

# Psychological factors influencing delayed diagnosis for breast cancer patients

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## ABSTRACT

**Background.** In Romania there is a discrepancy between breast cancer incidence (the 22 place in Europe) and mortality rate (the 8th place in Europe), probably determined by late diagnosis. The study aims to find associations between the delayed diagnosis in breast cancer and a series of socio-psychological and medical characteristics of the patients.

**Methods.** 101 breast cancer patients were administered a battery of tests for depression, anxiety, stress, coping mechanism, social support, social status, medical and family history and the time between first symptoms and diagnosis. Inclusion criteria were age over 18 years old, pathologic confirmation of breast cancer, at least one type of oncologic treatment (surgery, radiotherapy, chemotherapy, hormonal therapy and/or targeted therapy). Exclusion criteria were altered general status, untreated brain metastases, spatial temporal disorientation, decompensated psychiatric comorbidity, severe pain.

**Results.** Delayed presentation was positively correlated with both the age of the patients ( $p = 0.031$ ) and age at diagnosis ( $p = 0.017$ ), medical history ( $p = 0.048$ ), low use of refocusing on planning coping style ( $p = 0.042$ ).

**Conclusions.** Coping styles, medical history of chronic illness influence delayed diagnosis of breast cancer, which is potentially contributing to a bad prognosis. Further longitudinal studies and screening procedures could contribute to a better understanding of the individual contribution of these factors to delayed diagnosis.

**Keywords:** breast cancer, late diagnosis, psychologic factors

## BACKGROUND

Breast cancer incidence has significantly increased in the last two decades in Europe and in Romania. Regarding incidence rate for breast cancer in women, Romania is below the European average, with 113.1 vs. 143 cases per 100,000 inhabitants, but the mortality rate is higher than the European average, with 36.2 vs 34.1 deaths per 100,000 inhabitants, Romania being on the eight place in Europe regarding breast cancer mortality rate (1).

A possible reason for the difference between incidence and mortality rate for breast cancer pa-

tients is late diagnosis caused by either deficiency in the medical system (deficiency in screening and prevention programs, limited access to modern diagnostic methods) or by late presentation of the patients caused by psychological impairment (poor coping mechanisms – denial; depression, severe anxiety) (2-9).

## AIM OF THE STUDY

The study aims to find associations between the delayed diagnosis in breast cancer and a series of socio-psychological and medical characteristics of the patients.

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## METHOD

Between September 2018 and May 2019, a battery of tests was administered to 101 patients with breast cancer who were being treated at the Oncology Department of CF2 Clinical Hospital in Bucharest. The battery included questions regarding marital status, medical history, family history of oncologic disease, types of therapy they had for the current cancer, initial and current symptoms, the time between first signs and symptoms and the first medical consult. For psychological characteristics we investigated self-esteem with Rosenberg's Self-Esteem Scale (10 item questionnaire regarding positive and negative feelings about self (10)), perceived social support by using the DUKE questionnaire (a 10 item questionnaire regarding help and empathy from other people (11)), the level of depression, anxiety and perceived stress with DASS 21-R questionnaire for psychiatric comorbidity (a 21 item questionnaire that evaluates levels of depression, anxiety and stress – 7 items each (12)) and coping mechanisms with the Cognitive-Emotional Coping questionnaire were used (a 36 item questionnaire that includes 9 types of coping used in negative settings: self-blame, acceptance, rumination, positive refocusing, refocusing on planning, putting into perspective, catastrophizing, blaming others (13)).

The inclusion criteria for patients were age – 18 years old, pathologic confirmation of breast cancer, at least one type of oncologic treatment (surgery, radiotherapy, chemotherapy, hormonal therapy and/or targeted therapy).

Exclusion criteria: breast cancer patients with altered general status (ECOG 3-4), untreated brain metastases, spatial temporal disorientation, decompensated psychiatric comorbidity, severe pain.

The study was approved by the hospital's ethic commission and the participants signed an informed consent. The data was statistically analyzed with SPSS 22.0 for windows by using T test, ANOVA, Chi-Square test.

## RESULTS

From the 101 questionnaires distributed, 96 were female (95%). Because of the high difference in the number of female and male patients it was decided to do statistical analyze only on the female subgroup. The age distribution was 35 to 81 years old, with average 51.66 and median of 51, standard deviation 10.5. Division into age groups was unequal, 32.3% were 51-60 years old, followed by 41-50 years old (30.2%), 31-40 years old (18.8%),

61-70 years old (11.5%) and over 70 years old 7,3%. Most of the patients were from urban areas (74%), married (83.3%) and with children (87.5% – 47.9% 1 child, 39.6% at least 2 children).

More than half of the patients presented medical history of chronic illness (52%), 46.9% had positive family history of oncologic disease and 31.2% had relatives that died of oncologic disease.

By analyzing the responses from the questionnaires, it was shown that 86.5% had medium levels of self-esteem, 76% reported high levels of perceived social support, 30.6% had medium and severe signs of depression, 69.8% showed medium and high levels of anxiety and 42.7% had medium and high levels of perceived stress (Table 1).

**TABLE 1.** Repartition of the responses for Rosenberg's Self-Esteem Scale, DUKE questionnaire and DASS 21-R questionnaire for psychiatric comorbidity

Value	Low/normal	Medium	High
Self esteem	1%	86.5%	12.5%
Perceived social support	3.1%	20.8%	76%
Depression	59.4%	26%	14.6%
Anxiety	30.2%	29.2%	40.6%
Perceived stress	57.3%	30.2%	12.5%

Regarding the use of coping mechanisms, most frequently (over 65%) the patients reported the use of acceptance (75%), putting into perspective (67.7%) and catastrophizing (82.3%) (Table 2).

**TABLE 2.** Coping mechanism

Coping mechanism	High usage	Medium usage	Low usage
Self-blame	54.2%	30.2%	15.6%
Acceptance	75%	18.8%	5.2%
Rumination	53.1%	31.3%	15.6%
Positive refocusing	61.5%	24%	14.5%
Refocusing on planning	49%	34.4%	16.6%
Positive reevaluation	62.4%	18.8%	18.8%
Putting into perspective	67.7%	17.7%	14.6%
Catastrophizing	82.3%	8.3%	9.4%
Blaming others	36.5%	41.7%	21.8%

The time between first signs and symptoms of illness and first medical consult was divided in 4 groups – under 1 month, 1-6 months, 6-12 months and over 1 year. Most patients declared they had their first medical consult in the first 6 months (67.7%), followed by patients that presented for the first consult in 6 to 12 months (16.67%) and 15.63% declared they waited for more than 1 year.

After analyzing the correlation between the time between first signs and symptoms of illness and first medical consult and general and psychological factors, it was showed that there is a correla-

tion between the age of the patients and time to diagnosis. There is a tendency for the patients with ages between 40 and 60 years old to ask for medical consult in over 3 months from first signs and symptoms (55%) and for patients with ages over 60 years old in less than 3 months (55.6%), without a linearity of the relation but with statistical signification ( $p = 0.31$ ) (Table 3).

**TABLE 3.** Correlation between time to diagnostic and age of the patients

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	22.582a	12	.031
Likelihood Ratio	24.200	12	.019
Linear-by-Linear Association	.031	1	.860
N of valid cases	96		

There was also a statistically significant correlation between time to diagnostic and the age of the patients at diagnostic ( $p = 0.017$ ) (Table 4). There is a tendency for the patients with ages between 40 and 50 years old to ask for medical consult in over 3 months from first signs and symptoms (61%) and for patients with ages 50 to 60 years old in less than 3 months (64%), without a linearity of the relation.

**TABLE 4.** Correlation between time to diagnostic and age at diagnostic

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.507a	12	.017
Likelihood Ratio	22.707	12	.030
Linear-by-Linear Association	.251	1	.616
N of valid cases	96		

A long time to diagnostic is associated with the lack of comorbidities ( $p = 0.048$ ) (Table 5), patients with no comorbidities tend to present to first medical consult in over 3 months and the ones with known comorbidities in less than 3 months, with strong linearity of the correlation.

**TABLE 5.** Correlation between time to diagnostic and presence of comorbidities

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.058a	9	.048
Likelihood Ratio	22.154	9	.008
Linear-by-Linear Association	5.216	1	.022
N of valid cases	96		

Regarding coping mechanism used by patients, there was statistically significant correlation between refocusing on planning and time to diagnostic ( $p = 0.042$ ) (Table 6). The patients with high usage of the coping style tend to present in more than 3 months (57%), and the ones with low usage present in less than 3 months (75%). Patients with medium usage of the coping style were equally distributed between over and under 3 months. The correlation showed linearity.

**TABLE 6.** Correlation between time to diagnostic and refocusing on planning

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13,061a	6	.042
Likelihood Ratio	12,709	6	.048
Linear-by-Linear Association	2,827	1	.093
N of valid cases	96		

There were no significant statistical correlations between time to diagnostic and self-esteem, depression, anxiety and perceived stress in this group of patients.

## DISCUSSIONS

This study analyzed the correlation between psychosocial characteristics of breast cancer patients and late presentation for diagnostic. There were 101 patients enrolled in the study (5 men and 96 women). The number of male patients respects the distribution of male cancer patients in the general population (5%) (14).

Because of the small number of male breast cancer patients enrolled in the study (5 patients – 4.9%), it was not possible to do a statistical analyze by gender. It has to be taken into consideration an increase of the incidence of male breast cancer in the last decade (15,16), requiring significant attention in terms of early diagnosis and treatment, given that breast cancer in men has a significantly worse prognosis (15). An important element associated with the late diagnosis of these patients is stigma related to the disease, which aggravates the symptoms of anxiety, perceived stress and depression. Studies show that 25% of the patient's present signs of severe depression (17,18), and 24% clinically manifested anxiety disorder (19).

The average age of the patients was 51.66, standard deviation 10.5, this being with more than 10 years younger than declared average age for breast cancer patients (62 years) (20). A possible explanation for the age difference is the reticence of older patients to respond to questionnaires.

According to data from literature, self-esteem varies throughout the treatment of breast cancer patients. After surgery, the level of self-esteem is high (21). There is also a difference between patients who had sectorectomy or mastectomy followed by reconstruction versus the ones with mastectomy, who have lower self-esteem (22).

The high levels of perceived social support found in our group are in concordance with the data found in literature. A lower perceived social support is associated with patients that are single and with low performance status (23,24).

The levels of depression, anxiety and perceived stress found in this group of patients similar with the data found in the literature, that show a lower level of depression and perceived stress and a high level of anxiety (24-27).

Regarding the use of coping mechanisms, the patients enrolled in the study reported the frequent use of acceptance (75%), putting into perspective (67.7%) and catastrophizing (82.3%). These results are partially sustained by data in literature, where there is reported a high usage of acceptance, positive reevaluation, religious coping, humor and venting of emotions (28-30).

The majority of the patients had their first medical consult in the first 6 months. The results are sustained by data from literature, that shows the majority of breast cancer patients get diagnosed in less than 3 months from the appearance of first signs and symptoms (31,32).

The data we found in the literature shows a correlation between the age of the patients, but in other studies an older age is associated with late diag-

nosis (31). The difference between the results found in this study and data found in the literature could be explained by the small sample of patients in the study or by a difference between characteristics of the population of Romania and other countries. In order to clarify this result, it is necessary to include in the study a larger population of breast cancer patients.

There aren't sufficient data in the literature regarding the correlation between coping strategies and late presentation of breast cancer patients. Most studies show a correlation between emotional coping strategies and the expression of emotion with better survival, regardless of the stage of disease at diagnosis (33-40).

The study's limitations were given by the reduced number of patients enrolled, especially male patients. Also, by enrolling patients from a hospital in Bucharest, the percentage of patients from the rural areas was relatively small.

## CONCLUSIONS

This study shows that age, absence of comorbidities and coping strategies are a part of the characteristics that prone breast cancer patients to prolong time to medical consult. Knowing this, it is important to educate younger women regarding the importance of periodical self-evaluation of the breast, participating to screening programs for breast cancer and asking for medical consult every time they observe a modification of the breast or axilla.

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