

The Relationship Between Anxiety Symptoms, Anxiety Sensitivity, and Emotional Schemas in Patients Admitted to Psychiatry Outpatient Clinic

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Abstract

Introduction. Anxiety disorders are among the most common mental disorders being an important cause of disability as they impair the functionality of affected individuals.

Our study **aimed** to evaluate the effects of anxiety sensitivity, which is one of the cognitive structures involved in the etiology and perpetuation of psychopathologies, and emotional schemas, which evaluate how people handle their emotions, on anxiety symptoms.

Methods. One hundred participants who were admitted to the outpatient psychiatry clinic, agreed to participate in the study, and met the inclusion criteria were included in the study. The Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI-I), Leahy Emotional Schema Scale Turkish Version (LESS-T), and Anxiety Sensitivity Index (ASI-3) were administered to the participants.

Results. A correlation analysis revealed a significant relationship between the BAI score and BDI-I score, ASI-3 total score, and LESS-T Uncontrollability, Weakness, Comprehensibility, Acceptance of Emotions, Rumination, Denial of Emotions, Validation subscale scores ($p < 0.05$). A logistic regression analysis that examined the risk factors predicting anxiety symptoms in individuals found that increasing BDI-I and ASI-3 total scores had an increasing effect on the development of anxiety, and an increase in the LESS-T Denial of Emotions subscore had a decreasing effect.

Conclusions. Determining anxiety sensitivity and emotional schemas in patients with anxiety symptoms may be a guide in identifying and treating the risk factors for the development of anxiety disorders.

Keywords

Anxiety; Anxiety Sensitivity; Emotional Schemas

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Introduction

Anxiety is defined as a feeling that comes from within for an unknown reason, characterized by fear, anxiety, boredom, and feeling fearful that something bad will happen at any moment [1]. Anxiety disorders are among the most common mental disorders and are an important cause of disability as they impair the functionality of affected individuals [2]. For these reasons, researchers have placed a great deal of importance on studying the etiology and

treatment options for anxiety disorders.

There are different theoretical approaches to the formation and treatment of anxiety disorders. According to cognitive theory, dysfunctional and faulty thought processes may contribute to the development of anxiety symptoms. People with anxiety disorders overestimate the magnitude of potential danger and resulting harm and underestimate their capacity to cope with perceived threats [3].

In cognitive theory, one of the cognitive structures that plays a role in the formation and maintenance of psychopathologies is anxiety sensitivity (AS), which is defined as an extreme fear of the physical and/or social consequences of anxiety-related body sensations and symptoms [4].

AS differs among individuals depending on how disturbing they perceive anxiety and their beliefs about the con-

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sequences of their anxiety experience [4]. People with high AS are sensitive to bodily sensations and thoughts of anxiety and often interpret these stimuli as harmful [5]. The associations between AS and panic disorder, generalized anxiety disorder, social anxiety disorder, post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), and suicidal ideation have been studied and AS has been found to play a role in the development of psychopathologies [4, 6, 7].

Another theory described by Leahy, one that is used to explain the development of psychopathologies, is the emotional schema model. Emotional schema is a variety of coping strategies that a person uses when they experience an emotion. According to this model, people differ from each other in terms of interpreting their emotional experiences [8, 9]. They use experiential avoidance (e.g., suppression, escape, avoidance, numbness), useless “cognitive strategies” (e.g., rumination and over-reliance on worry), and social support-seeking behaviors to cope with their negative emotions. When an emotion arises, the first step includes the emergence of attention to the emotion, and the second step includes the emotional and cognitive avoidance/acceptance associated with the emotion. Individuals may use dysfunctional emotional schemas such as disapproval, incomprehensibility, guilt and shame, control, rationality, perception of time, believing that there are no common features, non-acceptance, rumination, and blame in coping with their emotions [9]. When the relationship between the strategies used by people having difficulties in coping with their emotions and psychopathological symptoms (anxiety, depression, post-traumatic stress symptoms, obsessive-compulsive symptoms) is examined, psychopathology is found to be more correlated with maladaptive strategies (rumination, avoidance) [10].

In our study, we studied the relationship between anxiety symptoms and emotional schemas by investigating factors that contributed to anxiety development. **Our study was aimed** to evaluate the role of emotional schemas and AS in the development of anxiety symptoms in people who were admitted to the outpatient psychiatry clinic.

Materials and Methods

The study was conducted after obtaining approval from the Ethics Committee of Sancaktepe Şehit Prof Dr. İlhan Varank Training and Research Hospital on November 9, 2022. The study was performed on 100 patients who were admitted to the outpatient psychiatry clinic between December 2022 and April 2023, were at least primary school graduates and were between 18-65 years of age. Exclusion criteria were mental retardation, schizophrenia spectrum disorder, depression with psychotic features, or bipolar spectrum disorder, dementia and/or organic mental disorders, being under the influence/withdrawal of alcohol and substances (cannabis, hallucinogens, inhalants, opioids, sedative/hypnotics, stimulants).

When all subjects were identified and diagnosed, all participants were randomly selected. A total of 139 patients who met the criteria of the study were evaluated. Patients with schizophrenia (n=4), bipolar spectrum disorder (n=12),

and those who filled out the scales incompletely (n=13) were excluded from the study. This resulted in a sample of 100 patients.

A sociodemographic data form, the Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI-I), Anxiety Sensitivity Inventory (ASI-3), and Leahy Emotional Schema Scale Turkish Version (LESS-T) were administered to those who agreed to participate in the study.

Data Collection Tools

Clinical and Sociodemographic Data Form

This detailed form was prepared by the researchers to evaluate individuals' sociodemographic characteristics and personal characteristics related to their clinical status.

Beck Anxiety Inventory (BAI)

Developed by Beck *et al.* in 1988, the BAI is a self-report scale that aims to determine the frequency of anxiety symptoms experienced by an individual [11]. A study on its validity and reliability in Turkish was conducted by Ulusoy *et al.* in 1993 [12]. Each item is given a score between 0 and 3 on the 21-item scale. A high total score indicates severe anxiety experienced by the individual.

Beck Depression Inventory (BDI-I)

This scale, developed by Beck *et al.* [13] to measure the physical, emotional, cognitive, and motivational symptoms of depression, was adapted into Turkish by Hisli [14]. It is a self-assessment scale consisting of 21 questions with a high total score meaning high levels of depression.

Anxiety Sensitivity Index-3 (ASI-3)

The ASI-3 consists of a total of 18 items with Physical, Social, and Cognitive sub-dimensions, and six items in each sub-dimension. The scale provides a five-point Likert-type measurement: “0” means very little, while “4” means a lot [15, 16]. In the validity and reliability study of the scale in Turkish, it was found that ASI-3 had high internal consistency (Cronbach's alpha=0.93) and test-retest reliability was quite good ($r=0.64$, $p < 0.001$) [16].

Leahy Emotional Schema Scale Turkish Version (LESS-T)

The original name of the scale developed by Robert L. Leahy was the “Leahy Emotional Schema Scale (LESS)” [17]. The content of the LESS consists of statements to determine the individuals' beliefs about their emotions and strategies for coping with their emotions. The scale consists of a total of 50 items and 14 sub-dimensions, each consisting of two to seven items. These sub-dimensions are as follows: Approval, Comprehensibility, Guilt, Uncontrollability, Demand for Rationality, Consensus, Acceptance of Emotions, Rumination, Weakness, Emotional Avoidance, Dissimilarity, Denial of Emotions, Validation, View of Emotions as Harmful. The scale does not have a total score scoring method, rather the trends in the sub-dimensions are taken into account. A study on the validity and reliability of the scale in Turkish was conducted by Yavuz *et al.* [18]. Correlation analysis showed that the internal validity of the scale was high (Cronbach's alpha=0.86). It has been revealed that the LESS-T has sufficient psychometric properties to evaluate schemas and attitudes towards emotions.

Statistical Methods

The data collected were analyzed using the IBM data analysis program for the Social Sciences package version 23.0 (IBM Corp., Armonk, NY). Frequency and percentage were given for categorical data, and median, minimum, and maximum descriptive values were used for continuous data. The normality test of the variables was evaluated using the Kolmogorov-Smirnov test. It was determined by the Kolmogorov-Smirnov test that the variables were not normally distributed ($p < 0.05$). Spearman correlation analysis, which is a non-parametric test, was performed to evaluate the relationship between the variables. Logistic regression analysis was used to examine the risk factors affecting the development of anxiety. The results were considered statistically significant when the p-value was less than 0.05.

Results

Sociodemographic data of the participants are shown in Table 1.

Table 1. Evaluation of sociodemographic characteristics.

		Total (N=100) n (%)
Age, years	18-25	35 (35)
	26-35	34 (34)
	36+	31 (31)
Gender	Female	66 (66)
	Male	34 (34)
Education	Primary school	18 (18)
	High school	32 (32)
	University and (+)	50 (50)
Marital Status	Married	39 (39)
	Single	49 (49)
	Divorced/widowed	11 (11)
Employment status	Employed	51 (51)
	Unemployed	26 (26)
	Student	23 (23)
Smoking	Present	46 (46)
	Absent	54 (54)
Alcohol/drug abuse	Present	10 (10)
	Absent	90 (90)
History of mental illness	Present	39 (39)
	Absent	61 (61)

The relationships between the BAI and other clinical scales used in the study are shown in Table 2. Thus, a statistically significant positive relationship was found between the BAI and BDI-I, LESS-T Weakness, LESS-T Emotional Avoidance, LESS-T Rumination, LESS-T Validation, ASI-3 Physical, ASI-3 Cognitive, ASI-3 Social, and ASI-3 total scores. A statistically significant negative relationship was found between the BAI and LESS-T Uncontrollability, LESS-T Comprehensibility, LESS-T Acceptance of Emotions, and LESS-T Denial of Emotions.

To evaluate the factors affecting the development of anxiety symptoms in individuals, the BDI-I score, ASI-3 total score, and LESS-T Uncontrollability, Weakness, Comprehensibility, Acceptance of Emotions, Rumination,

Table 2. Correlation between the BAI and other clinical scales.

Spearman's rho	BAI	
	r	p
BDI-I	0.67	<0.001
LESS-T Uncontrollability	-0.55	<0.001
LESS-T Weakness	0.31	0.002
LESS-T Comprehensibility	-0.52	<0.001
LESS-T Emotional Avoidance	0.06	0.559
LESS-T Demand for Rationality	-0.01	0.914
LESS-T Acceptance of Emotions	-0.30	0.002
LESS-T Rumination	0.42	<0.001
LESS-T Dissimilarity	-0.04	0.706
LESS-T Denial of Emotions	-0.48	<0.001
LESS-T Validation	0.32	0.001
LESS-T Approval	0.01	0.938
LESS-T Consensus	0.0	0.968
LESS-T View of Emotions as Harmful	-0.10	0.335
LESS-T Guilt	0.12	0.244
ASI-3 Physical	0.36	<0.001
ASI-3 Cognitive	0.47	<0.001
ASI-3 Social	0.46	<0.001
ASI-3 total	0.53	<0.001

Notes: BAI – Beck Anxiety Inventory; BDI-I – Beck Depression Inventory; LESS-T – Leahy Emotional Schema Scale Turkish Version; ASI-3 – Anxiety Sensitivity Index.

Denial of Emotions, Validation subscale scores, which were among the variables statistically significantly associated with anxiety, were analyzed in a logistic regression analysis. The risk factors affecting the development of anxiety were first evaluated in the univariate model (Table 3), and all variables were found to be statistically significant ($p < 0.05$).

When the variables found to be significant in the univariate model were re-evaluated in the multivariate model (Table 3), the BDI-I score, LESS-T Denial of Emotions subscale score, and ASI-3 total score were found to be statistically significant ($p < 0.05$). An increase in the BDI-I and ASI-3 total scores had an increasing effect on the development of anxiety, and an increase in the LESS-T Denial of Emotions subscale score was found to have a decreasing effect.

Discussion

In our study, the relationship between anxiety symptoms, AS, and emotional schemas in patients admitted to the outpatient psychiatry clinic was investigated, and the factors predicting anxiety symptoms were investigated.

In a correlation analysis, the BDI-I score, ASI-3 total score, and LESS-T Uncontrollability, Weakness, Comprehensibility, Acceptance of Emotions, Rumination, Denial of Emotions, Validation subscale scores were found to be statistically significantly related with anxiety (Table 2). A regression analysis found that an increase in the BDI-I scores and ASI-3 scores had an increasing effect on the development of anxiety, and an increase in the LESS-T Denial of Emotions subscale score had a decreasing effect (Table 3).

Table 3. Logistic regression analysis of anxiety symptoms.

	Univariate Model			Multivariate Model		
	β	OR (%95)	p	β	OR (%95)	p
Age, years						
18-25		Reference	–		Reference	–
26-35	–1.264	0.28 (0.11-0.76)	0.013	–1.405	0.25 (0.05-1.15)	0.074
36+	–0.720	0.49 (0.18-1.30)	0.152	–0.701	0.50 (0.11-2.28)	0.368
BDI-I	1.143	1.13 (1.07-1.19)	<0.001	1.100	1.10 (1.01-1.20)	0.027
LESS-T Uncontrollability	0.118	0.78 (0.70-0.87)	<0.001	0.095	0.95 (0.80-1.13)	0.576
LESS-T Weakness	–0.246	1.11 (1.01-1.23)	0.035	–0.050	0.85 (0.69-1.03)	0.101
LESS-T Comprehensibility	0.108	0.80 (0.72-0.88)	<0.001	–0.167	0.94 (0.78-1.12)	0.467
LESS-T Acceptance of Emotions	–0.229	0.90 (0.83-0.98)	0.015	–0.066	1.00 (0.86-1.16)	0.968
LESS-T Rumination	–0.102	1.18 (1.07-1.30)	<0.001	0.003	1.00 (0.85-1.18)	0.962
LESS-T Denial of Emotions	0.166	0.72 (0.61-0.85)	<0.001	0.004	0.69 (0.51-0.94)	0.018
LESS-T Validation	–0.334	1.21 (1.04-1.40)	0.014	–0.372	0.95 (0.73-1.24)	0.694
ASI-3 total	0.188	1.08 (1.04-1.12)	<0.001	–0.054	1.09 (1.03-1.16)	0.003

Notes: OR – odds ratio; BDI-I – Beck Depression Inventory; LESS-T – Leahy Emotional Schema Scale Turkish Version; ASI-3 – Anxiety Sensitivity Index.

Depression

Anxiety disorders and depression are often seen as comorbidities. A Nesda study published in 2021 reported that 68% of those with a current diagnosis of depression had comorbid current anxiety disorder, and 63% of those who were followed up with a diagnosis of current anxiety disorder had comorbid current depression [19]. It has been shown that in anxiety-depression comorbidities, the diseases are more severe and chronic, the treatment response is worse, and the decrease in functionality is higher [20]. In our study, the presence of depressive symptoms was found to predict anxiety symptoms. Consistent with our findings, there is evidence that depression and anxiety symptoms predict each other prospectively and reciprocally, suggesting that one may be a risk factor for the other [21].

Anxiety Sensitivity

In the literature, AS has been shown to be one of the cognitive structures that predisposes to many mental disorders, especially anxiety disorders [4]. In a 2-year follow-up study of 404 non-clinical samples, it was shown that AS predicted panic disorder in individuals without a history of panic attacks and predicted the diagnosis and incidence of anxiety disorder in individuals without Axis 1 diagnosis [22].

In a two-year follow-up study by Hovenkamp-Herme-link *et al.* conducted on 2,052 individuals with anxiety and depressive symptoms, it was shown that change in AS predicted change in anxiety symptoms. This finding shows the importance of targeting AS in the treatment of anxiety symptoms in clinical practice [7].

In our study, it was shown that the AS total score and all subscale scores had a significant relationship with anxiety symptoms, and the AS total score predicted anxiety symptoms.

Emotional Schemas

In our study, we found a positive correlation between anxiety symptoms and the LESS-T Weakness, Validation, and Rumination subscale scores and a negative significant correlation between anxiety symptoms and the LESS-T Uncon-

trollability, Comprehensibility, Acceptance of Emotions, and Denial of Emotions subscale scores.

We found that the Acceptance of Emotions subscale scores, which were defined as compatible (functional) emotional schemas, reduced anxiety symptoms. Acceptance is the basic strategy in the processing of emotions in acceptance and commitment therapy [23, 24].

In a study by Yavuz *et al.*, it was shown that making sense of emotions and accepting emotions were beneficial in improving anxiety and depression [18]. In our study, the fact that people who use the Acceptance of Emotions schemas have less anxiety symptoms supports the literature [9] and it is seen as the first step towards change and treatment for people to accept and understand their symptoms and emotions [9].

The Validation subscale includes an emphasis on how valid the person finds their feelings. Although Validation is a functional schema sub-dimension, a significant positive correlation was found between this schema and anxiety in our study [9, 18]. Further studies with different scales are needed to explain the relationship between the Validation subscale and anxiety.

Rumination, one of the dysfunctional emotional schemas, is an excessive focus on negative thoughts and emotions. Leahy stated that rumination was associated with less comprehensibility, more guilt, less control, more demand for rationality, and less consensus with others [17]. A study conducted by Ekinçi *et al.* on patients with alcohol dependence found that rumination and anxiety symptoms were associated [25].

The Uncontrollability schema indicates a disorder in the cognitive evaluation of inadequacy feeling and is defined as belief that emotions will cause a person to lose control. The belief that emotions causing loss of control in a person result in more anxiety is explained by both cognitive and emotion-focused models. The belief that one has control over one's emotions is associated with less rumination and less anxiety and depression development [25]. In a study examining the role of the emotional schemas in pathological anxiety in Iranian university students, it

was shown that the Uncontrollability schema predicted pathological anxiety [26]. A study examining the emotional schemas of 60 patients with alcohol dependence [25] demonstrated that the Uncontrollability schema was negatively associated with anxiety symptoms, as in our study. More research is needed on how the Uncontrollability schema works in the Turkish sample.

The Denial of Emotions and Emotional Weakness, which are maladaptive emotional schemas, are not present in the original form of the scale, only in the Turkish version. Yavuz *et al.*, who conducted the validity and reliability study in Turkish, stated that cultural characteristics were at the forefront of these subgroups [18]. Although denial of emotions was higher in patients with high anxiety symptoms, as expected, our study showed that denial of emotions had a reducing effect on the occurrence of anxiety symptoms. In a study examining the relationship between Internet addiction and emotional schemas in Turkey, the Denial of Emotions schema was found to have a negative and significant relationship with Internet addiction [27]. It was stated that online gaming addiction had a hypnotic effect and although one did not realize the emotions and the effect it had, a negative relationship might occur through glorifying the feeling of success and competition [27]. Another study conducted in our country, that examined emotional schemas and defense mechanisms, showed that there was a significant inverse relationship between denial of emotions and immature and neurotic defenses [28]. The Denial of Emotions subscale, which is not included in the original version of the scale but is defined as maladaptive schema, has conflicting results in studies conducted in our country.

In patients with anxiety disorders, coping methods such as suppression, denial, and distraction are frequently used to avoid situations, feelings, and thoughts causing distress. It has been shown that avoidance of stressful events and unwanted emotional experiences that provide short-term relief for the person is involved in the etiology and maintenance of anxiety disorder [29, 30].

In our study, in which individuals evaluated themselves as self-reports, we found that emotional denial had a reducing effect on anxiety symptoms. Although Denial of Emotion is defined as a maladaptive emotional scheme [18], our finding can also be evaluated as the result of the Emotional Denial schema, a maladaptive coping mechanism that momentarily brings relief to people. Further studies with larger samples are needed to explain the cultural characteristics of the Denial of Emotions subscale and its relationship with psychopathologies.

Limitations

Our study had some limitations: firstly, the study was conducted using self-report scales in a cross-sectional design; secondly, this situation could not evaluate the long-term relationships between anxiety symptoms, emotional schemas, and AS; thirdly, the fact that the patients were selected from a single clinic made it difficult to generalize the findings; fourthly, participants' current medications may have affected our data.

The strength of our study is that it is the first study

to examine the relationship between anxiety symptoms, emotional schemas, and AS. In our study, we aimed to make a new clinical and etiological contribution to the literature. Evaluation of emotional schemas, where cultural features are at the forefront, with new studies in our country will contribute to the interpretation and understanding of subgroups. Research in larger samples that examines prospective and emotional schemas and cognitions for AS is needed in this area.

Conclusions

Anxiety sensitivity and emotional schemas affect anxiety symptoms. Anxiety sensitivity is a predictive factor of anxiety. Although being a maladaptive schema, the Denial of Emotions schema reduces anxiety symptoms in our study.

Ethical Statement

Sancaktepe Şehit Prof Dr. İlhan Varank Training and Research Ethics Committee granted approval for this study (date: 09.11.2022, number: 2022/138).

Informed Consent

Written informed consent was obtained from all participants. The principles outlined in the Declaration of Helsinki were followed.

Data Availability

The data that support the findings of this study are available from the author upon reasonable request.

Conflict of Interest

The authors declare that they have no conflict of interest.

Financial Disclosure

The authors declare that they have no financial support.

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