RESEARCH ARTICLE

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Yazışma adresi
Correspondence address
Aslı Enzel KOC
Cumhuriyet University,
Faculty of Medicine,
Department of Psychiatry,
Sivas, Türkiye

enzelkoc@cumhuriyet.edu.tr

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An Examination of Somatization and Paranoia in the Context of Adverse Life Events: A Cross-Sectional Study

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Mehmet Ismail KIRAZOGLU
Sivas Cumhuriyet University,
Faculty of Medicine,
Department of Family Medicine,
Sivas, Türkiye

Merve Medine BICKICI
Sivas Cumhuriyet University,
Faculty of Medicine,
Department of Family Medicine,
Sivas, Türkiye

Asli Enzel KOC
Sivas Cumhuriyet University,
Faculty of Medicine,
Department of Psychiatry,
Sivas, Türkiye

Ezgi SELCUK OZMEN
Trabzon Fatih State Hospital,
Department of Psychiatry,
Trabzon, Türkiye

Yavuz SARI
Independent Psychologist,
Van, Türkiye

An Examination of Somatization and Paranoia in the Context of Adverse Life Events: A Cross-Sectional Study

Olumsuz Yaşam Olayları Bağlamında Somatizasyon ve Paranoyanın Değerlendirilmesi: Kesitsel Bir Çalışma

ABSTRACT

Objective

Adverse life events are recognized as significant risk factors for various psychiatric symptoms. However, the relationship between paranoid ideation and somatization in individuals exposed to such experiences remains underexplored. This study aims to examine the association between these two symptom domains in a non-clinical adult sample reporting adverse life events.

Material and Methods

A cross-sectional online survey was conducted with 200 adults who reported at least one significant adverse life event. Participants completed the Small 't' Trauma Experiences Inventory and the Somatization and Paranoid Ideation subscales of the SCL-90-R. Robust regression analyses were performed to identify predictors of somatization and paranoid ideation.

Results

Robust regression analyses revealed a strong association between somatization and paranoid ideation among individuals exposed to adverse life events. Additionally, different dimensions of these experiences, particularly the negative effects on bodily sensations and on emotions, thoughts, and behaviors, significantly predicted these symptom domains. Notably, female gender independently predicted both somatization and paranoid ideation.

Conclusion

Somatization and paranoid ideation were strongly correlated and predicted by distinct dimensions of adverse life events. These findings highlight the importance of jointly assessing these symptoms in both research and clinical contexts.

Key Words

Paranoid ideation, Psychiatric symptoms, Somatization, Adverse life events

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ÖZ

Amaç

Olumsuz yaşam olayları, çeşitli psikiyatrik belirtiler için önemli bir risk faktörü olarak görülmektedir. Ancak bu tür deneyimlere maruz kalan bireylerde paranoid düşünceler ile somatizasyon belirtileri arasındaki ilişki yeterince incelenmemiştir. Bu çalışmanın amacı, klinik dışı ve olumsuz yaşam olayı bildiren yetişkin bir örneklemde, bu iki belirti kümesi arasındaki ilişkiyi araştırmaktır.

Gereç ve Yöntemler

Olumsuz yaşam olayı öyküsü bildiren 200 yetişkinle çevrim içi, kesitsel bir anket çalışması yürütülmüştür. Katılımcılara Küçük "t" Travma Yaşantıları Envanteri ile SCL-90-R'ın Somatizasyon ve Paranoid düşünce alt ölçekleri uygulanmıştır. Somatizasyon ve paranoid düşünceyi yordayan değişkenleri belirlemek için robust regresyon analizleri yapılmıştır.

Bulgular

Robust regresyon analizleri, olumsuz yaşam olaylarına maruz kalan bireylerde paranoid düşünce ile somatizasyon arasında güçlü bir ilişki olduğunu ortaya koymuştur. Ayrıca, bu yaşantıların farklı boyutları, özellikle bedensel duyumlara ve duygu, düşünce ve davranışlara yönelik olumsuz etkiler, bu belirti kümelerini anlamlı şekilde yordamıştır. Dikkat çekici olarak, kadın cinsiyeti hem somatizasyon hem de paranoid düşünce için bağımsız bir yordayıcı olarak bulunmuştur.

Sonuç

Olumsuz yaşam olaylarına maruz kalmış bireylerde somatizasyon ve paranoid düşünceler birbirleriyle güçlü biçimde ilişkili olup farklı yaşantı boyutlarıyla belirgin şekilde ilişkilidir. Bu bulgular, söz konusu semptomların hem klinik hem de araştırma bağlamında birlikte değerlendirilmesinin önemini vurgulamaktadır.

Anahtar Kelimeler

Paranoid düşünce, Ruhsal belirtiler, Somatizasyon, Olumsuz yaşam olayları

INTRODUCTION

Traumatic experiences are critical factors in the development and course of many psychiatric disorders (1). While exposure to trauma is required for posttraumatic stress disorder (PTSD), conditions such as depression, anxiety, borderline personality disorder, dissociative identity disorder, substance use, and somatoform disorders do not require trauma for diagnosis (2). However, epidemiological studies indicate that trauma is highly prevalent in these populations, highlighting its role as a significant risk factor (1, 3). The Trauma Spectrum Disorders framework proposes that these conditions share a neurobiological foundation rooted in early-life trauma, which may explain their overlapping symptoms and frequent co-occurrence, challenging the Diagnostic and Statistical Manual of Mental Disorders (DSM)'s categorical approach and suggesting a shared underlying pathology rather than mere "high comorbidity" (1, 3). Notably, an international study of nearly 70,000 adults in 24 countries found that over 70% had experienced at least one traumatic event (3). Thus, the true prevalence and impact of trauma may be underestimated in clinical research.

Given how common and diverse traumatic experiences are, and the wide range of psychological presentations they are associated with, another concept has gained increasing attention in the literature: adverse life events. While trauma is often conceptualized as exposure to life-threatening or catastrophic events ("big T" trauma), research increasingly emphasizes the psychological impact of more subtle and chronic stressors referred to as "adverse life events" or "small t" trauma (4). Beyond "big T" trauma, "small t" adverse life experiences are increasingly recognized as common and as potentially co-occurring with a range of psychological presentations, including depressive symptoms and elevated psychological symptom burden (5, 6). Studying adverse life events experiences acknowledges that impactful, distressing events can be linked to trauma-related symptoms even in the absence of DSM-defined catastrophic trauma, enabling a broader understanding of these symptom patterns.

Somatization is the expression of psychological distress through physical symptoms unexplained by medical findings, with roots in early psychodynamic theory (7). Paranoia, defined by distressing fears of intentional harm by others, is common in schizophrenia-spectrum disorders but also affects 10-15% of the general population, indicating it exists on a continuum (8). Although these phenomena differ in their manifest content, phenomenological and psychodynamic perspectives have highlighted meaningful overlaps in their experiential structure, including heightened anxiety, intensified threat perception, and a tendency to interpret ambiguous cues in a negatively biased manner (9-11). In somatization, perceived threat is typically anchored in bodily sensations interpreted as alarming, whereas in paranoia it is anchored in social cues interpreted as malevolent. In both cases, attention may become narrowly focused on the presumed source of threat and reinforced through hypervig-

ilance and confirmatory interpretations, even when broader cognition and functioning remain relatively preserved (9, 11). Importantly, both somatization and paranoid ideation have been repeatedly linked to traumatic and adverse life experiences, despite not being routinely categorized as trauma-related disorders, suggesting that trauma-related processes may contribute to their emergence across diagnostic boundaries (12-14).

Trauma and adverse experiences are frequently conceptualized in the literature as broad risk factors, whereas their links with somatization and paranoid ideation have often been investigated as separate outcomes (12-14). The present study sought to characterize the concurrent patterning of somatization and paranoid ideation in relation to adverse life experiences in a community-based adult sample, adopting a dimensional approach rather than relying on categorical diagnoses. Moreover, adverse experiences were not treated solely as a unitary exposure burden. Instead, we examined domain-specific impacts, including effects on bodily sensations, self and future perception, and emotions, thoughts, and behaviors, to determine whether these impacts exhibit differential associations with the two symptom dimensions. We hypothesized that greater exposure to adverse life experiences would be associated with higher somatization and higher paranoid ideation, and that somatization and paranoid ideation would be positively associated. We further hypothesized that domain-specific adverse impacts would show differential associations, such that impacts centered on bodily sensations would relate more strongly to somatization.

MATERIALS and METHODS

Study Design, Sampling, and Participants

This cross-sectional study was conducted in a community-based sample and implemented using an anonymous online survey. Participants were recruited through online announcements and voluntary dissemination of the survey link across social media platforms. Accordingly, the recruitment strategy corresponds to non-probability sampling, predominantly convenience sampling with snowball features. No remuneration or other incentives were offered for participation.

Data Collection Procedure

Data were collected via a Google Forms questionnaire disseminated through social media platforms (WhatsApp, Instagram, and Telegram) between March 1 and June 1, 2025. As the survey link was distributed through open online announcements and voluntary link sharing, platform-specific recruitment metrics could not be reliably tracked and were not recorded separately. The questionnaire was configured to prevent submission unless all items were completed. Therefore, missing data were not expected, and analyses were conducted using fully completed responses only.

Informed Consent and Eligibility Assessment

The study was conducted in accordance with institutional ethical standards and the Declaration of Helsinki, with approval from the Ethics Committee of Sivas Cumhuriyet University (2025-01/02). Electronic informed consent was obtained prior to participation. The first page of the survey included the informed consent form and eligibility instructions advising individuals not to participate if they had received a psychiatric diagnosis within the past six months or had used psychotherapy and/or psychiatric medication within the past six months. This page also presented the study's trauma framework, in which trauma was operationalized as subjectively distressing adverse life experiences consistent with the "small t" concept. Brief examples were provided to ensure a shared understanding. Psychiatric history and medication use were assessed via self-report only, without clinical record verification.

Inclusion Criteria

Participants were eligible if they (1) were aged 18 years or older, (2) were fluent in Turkish, (3) provided electronic informed consent and participated voluntarily, and (4) reported at least one subjectively distressing life event consistent with the study's "small t" trauma framework.

Exclusion Criteria

Exclusion criteria were (1) self-reported receipt of a psychiatric diagnosis within the past six months, (2) self-reported psychotherapy and/or psychiatric medication use within the past six months, (3) inability to comprehend Turkish, and (4) indicating no history of a subjectively distressing event as defined in this study. The final sample comprised 200 adults who reported at least one subjectively distressing experience and met the inclusion and exclusion criteria. A priori power analysis was conducted using G*Power 3.1.9.4 with an assumed effect size (r) of 0.20, an alpha level of 0.05, and power of 0.80, yielding a minimum required sample size of 191 (actual power = 0.80142). Therefore, a sample size of 200 was considered sufficient for the analyses.

Measures

A sociodemographic data form was used to collect information on participants' age, gender, marital status, years of education, and employment status. It also included an eligibility check for adverse life events to confirm the presence of at least one subjectively distressing experience consistent with the study framework ("Have you ever experienced a serious event in your life that deeply affected you and made you feel helpless, extremely sad, distressed, or scared? This event could be a major accident or disaster, or everyday situations such as a breakup, job loss, family conflicts, or bullying that can seriously disrupt a person's life."). In addition, current psychiatric treatment status was assessed to support eligibility screening and to exclude respondents who reported psychiatric treatment despite the eligibility instructions provided on the informed consent page. These items were included as additional eligibility checks and no

participants were excluded based on these responses. The "Small 't' Trauma Experiences Identification Scale" The Small 't' Trauma Experiences Identification Scale was developed by Yılmaz Dinç and Sapmaz (2023) to assess the extent to which individuals over the age of 18 are affected by minor (non-life-threatening) traumatic experiences. The scale consists of a total of 41 items and includes three subdimensions: Negative Effects on Self and Future Perception, Negative Effects on Emotional, Cognitive, and Behavioral Domains, and Negative Effects on Bodily Sensations. It is a five-point Likert-type scale, with response options ranging from 1 (Does not reflect me at all) to 5 (Fully reflects me). A score of 1 indicates the absence of small trauma effects, while a score of 5 indicates a high level of small trauma impact. The total score ranges from 41 to 205, and there is no established cut-off point. The Cronbach's alpha coefficient for the entire scale was reported as .97, indicating excellent internal consistency. The scale has been found to have adequate validity and reliability in measuring the psychological effects of small 't' trauma experiences (15). In the present study, the internal consistency of the Small 't' Trauma Experiences Inventory was also excellent, with a Cronbach's alpha of 0.97 and an average intraclass correlation coefficient (ICC3k) of 0.97.

Symptom Checklist (SCL-90-R)

The Symptom Checklist-90-Revised (SCL-90-R) is a self-report psychiatric screening tool developed to assess individuals' psychological symptoms. The scale was originally developed by Derogatis (1977) and consists of 90 items and 10 subscales: somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, anger-hostility, phobic anxiety, paranoid ideation, psychoticism, and additional items (e.g., symptoms related to eating and sleep disorders, and feelings of guilt). The validity and reliability study for the Turkish version was conducted by Dağ (1991), and the Cronbach's alpha coefficient was found to be .97. The instrument uses a five-point Likert-type scale (0 = Not at all, 1 = A little bit, 2 = Moderately, 3 = Quite a bit, 4 = Extremely). The Global Severity Index (GSI) is calculated by dividing the total score from the clinical subscales by the number of items answered. A GSI score above 1.0 suggests the presence of significant psychological distress requiring clinical attention. Scores between 0.5 and 1.0 indicate moderate psychological issues that should not be overlooked, while scores below 0.5 suggest the absence of clinically significant symptoms. In the present study, the Somatization and Paranoid Ideation subscales of the SCL-90-R were used to assess participants' sensitivity to physical symptoms and their level of suspicious/paranoid thinking. These subscales comprise 12 and 6 items, respectively (16, 17).

Statistical Analysis

All analyses were performed using IBM SPSS v23 and R. Normality was assessed with the Kolmogorov-Smirnov and Shapiro-Wilk tests. Non-normally distributed variables were compared using Mann-Whitney U (two groups) or Kruskal-Wallis H (three or more groups) tests. Spearman's rho was used for correlations. Robust regression (MASS package, R) examined predictors of non-normally distributed dependent variables. Descriptive statistics included means ± SD, medians (min-max), and frequencies (%). Significance was set at $p < 0.05$.

RESULTS

A total of 200 participants with a history of trauma were included (mean age: 32.06 ± 12.16 years; 56% female; 57% single). Mean scores were 83.19 (SD = 32.25) for the Small 't' Trauma Experiences Inventory, 10.97 (SD = 8.81) for SCL-90-R Somatization, and 6.18 (SD = 5.34) for Paranoid Ideation (Table I). Robust regression showed that higher paranoid ideation ($\beta = 0.221$, $p = 0.001$), negative effects on bodily sensations ($\beta = 0.454$, $p < 0.001$), and female gender ($\beta = 0.199$, $p < 0.001$) significantly predicted somatization symptoms ($R^2 = 0.593$; Table II). Other variables were not significant. For paranoid ideation, significant predictors included somatization scores ($\beta = 0.295$, $p < 0.001$), negative

Table I. Descriptive Statistics of the Variables

	Mean ± SD	Median (Min-Max)
Age	32.06 ± 12.16	28 (18 - 67)
Small 't' trauma total score	83.19 ± 32.25	77 (41 - 185)
Negative effects on emotions, thoughts, and behaviors	24.24 ± 9.31	23 (10 - 49)
Negative effects on self and future perception	40.61 ± 17.16	37 (21 - 94)
Negative effects on bodily sensations	18.35 ± 8.51	15 (10 - 43)
Somatization (SCL-90-R)	10.97 ± 8.81	9 (0 - 37)
Paranoid ideation (SCL-90-R)	6.18 ± 5.34	5 (0 - 24)
	Frequency	Percentage (%)
Marital Status		
Married	86	43
Single	114	57
Gender		
Male	88	44
Female	112	56
Years of Education		
≤8 years	9	4.5
8-12 years	9	4.5
12-16 years	55	27.6
≥16 years	126	63.3
Employment Status		
Employed	111	55.5
Unemployed	89	44.5

effects on emotions, thoughts, and behaviors (β = 0.214, p = 0.030), negative effects on self and future perception (β = 0.351, p < 0.001), and female gender (β = 0.085, p < 0.001). Negative effects on bodily sensations were inversely associated (β = -0.026, p < 0.001). The model explained 55.5% of the variance (R^2 = 0.555; Table III).

Table II. Robust Regression Analysis Examining the Effects of Independent Variables on Somatization (SCL-90)

	β1 (%95 CI)	Std. Error	β2	t	p	VIF
Intercept	-1.063 (-6.458 - 4.332)	2.735	-	-0.389	0.698	-
Paranoid ideation (SCL-90-R)	0.352 (0.156 - 0.547)	0.099	0.221	3.548	**0.001**	1.787
Age	-0.075 (-0.162 - 0.013)	0.044	-0.110	-1.682	0.094	1.946
Negative effects on emotions, thoughts, and behaviors	-0.031 (-0.198 - 0.135)	0.084	-0.035	-0.369	0.713	4.060
Negative effects on self and future perception	0.061 (-0.017 - 0.14)	0.040	0.124	1.535	0.126	2.974
Negative effects on bodily sensations	0.45 (0.282 - 0.617)	0.085	0.454	5.292	**<0.001**	3.373
Gender						
Male	Reference					
Female	3.316 (1.698 - 4.933)	0.820	0.199	4.044	**<0.001**	1.111
Marital Status						
Married	Reference					
Single	-0.482 (-2.651 - 1.687)	1.099	-0.029	-0.439	0.661	1.993
Years of Education						
≤8 years	Reference					
8-12 years	0.446 (-5.031 - 5.923)	2.776	0.012	0.161	0.873	2.359
12-16 years	-0.118 (-4.164 - 3.927)	2.051	-0.006	-0.058	0.954	5.585
≥16 years	0.357 (-3.507 - 4.221)	1.959	0.021	0.182	0.856	5.944
Employment Status						
Employed	Reference					
Unemployed	0.36 (-1.592 - 2.311)	0.989	0.022	0.364	0.716	1.620

F = 24.726; p < 0.001; R^2 = 0.593; β_1: Unstandardized beta coefficient; β_2: Standardized beta coefficient.

Table III. Robust Regression Analysis of the Effects of Independent Variables on Paranoid SCL-90 Scores

	β1 (%95 CI)	Std. Error	β2	t	p	VIF
Intercept	-0.915 (-4.188 - 2.359)	1.659	-	-0.551	0.582	-
Somatization (SCL-90-R)	0.17 (0.092 - 0.249)	0.040	0.295	4.270	**<0.001**	2.006
Age	-0.036 (-0.09 - 0.018)	0.027	-0.090	-1.326	0.186	1.915
Negative effects on emotions, thoughts, and behaviors	0.115 (0.011 - 0.219)	0.053	0.214	2.186	**0.030**	4.012
Negative effects on self and future perception	0.103 (0.056 - 0.151)	0.024	0.351	4.287	**<0.001**	2.825
Negative effects on bodily sensations	-0.016 (-0.127 - 0.096)	0.057	-0.026	-0.276	**<0.001**	3.830
Gender						
Male	Reference					
Female	0.045 (-1.01 - 1.101)	0.535	0.005	0.085	**<0.001**	1.175
Marital Status						
Married	Reference					
Single	-0.392 (-1.742 - 0.959)	0.685	-0.039	-0.572	0.568	1.930
Years of Education						
≤8 years	Reference					
8-12 years	2.008 (-1.34 - 5.356)	1.697	0.085	1.183	0.238	2.192
12-16 years	-0.165 (-2.599 - 2.27)	1.234	-0.015	-0.133	0.894	5.132
≥16 years	-0.46 (-2.775 - 1.855)	1.173	-0.045	-0.392	0.695	5.404
Employment Status						
Employed	Reference					
Unemployed	-0.12 (-1.334 - 1.093)	0.615	-0.012	-0.196	0.845	1.562

F = 21.229; p < 0.001; R^2 = 0.555; β_1 = Unstandardized beta coefficient; β_2 = Standardized beta coefficient

DISCUSSION

In this community-based adult sample, adverse life experiences were associated with both paranoid ideation and somatization, and a strong positive relationship was observed between these symptom dimensions, suggesting concurrent symptom expression. Moreover, the associations differed across domains of experienced impact. Adverse impacts on emotions, thoughts, and behaviors and on self and future perception showed stronger associations with paranoid ideation, whereas adverse impacts on bodily sensations showed the strongest association with somatization. Taken together, these findings indicate that adverse life experiences relate to both paranoia and somatization-related symptoms and that distinct impact domains may be differentially linked to these symptom expressions, supporting the value of a multidimensional assessment of adverse experiences.

Because trauma is conceptualized in multiple ways (e.g., childhood adversity, PTSD-related trauma, or stressful and adverse life events) and studies vary widely in design and sampling, the literature has examined links with somatization and paranoid ideation across diverse contexts, with many studies demonstrating these associations separately rather than within a single integrated framework (18-20). However, trauma is not limited to singular and catastrophic events but may also be conceptualized through the cumulative impact of relatively smaller yet persistent adverse experiences occurring in early life or across the lifespan (21). Such chronic stressors may lead to insufficient downregulation of the stress response, resulting in a sustained state of hypervigilance (21). When exposure occurs during sensitive developmental periods, these effects may exert more enduring influences on emotion regulation processes and stress-related neurobiological systems (21). The present study demonstrates cross-sectional associations between adverse life experiences, somatization, and paranoid ideation, but does not allow for causal inferences regarding these relationships. Nevertheless, several theoretical models have been proposed to explain the link between trauma and somatization, among which Self-Determination Theory offers an important framework (21).

According to this perspective, adverse experiences that thwart basic psychological needs for autonomy, competence, and relatedness may fail to be integrated into the self and instead become internalized in an "introjected" manner, subsequently manifesting through both psychological and somatic symptoms (21). Complementing these motivational and integrative accounts, the expression of somatic symptoms has been explained through somatosensory amplification models, which emphasize heightened attention to bodily sensations (22). In the present study, the stronger association between adverse impacts on bodily sensations and somatization is consistent with this theoretical framework. In addition, neurobiological explanations focusing on stress-related systems and threat-processing pathways have been proposed as underlying mechanisms linking trauma to somatic symptom expression (23, 24).

Another key finding of the present study was the association between adverse life experiences and paranoid ideation. A review of the literature indicates that the association between trauma and paranoid ideation is particularly pronounced in relation to adverse experiences involving threat, hostility, or interpersonal harm (25, 26). Trauma types characterized by repeated and inescapable interpersonal exposure, such as peer victimization and cyberbullying, have been reported to show stronger links with paranoid ideation (26). At the core of these experiences, shame, perceptions of social devaluation, and negative schematic models of the self and others are frequently emphasized, whereby individuals come to view themselves as vulnerable and others as dangerous or malevolent (27). Within this framework, paranoid ideation has been conceptualized as a cognitive-affective defensive response to experiences of social defeat, exclusion, and humiliation (27, 28). Consistent with the somatization literature, repeated and threatening interpersonal experiences in childhood may lead to enduring alterations in biological stress systems (29). Evidence from genetically informed studies indicates that the link between stressful life events and paranoid ideation is largely explained by shared genetic vulnerabilities that increase both exposure to stress and threat sensitivity (29). Accordingly, genetically shaped stress reactivity may jointly amplify bodily symptom expression and cognitive threat processing, may provide a common pathway linking trauma to both paranoid ideation and somatic symptoms.

Studies directly examining the relationship between paranoid ideation and somatization are extremely limited in the literature. One study reported that paranoid ideation did not predict somatic symptoms. However, this study was conducted outside the context of trauma and did not focus on trauma-exposed samples (30). In contrast, a study conducted among military veterans found that paranoid thoughts and medically unexplained somatic symptoms frequently co-occurred with PTSD. Notably, this pattern was also observed among veterans without combat exposure. Individuals with high levels of both paranoia and somatic symptoms showed a markedly increased likelihood of PTSD, whereas those with low levels of both symptom domains exhibited substantially lower risk (31). These findings suggest that the co-occurrence of paranoid ideation and somatic symptoms may represent a meaningful psychopathological pattern in the development of PTSD, independent of the directness or severity of trauma exposure. In the present study, different domains of adverse life impacts were found to be differentially associated with somatization and paranoid ideation. Adverse impacts on bodily sensations showed a stronger association with somatization, whereas adverse impacts on emotions, thoughts, and behaviors, as well as on self and future perception, were more strongly related to paranoid ideation. These findings suggest that somatization and paranoid ideation, although arising from a shared background of adverse experiences, may represent distinct symptom patterns shaped through different psychological and cognitive

pathways. This interpretation is consistent with the findings of Oxman and colleagues, who demonstrated that somatization is characterized by an overt expression of subjective distress, self-fragility, and internal chaos, whereas paranoid patterns are associated with a cognitive style marked by the denial of emotional vulnerability and the externalization of threat as a means of protecting the self (9). Further support for this differentiation comes from a study conducted in China within the context of forced migration, a highly trauma-exposed population, in which somatoform symptoms and paranoid ideation were examined concurrently. In that study, paranoid symptoms were found to be more strongly associated with premigration psychopathology and social selection processes, whereas somatoform symptoms were primarily linked to postmigration stressors and socioeconomic disadvantage (32).

Female gender was significantly associated with both somatization and paranoid ideation in our study. While community-based research shows a relatively consistent pattern in which women report a higher burden of somatic symptoms than men, the evidence for a comparable sex difference in paranoid ideation is less consistent and appears to vary across samples and measurement approaches (33, 34). Importantly, although our sample was community-based, eligibility was constrained by the endorsement of at least one subjectively distressing adverse experience. This trauma-enriched sampling frame may have accentuated gender-related vulnerability, with women who have experienced adversity being overrepresented among individuals reporting higher levels of paranoid ideation, possibly reflecting increased stress reactivity or threat sensitivity in trauma-exposed contexts (4, 26). In this context, sex-specific neurobiological differences in responses to stress and trauma may offer a plausible mechanism for the more pronounced paranoid ideation observed among trauma-exposed women in our study (35, 36). Experimental research indicates that although certain neural connections may be re-strengthened following chronic stress, persistent disruptions in specific critical circuits are more evident in females (36). In particular, continued impairment of the connectivity between the central amygdala and the paraventricular nucleus of the thalamus after chronic stress exposure may contribute to sustained alterations in emotional threat processing and arousal regulation (36). Such network-level vulnerability may predispose females to the persistence of depressive symptoms, hyperarousal, and threat-focused cognitive processes following chronic stress (36). Accordingly, the prominence of paranoid ideation in women with a history of trauma may reflect not only psychosocial stressors but also sex-specific and partially enduring neurobiological alterations within stress-regulatory brain networks. This finding underscores the potential influence of gender-related psychological and biological factors in shaping susceptibility to both somatic and paranoid symptomatology.

Strengths, Limitations and Future Research Directions

This study offers several strengths that distinguish it from previous research. Rather than treating adverse life experiences as a single, uniform construct, it examines distinct domains of adverse impacts and demonstrates that these domains are differentially associated with somatization and paranoid ideation. By evaluating both symptom dimensions within the same analytic framework, the study provides direct evidence that, although rooted in a shared background of adversity, somatization and paranoid ideation reflect distinct psychological and cognitive pathways. In addition, focusing on a trauma-exposed sample allows for a more nuanced interpretation of gender differences, suggesting that female vulnerability to paranoid ideation may become more pronounced in the context of adversity.

While this study adopts a broader, subjective trauma definition that prioritizes psychological impact over objective event criteria, this method may limit standardization and generalizability, as perceptions of trauma vary across cultures and individuals. The cross-sectional design also precludes causal inferences, and the modest sample size may reduce robustness. Additionally, self-report online surveys may have introduced bias due to subjective symptom reporting and selective participation. Psychiatric diagnosis and treatment status were obtained by self-report and were not confirmed through clinical records. In addition, we did not systematically assess or exclude several factors that could influence symptom levels, such as alcohol or substance use, pregnancy or postpartum status, and the use of non-psychiatric medications including corticosteroids, chemotherapy agents, or immunosuppressants. For this reason, the potential influence of these unmeasured factors cannot be completely excluded.

Future studies should examine different types of trauma (e.g., interpersonal, threat-related, chronic, or developmental trauma) separately to clarify their distinct associations with somatization and paranoid ideation. Replication of these findings in clinical samples and diagnosis-based groups would help determine the psychopathological specificity of the observed symptom patterns. In addition, biologically oriented studies, including neurobiological and neuroimaging approaches targeting stress regulation and threat-processing systems, may further elucidate the underlying mechanisms linking trauma to these symptoms. Finally, investigations conducted in larger and culturally diverse samples are needed to assess the generalizability of the findings and to explore potential cultural variations in trauma-related symptom expression.

CONCLUSION

This study identified a robust association between paranoid ideation and somatization among trauma-exposed adults, with female gender emerging as an independent predictor for both outcomes. These findings highlight the importance of jointly assessing these symptom domains and considering gender-specific factors in both research and clinical practice. Replication in larger and more diverse clinical samples is recommended to enhance comparability and generalizability.

Ethics Committee Approval

This research complies with all the relevant national regulations, institutional policies and is in accordance with the tenets of the Helsinki Declaration, and has been approved by the Ethics Committee of Sivas Cumhuriyet University (approval number: 2025-01/02).

Informed Consent

Electronic informed consent was obtained from all participants before participation.

Author Contributions

Concept - A.E.K., E.S.Ö.; Design - M.İ.K., M.M.B., A.E.K., E.S.Ö., Y.S.; Supervision - A.E.K., E.S.Ö., Y.S. ; Resources - M.İ.K., M.M.B., A.E.K., E.S.Ö., Y.S.; Materials - M.İ.K., M.M.B.; Data Collection and/or Processing - M.İ.K., M.M.B., Y.S.; Analysis and/ or Interpretation - M.İ.K., M.M.B., A.E.K. ; Literature Search - M.İ.K., M.M.B., A.E.K., E.S.Ö., Y.S.; Writing Manuscript - M.İ.K., M.M.B., A.E.K., E.S.Ö., Y.S.; Critical Review - M.İ.K., M.M.B., A.E.K., E.S.Ö., Y.S.

Conflict of Interest

The authors have no conflict of interest to declare.

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