

The Impact of Breast Cancer on the Emotional Component of Health

Zivana Gavric^{1*}

¹*Department of Social Medicine, Medical Faculty, University of Banja Luka, 78000 Banja Luka, Bosnia-Herzegovina.*

Author's contribution

Author was involved in study design, statistical analysis and manuscript preparation. Author read and approved the final manuscript.

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ABSTRACT

Aim: The aim of this study was to examine how the breast cancer affects the quality of life of women, especially in the emotional component of health compared to women without this disease in our community.

Study Design: Cross-sectional study.

Place and Duration of Study: Department of Social Medicine, Medical Faculty, University of Banja Luka with the Association of women "Iskra" and the Association of nurses from Banja Luka, Bosnia and Herzegovina, from 10 June to 15 August 2011.

Methodology: The study included 100 women treated for breast cancer from "Iskra" Banja Luka and 100 women from the Association of nurse aged 20-75, using the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30).

Results: In monitoring the parameters on functional scales in women treated for breast cancer, the score for emotional scale and social functioning has shown the lowest value, with a statistically significant difference compared to the highest score in cognitive and physical functioning. Changes in emotional scale at large were associated with symptoms that occur in women treated for breast cancer, where nearly ½ (48%) of those women had pain and the pain interfered with the daily activities. Insomnia was present quite a bit (53%) and very much (5%) in women treated for breast cancer. In women treated for breast cancer, a statistically significant difference was found in scores for

*Corresponding author: Email: higija@inecco.net;

symptoms of fatigue, insomnia and pain in relation to other symptoms which were present to a lesser extent. More than 2/3 (73%) said they were concerned about their health in the future.

Conclusion: Changes on emotional scale indicate the need to monitor the quality of emotional health of patients treated for breast cancer in order to implement preventive programs to help women treated for breast cancer to cope with this problem.

Keywords: Women; breast cancer; quality of life; emotional functioning.

1. INTRODUCTION

Every year, among the leading causes of cancer mortality in the world is the cancer located in lungs, stomach, liver, colorectum and breast. About 72% of all cancer deaths in 2007 year occurred in countries with low and middle income [1].

In the Republic of Srpska, Bosnia and Herzegovina, malignant diseases represent a major cause of hospitalization, taking the second place as a cause of death with growing incidence. The most common newly diagnosed cases of cancer in women are breast, colorectal, cervical, lung and that of uterine cancer [2].

Breast cancer is the most common cancer in women in Europe, North America and other Western countries and its incidence is increasing (1-2% annually). According to data from the European Community in 1990 year, breast cancer was the most common malignant tumor as well as the cause of death in women aged 35-64 years [3].

As for the worldwide data, it is estimated that five-year survival with diagnosis of cancer was accounted for 28.7 million people in the 2008, mostly the breast cancer (over 5 million survivors), the prostate (over 3 million) and cancer of the colon and rectum (over 3 million) [1].

Diagnosis of chronic disease can produce a strong emotional distress to the patient and family [4,5]. In assessing the personal quality of life, emotional control, that has an impact on the positive effects of emotional expression, plays an important role. Timely assessment of psychosocial needs of the person with cancer reduces pain, suffering and sensitivity, all contributing to emotional distress. The emotional distress is defined as "a multi factorial unpleasant emotional experience (cognitive, behavioral and emotional), psychological, social and/or spiritual nature, which may impair the ability to cope with cancer (disease), its physical symptoms and its treatment. Distress extends in a continuum that goes from normal feelings of vulnerability, sadness and fears to problems that can incapacitate us, such as depression, anxiety, panic, social isolation and existential and spiritual crisis" [6]. The people with chronic diseases are experiencing psychological fears regarding their body, loss of love, the loss of others and fear of disapproval, pain and discomfort [7]. Chronic pain can threaten social relationships, lead to isolation, cause a change in lifestyle and activities that on the other hand lead to a lack of empathy and support from family and friends [8]. The disease is the most common cause of problems in interpersonal relationships, stigmatization and tolerance towards other diseases, dependence or as an ever-present threat in family [9].

Anxiety and depression, which are among the most prevalent psychological disorders in patients with cancer are important variables in the studies used to assess the quality of life,

particularly in patients with breast cancer [10]. The fact that the patient is struggling with the disease, which is potentially incurable and with treatment, entails a multitude of side effects; it seems easy to understand that it inevitably comes to the reporting of mental and emotional problems. Breast cancer can affect the patient psychologically, as well as organically and can be manifested as postmastectomy depression or increased anxiety, feelings of humiliation with occasional ideas about suicide [11].

Health-related quality of life of people with and without malignant disease in studies using questionnaires EORTC QLQ-C30, as Michelson et al. [12] point out, should be an instrument for assessing the quality of life. It includes all the usual problems in the target population, which at the same time was sensitive enough to detect differences in health-related quality of life with respect to age, sex, health status and other selected criteria in the general population.

The aim of this study was to examine how the breast cancer affects the quality of life of women, especially in the emotional component of health compared to women without this disease in our community.

2. MATERIALS AND METHODS

The research was conducted among 100 women treated for breast cancer, all members of the association of women treated for breast cancer "Iskra" from Banja Luka. Association "Iskra" has about 120 members from urban areas, operated for breast cancer, which underwent chemo therapy of which 100 women (83%) participated in the survey with the written consent and the possibility to refuse to participate in the survey at any stage. Control group consisted of 100 healthy women from the professional association of nurses.

The research was conducted from 10 June to 15 August 2011, based on the European Organization for Research and Treatment of Cancer the Quality of life Questionnaire, EORTC-QLQ-C30 (version 3.0.) with 30 questions. All scales and single-item measures are scored from 0-100. Higher scores in the rankings are the result of presenting a higher level of response. Such a high score with a functional scale represents a high/healthy level of functioning; a high score for the global health status/QOL represents a high quality of life-QOL, as well as a high score for a symptom scale/item that represents a high level of symptoms/problems [13]. A higher score represents a higher ("better") level of functioning or higher ("worse") level of symptoms [14]. Criteria for inclusion in the study were: women aged 20-75, members of associations and voluntary participants.

All participants were given a questionnaire with an explanation of how to fill it and they also signed consent on anonymity of the survey, and were given the option of refusing to participate in the survey without explanation. Analysis of the questionnaires after the survey was performed according to the manual, "Guidelines for determining the quality of life in EORTC Clinical Trials' Group of the European Organization for Research and Treatment of Cancer, EORTC quality of life QoQ [15]. Depending on their nature, description of the parameters of interest was performed by means of descriptive statistics: frequency, percentage, means (average), median, standard deviation (SD) and range.

Testing was performed with a significance level $p < 0.05$ using Friedman test and the Wilcoxon signed rank test for monitoring the difference between the scores of the scales within the same group, while with Pearson χ^2 test, Fisher exact test and Asymptotic Wilcoxon rank sum test were used for differences between the groups. Data were analyzed

with statistical programs: SPSS for Windows software (SPSS13.0, Inc., Chicago, Illinois, USA) and Microsoft Excel (11.Corporation Microsoft, Redmond, WA, USA), representing the statistical parameters in the tables.

3. RESULTS AND DISCUSSION

The sample consisted of 100 women treated for breast cancer and 100 women without the disease (control group of healthy women) aged 20-75 years. All 200 women answered the questionnaire but due to incomplete responses, 5 questionnaires were excluded from the control group. Mean average age of affected women was 51.8 (± 11.2), and of controls 40.2 (± 12.3) (Table 1).

Table 1. Distribution of sample by age

Age	Group I: Women treated for breast cancer	Group II: Healthy women
TOTAL	100	95*
Min	28	20
Max	75	68
Mean (\pm SD)	51.8 (± 11.2)	40.2 (± 12.3)

* Five questionnaires were excluded from research

On the functional scale, in women treated for breast cancer, the lowest value score was for the emotional scale and for social functioning, with a statistically significant difference, compared to the highest score in cognitive and physical functioning. In the control group of women all scores for all scales were higher with a statistically significant difference compared to the values of scores in women treated for breast cancer ($\chi^2_4=28.069$; $d f=4$; $P < .0001$). (Table 2.)

Table 2. Parameters and scores for the functioning scale of healthy women and women treated for breast cancer

Scale	Parameters	*QLQ.C30. score: Women treated for breast cancer	**QLQ.C30. score: Healthy women
Physical functioning	N	100	95
	Mean (SD)	66.32 (± 17.82)	80.64 (± 15.92)
	Median (Range)	66.67 (26.67-93.33)	86.67 (33.3-100)
Role functioning	N	100	95
	Mean (SD)	46.83 (± 20.88)	75.53 (± 26.63)
	Median (Range)	50.00 (0-83.33)	83.33 (0-100)
Emotional functioning	N	100	95
	Mean (SD)	36.58 (± 25.15)	70.89 (± 24.68)
	Median (Range)	33.33 (0-83.33)	75 (0-100)
Cognitive functioning	N	100	95
	Mean (SD)	63.50 (± 28.00)	79.61 (± 25.3)
	Median (Range)	66.67 (0-100)	83.33 (0-100)
Social functioning	N	100	95
	Mean (SD)	37.00 (± 27.58)	82.8 (± 23.37)
	Median (Range)	33.33 (0-100)	100 (0-100)

*Friedman Test; $\chi^2_4=221.941$; $d f=4$; $p = .000$ ($p=1e-03$)

** Friedman Test; $\chi^2_4=28.069$; $d f=4$; $p = .000$ ($p=1e-05$)

Research in Germany on health-related quality of life (QoL) in breast cancer patients has shown that it strongly depends on emotional well-being. QoL (EORTC-QLQ-C30), psychological distress (HADS) and patient's request for psycho-oncological care were assessed in 103 breast cancer patients during initial hospitalization. Both positive HADS screens (>13) and clinical diagnoses of mental disorders were inversely related to QoL [16].

Bahraini breast cancer survivors that were reported social functioning scored the highest (Mean 77.5) whereas their emotional functioning scored the lowest (63.4). On the symptom scale, upset due to hair loss scored the highest (Mean 46.3), followed by the next score for arm symptoms (Mean 36.58) [17].

The California Cancer Surveillance Program in Los Angeles-area hospitals, and community agencies in southern California have examined emotional attitude among a multiethnic sample of breast cancer survivors and examined differences in emotional items according to demographic characteristics. The sample included 703 multiethnic population-based breast cancer survivors, including European, African, Latino and Asian Americans. Overall worry about the cancer getting worse or its recurrence (FACT-G), as well as negative feelings of sadness or uncertainty (SF-36) were reported as the most bothersome concerns in all breast cancer survivors regardless of ethnic group. Findings reveal unique patterns relevant to emotional outcomes on overall HRQOL scores. Clinically, this study suggests the need for greater attention and consideration of demographic context impact on emotional well-being [18].

A model based, descriptive cross-sectional research design was conducted with a total of 150 breast cancer survivors recruited from two teaching hospitals in Taiwan. The aim was to examine the unique relationships among demographic variables, depressive symptoms scoring ≥ 16 in the Center for Epidemiological Studies - Depression (CES-D), social support and quality of life (QOL) in breast cancer survivors, and whether social support moderated the effects of depressive symptoms on the outcome of QOL. Approximately 35% of the participants had depressive symptoms. Findings indicated social support as a moderator of effects of depressive symptoms on QOL. Social support significantly moderated depressive symptoms on QOL. Testing for moderating effects provides helpful information regarding the role of social support in buffering the relationship between depressive symptoms and QOL. The moderating effects of social support in the management of nursing care for breast cancer patients should be adequate, particularly in the early phase of treatment or in cases of newly diagnosed patients who may not know how to manage their health conditions. These findings may aid in the development of social support interventions to enhance social support of breast cancer survivors [19].

In Brazil study regarding functionality, cancer treatment negatively affected instrumental activities of daily life and compromised daily activities in women with breast cancer. These women also had impaired physical and psychosocial functions in leisure time and social participation. These events correlated with a worsening of quality of life [20].

Changes on emotional scale are largely associated with symptoms that occur in women treated for breast cancer, of which nearly $\frac{1}{2}$ (48%) suffered pain, (43% quite a bit and 5% very much), which interfered with their daily activities, quite a bit (30%) and very much (18%) with their daily activities, mainly with statistically significant difference compared to the control group of women. Insomnia in those patients was quite a bit (53%) and very much (5%). Nearly $\frac{1}{3}$ (30%) of these women admitted that they had quite a bit 26% and very much 4%. Diarrhea in those patients was quite a bit (30%) and very much (6%) with a

statistically significant difference more often compared to the control group of women. Constipation was not present or was slightly present in over 90% of women treated for breast cancer and the control group, with no statistically significant differences (Table 3).

Table 3. Answers to the questions related to symptoms of pain, insomnia, loss of appetite, constipation and diarrhea in women treated for breast cancer and in the control group

Questions	Group*	Answers									
		Not at all		A little		Quite a Bit		Very much		Total	
		n	%	n	%	n	%	n	%	n	%
PAIN											
Have you had pain?	I	2	2	50	50	43	43	5	5	100	100
	II	29	30	43	45	20	21	3	3	95	100
<i>Fisher Exact test p=0.0 (p=3.19e-08)</i>											
Did pain interfere with your daily activities?	I	15	15	37	37	30	30	18	18	100	100
	II	45	47	30	32	18	19	2	2	95	100
<i>Fisher Exact test p=0.0 (p=2.807e-07)</i>											
INSOMNIA											
Have you had trouble sleeping?	I	4	4	38	38	53	53	5	5	100	100
	II	41	43	32	34	16	17	6	6	95	100
<i>Fisher Exact test p=0.0 (p=2.32e-12)</i>											
APPETITE LOSS											
Have you lost appetite?	I	20	20	50	50	26	26	4	4	100	100
	II	60	63	26	27	7	7	2	2	95	100
<i>Fisher Exact test p=0.0 (p=3.948e-09)</i>											
CONSTIPATION											
Have you been constipated?	I	76	76	20	20	4	4	0	0	100	100
	II	69	73	13	14	9	9	3	3	95*	100
<i>* one missing responses Fisher Exact test p= .08735</i>											
DIARRHEA											
Have you had diarrhea?	I	27	27	37	37	30	30	6	6	100	100
	II	80	84	11	12	2	2	0	0	95*	100
<i>* one missing responses Fisher Exact test p=0.0 (p=3.88e-17)</i>											

* Group I-women treated for breast cancer; Group II-healthy women

Canada researchers have evaluated prospective memory (PM) functioning in early breast cancer (BC) survivors and its association with fatigue and depression by use of the Center for Epidemiologic Studies Depression Scale and the Functional Assessment of Cancer Therapy-Fatigue subscale for 80 patients and 80 aged-matched healthy controls. Patients performed more poorly than members of the control group on the memory test ($P < .001$) and had a higher rate of impairment (odds ratio = 5.5, $P < .01$). Fatigue mediated the relationship between Group membership and PM performance. BC survivors exhibited a clear pattern of PM deficit and fatigue was a major contributor to this deficit. This suggests that a common mechanism may be involved in fatigue symptoms and memory disturbances experienced by patients [21].

In women treated for breast cancer there was a statistically significant difference in scores for symptoms of fatigue, insomnia and pain in relation to other symptoms that are present to a lesser extent. Score values for the scale of symptoms in the control group of women were significantly lower than the values in women treated for breast cancer ($\chi^2_4=237.004$; $d f=8$; $P< .001$) (Table 4).

Table 4. Parameters and scores for the symptom scale of healthy women and women treated for breast cancer

Scale	Parameters	*QLQ.C30. score Women treated for breast cancer	**QLQ.C30. score Healthy women
Fatigue	N	100	95
	Mean (SD)	53.22 (± 20.79)	38.28 (± 22.97)
	Median (Range)	55.56 (11-100)	33.33 (0-100)
Nausea and vomiting	N	100	95
	Mean (SD)	33.83 (± 25.45)	9.42 (± 16.99)
	Median (Range)	33.33 (0-100)	0 (0-8.33)
Pain	N	100	95
	Mean (SD)	50.33 (± 24.04)	28.62 (± 24.5)
	Median (Range)	50 (0-100)	33.33 (0-100)
Dyspnea	N	100	95
	Mean (SD)	25 (± 26.54)	11.96 (± 21.3)
	Median (Range)	33.33 (0-100)	0 (0-100)
Insomnia	N	100	95
	Mean (SD)	53 (± 21.76)	28.62 (± 30.7)
	Median (Range)	66.67 (0-100)	33.33 (0-100)
Appetite loss	N	100	95
	Mean (SD)	38 (± 25.96)	15.49 (± 23.94)
	Median (Range)	33.33 (0-100)	0(0-100)
Constipation	N	100	95
	Mean (SD)	9.33 (± 17.78)	13.77 (± 26.22)
	Median (Range)	0 (0-66.67)	0 (0-100)
Diarrhea	N	100	95
	Mean (SD)	38.33 (± 29.73)	5.43 (± 14.22)
	Median (Range)	33.33 (0-100)	0 (0-66.67)

*Friedman Test; $\chi^2_4=427.108$; $d f=8$; $p= .000$ ($p=1e-04$)

**Friedman Test; $\chi^2_4=237.004$; $d f=8$; $p= .000$ ($p=1e-06$)

How do they assess their prospects in the future, i.e., the answer to the question "Have you been concerned about your health in the future?" more than 2/3 (73%) of those surveyed responded with very much, quite a bit 16%, a little 7% and not at all 4%. (Fig. 1)

In south Iran a cross-sectional study was conducted on 119 breast cancer patients. All symptoms scales had reverse association with quality of life except appetite loss ($P> .05$) and diarrhea ($P= .752$). The results of the regression analysis showed that only grade of tumor, occupational, menopausal status, financial difficulties and dyspnea were statistically significant in predicting patients' quality of life. This study demonstrates the strength of the relationship between clinical and sociodemographic factors and breast cancer patients' quality of life [22].

The study of breast cancer survivors with stage 0, I and II disease was conducted at the National Cancer Institute USA, Office of Cancer Survivors. Multiple regression analyses predicting QOL demonstrated better outcomes in African-American women, married or partnered women and women with better emotional and physical functioning, whereas women who reported greater vulnerability had poorer QOL [23].

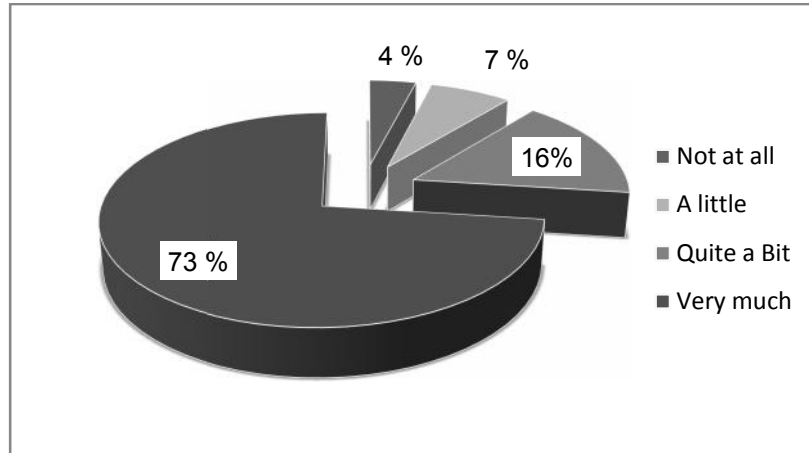


Fig. 1. Answers of women treated for breast cancer to question “Have you been concerned about your health in the future?”

In a prospective study in USA, the aim was to estimate the prevalence and course of depression during chemotherapy in women with Stage I-III breast cancer, to identify potential risk factors for depression and determine which treatments for depression have been used and which were the most preferred. Thirty-two women were followed over consecutive chemotherapy infusions, with 289 assessments conducted altogether (mean, 9.0 assessments/subject). Current depression, anxiety, physical symptoms and mental health service use were recorded during each assessment. A linear mixed effects model was used to identify factors associated with depression. Patients also ranked depression treatment preferences. Clinically significant depression was identified in 37.5% of patients. Depression severity was associated with anxiety severity, physical symptom burden, non-White race, receiving one's first chemotherapy regimen. It was found that depression is common in women receiving chemotherapy for breast cancer [24].

A survey conducted in Melbourne, Australia on 227 women with advanced breast cancer shows a high rate of psychiatric and psychological disorders that affected their quality of life. In terms of quality of life, one-third felt less attractive, one-quarter were dissatisfied with their body image and in most, sexual interest had waned [25].

The study that was conducted on randomly selected women (n=87) in outpatient with advanced or recurrent breast cancer, who were attending the outpatient oncology immunology and surgery of the Nagoya City University Hospital, Japan, has shown that psychosocial needs were strongly associated with psychological distress and quality of life [26].

4. CONCLUSION

In monitoring the quality of life of women treated for breast cancer in the majority of studies as well as in our study, the lowest on parameter functional scale were value scores for the emotional scale. Almost 1/2 of women treated for breast cancer in our study reported that they had pain which restricted their daily activities, while more than 1/2 of them had insomnia and more than 2/3 were concerned about their health in future. These changes on the emotional scale indicate the need to monitor the quality of the emotional health of patients with breast cancer in order to implement preventive programs to help women treated for breast cancer to cope with this problem.

In determining targeted prevention programs for breast cancer as well as their implementation it is necessary to include a larger number of experts that would help overcome the problem of the individual, the family and the community that are expected to support those suffering from breast cancer.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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COMPETING INTERESTS

The author declares that no competing interests exist.

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