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RESEARCH ARTICLE

The Mediating Role of Dissociation in the Relationship Between Alexithymia and Symptom Severity in Patients with Post-traumatic Stress Disorder

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ABSTRACT

Background: This study aimed to reveal the complex relationship between symptom severity, dissociation, and alexithymia in patients with post-traumatic stress disorder (PTSD). It also focuses on whether dissociative symptoms mediate the link between alexithymia and PTSD symptom severity.

Methods: The study included 85 patients who were referred to a psychiatric clinic and diagnosed with PTSD according to the Diagnostic and Statistical Manual of Mental Disorders-5 diagnostic criteria. Participants were assessed using the sociodemographic data form, the Event Impact Scale-Revised (IES-R), the Dissociative Experiences Scale (DES), and the Toronto Alexithymia Scale (TAS-20).

Results: The mean age of 85 PTSD patients included in the study was 31.90 years and 69.4% (n=59) were female. According to the TAS-20 scale of the participants; 62.4% (n=53) were alexithymic and 37.6% (n=32) were non-alexithymic. The two groups had no statistically significant difference in sociodemographic variables ($p>0.05$). A statistically significant difference was found between the two groups in DES ($p=0.004$) and TAS ($p<0.001$). A positive statistically significant correlation was found between DES and TAS ($r=0.341$), IES-R Hyperarousal ($r=0.492$), and IES-R Total ($r=0.344$) scores. The mediating function of DES in the interaction between TAS-20 and IES-R was assessed. DES is the mediator variable for the effect of TAS-20 on IES-R ($\beta= 0.15$,1 $z=2.372$, $p=0.018$).

Conclusion: The study underscores the importance of dissociation as a mediating factor between alexithymia and PTSD. Addressing dissociative symptoms in therapeutic interventions may improve treatment outcomes for PTSD patients, particularly those exhibiting alexithymic traits. Future research should explore longitudinal relationships and broader samples to validate these findings.

Keywords: Alexithymia, Dissociation, Mediation, Post-Traumatic Stress Disorder, Trauma.

Introduction

Post-traumatic stress disorder (PTSD) is characterized as a severely impairing and prolonged psychiatric condition that emerges following psychological and physical traumas. As described by the American Psychiatric Association (APA), exposure to traumatic stress refers to an intensely fearful and helpless state, such as confronting death or life-threatening scenarios, or perceiving that one's own or others' physical integrity is in jeopardy.[1] It is marked by the presence of three symptoms: re-experiencing, avoidance against the survival instinct, and heightened sensitivity. [2–6] The rate of PTSD occurring at some point in a person's life is believed to be around 6% to 8%, with a higher occurrence in women than in men. The likelihood of developing PTSD is affected by factors, like how severe and long lasting the traumatic experience was and an individual's biological and genetic tendencies.[5] While PTSD is a recognized condition, with documentation on it it's essential to remember that not everyone who experiences trauma will end up developing the disorder.

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Several factors, including the type of trauma experienced, the individual's level of resilience, and the presence of support systems, play a role in determining whether PTSD will develop.[7] Acknowledging and understanding these complexities is essential for developing effective interventions and offering meaningful support to individuals coping with PTSD.

The connection between traumatic stress disorder (PTSD) and dissociation is an intricate situation that emerges after experiencing psychological trauma. Dissociation is considered a psychological defense mechanism that individuals develop to cope with extremely intense or chronic traumatic experiences and is recognized as a significant component of PTSD. The dissociative form of PTSD involves experiencing a sense of disconnection, from one's body (known as depersonalization). Perceiving the outside world as unreal (referred to as derealization).[1] A research study involving 1,484 U.S. veterans revealed that individuals with PTSD and the dissociative subtype receive more exposure to traumatic events than those without this subtype or the trauma-exposed control group.[8] Experiencing symptoms can create a barrier, for people in recalling and addressing their memories and feelings in a way that magnifies the effects of the trauma.[9] Studies have shown that experiencing symptoms can worsen the intensity of symptoms and complicates the treatment journey.[10,11] Symptoms of dissociation can impact the progression of PTSD and add complexity to the treatment journey; hence it is crucial to address dissociation in the treatment of PTSD, for the wellness of individuals.

The current research has also examined the link between PTSD and alexithymia and has found that there is a strong correlation between the two and that alexithymia worsens the severity of the disorder.[12] Alexithymia, defined as the individual's difficulties in identifying and expressing their emotions, has been recognized as a contributing factor that exacerbates PTSD and may result in poorer outcomes during the treatment process, according to a meta-analysis study.[13] Furthermore, the research also shows that the hyperarousal symptoms are still present regardless of the time frame between the patient's traumatic exposure thus making the diagnosis of PTSD in patients with alexithymia challenging.[14]

Previous research suggests that the strong correlation observed between pre- and post-treatment alexithymia measurements leads to the perception of alexithymia as a trait characterized by relative consistency, similar to neuroticism and extraversion, rather than absolute stability. [15] However, the fact that this stability is considered relative rather than permanent suggests that the relationship between alexithymia and psychopathology may be modulated by an interaction. [16] In this context, revealing this complex relationship may be useful in developing treatment methods for PTSD.

The current study was planned based on the hypothesis that there is a dynamic link between dissociative symptoms, alexithymia, and PTSD in individuals diagnosed with PTSD. This study aimed to determine whether dissociation contributes to defining the link between alexithymia and PTSD. Examining the interactions between these constructs will help us better understand how alexithymia affects PTSD. Furthermore, if the link between alexithymia and PTSD emerges through dissociation, it will be easier to identify individuals prone to PTSD psychopathology.

Method

This cross-sectional study was conducted in the Department of Psychiatry, Ankara Etlik City Hospital.

Participant: This study was conducted by patients diagnosed with PTSD who applied to Outpatient Clinic. All participants underwent clinical interviews conducted by two skilled clinicians before being enrolled in the study. Individuals who were diagnosed with according to Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5); [1] between the ages of 18-65; were at least primary school graduates; applied to the outpatient clinic and willingly took part in the research were included in the research. Exclusion criteria of the study were delirium, dementia, amnestic disorders, mental retardation or other organic mental disorders, autism spectrum disorders, alcohol or substance dependence, schizophreniform and other psychotic disorders, pregnancy or puerperium in female patients, unregulated systemic or metabolic diseases. The study included a total of 85 participants.

Procedure: This study was conducted by obtaining consent forms from patients who applied to Department of Psychiatry, Ankara Etlik City Hospital and were diagnosed with PTSD, between December 2024 and February 2025. Using the Structured Clinical Interview for DSM-5 (SCID-5), the diagnosis of PTSD was verified. All participants were clinically interviewed by two experienced clinicians before inclusion in the study. Patients consenting to join the study were provided with a form containing sociodemographic information (such as type of trauma, duration of illness, and number of hospitalizations) by the clinician. In order to understand the symptoms of the patients, the Event Impact Scale (IES-R), Dissociative Experiences Scale (DES), and Toronto Alexithymia Scale (TAS) were completed by the participants.

The investigation adhered to the ethical principles outlined in the Declaration of Helsinki after securing approval from the Ethical Commission. (Date:11.12.2024, Number: AEŞH-BADEK-2024-1149).

Measurements

Sociodemographic Data Form: The sociodemographic data form consists of semi-structured questions that question basic demographic information and clinical factors like age, marital status, and level of education, occupation, history of psychiatric disease, medical disease history, family history of psychiatric disease, family history of medical disease, number of years since diagnosis, medications used, non-psychiatric medications used, type of trauma, whether there is a history of physical injury.

Impact of Event Scale-Revised (IES-R): The Impact of Event Scale (IES-R) is designed to gauge the amount of stress that a person has gone through at the specific point of time when the scale is being administered, after a particular event. The initial IES was created in 1979 by Horowitz and his colleagues to assess the symptoms of traumatic stress. A large number of research works that have employed IES have established it as a reliable tool to assess the psychological stress following a traumatic event.[17] In 1997, Weiss and Marmar modified the original IES, which only assessed two PTSD symptom clusters (re-experiencing and avoidance), to create the IES-R, which evaluates all PTSD symptom clusters.[18] The scale consists of 22 items scored from 0 to 4, assessing how severe the symptoms are in the past 7 days. It has been validated as a reliable tool and is widely employed in clinical practice and research to evaluate PTSD symptom severity.[19] The scale's validity and reliability in Turkish were established in a study conducted in 2006 by Aytül Çorapçıoğlu, İlhan Yargıç, Pakize Geyran, and Neşe Kocabaşoğlu.[20]

Dissociative Experiences Scale (DES): A popular self-report tool for screening and

evaluating the intensity of dissociation symptoms is the DES, which consists of 28 items. Bernstein and Putnam created it initially in 1986 and revised it in 1993, the DES is a valid and dependable instrument that can differentiate between people who have dissociative disorders and those who do not.[21] It is used in both clinical and non-clinical settings as a screening tool for significant dissociative disorders. The scale consists of 28 questions addressing experiences that individuals may have encountered throughout their everyday life. On a scale of 0% to 100%, respondents are asked how frequently they encounter certain events. In 1995 the DES's validity and reliability study was conducted in Turkey by Hamdi Tutkun, Vedat L. İlhan Yargıç.[22]

Toronto Alexithymia Scale (TAS-20): Bagby, Parker, and Taylor created the TAS-20 in 1994.[23,24] It is the first alexithymia scale validated according to modern psychometric standards, and its 20-item version (TAS-20) is widely used globally as a reliable tool for assessing alexithymia. Each item is scored on a five-point Likert scale, with 1 denoting strong disagreement and 5 denoting strong agreement. In 2009, Güleç et. al. carried out a validity and reliability assessment of the scale in Turkey.[25] No difficulties were encountered in adapting the scale to contemporary Turkish culture.

Statistical Analysis

SPSS version 22.0 was used for statistical analysis (developed by IBM Inc., Chicago, IL, USA) and Jamovi. The Kolmogorov-Smirnov test was used to verify the normality of data distribution, and skewness and kurtosis values were also examined. Descriptive statistics were applied for continuous data to provide mean and standard deviation, while frequency and percentage were used to represent categorical variables. Two groups' category data were compared using Pearson's Chi-square test. For continuous variables, Student's t-test and Mann Whitney U test were used in accordance with the data's parametric assumptions. To explore the association of two quantitative variables, Pearson correlation analysis was performed.

In accordance with the hypothesis of the study, the effect of DES on the relationship between TAS-20 and IES-R was tested with the AMOS 24 package program. If the effect of another variable on the effect of one independent variable on another is investigated, it is recommended to conduct a mediator variable analysis.[26] This is also expressed as a mediation model that is based on regression analysis and includes a moderator.[26,27] In our study, this analysis was preferred in order to examine to what extent the relationships between the variables can be explained within the scope of the hypothesis-based model. The explanation of the link between the independent and dependent variables is known as mediation.[28] In order to conduct the analyses, the normality and linearity values, extreme values, and multiple connectivity status of the data were checked. In order to ensure the assumption of normality in the analyses performed, extreme values were calculated. In this context, 14 measurements were excluded from the data set according to the Mahalanobis distance values (<0.001) and assumptions were provided. Afterwards, the necessary regression analyses were performed (a, b, c, c'). In order to examine the significance of the mediation role, a bootstrap test (1000) was performed to compare the effects of multi-faceted mediator variables on a single model. The bootstrap method was used because it provides more valid and reliable results because the kurtosis and skewness related to the data distribution are corrected.[28,29]

Table 1. Comparison of socio-demographic characteristics of the participants according to alexithymia

Variable	Total participant (n=85)	Alexithymia		χ^2/t value	df value	p value
		No (n=32)	Yes (n=53)			
Age; year, mean±SD	31.90 (8.52)	32.71 (7.89)	31.41 (8.91)	0.681	83	0.498
Education year; year, mean±SD	12.77 (2.48)	13.40 (2.39)	12.39 (2.48)	1.841	83	0.069
Gender; n (%)				0.497	1	0.481
Female	59 (69.4%)	21 (65.6%)	38 (71.7%)			
Male	26 (30.6%)	11 (34.4%)	26 (30.6%)			
Income status; n (%)				0.896	2	0.639
Low	32 (37.6%)	10 (31.3%)	22 (41.5%)			
Middle	36 (42.4%)	15 (46.9%)	21 (39.6%)			
High	17 (20.0%)	7 (21.9%)	10 (18.9%)			
Relationship; n (%)				0.495	1	0.482
Married	49 (57.6%)	20 (62.5%)	29 (54.7%)			
Single	36 (42.4%)	12 (37.5%)	24 (45.3%)			
Employment Status; n (%)				0.265	1	0.607
No	61 (71.8%)	24 (75.0%)	37 (69.8%)			
Yes	24 (28.2%)	8 (25.0%)	16 (30.2%)			
Physical injury; n (%)				0.113	1	0.737
No	68 (80.0%)	25 (78.1%)	43 (81.1%)			
Yes	17 (20.0%)	7 (21.9%)	10 (18.9%)			
Past Psychiatric Diagnosis; n (%)				1.716	1	0.190
No	72 (84.7%)	25 (78.1%)	47 (88.7%)			
Yes	13 (15.3%)	7 (21.9%)	6 (11.3%)			
Trauma Type; n (%)				6.514	6	0.368
Earthquake	40 (47.1%)	18 (56.3%)	22 (41.5%)			
Military	9 (10.6%)	3 (9.4%)	6 (11.3%)			
Sexual	14 (16.5%)	4 (12.5%)	10 (18.9%)			
Accident	12 (14.1%)	2 (6.3%)	10 (18.9%)			
Disease	1 (1.2%)	0	1 (1.9%)			
Family-relationship	8 (9.4%)	4 (12.5%)	4 (7.5%)			
Death	1 (1.2%)	1 (3.1%)	0			

SD: Standard deviation, t: Independent samples t-test; $\chi 2$: Chi-square test; $p<0.05$ indicates statistical significance

Results

The mean age of 85 PTSD patients included in the study was 31.90 years and 69.4% (n=59) were female. The distribution of trauma experienced by the participants was as follows; 47.1% (n=40) earthquake, 10.6% (n=9) military, 16.5% (n=14) sexual, 14.1% (n=12) accident, 1.2% (n=1) illness, 9.4% (n=8) family-relationship and 1.2% (n=1) death. According

Table 2. Comparison of clinical measurement of the participants according to alexithymia

Variable	Total participant (n=85)	Alexithymia		t/U value	df value	p value
		No (n=32)	Yes (n=53)			
Impact of Events Scale-Revised; Mean (SD)						
Hyperarousal	20.68 (4.61)	20.31 (5.53)	20.90 (4.00)	-0.572		0.569
Avoidance	22.70 (4.90)	22.65 (5.27)	22.73 (4.71)	-0.072	83	0.943
Intrusion	21.75 (4.59)	21.96 (5.21)	21.62 (4.22)	0.335	83	0.739
Total	65.11 (12.25)	64.93 (14.27)	65.22 (10.99)	-0.105	83	0.917
Dissociative Experiences Scale	47.48 (22.40)	38.62 (22.34)	52.83 (20.93)	-2.955	83	**0.004****
Toronto Alexithymia Scale-20	63.50 (10.10)	53.00 (5.03)	69.84 (6.38)	-12.713	83	**<0.001****

SD: Standard deviation, t: Independent samples t-test; U: Mann Whithney U test; *: p<0.05, **: p<0.01

to the TAS-20 scale of the participants; 62.4% (n=53) were alexithymic and 37.6% (n=32) were non-alexithymic. The comparison of sociodemographic data according to alexithymia status is presented in TABLE 1. Consequently, there was no statistically significant difference in age, education level, gender, income status, relationship status, employment status, physical injury, past psychiatric disorder and trauma-type variables between the two groups (p>0.05).

The comparison of clinical measurements between the two study groups is presented in Table 2. Accordingly, a statistically significant difference was found between the two groups in DES (p=0.004) and TAS (p<0.001). Nevertheless, no significant difference was found between the two groups in IES-R Hyperarousal, Avoidance, Intrusion and Total scores.

Correlations between clinical measurements are presented in Table 3. Accordingly, a positive statistically significant correlation was found between DES and TAS (r=0.341, p=0.001), IES-R Hyperarousal (r=0.492, p<0.001) and IES-R Total (r=0.344, p=0.001) scores. Furthermore, IES-R subscales and overall scores showed a positive statistically significant association (p<0.001).

The mediating function of DES in the interaction between TAS-20 and IES-R is assessed in Figure 1. Accordingly, in the first regression analysis, TAS-20 is a statistically significant predictor of the DES mediator variable (a) (β= 0.758 95% CI:0.314-1.202, SE= 0.226, z=3.347, p<0.001). In the second regression analysis, the Dissociation Scale mediator variable is a statistically significant predictor of the IES-R (b) (β= 0.199 95% CI:0.083-0.314, SE= 0.059, z=3.363, p<0.001). In addition, the direct effect of the independent variable TAS-20 on IES-R (c) is statistically significant (β= -0.071 95% CI: -0.328-0.186, SE=0.131, z=-0.541, p=0.588). The indirect effect of the mediator variable DES on the

Table 3. Correlations between clinical measurements

			Intrusion	Avoidance	Hyperarousal	Total	Dissociative Experiences Scale
Impact of Events Scale-Revised	**Intrusion**	r	—				
		p	—				
	Avoidance	r	**0.603**	—			
		p	**< 0.001****	—			
	Hyperarousal	r	**0.740**	**0.555**	—		
		p	**<0 .001****	**<0 .001****	—		
	Total	r	**0.894**	**0.835**	**0.877**	—	
		p	**< 0.001****	**<0 .001****	**<0 .001****	—	
Dissociative Experiences Scale		r	**0.279**	0.127	**0.492**	**0.344**	—
		p	**0.010****	0.248	**< 0.001****	**0.001****	—
Toronto Alexithymia Scale-20		r	-0.043	0.119	0.094	0.066	**0.341**
		p	0.693	0.279	0.391	0.551	**0.001****

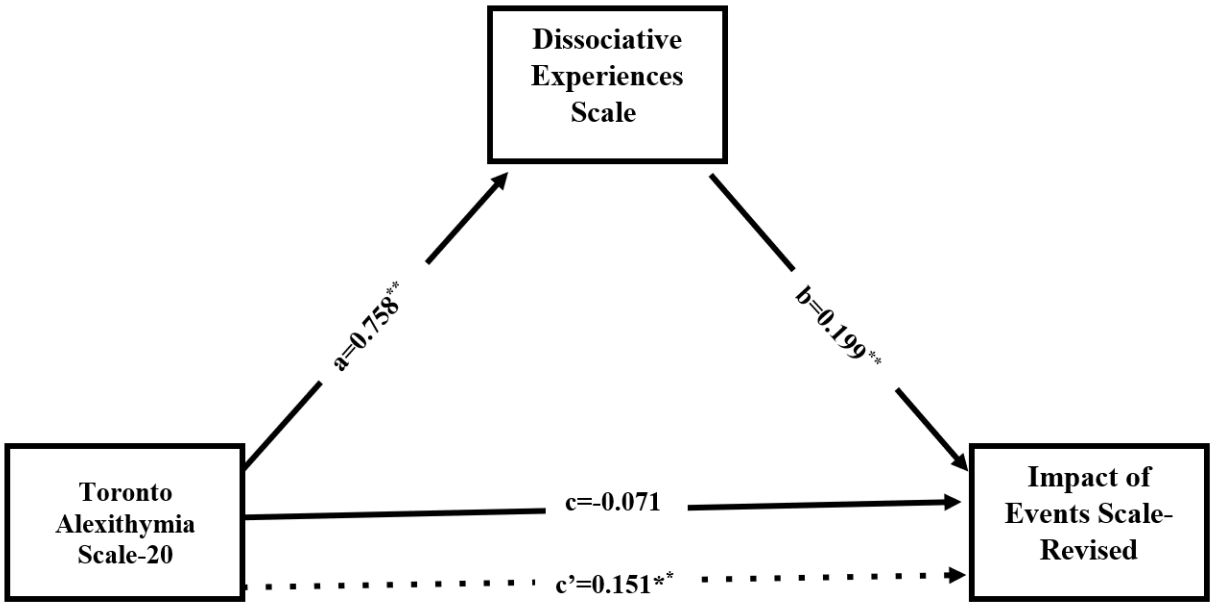
r: Pearson's test coefficient; *: p<0.05; **: p<0.01.

independent variable TAS-20 and the dependent variable IES-R (c') (β= 0.151 95% CI:0.026-0.275, SE=0.0.063, z=2.372, p=0.018) is statistically significant. More clearly, DES is the mediator variable for the effect of TAS-20 on IES-R.

Discussion

The present study investigated the complex relationship between dissociation, alexithymia and PTSD symptom severity. The most significant finding of this study is that dissociation is a mediating factor in the relationship between alexithymia and the severity of PTSD symptoms. Another important finding is that there was a significant relationship between TAS-20 and DES, but no significant relationship between IES-R scores. The results of this study suggest that psychotherapeutic interventions for PTSD patients may be more effective if they include strategies that address dissociative symptoms. For instance, treatments focusing on reducing dissociative tendencies might improve emotional regulation, helping patients with alexithymia articulate and process their emotions more effectively, thereby potentially alleviating PTSD symptoms.

According to the results of this study, the signs of dissociation act as a mediating element in the link between alexithymia and PTSD severity of symptoms. There are limited studies investigating whether dissociation explains the



*: p<0.05; **: p<0.01.

Figure 1. The mediating role of the Dissociative Experiences Scale in the relationship between the Toronto Alexithymia Scale and the Impact of Events Scale.

association between alexithymia and PTSD,[30,31] and the findings have been mixed, with some studies highlighting significant mediating effects while others report weaker or non-significant associations.[29] Through this study, possible mechanisms underlying these findings will be discussed. Grabe et al.[32] explored the link between alexithymia and dissociation, showing significant correlations between pathological dissociation and the alexithymia dimensions of "difficulty identifying feelings" and "difficulty describing feelings," even when general psychopathology was accounted for. Consistent with the findings from previous literature regarding the relationship between alexithymia and dissociation, it is suggested that people who have a tendency to use dissociation in a maladaptive manner may develop a pathological response to a traumatic event.[33] Based on a meta-analysis conducted by Özer et al., among various predictors, peritraumatic dissociation was discovered to be the predictor with the biggest effect size as a predictor of PTSD in adults.[34] In the literature, dissociation is highlighted as a mediating factor in PTSD across various domains, with functionality being one such example. According to a related study,[35] dissociative symptoms turned out to be the most powerful element associated with functional impairment in the entire sample, with derealization symptoms demonstrating the strongest link to impairment among dissociative symptom clusters. Total dissociative symptoms and derealization symptoms were found to be important mediating variables for mediation analyses in the link between PTSD symptoms and functional impairment.

Contrary to the results, a study suggests that both alexithymia and dissociation act as independent factors that heighten the risk of developing post-traumatic disorders.[30] Furthermore, in 2014, Powers et al.[31] examined how emotional dysregulation mediates the

relationship between PTSD and dissociation. Within the various components of the "emotion regulation" construct, alexithymia and the "inability to employ emotion regulation strategies" were identified as significant predictors of dissociation, highlighting the complex interplay between these factors. Nevertheless, we were able to establish a significant mediating role of dissociative symptoms in the link between alexithymia and PTSD. The findings of our research indicate that the connection between PTSD and alexithymia is more intricate than was initially understood. The work of Armour et al., [36] which demonstrated that dissociative symptoms correlate significantly with PTSD, particularly in individuals exhibiting high levels of dissociation. Velotti et al.[37] observed that the pathological personality levels anticipated the PTSD and the fear of COVID-19 over a period of time. Additionally, the link between pathological personality and PTSD was found to be fully and significantly mediated by dissociation.

These findings highlight possible implications for treatment approaches for individuals with PTSD. It is important to evaluate dissociative symptoms before initiating treatment, considering their potential role as a mediator between PTSD and alexithymia. For patients with alexithymia, particular attention may be directed towards the growth of understanding and the explanation of emotional states. Psychotherapeutic methods for treating patients with dissociation should specifically focus on addressing the needs of individuals who use dissociative symptoms as a coping strategy in response to trauma or stress. Studies suggest that mindfulness may be instrumental in addressing dissociative symptoms by enhancing awareness of internal experiences and encouraging emotional acceptance. For example, mindfulness techniques can assist patients in identifying dissociative states as they occur, enabling them to adopt strategies to stay connected to the present moment.[38]

The goal of future studies should be to better understand alexithymia in individuals with PTSD, particularly by examining whether those diagnosed with the dissociative subtype exhibit higher levels of alexithymia compared to those with PTSD alone. Additionally, it is critical to explore whether the relationship between alexithymia and other clinical factors varies between individuals with and without the dissociative subtype. In addition, future studies should evaluate how the course of illness, including factors such as duration and severity, influences the interplay between the chronicity of PTSD, dissociative symptoms, and alexithymia. Longitudinal investigations could provide valuable insights into which symptom clusters or characteristics are most predictive of heightened alexithymia in these populations. Critically, it will be important to determine whether these findings can be generalized to broader groups, such as community samples, to better inform clinical practices and intervention strategies.

Our data came from a cross-sectional, naturalistic investigation, which has a number of methodological flaws that need to be noted. First, the conclusions that can be drawn are limited by the use of a cross-sectional design. Since all measurements were gathered simultaneously, it is unknown if dissociative symptoms predict or act as a mediator in the relationship between PTSD symptoms and alexithymia over time. In order to overcome these obstacles and determine more precise casualties, longitudinal designs will be crucial in future studies. Likewise, it is yet unknown if our participants were different from those who declined to take part in the study due to the use of volunteer sampling.

Conclusion

A more thorough understanding of the link between PTSD and alexithymia, as well as the mediating role of dissociative symptoms, is essential for helping clinicians identify which symptoms should be prioritized to accomplish both symptomatic and functional recovery in individuals with PTSD. More research is required to explore the interactions between alexithymia, dissociation and PTSD, with an emphasis on their role in shaping symptom severity and clinical outcomes.

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Conflict of Interest: The authors declare that there is no conflict of interest.

Ethical Approval: The Ankara Etlik City Hospital Ethics Committee granted approval for this study (Date:11.12.2024, Number:AEŞH-BADEK-2024-1149).

Informed Consent: Informed consent was obtained from all participants.

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