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Research

Anxiety and Depression in Women with Breast Cancer: Relationship with Social Factors

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Abstract

Background:

The impacts of social factors on the anxiety and depression of breast cancer patients have not yet been thoroughly studied. The present study into social factors that are significant for patients' anxiety and depression enables identifying the most vulnerable patients in need of psychosocial help.

Methods:

The study included 117 female patients with cT1-T2/N0-N1/M0 stages of breast cancer, treated at the Breast Surgery and Oncology Department. Before surgery, the study participants had completed the Hospital Anxiety and Depression Scale (HADS) and, 6-7 days after operation they filled in the HADS questionnaire and a form about their social status.

Results:

Anxiety scores in working women before surgery were statistically significantly higher than those in pensioners or unemployed (8.5 vs. 6.7). One week after surgery, employed women's depression and anxiety scores statistically significantly decreased and those of retired or unemployed remained unchanged; depression scores in married women were significantly lower than in unmarried, widows or in divorced women

(2.8 vs. 4.4), and the possibility of depression in widows and divorced women was higher in comparison with married ones.

Conclusions:

Employment and marital status have an impact on the anxiety and depression of breast cancer patients before operation and in the early post-operational period. While rendering psychosocial help, it is recommended to consider the higher vulnerability of widows, unmarried and divorced women.

Background

The diagnosis of breast cancer makes women experience an enormous shock. The stress they experience manifests itself by a wide range of symptoms such as fluster, death fear, compunction, insomnia, appetite changes, anxiety and others. Usually this state lasts for a week, followed by a gradual adjustment to the cancer diagnosis. However, anxiety and depression in women with breast cancer may last longer. According to research data, within one year after the diagnosis the incidence of anxiety and depression decreases, but even after a year 20 to 40 % of women demonstrate clinically significant anxiety and depression. Success in adaptation to cancer depends on the support from a partner, family members and friends (1). Maly et al., who investigating 222 breast cancer patients aged under 55 years, have found that support from partners and mature children lower anxiety and depression (2). Marital status was found to exert the most considerable influence on the women's quality of life in comparison with the other social and demographic factors (3).

The higher educational level correlates with the poorer emotional status (4). Women with higher education show a worse emotional functioning (5).

Four months after breast operation, the psychological adaptation of employed women was worse than that of unemployed, but 13 months after surgery this difference decreased (6).

The comprehensive impact of different social factors on anxiety and depression in breast cancer patients have not yet been thoroughly studied. The present research of the social factors that are significant for patients anxiety and depression enables identifying the most vulnerable patients in need of psychosocial help.

Materials and methods

An open prospective non-randomized study of patients with early stages of breast cancer was carried out in 2004–2005 at the Institute of Oncology, Vilnius University. The study cohort included 117 women with cT1-T2/N0-N1/M0 stages of breast cancer, treated at the Breast Surgery and Oncology Department. The study was approved by the Lithuanian Bioethics Committee on December 10, 2003.

Before presenting the questionnaires, the mental status of all the patients had been assessed during a psychiatric interview. The following exclusion criteria were considered: a major depressive episode, a manic episode, psychosis, psychoactive substance use disorder or any other psychic disorder that might interfere with the patients' conscious participation in the study or influence its results.

The women had completed the Hospital Anxiety and Depression Scale (HADS) before the operation. Data on the patients' diagnosis were taken from their hospital case-records. Six - seven days after operation, the patients filled in HADS and a form about their social status.

A. S. Zigmont and R. P. Snaith proposed the HAD scale in 1983 (7). The research confirmed ($n = 65648$) the inner consistency of anxiety and depression subscales and a good factorial structure of the questionnaire, as well as the interrelation and homogeneity of the subscales (8). Studies on cancer patients proved the HADS factorial structure and inner consistency (9) and showed the HAD scale to be a proper method for determining mood disorders in breast cancer patients during the first year after surgery (10).

In 1991, the scale was translated into Lithuanian. The Lithuanian version of the HAD depression subscale correlated well with clinically diagnosed depression ($r = 0.70$) and the anxiety subscale with clinically diagnosed anxiety ($r = 0.74$) (11).

The internal consistency of the HAD scales for this research was determined. The Cronbach alpha of the anxiety subscale was 0.821, and the Cronbach alpha of the depression subscale was 0.768.

The HADS data are interpreted assuming that in every subscale the sum of points up to 8 is a norm, 8-10 show borderline anxiety and depression, while 11 and more signal clinically significant anxiety and depression. In our investigation, the cut-off point for anxiety or depression was 8.

For statistical data analysis, the SAS program was used. T-tests were conducted to compare the groups. To provide an estimate of the magnitude of the group differences, Cohen's standardized effect size (ES) was calculated. Two-tailed significance tests were conducted using a significance level of $p < 0.05$. To determine the factors, predisposing to anxiety and depression, logistic regression analysis was carried out.

Results

Table1 presents data on the patients' ($n = 117$) education, employment and marital status.

Table 1: Distribution of patients (n = 117) according to social characteristics

Characteristics		Number of patients	%
Age interval	Under 39	10	9
	40-49	39	32
	50-59	37	32
	60-69	15	13
	70 and over	16	14
Education	Secondary or unfinished secondary	25	21
	College	31	27
	University	61	52
Employment status	Employed	77	67
	Retired	32	27
	Unemployed	8	6
Marital status	Married	70	60
	Unmarried	11	9
	Widow or divorced	36	31

One week after operation, the anxiety and depression scores in women with university education and in women with college or lower education statistically significantly decreased. There was an especially pronounced decrease ($p < 0.001$, $ES = 0.65$) of anxiety scores in women with university education. No statistically significant differences in anxiety and depression scores were found across the education levels (Tables 2 and 3).

Table 2: Effect of education level on HADS depression scores

Education	Before surgery (m ± SD)	One week after surgery (m ± SD)	P	ES
College, secondary or unfinished secondary	5.1 ± 3.9	3.8 ± 3.5	0.003	0.35
University	4.0 ± 3.2	3.2 ± 2.7	0.001	0.3

Table 3: Effect of education level on HADS anxiety scores

Education	Before surgery	One week after surgery	P	ES
College, secondary or unfinished secondary	7.9 ± 4.3	6.0 ± 3.7	0.001	0.45
University	7.9 ± 3.8	5.5 ± 3.6	<0.001	0.65

Anxiety scores in working women before surgery were statistically significantly higher than in those retired or unemployed (Table 5). One week after operation, in employed women the depression and especially anxiety ($p < 0.001$, ES = 0.7) scores statistically significantly decreased and those of retired or unemployed women remained unchanged (Tables 4 and 5), whereas the depression scores in employed women were statistically significantly lower than those in retired or unemployed (Table 4).

Table 4: Effect of employment status on HADS depression scores

Employment status	Before surgery (m ± SD)	One week after surgery (m ± SD)	P	ES
Retired or unemployed	5.0 ± 3.9	4.5 ± 3.6	0.2	0.1
Employed	4.3 ± 3.4	2.9 ± 2.7	<0.001	0.45
	P	0.3	0.01	
	ES	0.2	0.5	

Table 5: Effect of employment status on HADS anxiety scores

Employment status	Before surgery (m ± SD)	One week after surgery (m ± SD)	P	ES
Retired or unemployed	6.7 ± 3,8	5.5 ± 3.5	0.6	0.3
Employed	8.5 ± 4,6	5.9 ± 3.7	<0.001	0.7
	P	0.02	0.6	
	ES	0.4	0.1	

One week after the surgery, depression scores in married women were statistically lower than in unmarried, widows or divorced (Table 6); the depression and especially the anxiety ($p < 0.001$, ES = 0.7) scores in married women decreased significantly,

(Tables 6 and 7), and in unmarried, widows or divorced women no changes in depression scores were found (Table 6).

Table 6: Effect of marital status on HADS depression scores

Marital status		Before surgery (m ± SD)	One week after surgery (m ± SD)	P	ES
Unmarried, widows or divorced		4.9 ± 3,8	4.4 ± 3.5		
Married		4.3 ± 3,5	2.8 ± 2.7	<0.001	0.5
	P	0.4	0.005		
	ES	0.2	0.5		

Table 7: Effect of marital status on HADS anxiety scores

Marital status		Before surgery (m ± SD)	One week after surgery (m ± SD)	P	ES
Unmarried, widows or divorced		7.2 ± 3.7	5.7 ± 3.5	0.006	0.4
Married		8.3 ± 4.2	5.7 ± 3.7	<0.001	0.7

Logistical regression analysis was carried out to determine the social factors predisposing to depression and anxiety one week after surgery. Depression or anxiety according to HADS were chosen as dependent variables (i.e. if a patient got eight or more points in depression or anxiety subscales). The impact of the variables such as education, employment and marital status was analysed.

No impact of education was found. Employment and marital status were independently associated with depression as assessed by the HADS. One week after surgery, the possibility of depression in retired women was lower than in employed ones (reference group). The possibility of depression in widows and divorced women was higher in comparison with married women (Table 8). Social factors were not independently associated with HADS anxiety scores in the multivariate analysis.

Table 8: Results of the logistic regression analysis

	Regression coefficient b	Standard error	Wald Chi-square	P	Odds ratio	95% C.I. for odds ratio
Employment status*						
retired	-2.49	1.25	3.98	0.046	0.08	(0.01-0.96)
unemployed	1.16	1.09	1.14	0.285	3.19	(0.38-26.76)
Marital status**						
unmarried	1.40	1.05	1.80	0.179	4.07	(0.53-31.58)
widows, divorced	2.06	0.76	7.44	0.006	7.86	(1.79-34.63)
Age groups***						
≤ 49	-2.56	1.32	3.75	0.053	0.08	(0.01-1.03)
50-59	-4.55	1.63	7.83	0.005	0.01	(0.001-0.26)
60-69	-0.81	1.04	0.60	0.437	0.45	(0.06-3.43)
Constant	-1.43	0.54	7.07	0.008	0.24	

* Reference group: “employed”.

** Reference group: “married”.

*** Reference group: “≥ 70”.

Discussion

Although some researchers point out that older persons with cancer manifest fewer and less severe psychosocial problems (12), our research did not confirm this finding. No significant differences in anxiety and depression among the different age groups were found. However, the possibility of depression one week after surgery was lower in women aged 50–59 years than 70 and over (Table 8).

Our study showed that employment status could have an impact on the emotional condition of breast cancer patients. The impact of employment status on the patients’ psychological adaptation has been hardly investigated so far.

Our research showed that possibility of depression one week after operation was significantly lower in married women than in widows or divorced ones. The level of depression in married women statistically significantly decreased and in unmarried ones remained unchanged. The level of depression in married women was lower than in unmarried, widows or divorced ones.

Our research proved a higher vulnerability of unmarried or divorced women and widows in the early post-operational period.

Conclusions

The employment and marital status have an impact on the anxiety and depression of breast cancer patients before operation and in the early post-operational period. While rendering psychosocial help, it is recommended to consider the higher vulnerability of widows, unmarried or divorced women.

Competing interests

The authors declare that they have no competing interests.

Authors' contribution

GB: Designed the study, participated in data collection and statistical analysis and drafted the manuscript.

JV: Coordinated the study and provided for a critical review of the manuscript.

VO: Participated in the design and coordination of the study and contributed to the intellectual content of the manuscript.

TF: Provided for a critical review of the manuscript and contributed to the analysis of data.

All the authors have read and approved the final version of the manuscript.

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