

# Stress in mastectomized women

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## Stress in mastectomized women

### Abstract

**Objective.** To evaluate the stress level in women who have had mastectomy and analyze the relationship between stress and sociodemographic, clinical, and social support variables. **Methodology.** Descriptive study carried out at Hospital de Santa Rita de Cássia, Vitória/Espírito Santo (Brazil) among 84 mastectomized women. We used a questionnaire to elicit sociodemographic information and instruments to evaluate stress (Lipp's Stress Symptom Inventory for Adults) and anxiety (State-Trait Anxiety Inventory)]. **Results.** A total of 69% of women had stress. Stress in the exhaustion phase was found in 57% of women, the resistance phase in 39%, alarm in 2%, and the near-exhaustion phase in 2%. Physical symptoms predominated (56%) over psychological symptoms (44%). Only 25% of participants had some type of social support. Of investigated variables, only the relationship of stress with anxiety traits was statistically significant. **Conclusion.** An important proportion of mastectomized women experienced stress. Nursing follow-up is essential to help these patients deal with the stress associated with breast cancer.

**Key words:** breast neoplasms; mastectomy; stress, psychological; anxiety.

## Estrés en mujeres mastectomizadas

### Resumen

**Objetivo.** Evaluar el nivel de estrés en mujeres mastectomizadas y examinar la relación del mismo con variables sociodemográficas, clínicas y de apoyo social. **Metodología.** Estudio descriptivo realizado en el hospital de Santa Rita de Cássia en Vitória/Espírito Santo (Brasil), con una muestra de 84 mujeres mastectomizadas. Se utilizó un formulario que contenía información sociodemográfica e instrumentos para la evaluación del estrés (Inventario de Síntomas de Estrés de Lipp) y de la ansiedad (Inventário de Ansiedade Traço e Estado -IDATE-). **Resultados.** Del total de

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**Subventions:** none.

**Conflicts of interests:** none.

**Receipt date:** Oct 8, 2012.

**Approval date:** May 8, 2013.

**How to cite this article:** Primo CC, Amorim MHC, Castro DS, Paraguassú TC, Nogueira TP, Bertolani GBM, Leite FMC. Stress in mastectomized women. Invest Educ Enferm. 2013;31(3): 385-394.

mujeres estudiadas, un 69% presentó estrés. De estas, el 57% se encontraba en las fases de agotamiento; el 39%, en la de resistencia; el 2%, en alerta, y otro 2% en casi agotamiento; los síntomas físicos (56%) predominaron sobre los psicológicos (44%). Tan solo el 25% de las participantes recibía algún tipo de apoyo social. De las variables investigadas, tan solo la relación de estrés con rasgos de ansiedad presentó asociación estadísticamente significativa. **Conclusión.** Una proporción importante de las mujeres mastectomizadas sufre de estrés. Es esencial el acompañamiento de enfermería a estas pacientes que conduzca a afrontar mucho mejor esta enfermedad.

**Palabras clave:** neoplasias de mama; mastectomía; estrés psicológico; ansiedad.

## Estresse em mulheres mastectomizadas

### ■ Resumo ■

**Objetivo.** Avaliar o nível de estresse em mulheres mastectomizadas e examinar a relação do mesmo com variáveis sócio-demográficas, clínicas e de apoio social. **Metodologia.** Estudo descritivo realizado no hospital de Santa Rita de Cássia em Vitória/Espírito Santo (Brasil), com uma mostra de 84 mulheres mastectomizadas. Utilizou-se um formulário que continha informação sócio-demográfica e instrumentos para a avaliação do estresse (Inventário de Sintomas de Estresse de Lipp) e da ansiedade (Inventário de Ansiedade Traço e Estado –IDATE-). **Resultados.** Do total de mulheres estudadas, um 69% apresentou estresse. Destas, o 57% se encontrava nas fases de esgotamento; o 39%, na de resistência; o 2%, em alerta, e outro 2% em quase esgotamento; os sintomas físicos (56%) predominaram sobre os psicológicos (44%). Tão só o 25% das participantes recebia algum tipo de apoio social. Das variáveis pesquisadas, tão só a relação de estresse com rasgos de ansiedade apresentou associação estatisticamente significativa. **Conclusão.** Uma proporção importante das mulheres mastectomizadas sofre de estresse. É essencial o acompanhamento da enfermagem a estas pacientes que conduza a enfrentar muito melhor esta doença.

**Palavras chave:** neoplasias da mama; mastectomia; estresse psicológico; ansiedade.

## Introduction

Breast cancer is the most common neoplasia among women and the second most frequent overall worldwide. It is estimated that each year around 22% of new cases of cancer in women occur in the breast. In Brazil in 2012, about 52,860 new cases of breast cancer were expected, with an estimated risk of 52 cases/100 000 women. In the city of Espírito Santo, the estimate is 900 new cases of breast cancer with an incidence of 49.42 cases/100,000 women. For the city capital, Vitória, the expected incidence was 71.28 cases/100 000 women.<sup>1</sup>

A breast cancer diagnosis changes a woman's life and represents an emotional load that could trigger emotional-affective imbalances, such as

depression, anxiety, or even psychosis; it could also generate stress in some patients.<sup>2</sup> The term "stress" as a health concept was introduced in 1936 by Hans Selye. This author defines stress as an organism's nonspecific organic response to stressful situations.<sup>3</sup> In 2001, other researchers<sup>4</sup> defined stress as an organism's adaptive reaction to situations that require great emotional effort to be overcome (i.e., stressful situations).

Stress has three phases: alarm, resistance, and exhaustion. The alarm phase is considered a positive phase of stress; during this phase humans are energized by adrenaline production, survival is preserved, and feelings of plenitude are often experienced. In the resistance phase, the person

automatically attempts to deal with stressors in a way that maintains internal homeostasis. If stressful factors persist in frequency and intensity, resistance is broken and the person moves on to the exhaustion phase. In this phase severe diseases could occur in more vulnerable organs, such as heart failure, ulcers, psoriasis, and depression.<sup>3</sup>

Although stress has been classified into three phases, researchers have identified and shown both clinically and statistically a new phase of stress process called near-exhaustion. The term has been so named because it is between resistance and exhaustion and is characterized by weakness in a person who is not able to adapt himself/herself to or resist the stressor. Diseases begin to appear, but they are not as severe as those seen in the exhaustion phase. Moreover, the person can work and function in society until a specific point, different from that which occurs in the exhaustion phase, when the individual stops “functioning” appropriately and is unable to work or concentrate.<sup>5</sup>

Over the long term, the stress, along with genetic predisposing factors, leads to vulnerability to depression and anxiety disorders. This situation can be even more acute in women; several sources indicate that women experience more stress than men.<sup>6,7</sup> Researchers have been evaluating depression, anxiety, and somatic symptoms as indications of inadequate adjustment to stressful events because depression and anxiety are symptoms of stress. A woman diagnosed with breast cancer experiences a number of stressors that affect her at different phases of the disease.<sup>8-10</sup> Thus, follow-up and treatment for not only cancer but also the causes of stress are essential. Evaluating stress in patients who have undergone mastectomy is important for identifying those at high risk for developing psychopathologic disorders while receiving treatment, and also contributing for management of nursing care delivered for these women. In this sense, our aim was to evaluate stress in mastectomized women and analyze the relationship of stress with sociodemographic, clinical and social support variables.

## Methodology

This is a descriptive study of a qualitative approach performed in the Rehabilitation Program for Mastectomized Women (PREMMA; acronym in Brazilian Portuguese) located in the Ylza Bianco outpatient unit at Hospital Santa Rita de Cássia (HSRC) of Women’s Association for Cancer Education and Control (AFECC; acronym in Brazilian Portuguese), which offers high-complexity oncology care in Vitória/Espírito Santo, Brazil.

The PREMMA was founded in partnership with the Nursing Department of Universidade Federal do Espírito Santo and the AFECC-HSRC with the goal of systematizing interdisciplinary care for mastectomized women that is based on the specific skills of each area of health knowledge. The patients seen at this clinic consisted of women who had undergone mastectomy and were referred to health professionals of HSRC, mainly from Espírito Santo State. After their clinical diagnosis, the women were included in the integral care process and engaged in several activities designed to help them reenter the work environment and thereby recover their self-esteem.

The study sample was composed of 84 mastectomized women enrolled in PREMMA. Inclusion criteria were women older than 20 years of age diagnosed with breast cancer without distant metastasis that underwent surgery and had no personal history of psychiatric disease or use of illicit drugs. Women were enrolled after providing written informed consent.

Information on the following variables was collected: socioeconomic data (age, marital status, formal education, occupation, contribution for Social Security, family income); clinical data (hospital where surgery was conducted, type of surgery, date of enrollment at PREMMA), and social support (support given by partner and family or friends). This information was obtained by interviewing the patients and recording their responses on a standardized form. Clinical

information concerning date of surgery, date of PREMMA enrollment, and frequency of visits to PREMMA was collected from an active search of medical records and enrollment service files.

Economic class variables were identified using a formulary of economic classification of the Brazilian Association of Research Companies. Brazilian economy classification is obtained using an economic segmentation instrument that involves a home characteristics survey (presence and number of some comforting home items and formal education degree of head of the family) to differentiate the population. The levels of economic classification are defined by letters A, B, C, D, E.<sup>11</sup>

To assess stress, Lipp's Stress Symptoms Inventory for Adults (LSSI) was used. The instrument was validated in Brazil in 1994 and evaluates whether an individual has experienced stress and, if so, the stress phase according to physical or psychological symptoms. The LSSI identifies the three stress phases described above: alarm, resistance, and exhaustion. The LSSI has a total of 34 items regarding somatic symptoms and 19 for psychological symptoms; several symptoms are repeated several times and differ only by intensity and severity. The person is evaluated according to physical or psychological symptoms experienced in the last 24 hours, last week, and last month. The new phase proposed by Lipp during evaluation of the present instrument—the near-exhaustion phase—is identified by the frequency of items marked for the resistance phase. The instrument was analyzed by a psychologist and in research based on Lipp's recommendations.<sup>12</sup>

Variable trait and anxiety status were measured to evaluate the relationship between stress and anxiety by using the State Trait Anxiety Inventory (STAI). This inventory consists of two parts, with 20 affirmations each. The anxiety trait evaluates how often women perceived their own life,

and the anxiety status evaluates anxiety in the moment of the interview.<sup>10</sup> Data were collected through individual interviews from December 2009 to March 2010. For statistical analysis, SPSS software, version 15.0 (SPSS Inc, Chicago, Illinois), was used. We performed a descriptive analysis using frequency tables and graphics. To analyze the relationship between variables and stress, we applied the chi-square test. A  $p$  value  $<0.05$  indicates the existence of a relation among variables.

This research project was approved by the Ethical and Research Committee of the Health Science Center at Universidade Federal do Espírito Santos (number 225/2009). After the end of the study patients received a letter containing the results achieved. Patients who presented with stress in the exhaustion and near-exhaustion phases were referred to our institution's psychological service.

## Results

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After application and interpretation of data from LSSI, we found that 69% of patients met criteria for stress and 31.0% did not. Among all patients, 56.9% were at the exhaustion stress phase, 39.7% were at the resistance phase, 1.7% were at the alarm phase, and 1.7% were at the near-exhaustion phase. Of the women who were experiencing stress, 56.2% had physical symptoms and 43.7% had psychological symptoms. Among women in the exhaustion phase, more had developed psychological symptoms (59.0%) than physical symptoms (41.0%). As shown in Table 1, the most frequent symptoms were distress/daily anxiety, nervousness, excessive tiredness, thinking/speaking about a single subject, and eagerness to run away from everything. Fifty-eight percent of women in the resistance phase presented physical symptoms; the most frequent were lack of memory, constant physical fatigue, and constant tiredness.

**Table 1.** Characterization of the predominant symptoms among 84 women with exhaustion- and resistance-phase stress, Vitória/ES, December 2009 – March 2010

Symptoms	%
<b>Exhaustion phase</b>	
Distress / daily anxiety	87.9
Feeling very nervous	84.4
Excessive tiredness	84.8
Thinking / speaking about a single subject	78.8
Eagerness to run away from everything	78.8
Inability to work	75.8
Apathy / disinterest, depression, or prolonged anger	72.7
Irritability without apparent cause	66.7
Feeling of incompetence in all areas	66.7
Loss of sense of humor	60.7
Nightmares	42.4
<b>Resistance phase</b>	
Memory problems	54.2
Feeling of constant physical fatigue	45.8
Constant tiredness	41.7
Changes in appetite	37.5
Tingling in hands/feet	37.5
Hypertension	33.3
Dizziness / feeling of fluctuation	29.2
Appearance of skin problems	8.3
Unexplained generalized malaise	8.3
Ulcer appearance	4.2

Table 2 describes sociodemographic, clinical, and social support variables. Ages ranged from 31 to 80 years; the mean age was 45.5 years. In addition, 39.3% of these women were 50 to 59 years of age, 59.5% were married, and 44% had an incomplete elementary school education.

Thirty-one percent of women were housewives and 25% were retired; 45.2% had contributed to Social Security and 31.0% were active contributors. Women with family income was one to three times minimum wage, and of these women 53.6% were from socioeconomic class C. Of the 50 women who had a partner, 74.5% received emotional or financial support from the partner. However, 75% of women did not receive any type of social support. Eighty-one

percent of women underwent the surgery at the hospital where the study was conducted; 63.1% underwent mastectomy with lymphadenectomy, 54.8% were enrolled at PREMMA after surgery, and 59.5% frequented PREMMA three or more times a month.

The chi-square test showed no associations between stress and the following variables: age, marital status, formal education, occupation, contribution to Social Security, family income, socioeconomic class, partner support, social support, hospital where the surgery was performed, type of surgery, date of enrollment at PREMMA, and anxiety status. On the other hand, stress and anxiety trait showed a significant relationship ( $p = 0.013$ ).

**Table 2.** Socioeconomic and clinical variables among 84 women,  
 Vitória/ES, December 2009 – March 2010

<b>Variables</b>		<b>n</b>	<b>%</b>
Age	31 - 39 years old	7	8.3
	40 - 49 years old	22	26.2
	50 - 59 years old	33	39.3
	60 years or older	22	26.2
Formal education	Illiterate	9	10.7
	Incomplete elementary school	37	44.0
	Complete elementary school	11	13.1
	Incomplete high school	9	10.7
	Complete high school	14	16.7
	College degree	4	4.8
Marital Status	Married / stable union	50	59.5
	Single	9	10.7
	Divorced / separated	8	9.5
	Widow	17	20.2
Occupation	Farmer/ Rural employee	1	1.2
	Employee at private company	6	7.1
	Freelancer	7	8.3
	Government employee	7	8.3
	Housewives	26	31.0
	Retired	21	25.0
	Others	16	19.0
Contribution for social security	Non-contributor	20	23.8
	Contributor	26	31.0
	Already contributed	38	45.2
Family income	One time minimum wage	27	32.1
	Up to three times minimum wage	35	41.7
	Three to five times minimum wage	15	17.9
	Five to ten times minimum wage	6	7.1
	Ten to fifteen times minimum wages	1	1.2
Socioeconomic class	B	20	23.8
	C	45	53.6
	D	19	22.6
Partner support	Emotional	2	3.9
	Financial	6	11.8
	Emotional and Financial	38	74.5
	None	5	9.8
Social Support	Family	16	19.0
	Friends	2	2.4
	Others	3	3.6
	None	63	75.0

**Table 2.** Socioeconomic and clinical variables among 84 women, Vitória/ES, December 2009 – March 2010 (Cont.)

Variables		n	%
Surgery performed at the hospital	Yes	68	81.0
	No	16	19.0
Type of Surgery	Mastectomy with lymphadenectomy	53	63.1
	Quadrantectomy with lymphadenectomy	22	26.2
	Quadrantectomy without lymphadenectomy	5	6.0
	Mastectomy without lymphadenectomy	4	4.7
When enrolled at PREMMA	Post-diagnosis – no treatment	3	3.6
	Post-surgery	46	54.8
	Currently receiving chemotherapy (QT)	8	9.5
	Currently receiving radiotherapy (RTX)	10	11.9
	Currently receiving hormone therapy	4	4.8
Frequency at PREMMA	Post QT/RTX/hormone therapy	13	15.5
	Less than once per month	12	14.2
	Once per month	22	26.2
	Two, three, or more times per month	50	59.5

## Discussion

This study found most of the study participants met the criteria for stress. Patients who have cancer or are facing the possibility of a malignant tumor become desperate, distressed, fearful, hopeless, sad, and nervous.<sup>13</sup>

A study conducted to delineate possible relationships between emotional reactions to breast cancer and psychological morbidity in mastectomized women evaluated stress in 10 patients and reported that 80% of participants were stressed.<sup>9</sup> Another investigation evaluated the presence of stress in 16 women after treatment for breast cancer and found that 37.5% experienced stress.<sup>14</sup> These findings reflect the hopelessness that women undergoing mastectomy feel as a result of breast removal; their diagnosis, the procedure, and the potential side effects involved affect their emotions and self-image.<sup>13</sup>

The scarcity of studies comparing stress and breast cancer limit our ability to compare our results with

the literature; in addition, most existing studies considered stress as a causal factor for cancer rather than stress as a process of adaptation to cancer and related issues. Moreover, the previous studies we identified included small samples.

Some studies that included women with psychological imbalance after breast cancer treatment report that it affects 5% to 50% of women. They also affirm that women with a psychiatric history and had low expectations of treatment benefits (due to their lack of support or previous experience with family members) have higher risk for developing psychological imbalance.<sup>15,16</sup>

Most of the women in our study with stress had a higher frequency of physical symptoms than psychological symptoms. The most frequent stress phase was exhaustion, followed by resistance. Among women in the exhaustion phase, psychological symptoms were prevalent,

particularly the following symptoms: daily distress/ anxiety, nervousness, excessive fatigue, thinking/ speaking about a specific subject, and eagerness to run away from everything. In this phase, people experience excess of activities and high consumption of energy, and are more susceptible to any organic diseases that might appear.<sup>3</sup>

In the resistance phase physical symptom predominate, particularly memory problems, feelings of constant physical fatigue, and constant tiredness. Women in this phase were trying to deal with stress, for which they were seeking homeostasis. Soon, these women could become vulnerable to infections and diseases as a result of cortical suprarenal hyperactivity and high consumption of energy.<sup>5</sup>

A study of stress in women who had mastectomy, performed in Minas Gerais, verified the prominence of psychological symptoms in the resistance phase, followed by the near-exhaustion phase.<sup>9</sup> In São Paulo, a study that evaluated the presence of stress in women after breast cancer treatment verified that 100% of stressed patients were at the resistance phase and had more psychological symptoms than physical symptoms.<sup>14</sup>

A study of stress and social ability in patients with laryngeal cancer found that most presented with stress at any phase; the resistance phase was most common, followed by the exhaustion phase. No patients were at the alarm or near-exhaustion phase. Almost all patients had psychological symptoms. The most common psychological symptoms of stress were self-doubt, thinking constantly about a specific subject, and excessive tiredness.<sup>8</sup>

A study of mastectomized women showed that during treatment with tamoxifen, patients' stress level increased; the most-reported stress symptoms were distress, insomnia, back pain, and thoughts that provoked anxiety.<sup>10</sup> An investigation on the stress of labor magistrates found that most of the sample had symptoms typically found in stress, primary during the resistance phase. This population reported feeling constant physical fatigue, suffered from muscle tension, and

experienced excessive irritability; these physical symptoms occurred more often than psychological symptoms, results that agree with our findings.<sup>6</sup>

An important result found in our study was the significant association of stress and anxiety trait. Thus, it is reasonable to ask whether stress is related to intrinsic characteristics of the patients—not only aspects associated with the disease itself and its consequences but also history and life habits, because the study instrument determined how women normally felt about their life. Stress situations that last for a long time result in body imbalance; for this reason, the defense mechanism against cancer become weak from exhaustion. Therefore, an important point is how to strengthen defense mechanisms against cancer and increase defense efficacy after appearance of a malignant tumor; the defense is necessary to improve life satisfaction, hopefulness about survival, and the ability to resist and self-heal from cancer.<sup>17</sup>

By using an analysis of variable frequency, we found that most patients went to PREMMA three or more times a month. This regular attendance might be explained by the patients' need for a place where they can speak freely about their doubts, uncertainty, and distress and the effects on their daily activities. Considering the age of women included in this study, we observed similar findings in a study of 170 patients with breast cancer in London; the mean age in that study was 48.4 years, similar to that in ours.<sup>18</sup> Several studies conducted in Vitória/ES also reported that most patients were of this age.<sup>14,19-21</sup>

In our study, most women were married and had limited formal education. Similar results were seen in other studies of mastectomized women<sup>19-21</sup> conducted in Espírito Santo. The family income in our study was similar to that reported in other research<sup>22</sup> among patients with breast cancer, which reported a total of no more than three times minimum wages. Other studies<sup>21</sup> carried out in Vitória with mastectomized women showed that most of them had family income up to 3 minimal wages.



A study in Paraná<sup>23</sup> that analyzed the socioeconomic profile of women undergoing treatment of breast cancer found that most women belonged to socioeconomic class C, a finding that corroborates the result in the present study. The same study from Paraná<sup>23</sup> showed results similar to ours in relation to the women's occupation: Most of the interviewed women were housewives, and a minority were retired.

Concerning Social Security, a study in post-mastectomy women agrees with results found in our study.<sup>21</sup> An earlier study reported that around 44% of women treated for breast cancer received emotional and financial support from their partners,<sup>24</sup> which also corroborates our results. In addition, a study of mastectomized women conducted in Campinas showed the importance of support to women with breast cancer; women who have a partner present better scores on psychological and social relations domains. Presence of a partner may indicate that women have a greater chance of receiving social and psychological support and having better living conditions.<sup>25</sup>

Our study results concerning social support agree with those observed in women diagnosed and treated for breast cancer at a teaching hospital; at that hospital, most women seek and receive social and family support through relatives and friends, but support is not always provided by all.<sup>24</sup>

In our study, most women underwent surgery in the same hospital where this study was conducted. This fact probably explains why women were referred to PREMMA after breast cancer diagnosis; this did not occur when treatment was carried out at different hospital. A previous study found that most women with breast cancer underwent conservative treatment, a finding that differs from the situation in our study.<sup>19</sup>

It is important to analyze the point at which women in our study enrolled in PREMMA. We observed that the evaluation effects of PREMMA implementation, such as nursing intervention before surgery among women diagnosed with breast cancer, showed that those enrolled in

PREMMA before surgery had a low level of anxiety compared with those who enrolled after the surgery.<sup>25</sup> Enrolling in PREMMA before mastectomy benefited the patient psychologically. Although the program was initially created with the goal to perform postoperative interventions, the results of this study led the rearrangement of the referral flowchart for women just after diagnosis. It is believed that the results of this study have led to early referral to PREMMA for some women. It is critical that nurses incorporate into their daily practice the use of instruments that allow them to identify normal stress behavior. Doing so could facilitate and support nursing interventions.<sup>13</sup>

Our study suggests that most of patients fulfilled all stress criteria. Stress was not significantly related to most variables, but the association of stress with trait variables of anxiety was significant. We found that breast cancer could generate stress events. Thus, applying the instrument used in this study during interdisciplinary care for women with cancer can help evaluate stress more frequently and identify patients who need psychological support.

We emphasize the importance of interdisciplinary and holistic care delivery to mastectomized women, with the goal of reducing the effect of stress from cancer, improving the way patients face problems, and, consequently, improving their response to emotional stress.

Further studies on stress in women with breast cancer that feature larger samples are recommended to enable extrapolation of the results and increase the validity of our conclusions. In addition, future research on the relationship between stress and previous life activities may help elucidate cancer genesis.

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