EFFECTS OF DEPRESSION ON THE FUNCTIONAL WELL-BEING OF PATIENTS WITH BREAST CANCER

UTICAJ DEPRESIVNOSTI NA FUNKCIONALNO BLAGOSTANJE PACIJENTKINJA OBOLELIH OD KARCINOMA DOJKE

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Summary

Introduction. The psychological status of patients with breast cancer is often compromised as a result of chronic exposure to negative emotions and psychological distress after the diagnosis of a malignant disease and conditions such as depression and anxiety may have a direct impact on the functional well-being of breast cancer patients. The aim of this study was to examine whether depression affects the functional well-being of breast cancer patients. **Material and Methods.** This cross-sectional study was conducted in 2021 and it included 71 breast cancer patients treated at the Department of Physical Medicine and Rehabilitation of the Oncology Institute of Vojvodina at the time of examination. The depression subscale of the Serbian version of the Depression, Anxiety and Stress Scale 21, assessing the degree of depression was used to assess depressive symptoms in the participants. The functional well-being was assessed using the Functional Well-Being subscale of the questionnaire for the Functional Assessment of Cancer Therapy - Breast. **Results.** A statistically significant correlation was found between depression and functional well-being ($r = -0.438$, $p < 0.001$) of the examined patients. The results of the regression analysis showed that the F model was significant ($F (1.69) = 16.366$; $p < 0.001$) and showed 19.2% of the variance. Depression has a significant impact on the functional well-being of breast cancer patients ($\beta = -438$, $t = -4.045$, $p < 0.001$). **Conclusion.** Through a multidisciplinary approach, it is important to simultaneously functionally train breast cancer patients, but also to implement timely psychological support and rehabilitation.
Key words: Depression; Depressive Disorder; Breast Neoplasms; Psychological Well-Being; Psychosocial Support Systems; Rehabilitation

Sažetak

Uvod. Psihološki status pacijentkinja obolelih od karcinoma dojke je često kompromitovan kao posledica hronične izloženosti negativnim emocijama i psihološkom distresu nakon postavljene dijagnoze maligne bolesti, a stanja poput depresivnosti i anksioznosti mogu imati direktan uticaj na funkcionalno blagostanje u ovoj grupi pacijentkinja. Cilj ove studije bio je da se ispita da li depresivnost utiče na funkcionalno blagostanje pacijentkinja obolelih od karcinoma dojke. **Materijal i metode.** Istraživanje je sprovedeno tokom 2021. godine i dizajnirano kao studija preseka u kojoj je učestvovala 71 pacijentkinja obolela od karcinoma dojke koja je u momentu ispitivanja bila na kontroli u Službi za fizikalnu medicinu i rehabilitaciju na Institutu za onkologiju Vojvodine. Supskala depresivnosti srpske verzije Skale depresivnosti, anksioznosti i stresa 21 *(engl. The Depression, Anxiety and Stress Scale 21)* koja procenjuje stepen depresivnosti je korišćena za procenu depresivne simptomatologije kod ispitanica. Funkcionalno blagostanje je procenjeno pomoću Supskale funkcionalnog blagostanja (*engl. Functional Well-Being subscale*) Upitnika funkcionalne procene terapije karcinoma (*engl. Functional Assesment of Cancer Therapy - Breast*). **Rezultati.** Utvrđena je statistički značajna korelacija između depresivnosti i funkcionalnog blagostanja ($r = -0.438$ na nivou značajnosti $p < 0,001$). Rezultati regresione analize pokazuju da je model signifikantan $F (1.69) = 1 6.366$; $p < 0,001$ i pokazuje 19,2% varijanse. Depresivnost značajno doprinosi funkcionalnom blagostanju pacijentkinja obolelih od karcinoma dojke ($\beta = -438$, $t = -4.045$, $p < 0,001$). **Zaključak.** Kroz multidisciplinarni pristup značajno je istovremeno funkcionalno osposobljavati pacijentkinje obolele od karcinoma dojke, ali takođe i sprovoditi pravovremenu psihološku podršku i rehabilitaciju.
Ključne reči: depresija; depresivni poremećaj; karcinom dojke; funkcionalno blagostanje; sistem psihosocijalne podrške; rehabilitation

Introduction

Breast cancer is the most commonly diagnosed malignant neoplasm among the female population worldwide, with more than 2.26 million new cases in 2020 [1]. According to the data of the World Health Organization, breast cancer is in the first place, accounting for 28.6% of new cases of malignant diseases among the global female population [2]. While the survival rate has increased significantly in recent years, the therapeutic modalities used in the treatment of these patients are often aggressive, and may have numerous side effects on both the somatic and psychological well-being of breast cancer patients [3].

The psychological status of patients is often compromised as a result of chronic exposure to negative

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Abbreviations

QOL   – quality of life
DASS 21 – Depression, Anxiety and Stress Scale 21
FACT-B – Functional Assessment of Cancer Therapy - Breast

emotions and psychological distress after the diagnosis of a malignant disease, which is associated with a significantly higher prevalence of psychological disorders among patients with breast cancer in comparison to the general population [4]. Coping with the diagnosis of breast cancer is an important health issue for the patients with numerous challenges. Acknowledging the diagnosis and the forthcoming treatment, learning about the prognosis and the risk of relapse, dealing with the side effects of therapy as well as of uncertain future, are just some of the factors that contribute to distress which can lead to psychological disorders, the most common of which are anxiety and depression [5]. Depression in patients with breast cancer can affect the functional status and compliance of patients, hence significantly affecting their overall quality of life (QOL). It is also a significant factor in the course and outcome of the oncological treatment [4, 6, 7].

Psychological disorders that initially occur in patients with breast cancer are also the consequence of the treatment side effects significantly impairing their overall QOL [8, 9]. Although the clinician's estimates of symptoms and signs are more accurate regarding the treatment side effects, it is the patient's attitude and their perception of their own health that is of great importance [10].

Functional well-being is the ability of an individual to perform everyday activities and to maintain adequate social interactions. In cancer patients, there is an accelerated impairment of functional well-being, and it is usually seen as the impact of the malignant disease and oncological treatment. However, the disease and oncological treatment do not necessarily have a direct impact on the functional well-being, but rather the psychological status of these patients [11].

So far, a large number of studies have examined the effects of psychological factors on the overall QOL in breast cancer patients [12–16].

Given that functional and psychological symptoms may persist for a long time even after the cessation of treatment and disrupt the patient's return to everyday activities, research thus far has shown the importance of treating subjective symptoms in patients with breast cancer [17].

The aim of this study was to examine whether depression has an effect on the functional well-being of patients with breast cancer.

Material and Methods

This cross-sectional study was conducted in 2021 and it included 71 female participants with breast cancer, treated at the Department of Physical Medicine and Rehabilitation of the Oncology Institute of Vojvodina at the time of examination. The research did not include patients who were undergoing chemotherapy, or patients who developed distant metastases, due to the

Table 1. Data from the subscale of the Depression, Anxiety and Stress Scale 21 (DASS 21)
Tabela 1. Prikaz rezultata Subskale depresivnosti iz Skale depresivnosti, anksioznosti i stresa (DASS-21)

Answers *Odgovori*	Statements/*Stavke*						
	D1 (3) I couldn't seem to experience any positive feeling at all. *Nisam imala nikakvo lepo osećanje.*	D2 (5) I found it difficult to work up the initiative to do things. *Primetila sam da mi je teško da ostvarim inicijativu i započnem bilo šta.*	D3 (10) I felt that I had nothing to look forward to. *Osećala sam da nemam čemu da se nadam.*	D4 (13) I felt down-hearted and blue. *Osećala sam se tužno i jadno.*	D5 (16) I was unable to become enthusiastic about anything. *Ništa nije moglo da me zainteresuje.*	D6 (17) I felt I wasn't worth much as a person. *Osećala sam se da kao osoba ne vredim mnogo.*	D7 (21) I felt that life was meaningless. *Osećala sam da je život besmislen.*
Did not apply to me at all. *Uopšte se ne odnosi na mene.*	25 (35.2%)	32 (45.1%)	40 (56.3%)	25 (35.2%)	28 (39.4%)	40 (56.3%)	47 (66.2%)
Applied to me some of the time. *Odnosi se na mene pomalo.*	31 (43.7%)	22 (31%)	20 (28.2%)	29 (40.8%)	36 (50.7%)	24 (33.8%)	15 (21.1%)
Applied to me a good part of time./*Odnosi se na mene u priličnoj meri.*	13 (18.3%)	16 (22.5%)	10 (14.1%)	12 (16.9%)	5 (7%)	4 (5.6%)	7 (9.9%)
Applied to me most of the time. *Odnosi se na mene skoro uvek.*	2 (2.8%)	1 (1.4%)	3 (1.4%)	5 (7%)	2 (2.8%)	3 (4.2%)	2 (2.8%)
Total/*Ukupno*	71 (100%)	71 (100%)	71 (100%)	71 (100%)	71 (100%)	71 (100%)	71 (100%)

Table 2. Data from the subscale of the Functional Well-Being of the Questionnaire for the Functional Assessment of Cancer Therapy - Breast (FACT-B)
Tabela 2. *Prikaz rezultata Subskale funkcionalnog blagostanja iz Upitnika funkcionalne procene terapije karcinoma (FACT-B)*

Answers *Odgovori*	Statements/*Stavke*						
	GF1 I am able to work (including work at home)./*Sposobna sam da radim (uključujući rad kod kuće).*	GF2 My work (including work at home) is fulfilling./*Moj posao (uključujući i rad kod kuće) daje mi zadovoljstvo.*	GF3 I am able to enjoy life. *Sposobna sam da uživam u životu.*	GF4 I have accepted my illness. *Prihvatila sam svoju bolest.*	GF5 I am sleeping well. *Dobro spavam.*	GF6 I am enjoying the things I usually do for fun./*Uživam u stvarima koje obično radim iz zabave.*	GF7 I am content with the quality of my life right now. *Zadovoljna sam trenutnim kvalitetom svog života.*
Not at all *Uopšte ne*	0	3 (4.2%)	2 (2.8%)	1 (1.4%)	0	4 (5.6%)	3 (4.2%)
A little bit *Malo*	5 (7%)	14 (19.7%)	6 (8.5%)	2 (2.8%)	5 (7%)	4 (5.6%)	7 (9.9%)
Somewhat *Donekle*	18 (25.45)	34 (47.9%)	7 (9.9%)	13 (8.3%)	23 (32.4%)	14 (19.7%)	23 (32.4%)
Quite a bit *Prilično*	30 (42.3%)	19 (26.8%)	31 (43.7%)	30 (42.3%)	29 (40.8%)	28 (39.4%)	25 (35.2%)
Very much *Veoma*	18 (25.4%)	1 (1.4%)	25 (35.2%)	25 (35.2%)	14 (19.7%)	21 (29.6%)	12 (16.9%)
Total *Ukupno*	71 (100%)	71 (100%)	71 (100%)	71 (100%)	71 (100%)	71 (100%)	71 (100%)

potential impact of the aforementioned states on their functional well-being.

Apart from questionnaires on sociodemographic and clinical data, two instruments were used to carry out the research. A Serbian version of the Depression, Anxiety and Stress Scale 21 (DASS 21) was used to assess depressive symptoms **(Table 1)**. This research used a subscale assessing levels of depression in the participants [18]. Functional well-being was assessed using the Functional Well-Being subscale of the Questionnaire for the Functional Assessment of Cancer Therapy - Breast (FACT-B) [19] **(Table 2)**.

The obtained data were processed using the SPSS 21.0 (IBM Corp. in Armonk, NY, USA) statistical software. In addition to descriptive statistics, Pearson's product-moment correlation coefficient was used for the purpose of examining the correlation between variables, while the specific impact of depression on the functional well-being of patients was examined using simple linear regression analysis. The statistically significant value was set at $p < 0.001$.

Results

The eldest participant in this research was 75 years old and the youngest was 29. The average age of participants was 57.86 (SD ± 9.70). Within the research group 8 (10.7%) participants had a primary education, 36 (48%) a secondary, 4 (5.3%) participants hold an associate degree, while 23 (30.7%) participants had a university degree. As for their marital status, 4% of the participants were single, 14.7% were widowed, 8% were divorced, and 68% were married at the time of research. **Table 1** and **Table 2** show the descriptive statistics of the subscales used in this research.

Due to a significant correlation between depression and functional well-being ($r = -.438$, $p < 0.001$) the next step was to assess the specific effects of depression on the functional well-being of patients. The model F was significant ($F (1.69) = 16.366$, $p < 0.001$) and it showed a 19.2% of the variance, meaning that depression had a significant effect on the functional well-being of patients ($\beta = -438$, $t = -4.045$, $p < 0.001$).

Discussion

Despite a significant progress in early detection and treatment of breast cancer, as well as increased survival rates, the QOL of patients may be significantly impaired. Thus far, there have been numerous studies focused on the health-related QOL of breast cancer patients, as a direct consequence of various psychological factors. Therefore, the aim of this research was to focus on examining the impact of depression on one specific aspect of QOL – functional well-being. The analysis of the obtained data showed that there is a connection between depressive symptomatology and functional well-being in the aforementioned group of patients.

The above mentioned results are to a large extent expected, since clinical experience as well as previous research [20–22] indicate that maladaptive psychological states, such as depression, show indisputable effect on the health-related QOL of breast cancer patients. It can be indirect, like not accepting given advice regarding treatment, inadequate compliance with the oncology team and withdrawal from social relations, as well as direct, like cognitive disorders, decreased physical activity, impaired quality of sleep, loss of appetite, nausea, cancer-related fatigue, and also negative perception of the malignant disease itself. Studies of patients with breast cancer have

shown a correlation between mild-to-moderate depression traits and a decreased QOL in all aspects. In their research, Trinca et al. [12] noted that breast cancer patients with depressive symptoms displayed a significantly lower overall QOL. Reyes-Gibby et al. [13] have reached the conclusion that inadequately treated depressive disorders are a decisive factor in the deterioration of physical and social well-being in patients with breast cancer. The research conducted by Didehdar Ardebil et al. [14] shows a significant correlation between depression in patients with breast cancer and most of the factors that impact one's QOL. Those breast cancer patients who had more depressive symptoms were shown to have a reduced overall QOL, i.e. impaired physical, emotional and functional well-being. In their research, Boing et al. [15] showed that depressive symptomatology in breast cancer patients is associated with younger age, type of surgery performed, presence of functional complications, lower level of self-esteem, as well as presence of some other chronic disease. And notably, Galiano-Castillo et al. [16] concluded that there is a significant correlation between depression and pain in the shoulder joint on the affected side, reduced range of motion, swelling of the ipsilateral arm, as well as pain in the area of the postoperative wound.

For this reason, in oncological treatment it is of great importance to focus not only on the functional but also the psychological status of patients. There is an increasing number of rehabilitation programs that show better results in the functional status, overall QOL, and rehabilitation treatment in patients who had a support from the very moment of their breast cancer diagnosis [23–25]. One such example is early rehabilitation program for breast cancer patients at the Oncology Institute of Vojvodina that provides kinesitherapy program during hospitalization, education of patients and a home-based kinesitherapy program [26]. The early rehabilitation program at the Oncology Institute of Vojvodina also offers psycho-oncological support to breast cancer patients and it improves the health-related QOL in all aspects and at all stages of disease and treatment [19, 27].

The results of this research, as well as of other available studies on this topic, have shown that depression affects not only the individual aspects but also the overall QOL in breast cancer patients to a great extent.

Any future research into the QOL of breast cancer patients should include a larger number of participants, and introduce other determining factors, such as the type of therapy carried out, presence of functional complications, or the stage the participants' illness at the time of research, as well as the presence of various other psychosocial factors.

Conclusion

This study has shown how significant the psychological aspect of cancer treatment is, and points to the necessity of introducing routine screening tests for depression and other mental disorders in patients with breast cancer. A timely detection of depressive symptoms in the aforementioned patients, by a relevant oncological team, would significantly improve the overall course and outcome of breast cancer treatment. Health workers themselves have proven to be of great importance in educating, providing psychological support and improving these patients' overall quality of life. Through a multidisciplinary approach, it is important to simultaneously functionally train breast cancer patients, but also to implement timely psychological support and rehabilitation.

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