



The relationship between anxiety and PTSD with the mediating role of mental rumination in people under violence

Hubungan antara kecemasan dan PTSD dengan peran mediasi ruminasi mental pada orang yang mengalami kekerasan

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ABSTRACT

People who experience violence suffer physical and psychological harms, including anxiety, and PTSD. The aim of this study was to determine the mediating role of rumination in the relationship between anxiety and PTSD in Individuals exposed to violence. The method was correlation and structural equation modeling. A total of 210 individuals exposed to violence were selected. Participants completed three questionnaires. Data analysis was conducted using the SPSS and AMOS. The results showed that anxiety and PTSD symptoms were strongly correlated ($r = 0.808$, $p < 0.01$), as well as anxiety and rumination ($r = 0.532$, $p < 0.01$). Additionally, a moderate correlation was found between rumination and PTSD symptoms ($r = 0.379$, $p < 0.01$). The results of study demonstrate a relationship between anxiety and PTSD, with the mediating role of rumination. In addition, positive relationships were found between both rumination and PTSD, and anxiety and rumination. Furthermore, the results indicated a

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positive and significant relationship between anxiety and PTSD. Rumination links PTSD and anxiety, highlighting importance of mental health interventions.

KEY WORDS:

anxiety, post-traumatic stress disorder, rumination, trauma, violence

ABSTRAK

Orang yang mengalami kekerasan menderita kerugian fisik dan psikologis, termasuk kecemasan, dan PTSD. Tujuan dari penelitian ini adalah untuk menentukan peran mediasi perenungan dalam hubungan antara kecemasan dan PTSD pada individu yang terpapar kekerasan. Metode yang digunakan adalah korelasi dan pemodelan persamaan struktural. Sebanyak 210 individu yang terpapar kekerasan dipilih. Peserta menyelesaikan tiga kuesioner. Analisis data dilakukan dengan menggunakan SPSS dan AMOS. Hasil penelitian menunjukkan bahwa kecemasan dan perenungan berhubungan dengan PTSD, dengan nilai-p yang sesuai sebesar 0,808 dan 0,379. Selain itu, korelasi antara kecemasan dan perenungan adalah 0,532. Hasil penelitian menunjukkan adanya hubungan antara kecemasan dan PTSD, dengan peran mediasi perenungan. Selain itu, ditemukan hubungan positif antara perenungan dan PTSD, serta kecemasan dan perenungan. Lebih jauh, hasil penelitian menunjukkan adanya hubungan positif dan signifikan antara kecemasan dan PTSD. Perenungan menghubungkan PTSD dan kecemasan, menyoroti pentingnya intervensi kesehatan mental.

KATA KUNCI

kecemasan; gangguan stres pasca trauma; perenungan; trauma; kekerasan



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Introduction

It has been more than two decades since the World Health Organization designated violence as a global problem that spreads and can affect all sectors of society (Krug et al., 2002). The World Health Organization defines violence as the intentional use of physical force and power against oneself, another person, a group, or society. This use of violence and power occurs in a destructive and threatening manner and can result in physical harm and injury, mental disorders, and even death (García-Moreno et al., 2005). It should be emphasized that violence not only disrupts the lives of victims but also impacts others in society and even future generations to come (Rivara et al., 2019). Violence can

have devastating effects on a person's body and psyche, and one of the most serious psychological consequences is Post-Traumatic stress disorder (PTSD) and anxiety.

All forms of violence, including physical and sexual assault, have been shown to have harmful effects on the mental health of adult victims. This is true for severe threats as well as all other forms of violence. It is highly disturbing that many victims of violence exhibit symptoms of stress, anxiety, fear of retaliation, anger, Re-Experiencing the incident, and sadness in the days, weeks, or months following their victimization (van der Velden et al., 2020).

Several studies show that people who have been affected by violence show signs of Post-Traumatic stress disorder. Post-Traumatic stress disorder is one of the most difficult mental illnesses to understand. According to the results of Tilley, Tilton, and Scott's 2010 study, women who have experienced some form of violence or assault have a 72–94% higher risk of developing Post-Traumatic stress disorder, one of the most complicated psychological disorders (Scott-Tilley et al., 2010). According to another study, some women who have been affected by violence have resolved their Post-Traumatic stress disorder on their own over time. However, this study examined a different group of women who experienced persistent Post-Traumatic stress disorder (Johnson & Zlotnick, 2012).

The Association Between Rumination, Anxiety, and Post-Traumatic Stress Disorder

Post-traumatic stress disorder (PTSD) is a typical reaction to stressful experiences. Acute symptoms of this mental illness include reliving an accident multiple times, excessive agitation, emotional numbness, and avoidance of stimuli. Immediately after the accident, people living with PTSD exhibit at least one of these symptoms. Ehlers & Clark's model of PTSD, published in 2000, provides a comprehensive Cognitive-Behavioral formulation of PTSD. According to the cognitive model, patients with Post-Traumatic stress disorder mostly struggle with their mental records and remembrance of past experiences.

According to this approach, Anxiety results from Self-Generated ideas and negative assessments of impending hazards. PTSD is characterized by various negative appraisals that might overgeneralize an event and cause an exaggerated reliving of trauma. Situational fear and emotional avoidance are both brought on by such appraisals.

Disturbing emotions are closely associated with the emergence of

disapproval and unpleasant thoughts, which are among the repercussions of traumatic occurrences (e.g., anxiety, depression, or anger).

Negative thoughts act as a trigger that draws patients' minds in more and more, raising the risk that Post-Traumatic stress disorder will persist. One of the frequent examples of a maladaptive cognitive processing style is mental rumination, which develops after trauma and is one of the effects of violent conduct (Ehlers & Clark, 2000). There is a considerable correlation between mental rumination and Post-Traumatic stress disorder, according to several studies that have been done on the subject (Arditte Hall et al., 2019; Ehring & Ehlers, 2014; Szabo et al., 2017).

Anxiety disorders are among the most prevalent psychiatric disorders that negatively impact people's quality of life and incur significant financial expenditures for sufferers (Bateson et al., 2011). Anxiety is a prospective mood condition linked to attentiveness and arousal frequently brought on by various unpredictable threats (Davis et al., 2010). Although each type of anxiety disorder is identified using a specific set of criteria, they all share fundamental traits, among which we can list excessive fear and anxiety (Michopoulos et al., 2017). Post-Traumatic stress disorder may increase the risk of anxiety and depression, and anxiety and depression may dangerously increase the risk of Post-Traumatic stress disorder (Spinhoven et al., 2014). A group of researchers has studied the connection between anxiety and Post-Traumatic stress disorder. The results indicate that those who exhibit more anxiety symptoms are more likely to develop Post-Traumatic stress disorder (Xi et al., 2020). The results of a different study also demonstrate that underlying anxiety can predict the likelihood of developing Post-Traumatic stress disorder (Habibović et al., 2012). Rumination is a cognitive process whereby patients repeatedly and unintentionally concentrate on their negative emotions' origins, causes, and repercussions (Smith et al., 2018). Rumination, then, is a form of persistent cognition that entails the destructive repetition of a single theme. For instance, these patients may relive an unpleasant or traumatic event in their minds loads of times, which causes patients to experience uncomfortable and unpleasant thoughts (Moulds et al., 2020). Negative inferential or adverse documentary patterns, ineffectual attitudes, despair, pessimism, Self-Criticism, dependency, low mastery, and psychoticism are a few examples of maladaptive cognitive disorders linked to mental rumination.

According to prospective longitudinal research, Rumination-Prone individuals exhibit more significant levels of general anxiety and PTSD

symptoms (Nolen-Hoeksema et al., 2008). There are two forms of mental rumination: the first is Intrusive Rumination, which involves uncontrollable, destructive, undesired, and irrational beliefs that have nothing to do with Problem-Solving. The second type is Deliberate Rumination, which comes after constructive and regulated thinking and manifests people's attempts to comprehend unforeseen events more accurately to solve issues. Both forms of rumination are associated with Post-Traumatic stress disorder, but the first kind is particularly crucial in the emergence of this cognitive disease (Ogińska-Bulik & Michalska, 2020). Anxiety can lead to mental rumination; the studies on anxiety and mental rumination indicate that the two have a close and essential link and that anxiety may be one of the fundamental causes of developing people's redundant and adverse thoughts (Constantin et al., 2018; Sorid et al., 2021; Thorsteinsson et al., 2019).

The current investigation aimed to ascertain the correlation between anxiety, mental rumination, and the severity of Post-Traumatic stress disorder symptoms. Additionally, this study intends to shed light on the function of ruminative thoughts as a moderating factor between anxiety and Post-Traumatic stress disorder. In this study, rumination is considered a mediator variable because it plays a key role in the way anxiety influences the severity of PTSD symptoms. Rumination refers to the repetitive and passive focus on distressing thoughts and feelings, particularly those related to trauma. This process can intensify emotional distress, reinforce negative thought patterns, and hinder the individual's ability to adapt or recover from trauma. Research indicates that rumination, especially intrusive rumination, can exacerbate both anxiety and PTSD by keeping individuals trapped in a cycle of negative thinking that prevents emotional regulation and effective coping strategies. By treating rumination as a mediator, this study aims to understand how anxiety may lead to worsened PTSD symptoms through the amplification of distressing thoughts. This approach allows for a more nuanced understanding of the mechanisms through which trauma and mental health issues are linked, and highlights the potential of addressing rumination in therapeutic interventions for trauma-related disorders. Although the research variables have been studied separately in some previous studies, no transparent pattern has been found on the relationships of these variables. In addition, given the increasing incidence of domestic violence, such as physical, sexual, psychological, and emotional abuse in many countries, including Iran, and its significant impact on mental health and the emergence of various psychiatric disorders in individuals, this research aims to investigate the relationship between anxiety and Post-

Traumatic stress disorder (PTSD) through mental rumination on individuals exposed to violence. Moreover, the results of this study can help psychologists, researchers, and counselors who work or study in these areas.

Method

The study adopted a correlational research design and utilizes structural equation modeling (SEM). Structural equation modeling is a powerful multivariate quantitative technique for describing the relationships among variables which includes both observed (measured) and unobserved (latent) variables. This technique can assist researchers to test, estimate or validate a theoretical model (Thakkar, 2020). The Independent variable in the study was anxiety while the dependent and mediating variables were PTSD and mental rumination, respectively.

This research was carried out among individuals experiencing domestic violence in Tehran, Iran. The participants of this study were 210 people (122 females and 88 males) were selected through voluntary sampling. Specific criteria for participation in this research existed, including experiencing domestic violence, being over 18 years old, and being free from any physical and mental illnesses. This study included output criteria, which can be referred to as participants' lack of willingness, absence of domestic violence, and incomplete questionnaire completion.

Three validated questionnaires were used for data collection: Self-Rating Anxiety Scale, Rumination Response Scale, and the Posttraumatic Stress Disorder Checklist (PCL).

These research instruments were carefully selected based on its established reliability and validity in assessing the key psychological constructs of this study—*anxiety, PTSD symptoms, and rumination*. Given the complexity of these constructs, it was essential to use a tool that has been extensively validated in similar populations, particularly those exposed to trauma. The PTSD and rumination scales used in this study have been widely recognized in the literature for their ability to accurately capture the symptoms and cognitive patterns associated with trauma. These instruments have also been used in numerous studies examining trauma survivors, which allows for comparison with existing research and ensures that the findings are grounded in well-established methodologies. Additionally, the instrument's practicality in terms of ease of administration and participant comprehension made it an ideal choice for the study, ensuring efficient data collection while maintaining high

scientific rigor.

Self-Rating Anxiety Scale:

William Zung designed this questionnaire in 1971. The Likert Scale for the 20 questions in this questionnaire ranges from 1 to 4, with "1" denoting "never or rarely", "2" suggesting "occasionally", "3" suggesting "frequently", and "4" denoting "constantly or almost always". These inquiries are presented in both positive and negative forms. Four questions address negative symptoms, while six questions concentrate on positive symptoms. This test has a minimum and maximum score range of 20 and 80, respectively. On this scale, those who are less anxious score lower, while those who are more anxious score higher (Zung, 1971). Cronbach's alpha coefficient was measured, which was 0.67 (Hakim et al., 2010).

Rumination Response Scale:

Nolen Hoeksema and Morrow designed the Rumination scale in 1991. Using two scales—the scale of deflecting responses and the scale of ruminating responses—this questionnaire assesses four distinct forms of response to negative mood. There are 22 questions on this test, graded from 1 (never) to 4 on a scale (often). This questionnaire has a Cronbach's alpha value of 0.89 (Nolen-Hoeksema, 1991; Nolen-Hoeksema & Morrow, 1991). This questionnaire was translated into Persian for the first time by Bagherinezhad, Salehi Fadardi, and Tabatabai (Bagherinezhad et al., 2010). The scale has high internal reliability, and in their study, Cronbach's alpha coefficient was calculated to be 0.88, demonstrating the internal consistency of the test.

Post-Traumatic Stress Disorder Checklist:

To assess PTSD symptoms, we used the PCL (Weathers et al., 1993). This measure requires participants to indicate on a 5-Point Likert scale ranging from 1 (not at all) to 5 (extremely) the degree of distress they have experienced for each of the 17 PTSD symptoms. According to the findings of two preliminary studies utilizing this scale, the first of which was conducted on 123 Vietnam War veterans, its Test-Retest Reliability was 0.96. Internal consistency (alpha coefficient) for B symptoms was 0.93, 0.92 for C symptoms, 0.92 for D symptoms, and 0.97 for all symptoms. The total correlation of the item scale was between 0.62 and 0.87. Also, The Convergent Validity between this questionnaire and the Mississippi scale (0.93), between this questionnaire and the PK scale of MMPI 2 (0.77). It must be noted that the correlation between this questionnaire and The Impact of Event Scale was (0.90) and between this

questionnaire and The Combat Exposure Scale was (0.46). 1006 Persian Gulf War veterans were the subject of the second study. Internal Consistency (Cronbach's alpha) was 0.90 for B symptoms, 0.89 for C symptoms, 0.91 for D symptoms, and 0.96 for all 17 symptoms. The scale's overall correlation ranged from 0.52 to 0.80. The Mississippi scale and this test had a significant correlation (Convergent Validity) of 0.85 (Weathers et al., 1993). This questionnaire is translated in Persian by Sadeghi, Taghva, Goudarzi, and Rah Nejat (Sadeghi et al., 2016). Examining the internal consistency, convergent and discriminant validity shows the high internal consistency of this questionnaire. Cronbach's alpha and retest coefficient in their research were 0.79 and 0.77, respectively.

Individuals willingly agreed to participate in this study by completing a written consent form. They were provided with the purpose of the study before responding to the questionnaires. Participants were informed that their involvement in this study was entirely voluntary and if they feel uncomfortable, they can decline to fill the questionnaires.

SPSS version 24 and AMOS (Analysis of Moment Structures) version 24 were used to collect the data. The first step involved descriptive data analysis, which included calculating the variables' means and standard deviations, along with their demographic features. The Pearson Correlation Index was then utilized to analyze the correlation between the three main variables of anxiety, mental rumination, and Post-Traumatic stress disorder (PTSD). Next, structural equation modeling (SEM) based on the Maximum Likelihood (ML) was employed to assess the conceptual model of the research. Skewness and Kurtosis were also utilized to assess the normality of each variable. Additionally, the relative multivariate elongation index and distribution scores were used to establish multivariate normality.

Then, two outlier data points were identified and eliminated from the analysis using the Z-Score and Mahalanobis distance index. The Confirmatory Factor Analysis (CFA) method was used to assess seven measurement models in the subsequent sections. After confirming a good fit, the relationships between the construct variables were examined. The final model was determined once the conceptual research model had an excellent fit and received general approval. Finally, the bootstrap test was employed to examine whether mental rumination may mediate between anxiety factors and post-traumatic stress disorder.

Ethical Statement: All the protocols carried out in this research were in accordance with the ethical standards (Approval Number:

IR.SHAHROODUT.REC.1402.025)

Results

Results: The participants were 88 males (42.1%) and 121 females (57.9%), with Mage of 22.40 with SD= 4.72. According to their level of educational literacy, 90 of them had a diploma or associate's degree (43.1%), 93 had a bachelor's degree (44.5%), 16 had a master's degree (7.7%), and 10 had a Ph.D. (4.8%). 180 (86.1%) were single, and the remaining were married. The AMOS program applied the structural equation model and Pearson's correlation to the research data analysis. According to AMOS output, two participants' scores were recognized as outliers, and the analyses were then carried out with the remaining data.

Table 1

Correlation Matrices

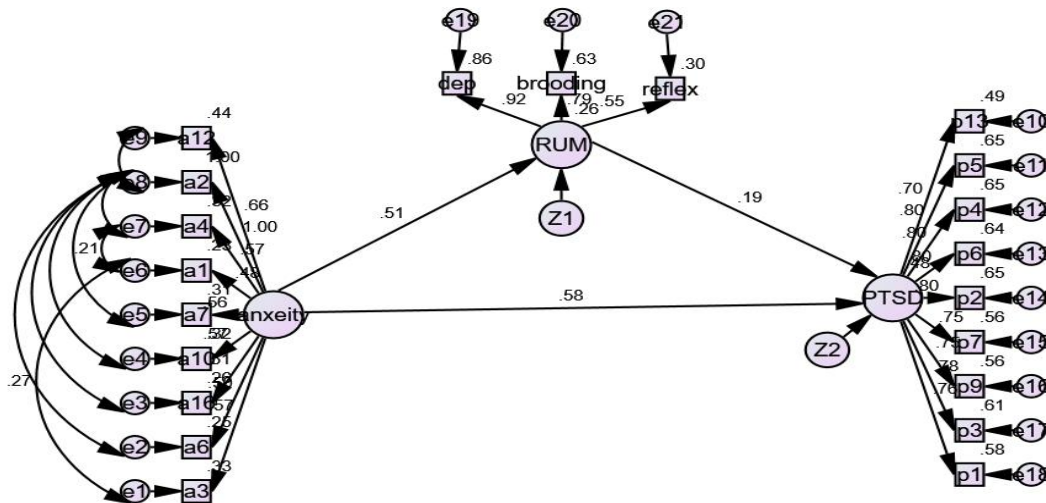
	Rumination	Anxiety	PTSD.total	reflex	brooding	dep
Rumination	1					
Anxiety	.532**	1				
PTSD.total	.379**	.808**	1			
reflex	.733**	.234**	.138*	1		
brooding	.842**	.473**	.334**	.473**	1	
dep	.937**	.570**	.423**	.506**	.731**	1

Table 1 shows the relationship between anxiety and rumination variables and PTSD symptoms, with correlation coefficients of 0.808 and 0.379, respectively. They are significant at the 0.01 level. Also, the correlation of anxiety with rumination is 0.532 ($r=0.532$), which is significant at the 0.01 level

Rumination served as a mediator in investigating the structural correlations between Anxiety and PTSD symptoms using structural equation modeling (SEM). Structural relationships between study variables are depicted in Figure 1. Regarding fit indices, the model in Figure 1 shows a strong positive level. The second table shows the outstanding values of CFI: 0.93, CMIN/DF: 1.830, and RMSEA: 0.063. Therefore, the path coefficients in Table 3 are reliable:

Figure 1

Rumination's Facilitating Role in the Structural Relationships Between Anxiety and PTSD Symptoms



According to Figure 1 and Table 2, the direct path of anxiety to PTSD symptoms ($c' = 0.582$, $R^2 = 0.48$, $SE = 0.117$, $t = 6.564$, $p < 0.01$), the path of anxiety to rumination ($\beta c' = 0.506$, $R^2 = 0.26$, $SE = 0.896$, $t = 6.604$, $p < 0.01$), and the path of rumination to PTSD symptoms ($\beta c' = 0.19$, $SE = 0.007$, $t = 2.799$, $p < 0.01$) are significant. The mediating role of the rumination variable was investigated using the Baron-Kenny approach.

The indirect paths—namely, the path from anxiety to rumination and the path from rumination to PTSD symptoms—were eliminated from the model that depicts the outcomes' effects. However, there was a significant impact of overall Anxiety on PTSD symptoms ($\beta c' = 0.673$, $R^2 = 0.45$, $SE = 0.122$, $t = 7.255$, $p < 0.01$). In the indirect effects model, which eliminates the direct correlation between anxiety and PTSD symptoms, the correlation between anxiety and rumination ($\beta c' = 0.558$, $R^2 = 0.31$, $SE = 0.864$, $t = 7.122$, $p < 0.01$) and the correlation between rumination and PTSD symptoms are still present. Positive and significant results were found for rumination about PTSD symptoms ($\beta c' = 0.539$, $R^2 = 0.29$, $SE = 0.009$, $t = 6.675$, $p < 0.01$).

Therefore, the mediation model has the highest value when comparing the value of R^2 in the model connected to the outcome of the effects, mediation effects, and indirect effects regarding the variable of PTSD symptoms; that is, 0.48.

Table 2

Standard Path Coefficients

	Standard B	SE	T	P
Anxiety → Rumination	.506	0.896	6.604	.001
Anxiety → PTSD	.582	-.363	6.564	.001
Rumination → PTSD	.186	.007	2.799	.005

Discussion

Rumination was employed as a mediating and promoting variable in the current study to examine the association between anxiety and Post-Traumatic stress disorder (PTSD) in victims of violence. Violence can influence a person's reproductive ability, sexual health, social life, and overall Well-Being. Unfortunately, in most cases, the systems governing human health issues do not sufficiently address these effects (García-Moreno et al., 2005; Semahegn & Mengistie, 2015). It was determined that there is a positive and substantial association between rumination and PTSD based on the results from the rumination model as a mediator between the two variables of anxiety and PTSD. These outcomes supported the conclusions made by Ehring and Watkins (2008). According to their research, rumination after trauma and a traumatic experience may be a significant element in the prediction of PTSD. Rumination and chronic physical illnesses are also the most significant predictors of PTSD, according to studies by Ehlers et al. (1998). Rumination is a deliberate attempt to comprehend a horrific event or experience fast in PTSD, but it lacks a constructive and active structure; over time, it may develop into a default reaction style (Moulds et al., 2020).

Rumination is a habit that some people use to avoid painful memories and previous tragic events; while it temporarily lowers anxiety, it eventually hinders the healing process (Michael et al., 2007). Rumination is actively present during this process, according to Sheikh and Janoff-Bulman (2010), who claims that trauma and traumatic experiences disrupt people's solid worldviews of themselves, others, and their environment and cause them to rebuild belief systems following the injury (Sheikh & Janoff-Bulman, 2010). Some mechanisms lengthen the duration of suffering and amplify and exacerbate rumination (Nolen-Hoeksema, 1991). Rumination can amplify the adverse effects of a person's thoughts.

Thus, victims are more likely to use memories and negative thoughts to make sense of their current circumstances. Additionally, rumination causes people to become mired in negative thoughts, which prevents them from

addressing real issues (Nolen-Hoeksema et al., 2008). These elements all contribute to the overwhelming negative feelings and PTSD symptoms that trauma survivors experience (Egan et al., 2014).

Findings from another study also point to a strong and significant correlation between anxiety and rumination. The results of this study agree with those of the investigations by Constantin et al. (2018). Their findings suggest that ruminating is more common in individuals with anxiety problems. Additionally, Deguchi et al. note that children who are bullied through violence and misbehavior are prone to experience anxiety in the future, which is one of the underlying causes of rumination (Deguchi et al., 2021). According to studies by Lamis and Jahn (2013) rumination could be considerably predicted by anxiety. Furthermore, rumination's involvement as a critical mediating element between anxiety and PTSD has been established in the current study. However, rumination was not regarded as a mediating variable in the connection between anxiety and PTSD in a related study. According to another research conclusion, anxiety and PTSD are positively and significantly related. This finding is somewhat consistent with the findings of the Laicher et al. study from 2022, which discovered a direct and beneficial relationship between anxiety and PTSD symptoms (Laicher et al., 2022).

Additional research demonstrates that anxiety can predict PTSD (Price & van Stolk-Cooke, 2015). Among those who have encountered a traumatic event, PTSD and anxiety are the two most prevalent psychiatric disorders (Groome & Soureti, 2004; ÖC). The prevalence of PTSD and anxiety is no longer an exception but the rule because traumatic events can result in Long-Term problems (Zhang et al., 2012).

Conclusion

The findings of this study demonstrate that rumination mediates the relationship between anxiety and PTSD. In addition, those who endure a traumatic event due to PTSD have significant anxiety levels, which has an adverse effect on daily life. Additionally, after these destructive events, some people begin to ruminate. While this rumination may at first help people feel less anxious, it eventually interferes with their ability to receive therapy and heal.

One limitation of the research is that the tested samples included both men and women. It is suggested to carry out research on men and women separately in order to generalize the results better in future research. Another

limitation of this study is its use of voluntary sampling. Therefore, caution should be exercised while generalizing the results of this study to other populations. The subjects of this study were all diagnosed with anxiety disorders, although it would be preferable if future research focused on specific anxiety disorders rather than all anxiety disorders combined. The fact that the only tool used to gather data for this study was a questionnaire, which is seen as a form of Self-Expression, raises the possibility that the respondents' responses were affected by their feelings and emotions, which would naturally have an impact on the research's conclusions.

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