattern</b></p> <p>0 I have not experienced any change in my sleeping pattern.</p> <p>1a I sleep somewhat more than usual.</p> <p>1b I sleep somewhat less than usual.</p> <p>2a I sleep a lot more than usual.</p> <p>2b I sleep a lot less than usual.</p> <p>3a I sleep most of the day.</p> <p>3b I wake up 1-2 hours early and can't get back to sleep.</p>	<p><b>17. Irritability</b></p> <p>0 I am no more irritable than usual.</p> <p>1 I am more irritable than usual.</p> <p>2 I am much more irritable than usual.</p> <p>3 I am irritable all the time.</p> <p><b>18. Changes in Appetite</b></p> <p>0 I have not experienced any change in my appetite.</p> <p>1a My appetite is somewhat less than usual.</p> <p>1b My appetite is somewhat greater than usual.</p> <p>2a My appetite is much less than before.</p> <p>2b My appetite is much greater than usual.</p> <p>3a I have no appetite at all.</p> <p>3b I crave food all the time.</p> <p><b>19. Concentration Difficulty</b></p> <p>0 I can concentrate as well as ever.</p> <p>1 I can't concentrate as well as usual.</p> <p>2 It's hard to keep my mind on anything for very long.</p> <p>3 I find I can't concentrate on anything.</p> <p><b>20. Tiredness or Fatigue</b></p> <p>0 I am no more tired or fatigued than usual.</p> <p>1 I get more tired or fatigued more easily than usual.</p> <p>2 I am too tired or fatigued to do a lot of the things I used to do.</p> <p>3 I am too tired or fatigued to do most of the things I used to do.</p> <p><b>21. Loss of Interest in Sex</b></p> <p>0 I have not noticed any recent change in my interest in sex.</p> <p>1 I am less interested in sex than I used to be.</p> <p>2 I am much less interested in sex now.</p> <p>3 I have lost interest in sex completely.</p>
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3456789101112 ABCDE

Subtotal Page 2  
Subtotal Page 1  
Total Score

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could be mild, moderate, or severe. The analysis of these data was carried out with the computer program SPSS 18.0 (version for Windows). Frequencies for descriptive statistics were generated and  $\chi^2$  were performed to establish associations between qualitative variables.

**Results**

The mean age of the women in Group 1 (patients recently diagnosed with breast cancer) was  $49.8 \pm 9.5$  years (32-72) whereas the mean age of the women in Group 2 (women who had undergone mastectomy)

was  $53.8 \pm 11$  years (36-76). Figure 1 shows that the majority of the women in both groups showed none of the typical high-risk factors for breast cancer. In contrast, the determining factors were environmental ones, such as overweight, obesity, and a sedentary life style.

Based on their marital status and education level, there were no significant differences between the subjects in both groups that could be associated with depression and/or a disturbed body image. Toxic habits, such as smoking and drinking, were also analyzed in both groups, and no significant differences were found. However, in regards to the patients' occupation or profession, a higher percentage of women who were housewives suffered from depression (79.5%) as compared to those who worked at a job outside the home

(38.1%). These differences were statistically significant ( $p < .05$ ).

Other parameters assessed were the patient's age at first pregnancy, history of lactation, and a family history of breast cancer. No significant differences were found among the women in the study for any of these parameters. The subjects in our study were also given a nutritional survey and their anthropometric measurements were assessed. In this regard, our study found that that the groups of subjects were homogeneously distributed (Figure 2) since 73.7% of the women in Group 1 and 76.7% of those in Group 2 were overweight or obese. However, no statistically significant differences were found between the two groups ( $p > .05$ ).

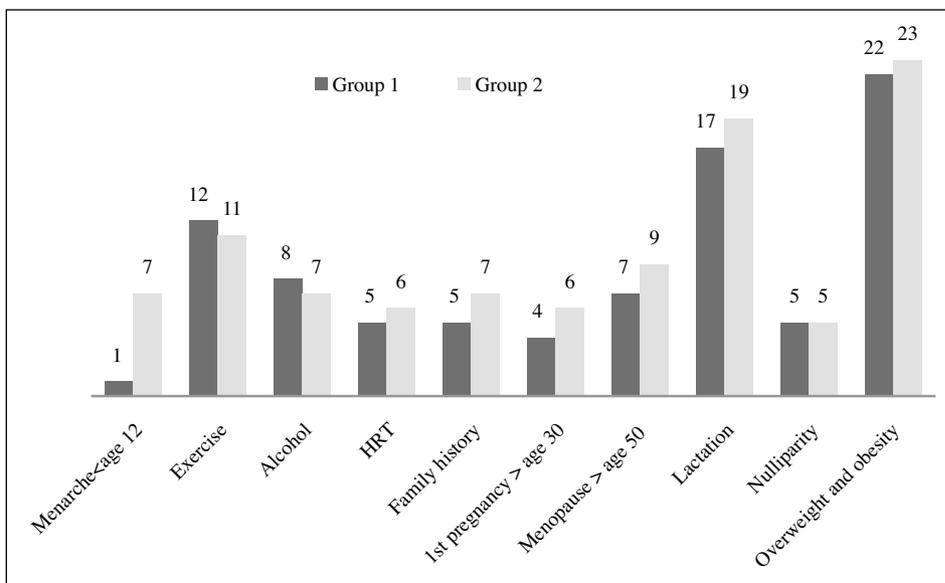


Fig. 1.—Breast cancer risk factors in the women in Group 1 and Group 2.

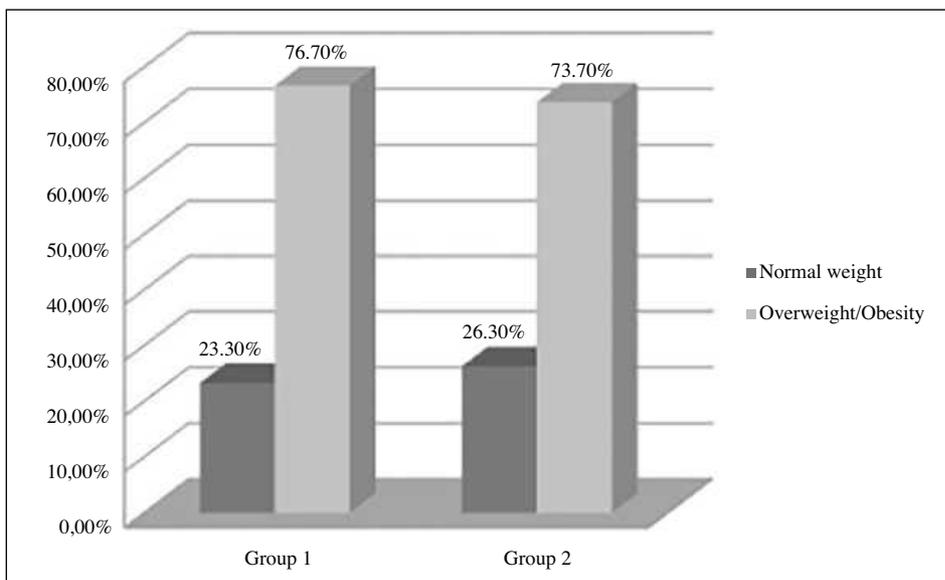


Fig. 2.—Nutritional state of the women in Group 1 and Group 2.

This description confirms that the two study groups were homogeneous in regards to the variables described.

An analysis of the data collected showed that 76.3% of the recently diagnosed patients (Group 1) suffered from depression in contrast to 53.3% of the patients who had undergone a mastectomy (Group 2). Despite the variation in these percentages, the differences were not statistically significant ( $p>.05$ ). In reference to body image, 53.3% of the women in Group 1 and 56.7% of those in Group 2 perceived themselves as having a disturbed or incomplete body image, according to the BIS Scale.

A significant difference was found between depression and perception of body image in the patients in Group 1. The analysis of the BIS Scale results for this group showed that most of these women who had been recently diagnosed with breast cancer suffered from a disturbed body image since they perceived their body to be incomplete. This was interesting since at this point, they still did not know whether they would be forced to have a breast removed. Nonetheless, they already were feeling a sense of loss, and showed clear signs of depression, based on their responses to the items in the questionnaire.

The item with the most negative score was loss of femininity. In other words, the women felt as though they had lost part of their sexual attractiveness, and thus felt less feminine and sexually appealing after diagnosis. Another negatively evaluated area was the perception of their physical integrity. When the patients were asked if they felt deformed or asymmetric, most of them responded affirmatively. This is curious since even though they had not undergone a mastectomy, they felt as though part of their body was already missing. Consequently, they had prematurely begun to have a distorted body image of themselves.

As can be observed in Figure 3, most of the women in Group 1 suffered from depression and had a disturbed body image. There was thus a statistically significant association between body image and depression in this group of patients ( $p<.05$ ).

In Group 2, composed of the women with mastectomies, the BIS Scale results show that their body image was also disturbed. Their degree of satisfaction with their unclothed appearance as perceived by themselves as well as by others was the most negatively evaluated area. In other words, these women avoided looking at the scar when they bathed or showered, and also endeavoured to hide the scar from others. They were clearly dissatisfied with their unclothed appearance. Nevertheless, fewer women in this group suffered from depression in comparison to those in Group 1. A possible explanation for this is the adaptation or coping process that these women had already gone through after living with the disease for a longer period of time.

Figure 4 shows that a majority of patients in Group 2 were also depressed and had a disturbed body image. Nevertheless, the percentage of depressed patients was lower in this group than in Group 1, and moreover, their depression tended to be milder. In Group 2, no statistically significant association was found between body image and depression ( $p>.05$ ).

## Discussion

The results obtained in this study indicate that in Group 1, (women recently diagnosed with breast cancer), there was a significant association between body image and depression. In regards to nutrition, Marín et al. affirm that cancer patients have a high risk of suffering malnutrition<sup>15</sup>. However, our study found that

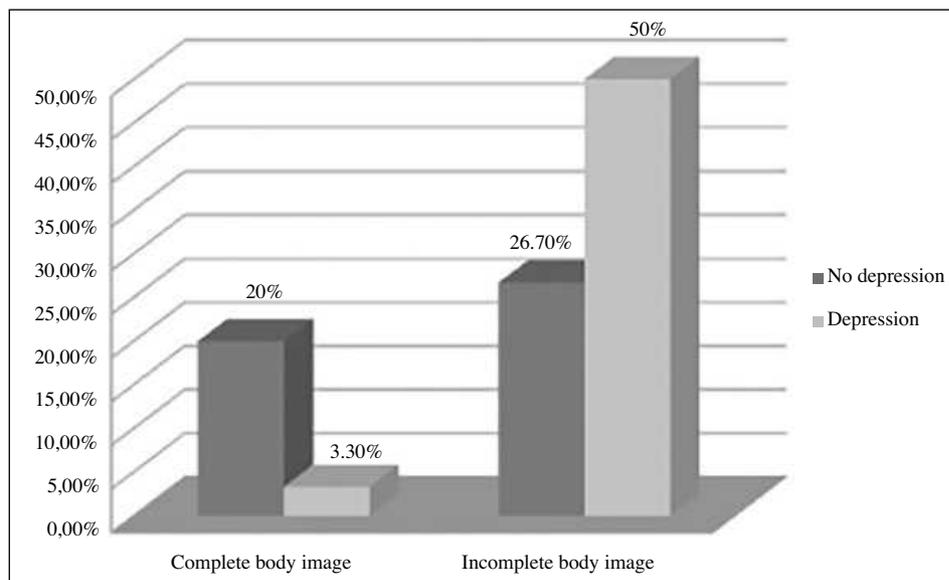


Fig. 3.—Association between body image and depression in Group 1.

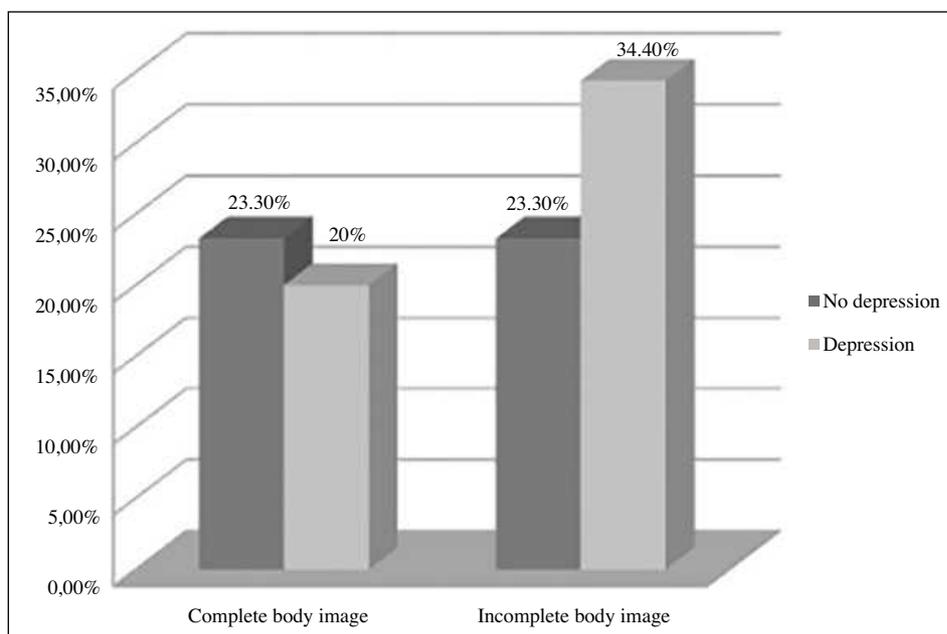


Fig. 4.—Association between body image and depression in Group 2.

most of the women in both groups were overweight or obese. Our results were thus more in consonance with those of Aguilar et al., which showed that morbidly obese women are diagnosed with breast cancer at a younger age<sup>16</sup>.

In relation to the perception of body image in women who had undergone mastectomy, in the same way as in many other studies, our results showed that they had a disturbed body image and perceived their body as incomplete<sup>17</sup>. However, no previous studies have related depression in women recently diagnosed with breast cancer to a disturbed or distorted body image. Maguire and Parkes, however, mention the fact that the loss of any part of the body can have very important psychological consequences stemming from the way in which the patient, family members as well others perceive the patient's body and/or from changes in the activities that the patient can carry out<sup>18</sup>.

Apart from experiencing mastectomy as a psychological problem of distorted self-image or evaluation, it is also a very real physical problem. A mastectomy is a mutilation that goes beyond aesthetic considerations. Breast removal is also a physical aggression and the source of mental trauma, which can be reflected in various ways. The most common are the refusal of the patient to look at herself in the mirror and a general avoidance of any situation in which the loss of her breast/s can be directly perceived. The solution is the patient's gradual adjustment to her new body map, a task that requires the creation of new schemas that give closure to behaviour associated with a deformed body, even though traces of such behaviour will never completely disappear (e.g. refusal to touch the scar)<sup>19</sup>.

In certain studies, body image has been regarded as part of the patient's quality of life. These authors evidently adopted the definition of body image, based on the scales used to assess it. In their review of the literature on the topic, Santos et al. affirm that the body image scale that is most frequently used in research is the BIS<sup>20</sup>, since it associates behavioural, cognitive, and affective elements that participate in the reconstruction and restoration of the body image of women with breast cancer<sup>18, 21-27</sup>. In this regard, the BIS was also found to be very useful to assess the perception of body image in our research study.

On the other hand, there are also various instruments that can be used to identify depression. For our purposes, the BDI effectively evaluated severity of depression in the female subjects of our study. The BDI was also used for depression assessment by Gumus et al, who found that depression in women who had undergone mastectomy was not as severe. The results of this study coincided with our results for Group 2.

Regarding the subjects in Group 1, the potential loss of femininity and sexual attraction, a disturbed body image, fear of recurrence, low self-esteem, and the disease itself were the source of psychological disorders<sup>10</sup>, such as high levels of anxiety and distress, which were frequently accompanied by depression. In fact, it has been found that cancer patients are three times more likely to suffer depression than people in general, and two times more likely than patients that have been hospitalized for other reasons<sup>28</sup>.

Finally, a study by Kim et al. found that when breast cancer patients have a positive or hopeful attitude during the disease, this favourable bio-psycho-social state is associated with a more effective immune function<sup>29</sup>.

## Conclusions

In our study, the subjects that had been recently diagnosed with breast cancer (Group 1) had a disturbed body image since they perceived their body as incomplete even though they had not undergone mastectomy. The majority of the subjects in this group suffered from severe depression. The potential loss of femininity faced by these recently diagnosed patients explained why the possibility of future breast surgery or just the awareness of having breast cancer was sufficient to significantly disturb the body image of these patients and negatively affect their degree of satisfaction with their body. These women seemed to feel disappointed in their body and perceive it as less satisfactory than the body of a healthy person.

The subjects who had undergone mastectomy (Group 2) also had a disturbed body image, but unlike Group 2, their depression was milder. These women perceived themselves as less feminine and not as physically attractive. The fact that they saw themselves as less sexually appealing to their partners made the majority of them feel dissatisfied with their own body and thus caused them to avoid direct contact with the area of their bodies that had been operated. Our results indicated that breast surgery not only had a negative impact on the self-image of the patients, but also on their sexual relations and social activities.

As a factor that triggered depression, breast cancer diagnosis was much more relevant in Group 1 than in Group 2. However, the subjects in both groups had a disturbed or distorted body image since they perceived their bodies as incomplete. The results of this study show that early psychological guidance and counselling is necessary from the moment that patients are diagnosed for breast cancer. In addition, breast cancer patients that have undergone mastectomy need to be closely monitored so that they can improve and maintain an optimal level of emotional equilibrium.

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