

## Anxiety and Depression Levels and Personality Traits of Mastalgia Patients

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### Abstract

**Objective:** We aim to evaluate the personality traits with anxiety and depression levels of mastalgia patients in comparison with a healthy control group.

**Method:** Using Beck Anxiety Inventory, Beck Depression Inventory and Temperament and Character Inventory we compared anxiety and depression levels and personality traits of 60 premenopausal patients and 53 healthy premenopausal women.

**Results:** In mastalgia group anxiety, depression, harm avoidance, self-directedness and self-transcendence scores are significantly higher; while cooperativeness score is significantly lower compared with the control group. Negative correlations were determined between anxiety scores and self-directedness, cooperativeness, as well as depression levels and cooperativeness.

**Conclusion:** This study demonstrates that breast pain without organic etiology is related to personality traits and may result in anxiety and depression.

**Keywords:** Mastalgia, temperament, depression, anxiety

### Introduction

Mastalgia is one of the most common reasons to apply to breast disease polyclinics [1]. It is defined as a painful and/or tension sensation originating in the breast and areola [2]. According to Klimberg 66% of women have mastalgia and 21% of them are severe [3]. Mastalgia affects the patients' quality of life negatively. Even though etiology points to caffeine consumption, smoking, increased plasma fat acid levels, changes in hormone levels and prolactin levels as causes of mastalgia [4-6], It is a known fact that treatment of mastalgia is a dilemma for breast specialists. Despite too many clinical studies are investigated different drugs, there is no consensus on the treatment [7-10]. For the pain syndromes, which no organic reason can be found, it is propounded that - especially in women - pain is psychogenic [11].

Exclusion of cancer diagnosis is the most important process in the management of patients who apply to breast clinics for mastalgia. Even though it increases the workload of polyclinics, mastalgia is often a benign pathology and the ratio of breast cancers among women suffering from mastalgia is 0.4% [12]. After the exclusion of malignancy, infections and organic etiologies, the treatment is determined according to the duration and frequency of pain. Although reduced caffeine intake, non-steroid anti-inflammatory agents, vitamin E and gamma linoleic acid are used for treatment of benign mastalgia, in placebo-controlled studies, the efficacy of these treatments was unproven [13, 14].

For many years, the psychiatric origins of mastalgia aroused the interest of researchers. Among women with mastalgia, anxiety disorders, particularly generalized anxiety disorder, major depression and somatization disorders are frequently reported [15].

Among the non-responder patients, it is shown that anxiety and depression severity are high; in addition, there is a significant correlation between severity of mastalgia and of anxiety and depression [16,17]. It is reported that cognitive behavioral therapy notably reduces the complaints of more than half of the mastalgia patients [15].

Among patients suffering from psychogenic originated chronic pain, the exaggerated pain perception related with anxiety is one of the most important reasons of disability. Exaggerated fear of pain may increase the severity of pain perception and disability, as well as limit physical activities. Proneness to anxiety may differ among individuals. Personality is one of the most important factors that clarifies these differences [18, 19].

**Objective:** We evaluated the personality traits with the anxiety and depression levels of mastalgia patients in comparison with a healthy control group. In this study it is aimed to determine the effect of personality traits on anxiety and depression levels at mastalgia patients in comparison with a healthy control group.

### Materials and Methods

The study group consisted of sixty premenopausal patients who applied to Bezmialem Vakif University Breast Diseases Polyclinic in

January and February 2013. Differential diagnosis of the breast cancer and organic etiologies were excluded at all patients. All patients had a physical examination by an experienced breast specialist. Breast ultrasonography is used at the patients under 35 years. Mammography is added to ultrasonography for the patients over 35 years. Both modalities were evaluated and scored by Breast imaging reporting and data system (BI-RADS). Patients have a score bigger than BI-RADS 2 were excluded.

BI-RADS is an globally accepted scoring system and means

BI-RADS1: No malign or benign finding. Malignity risk is 0%

BI-RADS2: Only benign findings are there. Malignity risk is 0%.

BI-RADS 3-4-5: Malignity risk changes at these scores but all scores have a malignity risk more than 0%.

Fifty three premenopausal women who work at the hospital (medical administrators, doctors and nurses) and do not have any mastalgia complaints have formed the healthy control group. Five patients and two control group candidates have rejected to participate to the study.

Inclusion Criteria for Patient Group;

Applying to Bezmialem Vakif University Breast Diseases Polyclinic in January and February 2013,

Displaying no organic causes of mastalgia after breast examination and imaging,

Being in premenopausal period,

Signing the informed consent form,

Inclusion Criteria for Control Group;

Being in premenopausal period,

Not being diagnosed with mastalgia,

Signing the informed consent form,

Exclusion criteria for both groups are;

Having received any kind of psychiatric treatment within the last year,

Being diagnosed with any psychiatric disease,

Suffering from a chronic disease,

Being the caregiver of a chronic patient,

Being divorced within the last year,

Having received inpatient treatment for any reason within the last year,

Having breast cancer history in the family.

## Materials

The ethics of the study was approved by Bezmialem Vakif University Ethical Review Board and informed consent forms were obtained from the participants. Both groups were evaluated using the Socio-demographic Data Sheet, Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI) and Temperament and Character Inventory (TCI).

**Beck Anxiety Inventory (BAI):** The inventory was developed by Beck et al. in 1988. It measures the level of an individual's anxiety symptoms. It questions subjective anxiety and physical symptoms. It consists of 21 questions answered by patients and is evaluated with a Likert-type scale of 0 to 3; its point range is from 0 to 63. The higher the total score correlates with the severity of individual's anxiety. The Turkish validity and reliability study for the inventory was conducted by Ulusoy et al [20].

**Beck Depression Inventory (BDI):** The inventory was developed by Beck in 1961 [21]. BDI aims to evaluate risk of depression and level of depression symptoms objectively rather than diagnosing. The inventory consists of 21 questions, each with 4 possible answers scored between 0 and 3. It's point range is 0 to 63. The total score demonstrates the level of depression. The validity and reliability study for the Turkish version of the inventory was conducted by Hisli [22]. The Cronbach alpha coefficient is 0.80 and r: 0.74.

**Temperament and Character Inventory (TCI):** TCI is a self-assessment inventory devised by Cloninger to evaluate four temperament and three character dimensions with 240 "TRUE or FALSE" questions [23]. The validity and reliability of TCI's Turkish version were assessed by Köse et al [24]. The Cronbach alpha coefficients vary between 0.60-0.85 in temperament dimensions and between 0.82-0.83 in character dimensions.

## Statistical Analysis

Categorical variables were compared with chi-square. The Student t-test was used to compare clinical scale score values. For correlation analysis Spearman correlation analysis was used. The level of significance was accepted as  $p < 0.05$ .

## Results

The socio-demographic data of the participants is shown in Table 1. It is observed that mastalgia and control groups are equal in terms of age, education and marital status. Table 2 shows the BDI, BAI and TCI scores of both groups with statistical significance levels. The results of BAI and BDI show that anxiety and depression scores are significantly higher in mastalgia group. According to TCI results Harm Avoidance (HA), Self - Directedness (SD) and Self - Transcendence (ST) scores are significantly higher in mastalgia group, while cooperativeness (C) score of mastalgia group is significantly lower compared with the control group.

The correlation between the anxiety and depression levels with personality dimensions in mastalgia patients is shown in Table 3. Negative correlations were determined between anxiety scores and SD, C, as well as depression levels and C.

	Mastalgia (n = 60)	Control (n = 53)	$\chi^2$	p
Age (years) *	32.60 ± 8.77	32.23 ± 7.33		0.808
MaritalStatus(%)*			0.043	0.979
Single	% 11.7	% 11.3		
Married	% 80.0	% 79.2		
Divorced	% 8.3	% 9.4		

Education (%)**			4.691	0.096
Primary School	% 15.0	% 18.9		
High School	% 60.0	% 71.7		
University	% 25.0	% 9.4%		

**Table 1:** Socio-demographic Data.

	Mastalgia	Control	t	p
BAI	32.23 ± 7.33	32.23 ± 7.33	11.63	< 0.001
BDI	44.58 ± 8.84	31.55 ± 9.34	7.62	< 0.001
TCI dimensions				
Novelty Seeking	23.33 ± 8.33	24.30 ± 8.58	-0.61	0.545
Harm Avoidance	23.60 ± 6.31	14.00 ± 6.10	8.20	< 0.001
Reward Dependence	23.60 ± 6.31	12.96 ± 4.49	0.146	0.884
Persistence	23.60 ± 6.31	17.60 ± 7.16	-0.78	0.938
Self-Directedness	27.17 ± 6.85	17.60 ± 7.16	7.25	< 0.001
Cooperativeness	26.40 ± 6.31	36.00 ± 6.10	-8.20	< 0.001
Self-Transcendence	23.60 ± 6.31	14.53 ± 6.21	7.08	< 0.001

**Table 2:** Group Comparison based on BAI, BDI and TCI Scores. BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory, TCI: Cloninger's Temperament and Character Inventory.

## Discussion

The psychosomatic nature of mastalgia, mentioned by clinicians for almost a century without clear scientific evidence, is a relatively unknown subject, [16, 25]. When a patient complains about pain symptoms, the clinician may plan a clear medical or surgical treatment "as long as an organic cause is detected". However, when organic etiology cannot be determined, treatment process may be complicated. In search of solving this problem, it will be helpful to know that the pain is psychosomatic originated and to clearly understand the psychological/psychopathological parameters that cause or sustain the pain. This study was conducted to determine the personality traits that could be associated with mastalgia, as well as the relation of mastalgia with depression and anxiety.

According to the personality studies based on TCI about mastalgia, it is found out that HA, SD and ST scores are significantly higher in the mastalgia group, while the C score of the mastalgia group is significantly lower than the control group. In this study for mastalgia group negative correlations are found between anxiety scores with SD and C, depression levels and C.

Harm Avoidant individuals are social inhibited, easily fatigued, pessimistic and anxious [26]. Self-directed individuals are realistic and

efficient. This allows them to adjust their behavior to reach their personal goals. Individuals with low SD scores are accusatory, help-seeking, irresponsible, insecure and reactive [26]. Self-Transcendent individuals are fair, understanding, plain and modest. Individuals with low ST scores tend to be practical, objective, selfish and grandiose [26]. Individuals with low C scores tend to be cold and hostile against others, while high C scored individuals are supportive, cooperative, helpful, motivated by mutual interest and tolerance [23].

Many studies that analyze the relation between Cloninger's personality dimensions and somatization have found out a correlation between HA and somatization disorders [27,28]. Among TCI dimensions, HA is the most related dimension with somatization, anxiety and phobic anxiety [28]. A genetic study conducted by Gonda et al. demonstrated that somatization, neuroticism and low SD scores are correlated with polymorphism of serotonin transporter gene 5HTTLPR [29]. Considering this information, the results of this study lead to the conclusion that somatization, which is known to play a role in mastalgia etiology, is closely related to personality dimensions, especially to HA.

Cloninger's psychobiological model propounds that unlike innate temperament dimensions, personality dimensions are culturally inherited [23]. Character dimensions are obtained at later stages with the influence of the environment and education. As the individual grows older, these dimensions, combined with self-concept and individual / social activities in adulthood, leads to maturity.

In this study, high SD and ST scores of mastalgia patients may be related to the fact that self-directed individuals are responsible, self-respecting and not afraid of dealing with problems and that self-transcendent individuals develop a compensatory mechanism arising from their selfless belief in the meaning of life. Low C scores may be explained with the fact that the development of such a similar mechanism may cause the somatic complaints of the individuals to focus on their own problems [30].

In this study the results of BAI and BDI show that the anxiety and depression scores are significantly higher in the mastalgia group.

Jenkins et al. conducted a study where they evaluated 25 patients with severe and persistent mastalgia using Composite International Diagnosis Interview (CIDI), and found out that anxiety and depression scores rise and frequent psychiatric disorders like minor and major depression are observed when the patient does not respond to treatment [31]. Based on these findings, the researchers concluded that severe or persistent mastalgia is likely to cause psychiatric disorders [31]. However, in a study conducted in Turkey, Topçuoğlu et al. did not find a significant difference in anxiety and depression scores between mastalgia patients and the control group [32]. A study conducted by Turgut et al. demonstrated that women patients with mastalgia had high anxiety levels. When the final diagnosis is decided and no organic etiology was determined, a re-evaluation was done and it was found out that anxiety levels have significantly decreased [33]. Another study on 121 women demonstrated that mastalgia complaints reduced among 70.2% of the patients once they are assured that there is no organic etiology. The success rates for mild, moderate and severe mastalgia after assurance of patients were 85.7%, 70.8% and 52.3% respectively [34]. The results of the studies on the relation between mastalgia with anxiety and depression are inconsistent. The studies conducted on the relation between psychological factors and breast pain indicate that it is not appropriate to establish a direct relation

between mastalgia and psychological parameters like depression and anxiety [16].

When considered with the literature, the findings of this study lead to the conclusion that anxiety and depression are related with mastalgia. However, a prolonged follow-up is required to evaluate the depression levels of mastalgia patients.

In the literature, there are studies with different approaches on the relation between anxiety and depression. Bjelland et al. have determined that high level of education has a protective effect on anxiety and depression [35]. On the other hand, although Shi et al. state that prevalence of depression increases when socio-economic level is lower, they emphasize that higher level of education might not have a protective effect on anxiety manifestation [36]. The results of this study indicate that although the level of education is higher in mastalgia patients, the prevalence of anxiety and depression is higher compared to the control group. Considering the different results in the literature, whether education level has a protective or predisposing effect on women with mastalgia should be further studied.

In this study, having a small sample group and not checking the psychosocial cofactors well enough might have caused a limitation. In the future, the relevant literature will be improved with studies conducted with a larger patient and control group that are matched according to their education levels.

## Conclusion

This study demonstrates that breast pain without organic etiology is related to personality traits and may result with anxiety and depression. Therefore, psychiatric consultation/liason is important in the treatment of mastalgia patients.

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