RESILIENCE AND QUALITY OF LIFE OF PATIENTS WITH BREAST CANCER

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SUMMARY

Introduction: Breast cancer is the most common malignancy in women. Modern research attempts to investigate the relationship between psychoemotional parameters and the length of survival of breast cancer patients. Understanding the factors which affect a higher level of resilience can have important clinical implications and can represent a guiding principle for designing psychological interventions that would accelerate recovery and improve the quality of life of cancer patients. To explore the relationship between resilience and quality of life of women with breast cancer.

Methods: The study was conducted at the Clinic of Oncology of the University Clinical Hospital Mostar, which included 60 subjects. Objective realization was achieved through using the socio-demographic questionnaire purposely made for this research, the quality of life questionnaire WHQOL-BREF and the psychological resilience questionnaire CD-RISC-25.

Results: Subjects treated with radiotherapy achieved statistically significantly higher scores on subscales of the quality of life: mental health, social relations, and the environment. No statistically significant correlations were found between the level of resilience and results in the domains of quality of life.

Conclusion: There is not a statistically significant association between resilience levels and quality of life in patients with breast cancer.

Key words: resilience - quality of life - breast cancer

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INTRODUCTION

Breast cancer is the most common malignant disease in women in both developed and underdeveloped countries and represents the most common cause of cancer death (Tan et al. 2020). The increase in the incidence of breast cancer is related to the modern way of life, but the fact that in developed countries mortality from breast cancer is decreasing is encouraging, which is mostly the result of more effective treatment and introduction of national programs for early detection of breast cancer (Strnad 2005, Znaor 2011). The etiology of breast cancer can be influenced by various risk factors such as age, positive family history, exposure to endogenous and exogenous hormones, diet, benign breast disease and environmental factors (Žitnjak et al. 2015). Contemporary research attempts to investigate the relationship between psychoemotional parameters as predictors of malignancy, but also the length of survival of breast cancer patients (Watson et al. 2005, Currier & Nemeroff 2014). Despite the proven association between a significant level of distress with the diagnosis of carcinogenic disease and its treatment, many cancer patients have a high level of resilience (Gouzman et al. 2015). The term resilience relates to a process of overcoming unpleasant events, including stress, trauma and disease, and to personality traits associated with that

process (Seiler & Jenewein 2019). Resilience is a complex phenomenon which changes through time and circumstances. Symptoms and neuropsychobiological disfunctions often overlap in mental disorders and many mental and somatic disorders are comorbid, which significantly affects the outcome of the treatment. In addition to investigating the mechanisms specific to the disorder, identification of the mechanisms of resilience specific to individual disorders is of great importance. Transdiagnostic studies of general and specific resilience could significantly contribute to strengthening the concept of holistically oriented medicine. Creating a more resilient brain in people with cancer is a huge challenge faced by modern basic and clinical sciences (Jakovljević & Bjedov 2018, Davydov et al. 2010). Research shows that overcoming difficulties related to cancer diagnosis and treatment represents an opportunity for an individual's personal growth, as well as for improving mental and emotional well-being that could potentially be associated with better coping with the disease (Ruini et al. 2013, Danhauer et al. 2013). However, not everyone responds to troubles such as carcinogenic disease diagnosis in the same way, some are more resilient than others (Chan et al. 2006). Understanding the factors influencing posttraumatic growth and the level of resilience can have important clinical implications and be a guiding principle for

designing psychological interventions to accelerate recovery and improve the quality of life of cancer patients (Seiler & Jenewein 2019). Malignant disease as well as necessary, but often aggressive, therapeutic interventions can lead to numerous unpleasant physical and psychosocial reactions in patients (Pahljina-Reinić 2004, Martinec et al. 2012). In addition to physically unpleasant and painful reactions, a significant psychological distress can occur in the population of women with breast cancer, which is supported by fear of death, fear of recurrence, unfavorable social reactions, disturbed partnerships, reduced professional competence, etc. Such conditions are often accompanied by unpleasant emotional reactions such as feelings of helplessness, guilt, anger, fear, shame, anxiety and depression (Martinec et al. 2012, Jorgensen et al. 2015). Adverse emotional responses are not only related to existential issues of life and death or health and disease, but also to the forms of applied medical treatment. For example, surgical interventions and treatment with corticosteroids, cytostatics and radiotherapy additionally burden normal organic functioning and cause changes in physical appearance. Such changes in body experience can condition a number of disorders in the experience and acceptance of body image (Martinec 2014, Heijer et al. 2012). In relation to the body image, there are also problems of psychosexual functioning which can be manifested through sexual anxiety, avoidance of sexual activities, lack of sexual desire, etc. Such reactions can induce difficulties in establishing or maintaining intimate relationships, the need for social isolation and withdrawal from a narrower or broader social context (Mroczek et al. 2012, Jankowska 2013). The presence of malignant disease represents a classic stress stimulus that is reflected in the maintenance of psychophysical homeostasis. That is, changes in biochemical and physiological status are also associated with changes in cognitive, emotional, and behavioral status. Thus, for example, changes in expressive behavior and adaptive functioning, memory and concentration problems, and sleep and eating disorders may occur. The mentioned psychophysical consequences accompanied by negative reflections on the disease, treatment outcome, femininity, social acceptance, motherhood, professional success, etc. can induce excessive preoccupation with one's own existence (Ormuž et al. 2018).

The aim of this study was to investigate the association between resilience and quality of life in women with breast cancer.

PATIENTS AND METHODS

The research was conducted at the Department of Oncology of the University Clinical Hospital Mostar (UCH) in the period from October to December 2020. The study included 60 subjects who were divided into two groups according to the type of treatment (radiotherapy and chemotherapy). Data were collected through a survey. The study included those subjects who were diagnosed with breast cancer by oncologists, who are older than 35 and younger than 70 years. Subjects who incorrectly completed the questionnaire and who were diagnosed with mental illness, mental retardation, and severe organic illness were excluded from the study. Subjects who were not able to complete the questionnaire on their own were also excluded from the study.

Questionnaires

A personal socio-demographic questionnaire, purposely designed for this research, was used to obtain data on subjects such as: age, gender, education, marital status, people they live with, employment, average monthly income, place of residence, smoking, drinking alcohol drinks, type of treatment.

We used the WHO Standardized Quality of Life Questionnaire (WHOQOL-BREF - World Health Organization Quality of Life Bref) to assess the quality of life in women with breast cancer. An abbreviated version of the quality of life questionnaire was used. Due to the smaller number of issues and faster resolution, WHOQOL-BREF is preferred over WHOQOL - 100. Perceptions of quality of life in each of the four domains of the questionnaire (physical health, psychological state, social interaction, environment) are scored. The scoring scale is positively oriented. The questionnaire consists of 26 items, and each question is scored on a Likert scale from 1 to 5 (Skevington et al. 2004).

The Psychological Resilience Questionnaire (CD-RISC-25 - Connor Davidson Resilience Scale) was used to assess resilience in women with breast cancer. This questionnaire consists of 25 items, and each question is scored on a Likert scale from 0 to 4. The score scale is positively directed. The highest scores within the score scale indicate the highest resilience in the subjects. The questionnaire was standardized and approved by the author (Connor & Davidson 2003).

Statistical methods

The obtained results were processed using descriptive and non-parametric and parametric statistical methods depending on the data distribution. Non-parametric variables are shown as frequency and percentage, and parametric variables, depending on the distribution, are shown as arithmetic mean and standard deviation or as median interquartile range. A chi-square test for nominal variables was used to test the difference between groups. The Student t-test or Mann-Whitney U test was used to test the difference between the examined groups, depending on the normality of the distribution of continuous variables. The level of probability p<0.05 is considered statistically significant. Statistical analysis was performed using SPSS for Windows software (version 17.0, SPSS Inc, Chicago, Illinois, USA) and Microsoft Excel (version 12.0, MicrosoftCorporation, Redmond, WA, USA).

RESULTS

Significantly more subjects with high school education, who are married, smoke, never drink alcohol, live with a spouse and have a monthly income of less than 499 convertible marks were in the surveyed sample (Table 1).

Patients treated with radiotherapy achieved statistically significantly higher results on the subscales of mental health, social relations, and environment questionnaires on the quality of life questionnaire, while there were no statistically significant differences in other domains or on the resilience scale between groups (Table 2).

No statistically significant correlations were found between the level of resilience and results in the domains of quality of life (Table 3).

There were no statistically significant differences in age between the examined groups (Figure 1).

Table 1. Socio-demographic data of subjects (N=60)

Characteristics	n	%	χ^2	p
Level of education			8.533	0.036
Primary education	15	25.0		
High school education	22	38.3		
Higher education	15	25.0		
University education	8	11.6		
Marital status			50.267	<0.001
Not married	5	8.3		
Married	37	61.6		
Widower/Widow	16	26.6		
Divorced	2	3.3		
Smoker			4.267	0.036
Yes	38	63.3		
No	22	36.6		
Alcohol consumption			34.301	<0.001
Never	26	45.0		
On special occasions	12	21.0		
Several times a week	12	27.0		
Who do you live with in the household?			41.201	<0.001
Alone	7	13.3		
With a spouse	34	58.3		
With other family members	15	25.0		
Others[a]	2	3.3		
Monthly income			24.833	<0.001
<499 BAM[b]	26	43.3		
500-999 BAM	13	21.6		
1000-1499 BAM	10	16.6		
>1500 BAM	3	5.0		
Without income	8	13.3		
Employment status			0.602	0.439
Employed	27	45.0		
Unemployed	33	55.0		

[a]Nursing home;   [b]Convertible mark

Table 2. Differences in results achieved on resilience and quality of life scales among the examined groups

	Type of treatment					
	Radiotherapy		Chemotherapy		t	p
	$\overline{X}$	SD	$\overline{X}$	SD		
CD-RISC-25	82.43	7.20	82.47	6.35	0.019	0.985
WHOQOL-BREF						
Body health	14.21	1.43	13.68	1.37	1.477	0.145
Mental health	12.98	1.03	11.93	1.23	3.574	*0.001*
Social relationships	16.84	1.84	14.80	2.31	3.800	*<0.001*
Environment	16.80	1.61	15.61	1.41	3.031	*0.004*
Total quality of life and general health	15.47	2.87	16.13	2.46	0.965	0.338

Table 3. Relationship between resilience and quality of life among subjects

	CD-RISC-25	
	R	p
Body health	-0.071	0.589
Mental health	-0.192	0.142
Social relationships	-0.185	0.156
Environment	-0.218	0.094
Total quality of life and general health	-0.183	0.161

Subjects with lower level of education were significantly more often treated with chemotherapy while subjects with higher level of education were treated with radiotherapy to a significantly higher proportion. Widowed subjects were significantly more often treated with chemotherapy while married and divorced subjects were significantly more treated with radiotherapy. Subjects with lower income, subjects without income and groups with high incomes were significantly more often treated with chemotherapy, while subjects with an average income of 500-999 BAM were treated with radiotherapy to a significantly higher extent. In other socio-demographic variables shown in Table 3, there were no statistically significant differences between the groups (Table 4).

DISCUSSION

Numerous studies have been conducted worldwide to date that have addressed the association between resilience and quality of life in breast cancer patients. Many authors state that resilience implies a good outcome in the presence of stressors and that it is important to study the mechanisms influencing the occurrence of stress and coping in women with breast cancer in order to increase resilience levels (Borgi et al. 2020, Kennedy et al. 2017).

Table 4. Differences in socio-demographic variables among the researched groups

	Type of treatment					
	Radiotherapy		Chemotherapy		χ^2	p
	N	%	N	%		
Education					9.077	*0.027**
Primary education	5	16.7	10	33.3		
High school education	11	36.7	12	40.0		
Higher education	7	23.3	8	26.7		
University education	7	23.3	0	0.0		
Marital status					7.138	*0.045**
Not married	2	6.7	3	10.0		
Married	22	73.3	15	50.0		
Widower/Widow	4	13.3	12	40.0		
Divorced	2	6.7	0	0.0		
Who do you live with in the household					3.652	0.306*
Alone	2	6.7	6	20.0		
With a spouse	18	60.0	17	56.7		
With other family members	8	26.7	7	23.3		
Others[a]	2	6.7	0	0.0		
Employment status					2.424	0.119
Employed	17	56.7	10	33.3		
Unemployed	13	43.3	20	66.7		
Average income					18.684	*<0.001**
<499 BAM[b]	7	23.3	19	63.3		
500-999 BAM	5	16.7	8	26.7		
1000-1499 BAM	8	26.7	2	6.7		
>1500 BAM	2	6.7	1	3.3		
Without income	8	26.7	0	0.0		
Place of residence					1.697	0.193
City	20	66.7	14	46.7		
Village	10	33.3	16	53.3		
Smoker					1.794	0.180
Yes	16	53.3	22	73.3		
No	14	46.7	8	26.7		
Do you consume alcohol					2.135	0.420*
Never	20	66.7	19	63.3		
On special occasions	8	26.7	11	36.7		
Several times a week	2	6.7	0	0.0		

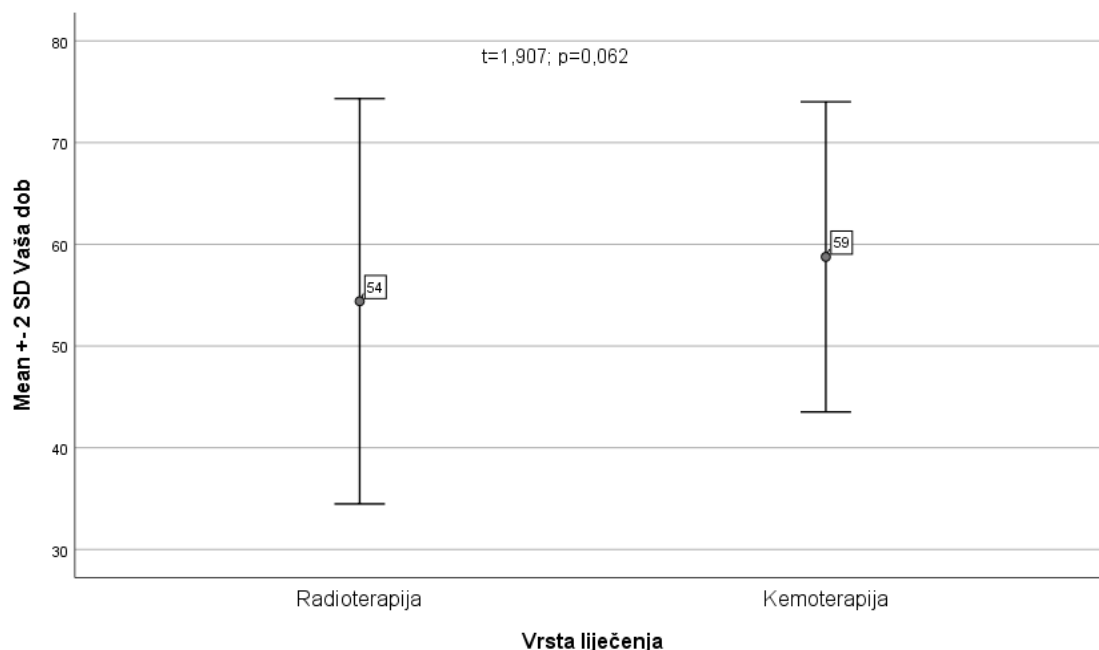*Fisher's exact test;   [a]Nursing home;   [b]Convertible mark

Figure 1. Age differences between groups

Stressors can potentially enhance competence so that a person acts positively regardless of the stressor acting in the environment (Levy et al. 2019). A study examining the relationship between resilience and quality of life in breast cancer patients shows that family support is one of the more significant factors contributing to strengthening resilience and has a positive impact on physical and emotional effects (Kugler 2001). Family support and social relationships are also a significant factor in this study. Subjects treated with radiotherapy achieved statistically significantly higher results in the domain of social relations. The results of many other studies have proven that social support is positively associated with resilience. Zhang et al. state that social support is the foundation on which resilience in breast cancer patients can be developed and strengthened. According to them, health professionals should instruct patients with appropriate guidelines to seek effective social support in order to improve their resilience and quality of life after cure for breast cancer (Zhang et al. 2017). A study conducted by Holzner et al. shows good results related to general health, but pointed to problems related to the mental health of breast cancer patients (Holzner et al. 2001). The results of a study conducted in the UK on a sample of 235 subjects showed that the level of quality of life in all domains was very low. More than a third of women expressed high levels of pain and other uncontrolled symptoms (Reed et al. 2011). The results of our study showed a higher level of quality of life compared to the mentioned study. In contrast to the mentioned study, our study did not measure pain levels and the occurrence of uncontrolled symptoms.

The authors of the systematic review paper from 2019 state that insufficient physical and psychological recovery from illness and new diagnoses has an impact on the mental health of breast cancer patients. The results of this systematic review of personal resilience and quality of life in breast cancer patients in the first two years after treatment show that younger life expectancy, disease progression, and social support are positively associated with higher levels of resilience and better quality of life (Edward et al. 2019). Our results did not determine a link between social support and psychological resilience. Furthermore, in contrast to the above study conducted by Edward et al., our results show that there were no statistically significant differences in age among the study groups. The study by Gummus et al. included 90 women with breast cancer and was conducted in order to analyse the association between psychosocial adjustment and hopelessness. Psychosocial adjustments have been observed to worsen, as well as increase levels of hopelessness among women. The conclusion was that increasing hope and social support are very important and play a key role in increasing the quality of life in breast cancer patients (Gummus et al. 2011).

The study conducted by Cazin included 40 female subjects aged 30 to 80 years. The largest number of subjects expressed satisfaction in relationships with family members (Cazin et al. 2013). Their results are in accordance with the results of this study, although there are differences in methodology related to the number of subjects, the age limit, and the measuring instruments. Our results show the satisfaction of the subjects with everyday life, the provided medical services, the accessibility of medical information, the support of family members and friends. Ristevska-Dimitrovska et al. They conducted a research that dealt with the association between resilience and quality of life in

breast cancer patients. Their study included 218 subjects, and the EORTC QLQ-C30 Quality of Life questionnaire was used to assess quality of life of cancer patients. As in our study, the CD-RISC-25 scale was used to assess resilience levels. The results of their study show that the level of resilience is statistically significantly related to the level of quality of life. Thus, subjects who had a higher level of resilience expressed greater satisfaction with the quality of life (Ristevska-Dimitrovska et al. 2015). In contrast to the mentioned study, no statistically significant correlations were found in our results between the level of resilience and the results in the domains of quality of life. A smaller sample was also included in this study and a second measuring instrument was used to assess the quality of life in the study population.

Several studies have been conducted in our area on the topic of resilience and quality of life in patients with breast cancer and other types of carcinogenic diseases. Accordingly, Babić et al. state numerous facts related to the association between resilience and various types of diseases in a study from 2020. Thus, this paper states that resilience is extremely important when facing an individual with a disease, especially a severe one such as cancer. The authors state that resilience represents the ability to return to a previous or healthy state after an illness or accident. A higher level of resilience implies a higher level of resistance, less vulnerability, and risk of disease. Individuals tend to be optimistic, use constructive criticism, focus on personal strengths and qualities, develop close relationships with others, and are emotionally aware. Experts on resilience believe that everyone can strengthen their resilience and thus improve their health, and if they are ill, alleviate their illness, speed up and facilitate healing (Babić et al. 2020).

From the results of a review conducted by Franjić et al. in 2019, it can be seen that people who have a higher level of resilience are more willing to face the disease and the recovery process in such people is faster. The authors state that psychological interventions aimed at strengthening resilience in cancer patients are an important factor in the treatment process (Franjić et al. 2019).

In a paper published in 2018, Bačić et al. state that cancer patients treated with radiotherapy rated their satisfaction with health with a statistically significantly higher score and had a lower frequency of psychological symptoms compared to patients treated with chemotherapy (29). Their results are in accordance with the results of this work, as well as according to the number of subjects involved, the division of subjects into groups (radiotherapy and chemotherapy) and the use of the same measuring instrument for quality of life assessment (WHOQOL-BREF). Expressing a higher level of quality of life of radiotherapy subjects may be the result of the treatment method itself. Namely, chemotherapy is a method of treatment that involves non-selective treatment, and in addition to cancer cells, other cells in the body which divide rapidly can be damaged, such as skin cells, intestines and blood cells, which often leads to frequent side effects due to application of such treatment. Although the side effects are mostly temporary and stop after the treatment, their appearance and intensity are very individual. Due to the above, the quality of life of cancer patients treated with chemotherapy can be greatly impaired, as shown by the results of these studies. The side effects of radiotherapy can also be unpleasant, but with careful and precise planning and implementation of therapy according to the rules and recommendations, they are usually not serious.

The review paper dealing with the quality of life in breast cancer patients stated that the multidisciplinary approach and continuous cooperation of experts of various profiles have a positive impact on the quality of life, and thus on treatment outcomes in women with breast cancer. The authors of this paper state that the health care system should enable sick women as much independence as possible, the development of self-help skills and mechanisms for coping with all the negative consequences of oncology treatment (Perković & Krišto 2017). Some studies state that oncology patients are less satisfied with the quality of life compared to internal medicine patients and that psychological symptoms are more expressed in oncology patients (Kvesić et al. 2020). Studies to date show that a holistic approach to the patient, primarily by healthcare professionals, can contribute to strengthening patient resilience, which can result in increased quality of life and less expressed psychological symptoms in breast cancer patients and cancer patients in general.

CONCLUSION

Subjects treated with radiotherapy had statistically significantly better results on the quality of life subscales of mental health, social relations and the environment compared to subjects treated with chemotherapy. In other domains of quality of life as well as on the scale of resilience, there are no statistically significant differences among subjects treated with radiotherapy and chemotherapy. There are no statistically significant differences in age among subjects according to the type of treatment nor statistically significant correlations between the level of resilience and outcomes in the domains of quality of life in women with breast cancer.

Contribution of individual authors:

Elma Boškailo is the project coordinator, participated in the study concept, data interpretation, literature appraisal, and also critically drafted and revised the final appearance of the paper.

Darjan Franjić was responsible for the study concept, paper composition, theoretical explanations, data interpretation, literature appraisal and English language proofreading.

Dragan Babić, Emina Kiseljaković and Inga Marijanović participated in the study concept, paper composition, theoretical explanations, data interpretation, literature appraisal and English language proofreading.

Ivan Jurić, Emina Kiseljaković and Inga Marijanović critically drafted and revised the manuscript.

All authors provided their approval for the final version of the manuscript.

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