

Original Article

## General Health Condition of Young Women with Breast Cancer Depending On Surgical and Adjuvant Treatment

**Lambadiari Maria, MSc**  
Midwife

**Lykeridou Aikaterini,**  
Professor, Midwifery Department, Hellenic Republic Athens University of Applied Sciences, Athens, Greece

**Ilias Ioannis, MD, PhD**  
Consultant, Endocrinology Department, Elena Venizelou Hospital, Athens, Greece

**Deltsidou Anna, MD, PhD**  
Consultant, Endocrinology Department, Elena Venizelou Hospital, Athens, Greece

**Correspondence:** Anna Deltsidou, Kifisias 51, Athens, 11523, Greece E-mail: adeltsidou@teiath.gr, adeltsidou@gmail.com

### Abstract

**Objectives:** Surgical and adjuvant treatment of breast cancer cause serious consequences on the quality of life of women. The purpose of the study was the comparative assessment of the quality of life, the body image, the sexual activity and the general health status of women with breast cancer, who followed different types of surgery and aromatase inhibitors (AIs) treatment.

**Methods:** The study sample consisted of 125 women <45 years of age with breast cancer. All of the women had undergone surgical treatment and chemotherapy. To assess the health status of the women, the Women's Health Questionnaire (WHQ) was used. The analysis of the data was done by using SPSS v. 17.0. The level of statistical significance was set up at 0.05.

**Results:** The majority of the women were in the age between 35-40 years old, married, with one or two children. Seventy women (56.0%) had undergone conservative surgical treatment. The highest decline in the total sample was observed in sleep disorders and the lowest in attractiveness. Mastectomized women tested more poorly in depressive mood, sexual behavior and sleep disorders ( $p < 0.05$ ). Women who received hormonal therapy showed a more severe depressive mood ( $p < 0.01$ ).

**Conclusions:** Women who had undergone mastectomy, regardless of whether they had gone forward with breast reconstruction or not, present a significant psychosexual decline. Adjuvant therapy deteriorates women's mental state, without any noteworthy differences regarding the use of conventional anti-estrogen therapy or aromatase inhibitors.

**Key words:** breast cancer, surgery, mastectomy, aromatase, psychosexual dysfunction, treatment, hormones

### Introduction

Breast cancer is the most common malignant disease for women worldwide, both in developed and in developing countries. Its annual incidence varies widely and ranges from 12-86 out of 100,000 people (Key, Versakalo & Banks, 2001), whereas, in the developed countries, it seems to be increasing during the last two decades.

Regarding breast cancer treatment, surgical treatment is still the best option, combined, based on the evidence, with radiation therapy and chemotherapy. Both surgical and adjuvant treatment have a significant impact on a woman's psychological and general health, whose quality of life is notably affected. Despite the fact that less invasive techniques have been established in relation to the past, the effects of surgery on a

woman's body image and sexuality are still significant (Bard & Sutnerland, 1955; Chopra & Kamal, 2012).

The last decades many studies investigate the effects of hormone therapy for breast cancer treatment (Ruddy, Mayer & Partridge, 2009) because of the large number of patients (Vervoort et al., 2004), the long duration of the treatment (EBCTCG, 1998), the most favorable outcomes (EBCTCG, 2005; Forbes et al., 2008), and the harmful drug reactions (Forbes et al., 2005). As adjuvant hormone treatment for the breast cancer, hormone suppressants or analogous agents are used to restrain the tumor growth (Ministeria de Sauda, 2008). This type of treatment has been found to lead to the decreasing numbers of breast cancer recurrence and metastasis and, to increasing the rates of the disease-free survival (WHO, 2002; Brito et al., 2014).

The recent advancement in Medicine has contributed to increasing the life expectancy for people suffering from chronic diseases and disabilities. However, the quality of life, a patient's "well-being" cannot be measured using biochemical indexes, since it is affected by various, highly subjective, factors. The term "quality of life" is used in a wide range of contexts, including the scientific field. Clinical physicians typically examine the physical aspects of the term "quality of life", contrary to psychologists, who tend to focus more on the psychological and emotional aspects of health. The World Health Organization (WHO) legitimized this practice by including, in its definition for Health, non biological factors and non disease-related situations. In the "Health For All" declaration, the organization states that all people should have an opportunity to develop their health potential, and to have a socially, financially and mentally satisfactory life (WHO, 1999).

There are diseases that can distort a person's self-perception of his entire being and identity, and can even lead to more serious mental disorders. Cancer, in all of its aspects, is such an example. Even when the person is healed, the scars left behind are too hard to heal and remain forever on that person's body and soul. Breast cancer, in particular, regardless of the final outcome, brings all the

types of changes to a woman's life and body, since it alters her body image and injures her femininity (Jocham et al., 2009).

The effects of breast cancer to a woman's psychological and physical health were the motivation behind this study, which aimed to study the quality of life of women who survived breast cancer. It focused especially on body image and the effects on their sexual activity.

The purpose of the study was to comparatively assess the general health condition of women with breast cancer, aged up to 45 years, who have undergone different surgery procedures and/ or aromatase inhibitors therapy.

### **Materials and Methods**

The sample study consisted of 125 women with breast cancer who were regularly evaluated at an anticancer center in Athens, Greece. Data were collected over an 6-month period.

According to the inclusion criteria the women chosen: a) were able to read and write in Greek language in order to have the ability to complete the questionnaires, b) had undergone surgical operation for primary breast cancer, c) had a diagnosis confirmed by histological examination, d) had no other cancer type in the past, e) were aged >18 years.

The exclusion criteria of the study consisted of: a) mental retardation, b) use of psychotropic drugs, c) foreigners with inadequate knowledge of the Greek language, d) patients undergoing chemotherapy during the study period.

All women had undergone chemotherapy. Their basic therapy included surgical operation (radical mastectomy, modified mastectomy or lumpectomy) as well as radiotherapy.

A questionnaire incorporating demographic variables and questions about surgery procedures and adjuvant therapy, as well as the WHQ questionnaire were used (Hunter, 2003). The WHQ is a 36-item questionnaire assessing nine domains of physical and emotional health rated on four point scales which covers the following domains (Hunter, 2000; Hunter, 2003).

- Depressed mood (6 items)
- Somatic symptoms (7 items)
- Anxiety/fears (4 items)
- Vasomotor symptoms (2 items)
- Sleep problems (3 items)
- Sexual behaviour (3 items)
- Menstrual symptoms (4 items)
- Memory/concentration (3 items)
- Attractiveness (3 items)

Scoring of the WHQ is straight forward. The four point scales (yes definitely, yes sometimes, not much, no not at all) are reduced to binary options (0/1) and the subscale items are summated and divided by the number of items in each subscale.

Norms are available for the 45–65 age range (n = 682), the 45–54 age range (n = 474) and the 55–65 age range (n = 179), as well as for a younger sample, aged 23–38 (n = 55). In this study the alpha Cronbach's coefficient was 0,87.

#### **Translation and questionnaire pilot study**

The questionnaire in English was translated into Greek by two independent bilingual persons and then back-translated to English by two other bilingual persons. In this study, the questionnaire was piloted with the objective of examining the understanding of the questions, in order to eliminate any ambiguities in questions and to predict the timing for completion.

The sample of the pilot study consisted of 10 women with different demographic characteristics in order to ensure the representation of the main sample. The respondents provided feedback to the researcher by thinking aloud during the completion of the questionnaire. The returned questionnaires were fully completed and the response choices were adequate and understandable.

#### **Ethical considerations**

Ethical approval to conduct this study was given by the Institutional Ethical Committee. Participants were assured of keeping their anonymity and they asked to sign the informed consent form.

#### **Statistical analysis**

Descriptive and inferential statistics was performed on SPSS version 17.0. Women were classified into subgroups depending on the surgery procedure and the adjuvant hormonal therapy. Normality was checked by Shapiro-Wilk test. The non-parametric tests Kruskal Wallis, Mann-Whitney were used as appropriate. The level of statistical significance was set up at 0.05.

#### **Results**

The majority of women were between 35 and 40 years old (81.5%), married (67.4%), with one or two children (66.4%). Fifty four women (43.2%) were Higher Educational Institutes/Technological Educational Institutes graduates (Table 1). Next, the results from each questionnaire are described. The “lack of breast-YES” group includes women who went through mastectomy, without reconstructive surgery, whereas the “NO” group refers to women who either went through conservative surgery or went forward with one or two breasts reconstruction. Thirty four women (15.2%) had undergone radical mastectomy without reconstruction, 21 women (29.6%) had undergone radical mastectomy with reconstruction, whereas 70 women (56.0%) had undergone conservative surgical treatment (Table 2). The highest score was observed in the subscale of sleep disturbances (0.80) and the lowest in the subscale of attractiveness (0.27). Normal values, along with study values are showed in table 3. Women with mastectomy (when compared to those with lymphectomy) had a statistically significantly higher score in the depressed mood, sexual behavior and sleep disturbances subscales ( $p=0.037$ ,  $p=0.021$ ,  $p=0,027$  respectively) (Table 4).

Women who had received chemotherapy therapy exhibited higher score in the depressed mood subscale than those who hadn't. Those who had received aromatase inhibitors exhibited slightly higher score than those who had received chemotherapy (Table 5).

#### **Discussion**

According to this study results, women who survived breast cancer show a decline in their quality of life and their general health

status. If this study results are contrasted with research data regarding the general population and healthy women of the respective age, there is a decrease, in many parameters, of women's general health status. Their health fear has affected many aspects of their lives. Their body image, sexual activity, cognitive functions and mental state show a significant decline. Women who had undergone radical mastectomy were at an even worse state, in many cases, with a statistically significant difference from those who underwent conservative surgery. Women who treated with aromatase inhibitors (AIs), as an adjuvant therapy, did not show any statistically significant difference in the examined parameters. However, in many parameters, women who received hormonal therapy were at an even worse state than women who did not receive such a treatment.

According to general population data, the average score in any WHQ subscale was not higher than 0.31 for healthy adult women 38 years of age, whereas for women in the age between 45-54 there is no average subscale score higher than 47. On the other hand, according to this research, there was no average score below 0.39, except for the "attractiveness" subscale, whereas in the case of sleep disorders the average score reaches 0.80, which is almost twice the expected score for the age of sample women (WHO 2002). Regarding sexuality, women draw less satisfaction from sexual intercourse, since the expected average score in the general population for women of the respective age is 11.2, while according to this study findings our average score was below 9 (Thirlaway, Fallowfield & Cuzick, 1996).

The results of our study confirm the findings of the studies which suggest that mastectomized women show a significant decline in their quality of life and that the use of aromatase inhibitors is probably linked with a better quality of life, in comparison to previous anti-estrogen therapy (Kemeny, Wellisch & Schain, 1998; Mortimer et al., 1999; Alicikus et al., 2009; Mok, Juraskova & Friedlander, 2008; Brustein & Griggs, 2010). Regarding the psychosexual effects of mastectomy, it is suggested that the differences between women who undergo

radical mastectomy and those who undergo lumpectomy are rather small, and are decreased with time, so that after two years, they have been reduced to almost zero. However, a more thorough approach of sexuality and sexual satisfaction reveals more unfavorable outcome for women who underwent radical mastectomy, at least in terms of sexual satisfaction and nudity and body comfort (Schover, 1994). A recent study conducted in Greece found that women who underwent radical mastectomy felt less attractive and avoided social contact (Anagnostopoulos & Myrghianni, 2009). It has also been found that women who undergo mastectomy have greater problems with their body image, even if they have went forward with breast reconstruction surgery. It is also interesting that women who have gone forward with breast reconstruction report more often, compared to those who have not, that breast cancer had a negative impact on their sex life (Fallbjork et al., 2010; Medina-Franco et al., 2010). Perhaps this observation also explains why there was no difference found between women who had undergone mastectomy and those who had undergone both mastectomy and reconstruction, regarding their sexual activity and body image. The main component, however, which affects a woman's psychological status is still the disease itself and the strain she experiences from the long term treatment and its physical effects (Schover, 1994; Alicikus et al., 2009).

Young women, in particular, experience the disease effects on their body image and sexual activity to a large extent. Some possible explanations for this possibly will be the feeling of getting old, that young women may experience, since many of them have an early menopause onset, which is accompanied by skin and bone density changes, etc., and also by a concern regarding their partner's view of their body (Munoz, 2010). It has been found that the husband's view of their woman's physical appearance is a more important prognostic factor for marriage satisfaction, than the woman's own body image. Moreover, beauty and youth correlation and the importance modern society attributes to physical appearance may render women particularly

vulnerable to body image changes. Sexual disturbances that young women face are greater in number and more persistent than older women. There is a set of codependent factors, related to the fact that these women are in one of the most productive, from every aspect, stages of their lives, which are responsible for these issues to large degree. The threat to their bodies is transformed into a threat to their own being, since the effects on their daily activities, their family and professional life are indeed severe (Dow & Lafferty, 2000).

The anti-oestrogen therapy for hormone receptor-positive breast cancer, these women have to go through, puts another burden on their quality of life. Modern medications, such as aromatase inhibitors, are considered to have a more favorable outcome in terms of gynaecological toxicity, since there is no increased endometrial or cervical cancer incidence observed, as it did in the past with tamoxifen. Nevertheless, dyspareunia and vaginal dryness are severe and cause problems during sexual intercourse. On the other hand, women receiving aromatase inhibitors experience slightly less intense hot flashes and vasomotor symptoms in comparison with women treated with tamoxifen (Ganz et al., 1992; Mortimer et al., 1999). There is still, however, a high risk of fractures, while there seems to be a significant incidence of arthralgia (joint pain), especially in overweight women. The effects in their cognitive and memory function have not been made clear yet, and further research is required (Shumaker et al., 2003; Agrawal et al., 2010). This study showed that even though in many parameters the quality of life appeared to be improved in women who received aromatase inhibitors, their sexual function was rather deteriorated, as was their general body concern, their anxiety and phobias.

### **Study limitations**

The women receiving AIs, were only a small part of the sample, while women undergone radical mastectomy (rarely a choice nowadays) were also included. The differences found between the subgroups would probably be better revealed if aromatase sample was larger and radical mastectomy group was not included.

Moreover, we cannot rule out that the women in the sample may have withheld some information regarding their sexual behaviour. A discrepancy between the objective measurements of physical functionality and the women's subjective views might also be present. This is supported by the observation that while several women reported sexual activity during the research period, when all of the women were asked why they were not sexually active during the same period, a lot more of them gave various reasons. Research data were obtained from only one center, while the women's socioeconomic status and their place of residence were not determined, which raises caution for the generalization of the results.

### **Conclusions**

This study shows that women who have undergone mastectomy, regardless of whether they had gone forward with breast reconstruction or not, present a significant psychosexual decline and a negative body image. The adjuvant therapy, with gonadotropin and aromatase inhibitors, deteriorates women's mental and physical state. It should be noted that the women's general health status appears to be significantly declined in relation to healthy women of the same age. However, there does not seem to be any difference in regard to the reasons for sexual abstinence women give, with fatigue and lack of interest being also reported as the main reasons by middle aged healthy women, as depicted on WHQ subscales. Given the fact that the research was conducted approximately three years after the disease diagnosis, the psychosexual decline seems to be mid- to long-term persistent. A thorough assessment of effect in daily activities, practical tips and alternatives for dealing with the issues may help women adapt to their new situation, with as little problems as possible, and continue to participate actively to all life aspects.

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**Table 1. Demographic characteristics of the sample**

<b>Variables</b>	<b>N</b>	<b>%</b>
<b>Age</b>		
25-29	3	2.4
30-34	20	16.1
35-40	101	81.5
<b>Total</b>	<b>124</b>	<b>100.0</b>
<b>Family status</b>		
Married	42	34.1
Married with children	41	33.3
Divorced	13	10.6
Living together	9	7.3
Unmarried	18	14.6
<b>Total</b>	<b>123</b>	<b>100.0</b>
<b>Number of children</b>		
None	30	25.9
One	31	26.7
Two	46	39.7
Three	8	6.9
Four	1	0.9
<b>Total</b>	<b>116</b>	<b>100.0</b>
<b>Educational level</b>		
Elementary	10	8.0
Junior high school	14	11.2
High school	47	37.6
College	13	10.4
University	41	32.8
<b>Total</b>	<b>125</b>	<b>100.0</b>

**Table 2. Surgical procedures in the women of the sample**

	<b>N</b>	<b>%</b>
<b>Radical or modified mastectomy without reconstruction</b>	34	27.2
<b>Radical or modified mastectomy with reconstruction</b>	21	16.8
<b>Lumpectomy</b>	70	56.0
<b>Total</b>	<b>125</b>	<b>100.0</b>

**Table 3. WHQ subscale score\***

	<b>N</b>	<b>Mean ± SD</b>	<b>Normal values</b>
<b>Anxiety/ Phobias</b>	123	0.39 ± 0.36	0.30
<b>Physical symptoms</b>	124	0.43 ± 0.28	0.32
<b>attractiveness</b>	122	0.27 ± 0.07	0.28
<b>Memory/ concentration</b>	120	0.42 ± 0.36	0.24
<b>disturbances</b>			
<b>Depression</b>	123	0.59 ± 0.42	0.15
<b>Sleep disturbances</b>	<b>66</b>	<b>0.80 ± 0.26</b>	<b>0.24</b>
<b>Vasomotor</b>	124	0.56 ± 0.37	0.13
<b>manifestations</b>			
<b>Sexual behavior</b>	100	0.61 ± 0.26	0.21
<b>Menopause symptoms</b>	55	0.38 ± 0.22	0.31

\* not all women answered all subscales

**Table 4. Differences in WHQ subscales between women with mastectomy and those with lymphectomy\***

	<b>Mastectomy</b>	<b>N</b>	<b>Mean Rank</b>	<b>p**</b>
<b>Anxiety/ Phobias</b>	<b>No</b>	67	59.10	0.310
	<b>Yes</b>	55	65.47	
<b>Physical symptoms</b>	<b>No</b>	68	57.24	0.069
	<b>Yes</b>	56	68.89	
<b>Attractiveness</b>	<b>No</b>	66	59.14	0.359
	<b>Yes</b>	56	64.29	
<b>Memory/ concentration disturbances</b>	<b>No</b>	66	56.48	0.145
	<b>Yes</b>	54	65.42	
<b>Depression</b>	<b>No</b>	<b>67</b>	<b>56.29</b>	<b>0.037</b>
	<b>Yes</b>	<b>56</b>	<b>68.83</b>	
<b>Sleep disturbances</b>	<b>No</b>	<b>64</b>	<b>32.59</b>	<b>0.027</b>
	<b>Yes</b>	<b>52</b>	<b>62.50</b>	
<b>Vasomotor manifestations</b>	<b>No</b>	69	58.17	0.119
	<b>Yes</b>	55	67.93	
<b>Sexual behavior</b>	<b>No</b>	<b>57</b>	<b>45.09</b>	<b>0.021</b>
	<b>Yes</b>	<b>43</b>	<b>57.67</b>	
<b>Menopause symptoms</b>	<b>No</b>	33	28.76	0.649
	<b>Yes</b>	22	26.86	

\*not all women answered all subscales

\*\* Mann-Whitney-U test

**Table 5. Differences in WHQ subscales between women in relation to the type of therapy**

	Type of adjuvant therapy	N	Mean Rank	p*
<b>Anxiety/ Phobias</b>	<b>No</b>	50	54.75	0.069
	<b>Yes (chemotherapy)</b>	57	63.18	
	<b>Aromatase inhibitors</b>	15	77.60	
<b>Physical symptoms</b>	<b>No</b>	51	55.04	0.181
	<b>Yes (chemotherapy)</b>	57	67.25	
	<b>Aromatase inhibitors</b>	15	65.70	
<b>Attractiveness</b>	<b>No</b>	48	62.39	0.851
	<b>Yes (chemotherapy)</b>	58	60.82	
	<b>Aromatase inhibitors</b>	15	57.27	
<b>Memory/ concentration disturbances</b>	<b>No</b>	48	60.08	0.665
	<b>Yes (chemotherapy)</b>	56	61.79	
	<b>Aromatase inhibitors</b>	15	53.07	
<b>Depression</b>	<b>No</b>	50	48.00	0.001
	<b>Yes (chemotherapy)</b>	57	70.55	
	<b>Aromatase inhibitors</b>	15	72.10	
<b>Sleep disturbances</b>	<b>No</b>	27	30.33	0.468
	<b>Yes (chemotherapy)</b>	28	36.23	
	<b>Aromatase inhibitors</b>	10	31.15	
<b>Vasomotor manifestations</b>	<b>No</b>	51	57.73	0.508
	<b>Yes(chemotherapy)</b>	57	64.90	
	<b>Aromatase inhibitors</b>	15	65.50	
<b>Sexual behavior</b>	<b>No</b>	39	46.77	0.525
	<b>Yes (chemotherapy)</b>	47	53.40	
	<b>Aromatase inhibitors</b>	14	51.14	
<b>Menopause symptoms</b>	<b>No</b>	28	28.21	0.459
	<b>Yes (chemotherapy)</b>	20	24.83	
	<b>Aromatase inhibitors</b>	6	33.08	

Kruskall- Wallis test\*