

Original Article

The comparison of illness anxiety disorder with panic disorder based on meta-diagnostic cognitive structures: Pain catastrophizing and anxiety sensitivity

Muhammad Rasoul Mufassery^{1*}, Said Asadnia², Sakine Arabi-Divrazmi³, Fateme Rahimi⁴, Shaian Shahini⁵ & Parvane Shahini⁶

1. Ph.D. in Psychology, Faculty of Literature and Human Sciences, Urmia University, Urmia, Iran.
2. Ph.D. in Psychology, Faculty of Educational Sciences and Psychology, Tabriz University, Tabriz, Iran.
3. Ph.D. Candidate in Psychology, Urmia Branch, Islamic Azad University, Urmia, Iran.
4. Department of Psychology, M.A., Urmia Branch, Islamic Azad University, Urmia branch, Urmia, Iran.
5. Department of Curriculum Planning, Bachelor of Science, Urmia Branch, Islamic Azad University, Urmia, Iran.
6. Department of Curriculum Planning, Master's degree, Tabriz Branch, Islamic Azad University, Tabriz, Iran.

Abstract

Given the high coexistence of panic disorder and illness anxiety disorder, this study aimed to compare illness anxiety disorder with panic disorder based on pain catastrophizing and anxiety sensitivity. The research followed a causal-comparative method, and the population included all patients with panic disorder and anxiety disorder referred to psychiatric and psychological clinics in Urmia city in 2023. The sample included 22 patients with panic disorder and 22 patients with illness anxiety disorder, selected in a non-random and purposeful manner. The research tools employed were Anxiety Sensitivity (AS) (Taylor & Cox, 1998) and the Pain Catastrophizing Scale (Sullivan et al., 1995). Data analysis was conducted using multivariate analysis of variance in SPSS software version 26. The results of variance analysis indicated a significant difference between the two groups—panic disorder and illness anxiety disorder—in terms of anxiety sensitivity and catastrophizing structures. According to the research findings, anxiety sensitivity and pain catastrophizing are common cognitive constructs in both panic disorder and illness anxiety disorder. However, individuals with panic disorder exhibited significantly greater anxiety sensitivity.

Keywords

Anxiety sensitivity
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Introduction

Illness anxiety disorder is a primary disorder of anxiety about having or developing a serious illness. The core feature is the cycle of worry and reassurance seeking regarding health (Scarella et al., 2019). On the one hand, there are those who deny their physical problems, and on the other hand, there are those who misinterpret minor and even benign physical symptoms as signs of a serious physical illness (Mufassery et al., 2022). Therefore, it can be said that health anxiety is on a spectrum from none to severe, and at the extreme end of that spectrum are clinical disorders such as Illness Anxiety Disorder and Physical Symptoms. Illness Anxiety Disorder is a new diagnosis and includes people who are mentally preoccupied with getting sick or suffering from some kind of illness (American Psychiatric Association, 2013). Formerly called Hypochondriasis, it is a psychiatric disorder defined by excessive worry about the possibility

of having an undiagnosed serious medical condition. People with this disorder, despite a normal physical examination and laboratory results, experience constant anxiety and fear of the possibility of contracting a serious medical disease (French & Hameed, 2021) and sometimes choose invasive diagnostic and treatment methods. They cause other problems themselves (Haenen et al., 2000). As a result, the families of these people often lose a lot of time and money due to the frequent visits of these people to medical centers (O'Bryan et al., 2017). Scarella et al. (2019) reported the prevalence of this disorder in the general adult population at about 0.13 and Abolhassani et al. (2016) also reported 6.6 in Iran. On the other hand, the results of numerous studies indicate that people with Panic Disorder, like people with Illness Anxiety Disorder, have severe concerns about their health and search more about the symptoms of the disease on the Internet than other people with anxiety disorder (Hartmann et al., 2020). In this regard,

Abramovitch et al. (2007) report that people with panic disorder experience severe physical symptoms during a panic attack, and like people with anxiety disorder, they somehow attribute their symptoms to physical diseases such as heart or lung disease and they are looking for medical tests and consultations with specialists in the hope of discovering the physical causes of their illness. On the other hand, people with Panic Disorder also experience severe physical symptoms during a panic attack and somehow attribute their symptoms to physical diseases such as heart or lung disease and hope to discover the physical causes of their illness through medical tests, and consultation with specialists (Abramowitz et al., 2007). The disorder is one of the most common disorders reported in the health system so among all anxiety disorders, it accounts for the highest number of medical visits, therefore it is known as a costly mental health condition (Javelot & Weiner, 2020). Panic Disorder symptoms often relate to one of three systems, the respiratory system (hyperventilation, feeling suffocated), the cognitive system (fear of losing control, fear of imminent death, depersonalization), and the autonomic nervous system (heart palpitations, sweating) (Okuro et al., 2020). The prevalence of this disorder is about 3% in the general population (Georgieva et al., 2021) and it is reported more in women than men (Hindman & Beck, 2015). It seems that there is a certain coexistence between these two disorders (Illness Anxiety Disorder and Panic Disorder), which include intolerance of uncertainty, fear of heart disease, the tendency to misinterpret neutral and harmless bodily sensations as symptoms of serious illness, anxiety sensitivity and close monitoring of internal feelings, overvigilance to physical symptoms (Deacon & Abramowitz, 2008).

Due to the common features of Illness Anxiety Disorder and Panic Disorder, efforts have been made to explain the relationship between these two disorders (Ray et al., 2021; Carmassi et al., 2020; Höfling & Weck, 2017). In this regard, Deacon and Abramowitz (2008) have shown that people with Panic Disorder report higher levels of Health Anxiety compared to other anxiety disorders. On the other hand, Rudaz et al., (2010) also concluded that although Health Anxiety and a history of physical diseases may be vulnerability and predisposing factors for the onset of panic attacks, fear of physical symptoms is a risk factor. It is not considered to start panic attacks. Thus, despite the fact that Illness Anxiety Disorder is in a different diagnostic category than Panic Disorder in the Fifth Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013), its similarity with various types of anxiety disorders, including Panic Disorder, leads to a discussion about the appropriate position of this disorder. Disturbance in the systems has been diagnosed; As some researchers have suggested, it is better to place the Illness Anxiety Disorder in the category of anxiety disorders or the spectrum of obsessive-compulsive disorder; But some others have not agreed that these two disorders are the same (Solem et al., 2015). On the other hand, other theorists debated whether or not Illness Anxiety Disorder

should be included in the class of anxiety disorders (Asmundson et al., 2010).

Due to the many differences of opinion in this field, other researchers have gone beyond the discussion on the proper classification of anxiety disorder and have investigated common cognitive processes between these two disorders by using meta-diagnostic approaches. One of the meta-diagnostic constructs that seem to play an important role in both disorders is anxiety sensitivity. Reiss et al., (1986) in their expectation model, fear, anxiety, and panic caused by three basic fears; Fear of negative evaluation, sensitivity to injury or disease, and sensitivity to anxiety were considered. But anxiety sensitivity was considered more than the other two types. Anxiety sensitivity is defined as the fear of anxiety and the physical sensations associated with it, also from the past, it is believed that this construct is a type of cognitive style through which people assume that anxiety symptoms and unfortunate or catastrophic consequences of These include physical and mental illnesses, loss of control and embarrassment in social situations. In this regard, the results of numerous researches (Sandin et al., 2015; Schmidt et al., 2016) indicates that anxiety sensitivity plays an important role in the initiation and prediction of panic attacks. Although most of the explanatory models based on anxiety sensitivity have been formulated for Panic Disorder (Taghipour et al., 2021; Kim et al., 2017), the increasing evidence of the essential role of this construct in Other disorders, including Illness Anxiety Disorder (Horenstein et al., 2019; Shabahang et al., 2022; Karimi et al., 2019) have also been presented.

Despite the important role of anxiety sensitivity in predicting Illness Anxiety Disorder and Panic Disorder, research indicates that anxiety sensitivity does not fully explain all the variability in these two disorders (Deacon and Abramowitz, 2007), therefore, it is important to investigate other meta-diagnostic structures that may predict these two disorders. In recent years, much attention has been paid to the catastrophizing structure of pain (Dugas et al., 2023). Pain catastrophizing is a cognitive attributional style characterized by negative thinking, exaggeration, and rumination about pain (Sullivan et al., 2001). Catastrophizing includes a negative and exaggerated orientation towards perceived pain and negative expectations about its consequences, focusing more on the negative side of the situation, interpreting physical arousals as signs of pain, fear of pain, and finally behaviors avoidance and creating a cycle of fear leads to avoidance. Also, catastrophizing has a destructive effect on the patient's performance (Vlaeyen et al., 2016; Turk & Gatchel, 2002). In this regard, the research results of Dugas et al. (2023) indicate that pain catastrophizing is related to health concerns and its severity has a significant relationship with the symptoms of people with generalized anxiety disorder. Mousavi et al. (2020) also showed that pain catastrophizing plays a mediating role in the relationship between health and quality of life. In another study, Sajjadian et al. (2012) also concluded that there is a positive relationship

between pain and fear avoidance and catastrophizing beliefs of pain and anxiety. The results of [Sturgeon and Zautra's \(2013\)](#) research also indicated the relationship between pain catastrophizing and depression and anxiety disorders.

Since the creation of the catastrophizing structure of pain, several researches have been conducted regarding its relationship with various psychological disorders, including Generalized Anxiety Disorder ([Dugas et al., 2023](#)). Also, many researchers have introduced it as a mediating mechanism ([Mousavi et al., 2020](#); [Sajjadian et al., 2012](#)), but no research has been reported on the relationship between this structure and Illness Anxiety Disorder and Panic Disorder. On the other hand, despite the cognitive-behavioral conceptualizations and therapeutic approaches regarding Illness Anxiety Disorder and Panic Disorder that have been experimentally confirmed ([Ray et al., 2021](#); [Carmassi et al., 2020](#)), the understanding of the pathology and complexity of anxiety and its treatment is still in the early stages. Spontaneous recovery in patients with Illness Anxiety Disorder and Panic Disorder seems far from expected due to its nature; Therefore, if this Disorder (IAD) is not given enough attention, the probability of it becoming a chronic disease will be much higher, so understanding the etiology, identifying the similarities and differences of the disorder with other mental disorders, including Panic Disorder, while helping the clinical specialist It helps in the correct diagnosis, in the correct conceptualization and also in selecting the precise treatment plan for the affected people; Therefore, the lack of research conducted on this topic and the conflicting and scattered information about the similarities and differences between the said disorder and Panic Disorder attracted the attention of the present researchers; Therefore, the aim of the present study was to compare Illness Anxiety Disorder with Panic Disorder in meta-diagnostic cognitive constructs, including the role of pain, anxiety sensitivity.

Methods

Participants

The present research method was of comparative causal type. The population of this research included all the people suffering from Illness Anxiety Disorder and Panic Disorder who had been referred to psychiatric clinics in Urmia City in 2023. The sample included 22 patients with Panic Disorder and 22 patients with Illness Anxiety Disorder, who were selected by a purposefully non-random method.

Instrument

Anxiety Sensitivity Index-Revised (ASI-R):

This self-report questionnaire was designed by [Taylor and Cox \(1988\)](#) in order to evaluate the level of fear of anxiety symptoms. This scale has 36 items and is scored based on a five-point Likert scale from 0 to 4 (very little to very much). The total score of the questionnaire is in

the range of 0 to 144. Higher scores indicate greater fear of anxiety symptoms. The internal consistency coefficient of the index was evaluated based on Cronbach's alpha of 0.91 and its correlation coefficient with the anxiety sensitivity index was obtained as 0.94 ([Taylor and Cox, 1988](#)). The validity of the Persian version of this index was calculated by [MoradiManesh et al. \(2007\)](#) based on three methods of internal consistency, retesting, and classification, which were 0.93 and 0.95 respectively for the whole scale. 0 and 0.97. Also, the concurrent validity of this questionnaire with the checklist of symptoms of mental disorders (SCL-90) was 0.56 and the correlation coefficients with the total score were also reported in the range of 0.74 to 0.88 ([Moradienesh et al., 2007](#)).

Pain Catastrophizing Scale (PCS):

This questionnaire was created by [Sullivan et al. \(1995\)](#) and included 13 options that measure the frequency of pain-related thoughts in three dimensions: rumination, helplessness, and magnification. The scoring of each option is based on a 5-point Likert scale, including a score of 4 for "always" and a score of 0 for "never" ([Parr et al., 2012](#)). In the study of [Sullivan et al. \(1995\)](#), Cronbach's alpha for the entire scale was 82, and the retest reliability of this scale in a sample of 40 people showed a high degree of reliability ($r=0.75$) in a period of 6 weeks. [Chibnall and Tait \(2005\)](#) also reported the internal reliability of this scale as 0.94, 0.89, 0.78, and 0.87 for the total subscales of therapy, magnification, and rumination, respectively. Also, its reliability in the present study was obtained by means of Cronbach's alpha coefficient of 0.92 for the whole test and 0.59 and 0.73 for the magnification and rumination subscales, respectively.

Procedure

The inclusion criteria in this research were: age range from 20 to 50 years, having a minimum guidance school education degree, definitive diagnosis of the disorder (by psychiatrist) as well as screening tools. Exclusion criteria also included: diagnosis of psychotic disorders in the patient's history, drug use disorders, organic brain diseases or mental disorders caused by physical problems and the existence of a physical disease justifying the physical complaints of the people according to the psychiatrist's opinion. Also, to reduce the overlap between diagnostic groups, patients of each group who overlapped with other groups were excluded from the study. The participants were evaluated in two stages, first by a non-random and targeted sampling method of people who received a diagnosis of Panic Disorder and Illness Anxiety Disorder according to the opinion of a psychiatrist, in order to make a definitive diagnosis a structured diagnostic interview and screening tools used by a clinical psychologist. Then the patients who were eligible after passing the screening stage and meeting the entry criteria were included in the study. Subsequently obtaining informed consent from

the participants by providing an informed consent form and giving them the necessary explanations about the purpose and process of the research, the implementation of self-report questionnaires was done individually. In order to reduce the error, the priority of the questionnaires was chosen randomly for each subject.

Result

The data related to the results of pain catastrophizing and anxiety sensitivity with the descriptive indices of mean and standard deviation by groups are reported in Table No. 1.

Table 1. Descriptive indices and Kolmogorov Smirnov test results of research variables in two groups

variable	group	M	SD	K-S	
				par	Sig.
Rumination	panic	96.13	06.6	118.0	078.0
	Illness anxiety	56.11	14.3	105.0	200.0
exageration	panic	64.14	96.5	120.0	059.0
	Illness anxiety	74.9	56.2	108.0	080.0
helplessness	panic	26.10	45.2	118.0	078.0
	Illness anxiety	16.9	51.3	111.0	174.0
Anxious sensitivity 1	panic	82/11	52.2	118.0	078.0
	Illness anxiety	40/10	29.2	105.0	200.0
Anxious sensitivity 2	panic	81/10	52.2	110.0	137.0
	Illness anxiety	88.8	54.2	108.0	080.0
Anxious sensitivity 3	panic	96.11	92.2	109.0	188.0
	Illness anxiety	12.10	52.2	107.0	179.0

In order to analyze the data according to the number of dependent variables and to avoid inflation of statistical power, independent t-test was used instead of multivariate analysis of variance. Therefore, the underlying assumptions of this test were examined first. The Kolmogorov-Smirnoff test was used to check the normality of the distribution of scores. The results showed that the assumption of normality of data distribution was not rejected ($P > 0.01$). Also, considering the non-significance of M-box test ($P > 0.05$,

$F = 0.741$) and Levene's test for rumination ($P > 0.05$, $F = 1.615$), magnification ($F = 0.345$, $P > 0.05$), helplessness ($P > 0.05$, $F = 2.991$), anxiety sensitivity 1 ($P > 0.05$, $F = 2.937$), anxiety sensitivity 2 ($P > 0.05$, $F = 0.012$) and anxiety sensitivity 3 ($F = 0.012$) $P > 0$, $F = 0.196$) the necessary conditions for the implementation of the multivariate analysis of variance test are established. Table 2 shows the results of multivariate analysis of variance.

Table 2. The results of the multivariate analysis of variance related to the variables in the research groups

test	par	F	df1	df2	P
Wilk's lambda	639/0	772/8	6	93	001/0

According to Table 2, the F statistic of multivariate analysis of variance is significant ($P < 0.001$). Therefore, it can be said that there is a significant difference between the groups in pain catastrophizing and anxiety

sensitivity. To check which of the variables the groups differ from each other, Table 3 summarizes the results of univariate analysis of variance in the text of Manova.

Table 3. Summary of the results of analysis of variance in the text of Manova on the scores of the variables

var	SS	df	MS	F	P
Rumination	000.144	1	000.144	173.6	015.0
exageration	250.600	1	250.600	485.28	001.0
helplessness	250.30	1	250.30	285.3	073.0
Anxious sensitivity 1	410.50	1	410.50	646.8	004.0
Anxious sensitivity 2	090.94	1	090.94	667.14	001.0
Anxious sensitivity 3	640.84	1	640.84	313.11	001.0

According to Table 3, the F statistic for rumination (6.173), magnification (28.485), anxiety sensitivity 1 (8.646), anxiety sensitivity 2 (14.667) and anxiety sensitivity 3 (11.313) is significant. ($P < 0.01$). This finding indicates that there is a difference between research groups in these components; Based on this and according to the average scores of the groups in Table 1, people with Panic Disorder scored higher in the variables of pain catastrophizing and anxiety sensitivity compared to people with disease anxiety disorder.

Discussion

The present study was conducted with the aim of comparing Illness Anxiety Disorder and Panic Disorder based on meta-diagnostic cognitive constructs that included pain catastrophizing and anxiety sensitivity. The results of the research showed that there is a significant difference in the structure of anxiety sensitivity between people suffering from Illness Anxiety Disorder and Panic Disorder. This means that

the structure of anxiety sensitivity is higher in patients with Panic Disorder than in patients with Illness Anxiety Disorder. Although no research has exactly compared this structure between people suffering from Panic Disorder and Illness Anxiety Disorder, it can be said that these findings are in line with the research results of [Dugas et al. \(2023\)](#), [Sandin et al. \(2015\)](#), [Schmidt et al. \(2016\)](#), [Kim et al. \(2017\)](#), [Taghipour et al. \(2021\)](#) is almost identical but inconsistent with the results of [Deacon and Abramowitz's \(2008\)](#) study. There is strong evidence and evidence about the relationship between Panic Disorder and anxiety sensitivity, and a bidirectional relationship has been obtained between these two components ([Sandin et al., 2015](#); [Schmidt et al., 2016](#)).

In explaining this finding, it can be said that the structure of anxiety sensitivity is defined as the fear of physical symptoms of anxiety and the expectation that these symptoms will lead to harmful and annoying consequences. The intensity of the fear of physical symptoms leads to extreme alarm and internal self-monitoring of internal symptoms and feelings ([Reiss et al., 1986](#)). Therefore, the fear of anxiety arousals and the symptoms of the sympathetic nervous system, such as sweating, hyperventilation, and increased heart rate, which are observed in Panic Disorder, are characteristic of people with high anxiety sensitivity. Therefore, patients with high anxiety sensitivity have more worry and anxiety symptoms, which increases thoughts related to the possibility of panic attacks in the future. These patients often focus on an excessive physiological symptom, i.e. respiratory rhythm, and find severe anxiety sensitivity to the onset of other symptoms such as heart palpitations, sweating, feeling of suffocation, and anxiety. Focusing on a specific symptom in these patients becomes like a spark to start other attacks related to panic ([Taghipour et al., 2021](#)).

Another finding of the present study showed that there is a significant difference in the amount of pain catastrophizing between the two groups of patients with Panic Disorder and Illness Anxiety Disorder. This means that people with Panic Disorder scored significantly higher in pain catastrophizing. This finding is consistent with previous research results such as [Dugas et al., \(2023\)](#), [Sandin et al. \(2015\)](#), [Schmidt et al. \(2016\)](#), [Kim et al. \(2017\)](#), [Taghipour et al. \(2021\)](#) is relatively consistent. In this regard, the study of [Sturgeon and Zatra \(2013\)](#) indicated that people who catastrophize their pain experience more anxiety disorders, depression, and emotional and psychological distress. In the explanation of this finding, it can be said that people with Panic Disorder are more worried about their sympathetic symptoms compared to Illness Anxiety Disorder and the smallest symptoms create a disaster. Also, due to the debilitating nature and intensity of the attacks, they have a kind of ringing in the ears and sensitivity to the onset of the attacks. To better understand this relationship, we can refer to the fear-avoidance model of [Turk and Gatchel \(2002\)](#). In this catastrophizing model, pain plays an essential role.

So that a person with pain catastrophizing enters into a vicious cycle consisting of fear related to pain, ringing in the ears, negative emotions, and avoidance. Avoidance also causes psychological disorders and feelings of helplessness, and these factors in turn affect the person's experience. They intensify the symptoms and the previous vicious cycle continues. It is therefore not surprising that the ways in which pain catastrophizing causes disability are so diverse that, just like other forms of fear and anxiety, pain catastrophizing interferes with cognitive functioning. People who have a lot of fear and anxiety attacks pay more attention to possible threat signals and are less able to stay away from information related to pain. Therefore, the greater the level of fear or perceptual distortion of pain, the greater the catastrophizing of physical symptoms, and the greater the intensity of panic attacks.

As well, the results of the research findings indicated that there is a significant relationship between Illness Anxiety Disorder and anxiety sensitivity and pain catastrophizing. In explaining this finding, it can be said that anxiety sensitivity and pain catastrophizing can justify the concerns of people with Illness Anxiety Disorder about their illness and their mental preoccupation with their body. According to the cognitive-behavioral model presented for Illness Anxiety Disorder ([Asmundson et al., 2010](#)), dysfunctional beliefs related to health will lead to catastrophizing and wrong evaluation of harmless physical symptoms, for example, a headache is perceived as a symptom of a brain tumor. In addition, the attentional bias about threatening information causes the person to repeatedly become mentally preoccupied with his physical signs, hence the alarm also increases ([Abramowitz et al., 2007](#)). As a result, in order to prevent the occurrence of a physical problem, the affected person pays close attention to his condition and symptoms and expresses a strong reaction to the smallest signs of anxiety, especially physical symptoms that others ignore. This sensitivity causes the person to exaggerate the misinterpretation of symptoms and pay more attention to physical clues, and thus the person gets caught in a vicious cycle. In this regard, [Deacon and Abramowitz \(2008\)](#) and [Reuman et al. \(2017\)](#) confirmed the role of anxiety sensitivity in predicting health anxiety.

The findings of this study, due to the emphasis on the meta-diagnostic approach, can lead the way in the conceptualization, evaluation, and treatment of Illness Anxiety Disorder and Panic Disorder. The meta-diagnostic approach using similar fundamental mechanisms indicates overlap between different disorders. It also helps to expand treatment approaches for all kinds of mental disorders; Because instead of emphasizing different treatment methods for each of the mental disorders, the goal of treatment is focused on key defects ([Sauer-Zavala et al., 2017](#)). In other words, considering that people suffering from mental disorders rarely suffer from only one disorder and report other

disorders at the same time, the transdiagnostic approach is able to explain the high coexistence between mental disorders and the therapist instead of prioritizing various disorders in the treatment process target overlapping features. Also, the theoretical and experimental advances made in one disorder can be used for other mental disorders (Sauer-Zavala et al., 2017). Therefore, the findings of this study not only suggest that the cognitive evaluations and therapeutic techniques used to reduce anxiety sensitivity and pain catastrophizing for patients suffering from Illness Anxiety Disorder and Panic Disorder are also applicable, but also explain the overlap between the two. It also facilitates disruption. Despite this similarity, in the treatment of people suffering from Illness Anxiety Disorder and Panic Disorder, in addition to the techniques and training that are implemented to reduce these two cognitive factors, it is necessary to specifically target the catastrophic factor of pain.

Like other behavioral and social researches, this research also has limitations, among others, it can be pointed out that the statistical community of the study is limited to people with Panic Disorder and Illness Anxiety Disorder of Urmia city, which makes it difficult to generalize the research findings. It can also be pointed out that the statistical community of the study is limited to people with Panic Disorder and Illness Anxiety Disorder, which makes it difficult to generalize the findings of the study. Therefore, it is suggested that future research be carried out in other geographical areas. Also, the sample size is small due to the limited number of visitors to the clinic and the use of the available sampling method, which should be taken into account when generalizing the results. It is suggested to use a larger sample size and random sampling method in future research. It is also suggested that variables such as gender and severity of illness and other psychological components including personality factors should also be taken into consideration in future research and patients should be compared in terms of these characteristics. This research might help and guide psychologists in the control and prevention of Illness Anxiety Disorder and Panic Disorder.

Conclusion

Overall, the results of this research showed that Illness Anxiety Disorder is similar to Panic Disorder in the structures of anxiety sensitivity and pain catastrophizing, but these two constructs were significantly more in Panic Disorder. In this way, it can be said that anxiety sensitivity and pain catastrophizing are among the meta-diagnostic structures that form the cognitive basis of the mentioned disorders.

Conflict of interest

No potential conflict of interest was reported by the authors.

ORCID

Mohammad Rasul Mufassery:
<https://orcid.org/0000-0002-6740-0987>

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