Early Trauma Subtypes are Differentially Related to Anxiety Symptomatology and Suicidal Ideation in Panic Disorder

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Objective Early trauma significantly affects the severity of panic disorder (PD) symptoms and suicidal ideation. However, few studies have explored the specific effects of different early trauma subtypes on PD. This study analyzed how childhood trauma subtypes, including general, physical, emotional, and sexual, influence panic and phobia levels and suicidal ideation in adults with PD and healthy controls (HCs).

Methods In total, 455 adults with PD and 149 HCs participated in this study. The independent variables were sociodemographic and clinical variables such as coping strategies and early trauma subtypes from the Early Trauma Inventory Self Report-Short Form. The dependent variables were the Albany Panic and Phobia Questionnaire (APPQ), the Panic Disorder Severity Scale, and the Scale for Suicide Ideation (SSI).

Results Early emotional trauma significantly influenced the APPQ scores, whereas early physical trauma significantly influenced the SSI scores in patients with PD. However, in HCs, only early emotional trauma was significantly associated with the APPQ and SSI scores.

Conclusion These findings highlight the influence of early trauma subtypes on the phobic symptom severity of PD and suicidal ideation among patients with PD. Early emotional trauma is associated with the severity of phobic symptoms, whereas early physical trauma is associated with suicidal ideation, suggesting distinct clinical outcomes based on the type of trauma in patients with PD.

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INTRODUCTION

An early traumatic experience broadly involves sustained or repeated exposure to events before age 18 and typically involves a betrayal of trust.[1] This includes various forms of physical, sexual, and emotional abuse and neglect. One challenging aspect of studying early traumatic experiences is disentangling their negative influences on neurobiological stress systems and early brain development.[2,3] These neurobiological changes may contribute to various adverse psychological and behavioral outcomes in adulthood. Therefore, individuals who have experienced trauma in childhood are more likely to develop psychiatric disorders such as anxiety disorders,[4,5] major depression,[6] posttraumatic stress disorder,[7] substance abuse,[8,9] and personality disorders[10,11] in adulthood.

Meanwhile, different types of early traumatic experience are related to distinct neuroendocrine adaptations, which explain anomalies in the hypothalamic-pituitary-adrenal (HPA)-axis functioning.[12] Early physical trauma is associated with a faster response to acute stress. Individuals who have experienced physical trauma during childhood exhibit a quicker and more pronounced response in the HPA-axis when faced with acute stressors. However, individuals with emotional trauma in their childhood may demonstrate a different HPA-axis response, which is the delayed recovery of cortisol following acute stress. These findings highlight how early traumatic experiences can impact the neurobiological stress response system in distinct

ways depending on the type of trauma experienced.

Early trauma subtypes may have differential effects on brain development that persist into adulthood.[13-16] Early emotional trauma was related to abnormalities in fronto-limbic networks.[13] In a previous meta-analysis, physical and sexual trauma types were found to affect volume reductions in the hippocampus and amygdala, whereas lateral prefrontal cortical volume reductions exist in any type of early trauma.[17,18] Additionally, early sexual trauma is associated with white matter microalterations in the tapetum of people with panic disorder (PD).[19] These studies provide evidence of the long-term differential effects of early trauma subtypes on brain development.

Early traumatic experiences can lead to long-term consequences, including an increased risk of suicidal behaviors.[20] Early traumatic experiences are predictors of suicidal ideation in both general and clinical populations.[21] In particular, early physical or sexual trauma predicts repeated suicidal behaviors compared to other types of early trauma, controlled by sociodemographic factors.[22] Some psychosocial theories explain the relationship between early trauma and suicidal behaviors. According to attachment theory, early trauma, particularly from caregivers, can lead to insecure or disorganized attachment styles, resulting in emotional regulation difficulties, heightened reactivity to stress, and poor interpersonal relationships, all of which are risk factors for suicidal ideation and behaviors.[23] Additionally, in cognitive theory, early traumatic experiences can contribute to maladaptive cognitive biases such as feelings of hopelessness, negative self-images, or external attribution.[24,25] These negative cognitive patterns can subsequently enhance vulnerability to suicidal thoughts.[25]

Various studies have investigated the association between early trauma and PD.[26-30] Patients with PD were 8.7 times more likely to report early traumatic experiences than healthy individuals.[31,32] Additionally, early trauma experiences have been linked to increased severity of panic symptoms and a more significant history of suicide attempts or suicidal ideation in adults with PD.[28,33] However, a study directly comparing the influence of early trauma subtypes on panic symptoms and suicidal ideation in people with PD and healthy controls (HCs) has not yet been conducted. Such a study would be valuable for understanding how different types of early trauma affect patients with and without PD.

Therefore, this study aimed to investigate the correlations between early trauma subtypes, including general, physical, emotional, and sexual trauma, and PD in adulthood, focusing on the influence of different types of early traumatic experiences on panic and phobia levels, as well as suicidal ideation in patients with PD compared to HCs. The key hypotheses of the study were as follows: 1) patients with PD show a higher frequency of early traumatic experiences than HCs; 2) signif-

icant differences in anxiety symptomatology, such as agoraphobia, social phobia, interoceptive fear, or panic attacks, according to the subtypes of early trauma, appear differently between patients with PD and the HCs group; and 3) there are significant differences in the levels of suicidal ideation according to the subtypes of early trauma between patients with PD and HCs.

METHODS

Participants

A total of 604 individuals (455 patients with PD and 149 HCs) participated in this study, which was conducted between 2011 and 2023. Their personal and family histories were collected through interviews. Participants were recruited from patients with PD treated in the Department of Psychiatry at the CHA Bundang Medical Center. They were recruited if they were between 18 and 77 years of age and met the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria for PD, with or without agoraphobia.[34] Individuals with a primary diagnosis of schizophrenia, major depressive disorder, anxiety disorders other than PD, substance use disorders including alcohol use disorder, intellectual disability, major medical disorders including neurological disorders, or pregnancy were excluded. HCs with histories of psychiatric disorders were excluded from the study. Interviews and clinical assessments were conducted during the initial hospital visit. Participants with PD were administered all self-report scales on the same day to rule out memory recall bias after medication commencement. All study procedures adhered to the Institutional Review Board regulations and principles of Good Clinical Practice at the CHA Bundang Medical Center (IRB no. 2019-05030). Written informed consent was obtained after explaining the methods and purpose of the study. The study was conducted following the Declaration of Helsinki.

Early trauma assessments

Early trauma and its subtypes were assessed using the Korean version of the Early Trauma Inventory Self Report−Short Form (ETISR-SF).[35,36] The Korean version of ETISR-SF is a reliable (Cronbach's α=0.869) and valid measurement, and it correlated significantly with the scores of Childhood Trauma Questionnaire−Short Form (r=0.691).[36] The scale contains 27 questions and four domains: general trauma, physical trauma, emotional trauma, and sexual trauma experienced before 18 years of age. Each domain contained 11, 5, 5, and 6 questions, respectively.

Other clinical assessments

To evaluate other clinical characteristics, the Panic Disorder Severity Scale (PDSS),[37] Albany Panic and Phobia Questionnaire (APPQ),[38] Scale for Suicide Ideation (SSI),[39] Beck Depression Inventory (BDI),[40] and coping strategy scale[41] were administered.

The PDSS amounts all PD dimensions: panic attacks, anticipatory anxiety, phobias, wellness, symptom severity, and functional impairment. The PDSS is a 7-item self-report instrument of PD symptoms (e.g., "During the last week, how much have you worried or felt anxious about when your following panic attack would take place or about fears for the attacks?"). Responses are placed on a 5-point Likert scale, from 0 (none) to 4 (extreme). In an earlier study, the Korean version of the PDSS had high reliability and validity.[42] Internal consistency at enrollment was strong in the current sample (Cronbach's α= 0.88).

The APPQ was developed to determine the fear of activities that may lead to physical sensations in patients with PD. A total of 27 items were estimated on a 9-point scale ranging from 0 (not at all) to 8 (extremely), with the total score acquired corresponding to the total score of all items. APPQ is divided into 3 subscales: agoraphobia, social phobia, and interoceptive fear. We adopted the Korean version of the APPQ, which shows high internal consistency (Cronbach's α=0.95) and good test−retest reliability (r=0.77).[43]

The 19-item SSI is a well-known international measurement tool of suicidal ideation.[39] It is a self-report scale that evaluates the levels of suicidal attitudes, behaviors, and plans to commit suicide. Each item was rated on a 3-point scale from 0 to 2 and rated consistent with the intensity of suicidality. The SSI total score of 2 or higher, represented as "higher risk," reported sensitivity (53%), specificity (83%), and positive predictive value (2.4%) for the prediction of suicidality.[44,45] Outpatients in the higher-risk SSI category were approximately six times more likely to commit suicide.[44] Additionally, the SSI in the Korean participants had high internal consistency (Cronbach's α=0.74).[46]

The BDI is a 21-item instrument for depressive symptoms. In this study, the Korean version of the BDI was used, which has good internal consistency (Cronbach's α=0.85) and discriminant validity.[47] Internal consistency at enrollment was high in the current participants (Cronbach's α=0.87).

Coping strategies have been used to determine coping styles used in stressful situations.[48] The scale comprises 50 items, with responses rated on a 5-point scale ranging from 0 to 4. The Korean version of the coping scale showed significant good internal consistency, from 0.77 to 0.89 for each eight domains and 0.95 for the total score. The test−retest reliability of the eight domain scores and the total sum score were good, from 0.47 to 0.83. This scale is divided into two subscales: problem-focused and emotion-focused coping strategies.

Statistical analyses

Chi-square and independent t-tests were used to analyze the sociodemographic characteristics and clinical symptom severity of patients with PD and HCs. The independent t-test was used to determine the association between categorical variables, anxiety symptomatology, and suicidal ideation in each group separately. Pearson's correlation analyses assessed the relationships among continuous variables, such as early trauma, severity of anxiety symptomatology, suicidal ideation, and coping strategies. Multiple regression analysis was used to assess the factors affecting anxiety symptomatology and suicidal ideation in patients with PD and HCs, after controlling for sociodemographic characteristics. All statistical analyses were performed using the IBM SPSS software (version 29.0; IBM Corp., Armonk, NY, USA). All reported probability values were two-tailed, with p<0.05 considered statistically significant.

RESULTS

Sociodemographic and clinical characteristics

The sociodemographic and clinical characteristics of the participants are summarized in Table 1. There were no significant differences in age, gender, or marital status between the patients with PD and HCs. However, there were significant differences in educational level (p<0.001), job status (p=0.011), and monthly income (p=0.025). The total early trauma and all subtype scores were significantly higher in patients with PD than in HCs (p<0.001). Additionally, there were significant differences between the two groups in coping strategies (p=0.012 in problem-focused coping; p<0.001 in emotion-focused coping, respectively) and all clinical variables, such as the APPQ total sum and its subtypes, PDSS total scores, and SSI total scores (p<0.001).

Association between early trauma, other clinical variables, and categorical variables in each PD and HC group

In patients with PD, the mean scores for early trauma and coping strategies were associated with sociodemographic variables (Supplementary Table 1 in the online-only Data Supplement). The total early trauma sum was significantly higher in those with unemployment status (p=0.049), lower monthly income (p=0.005), and living without a partner (p=0.002). Among the early trauma subtypes, there were no significant differences in sociodemographic characteristics for general trauma. By contrast, there were significant differences in gender (p<0.001), job status (p=0.028), and marital status (p=0.004)

Table 1. Sociodemographic and clinical characteristics in patients with panic disorder and healthy controls

Variable	PD (N=455)	HCs (N=149)	Statistics (t or χ^2)	p
Sociodemographic variables				
Age (yr)	39.22±11.76	37.89±8.79	-1.47	0.142
Gender, woman	236 (51.90)	80 (53.70)	0.15	0.707
Level of education			46.93	<0.001
High school or less	146 (32.10)	6 (4.00)		
College or more	309 (67.90)	143 (96.00)		
Job status			6.47	0.011
Unemployment	36 (7.90)	3 (2.00)		
Others	419 (92.10)	146 (98.00)		
Monthly income			4.25	0.025
Below 1,800$	29 (6.40)	3 (2.00)		
Above 1,800$	426 (93.60)	146 (98.00)		
Marital status			0.00	0.999
Living with partner	269 (59.10)	88 (59.10)		
Living without partner	186 (40.90)	61 (40.90)		
Clinical variables				
Early Trauma (ETISR-SF)				
Total sum of all subtypes	4.99±4.49	3.30±3.05	-5.11	<0.001
General	1.44±1.62	0.89±1.11	-4.64	<0.001
Physical	1.84±1.64	1.60±1.70	-1.51	<0.001
Emotional	1.25±1.60	0.67±1.22	-4.63	<0.001
Sexual	0.41±0.96	0.16±0.43	-4.36	<0.001
Coping strategies scales				
Problem-focused	39.81±16.86	43.86±15.47	2.52	0.012
Emotion-focused	15.58±6.75	12.93±6.98	-4.05	<0.001
APPQ				
Total sum of all subtypes	54.52±40.47	20.61±22.03	-12.67	<0.001
Agoraphobia	20.40±16.49	5.86±8.19	-14.03	<0.001
Social phobia	17.81±16.27	9.11±10.17	-7.62	<0.001
Interoceptive fear	16.31±13.47	5.64±6.71	-12.59	<0.001
PDSS total scores	10.86±6.17	0.25±0.93	-35.13	<0.001
SSI total scores	5.15±6.56	2.06±3.52	-6.73	<0.001

Values are presented as number (%) or mean±standard deviation. PD, panic disorder; HCs, healthy controls; ETISR-SF, Early Trauma Inventory Self-Report-Short Form; APPQ, Albany Panic and Phobia Questionnaire; PDSS, Panic Disorder Symptom Severity; SSI, Scale for Suicidal Ideation

for physical trauma. Significant differences in gender (p=0.019), education level (p=0.008), job status (p=0.045), monthly income (p=0.002), and marital status (p<0.001) were found in emotional trauma. Coping strategies were significantly associated with monthly income (p<0.01) and marital status (p< 0.05). Additional details are provided in Supplementary Table 1 (in the online-only Data Supplement).

In patients with PD, there were significant differences between clinical and sociodemographic categorical variables

(Supplementary Table 2 in the online-only Data Supplement). Total APPQ sum scores were significantly higher in women (p<0.001) and in those living without a partner (p=0.022). Regarding the mean PDSS scores, a significant difference existed in marital status (p<0.001). There were significant differences in gender (p=0.006), educational level (p=0.002), job status (p=0.017), monthly income (p=0.001), and marital status (p<0.001) for SSI.

In HCs, the total sum of all early trauma subtypes was sig-

nificantly higher among men (p=0.017) and those with physical trauma (p<0.001) (Supplementary Table 3 in the online-only Data Supplement). There were no significant differences in emotional trauma or problem-focused coping strategies. However, there were significant differences in marital status (p=0.016) for the emotion-focused coping strategy.

In HCs, the total APPQ scores were significantly higher among women (p=0.003) than among those with agoraphobia (p<0.001). However, there were no significant sociodemographic differences in social phobia or interoceptive fear. In addition, the SSI total scores were significantly higher among women (p=0.005) and those living without a partner (p=0.031). Supplementary Table 4 (in the online-only Data Supplement) presents more details.

Correlations between early trauma and continuous variables in patients with PD and HCs

In patients with PD, the total early trauma scores showed significant correlations with emotion-focused coping strategies (r=0.219, p<0.001), APPQ total scores (r=0.204, p<0.001), PDSS total score (r=0.112, p=0.020), and SSI total scores (r=0.270, p<0.001). Among the early trauma subtypes, physical trauma was correlated with social phobia scores on the APPQ (r=0.136, p=0.004) and SSI total scores (r=0.201, p<0.001) (Supplementary Table 5 in the online-only Data Supplement).

In HCs, the total early trauma scores showed significant correlations with the PDSS (r=0.225, p=0.006) and SSI total scores (r=0.278, p=0.001). Among the early trauma subtypes, emotional trauma correlated with social phobia scores on the APPQ (r=0.163, p=0.049), PDSS total scores (r=0.264, p=0.001), and SSI total scores (r=0.429, p<0.001) (Supplementary Table 6 in the online-only Data Supplement).

Multiple regression analyses predicted clinical symptoms in patients with PD and HCs

Multiple regression analyses were performed to predict the risk of clinical symptoms in patients with PD and HCs. Tables 2 and 3 summarize the findings from the two research models.

In patients with PD, the models were significant in APPQ total scores (F=7.606, p<0.001) and subtypes, including agoraphobia (F=6.453, p<0.001), social phobia (F=8.848, p<0.001), interoceptive fear (F=3.858, p<0.001), PDSS (F=4.659, p<0.001), and SSI (F=11.369, p<0.001). There were no multicollinearity or residual issues (variance inflation factor <10; Durbin-Watson=1.702−2.176) (Table 2).

In HCs, the models fit well with significance for APPQ total scores (F=3.320, p<0.001) and their subtype scores such as agoraphobia (F=2.948, p=0.001), social phobia (F=3.339, p<0.001), interoceptive fear (F=2.006, p=0.029), and SSI total scores (F=4.360, p<0.001), except for PDSS total scores (F=

1.418, p=0.166). Multicollinearity and residual issues were not found (variance inflation factor <10; Durbin-Watson=1.700−2.063) (Table 3).

In patients with PD, the APPQ total scores and their subtypes were significantly predicted by early emotional trauma (APPQ total scores [B=0.191, p=0.001], agoraphobia [B=0.169, p=0.004], social phobia [B=0.152, p=0.008], and interoceptive fear [B=0.155, p=0.011]) after controlling for sociodemographic factors and coping strategies. However, the SSI total scores were significantly predicted only by early physical trauma (B=0.179, p=0.003). Moreover, the significance of the SSI total scores was maintained even after controlling for the BDI total scores.

In HCs, APPQ total scores were significantly associated with early general trauma (B=-0.192, p=0.025) and emotional trauma (B=0.202, p=0.027), controlling for sociodemographic factors and coping strategies. Among APPQ subtypes, agoraphobia and social phobia were significantly associated with early emotional trauma. The SSI total scores were significantly associated with early emotional trauma (B=0.371, p<0.001). Even after controlling for the BDI total scores, the SSI total scores were significantly correlated with early emotional trauma.

DISCUSSION

To the best of our knowledge, our study is the first to reveal the differential influences of early trauma subtypes on anxiety symptomatology and suicidal ideation in patients with PD compared to HCs. Early emotional trauma appears to significantly impact high panic symptom severity in patients with PD, affecting various aspects, such as agoraphobia, social phobia, and interoceptive fear. Early physical trauma seems to be more closely associated with high suicidal ideation in patients with PD but does not impact panic symptoms. Meanwhile, in HCs, only emotional trauma was significantly associated with agoraphobic symptoms, especially social phobia, and suicidal ideation. These findings suggest that different types of early trauma may lead to distinct clinical symptom presentations and suicidality in patients with PD compared with HCs.

Early emotional trauma is significantly associated with anxiety symptomatology, including agoraphobia, social phobia, and interoceptive fear. Our study indicates that early emotional trauma exposure, along with certain factors such as being women and having emotion-focused coping strategies, affect higher levels of agoraphobia and interoceptive fear in patients with PD. Individuals with early trauma experience, compared to those without, have been significantly diagnosed with agoraphobia in adulthood.[49] Uncontrollable traumatic emotional experiences during childhood (e.g., early parental

Table 2. Multiple regression analyses predicting the clinical symptoms in patients with panic disorder

| | APPQ | | | | | | | | PDSS | | SSI | |
| | Total sum of all subtypes | | Agoraphobia | | Social phobia | | Interoceptive fear | | | | | |
Variable	B	t (p)	B	t (p)	B	t (p)	B	t (p)	B	t (p)	B	t (p)
Sociodemographic variables												
Age	0.057	0.972 (0.332)	0.032	0.553 (0.581)	0.006	0.110 (0.913)	0.134	2.219* (0.027)	-0.090	-1.511 (0.132)	0.031	0.520 (0.604)
Gender (woman)	0.196	3.432** (0.001)	0.232	4.098*** (<0.001)	0.041	0.737 (0.462)	0.204	3.458** (0.001)	-0.033	-0.562 (0.574)	0.186	3.162** (0.002)
Level of education (high school or less)	0.014	0.293 (0.770)	0.003	0.058 (0.954)	0.040	0.843 (0.400)	-0.003	-0.056 (0.955)	0.002	0.031 (0.975)	0.072	1.457 (0.146)
Job status (unemployment)	0.001	0.015 (0.988)	0.000	0.003 (0.997)	0.005	0.097 (0.922)	0.013	0.244 (0.807)	-0.036	-0.699 (0.485)	0.083	1.677 (0.095)
Monthly income (below 1,800$)	-0.010	-0.197 (0.844)	-0.062	-1.194 (0.233)	0.030	0.599 (0.549)	-0.030	-0.560 (0.576)	-0.032	-0.602 (0.547)	0.040	0.777 (0.438)
Marital status (living without partner)	0.045	0.784 (0.434)	0.032	0.556 (0.578)	0.022	0.394 (0.694)	0.066	1.120 (0.263)	0.152	2.613** (0.009)	0.174	2.946** (0.003)
Clinical variables												
Early trauma (ETISR-SF)												
General	0.049	0.927 (0.355)	0.047	0.873 (0.383)	0.041	0.781 (0.435)	0.041	0.741 (0.459)	0.025	0.454 (0.650)	-0.022	-0.419 (0.676)
Physical	0.004	0.071 (0.944)	-0.025	-0.420 (0.675)	0.022	0.378 (0.706)	-0.018	-0.289 (0.772)	-0.018	-0.287 (0.774)	0.179	2.949** (0.003)
Emotional	0.191	3.292** (0.001)	0.169	2.915** (0.004)	0.152	2.682** (0.008)	0.155	2.549** (0.011)	0.052	0.869 (0.386)	0.114	1.922 (0.066)
Sexual	-0.045	-0.816 (0.415)	-0.064	-1.170 (0.243)	0.009	0.178 (0.859)	-0.048	-0.854 (0.394)	-0.017	-0.302 (0.763)	-0.013	-0.228 (0.820)
Coping strategies												
Problem-focused	-0.134	-2.439* (0.015)	-0.068	-1.238 (0.217)	-0.240	-4.468*** (<0.001)	-0.018	-0.305 (0.760)	-0.087	-1.532 (0.126)	-0.182	-3.279** (0.001)
Emotion-focused	0.330	5.726*** (<0.001)	0.277	4.835*** (<0.001)	0.393	7.025*** (<0.001)	0.186	3.098** (0.002)	0.261	4.431*** (<0.001)	0.362	6.298*** (<0.001)
Constant	12.670		4.549		7.449		0.201		9.505		-2.805	
F	7.606*** (<0.001)		6.453*** (<0.001)		8.848*** (<0.001)		3.858*** (<0.001)		4.659*** (<0.001)		11.369*** (<0.001)	
R²	0.208		0.177		0.230		0.114		0.134		0.313	

Reference group: gender (man), education (college or more), job status (others), monthly income (above 1,800$), and marital status (living with partner). *p<0.05; **p<0.01; ***p<0.001. APPQ, Albany Panic and Phobia Questionnaire; PDSS, Panic Disorder Severity Scale; SSI, Scale for Suicide Ideation; ETISR-SF, Early Trauma Inventory Self Report–Short Form

Table 3. Multiple regression analyses predicting the clinical symptoms in healthy controls

Variable	APPQ								PDSS		SSI	
	Total sum of all subtypes		Agoraphobia		Social phobia		Interoceptive fear					
	B	t (p)	B	t (p)	B	t (p)	B	t (p)	B	t (p)	B	t (p)
Sociodemographic variables												
Age	0.115	1.211 (0.228)	0.147	1.521 (0.131)	0.070	0.739 (0.461)	0.085	0.851 (0.397)	0.077	0.748 (0.456)	0.120	1.259 (0.211)
Gender (woman)	0.139	1.389 (0.167)	0.193	1.909 (0.059)	0.117	1.171 (0.244)	0.033	0.315 (0.754)	0.029	0.273 (0.785)	0.127	1.293 (0.199)
Level of education (high school or less)	-0.031	-0.380 (0.705)	-0.010	-0.123 (0.902)	-0.003	-0.033 (0.974)	-0.084	-0.964 (0.337)	0.036	0.402 (0.689)	-0.037	-0.444 (0.658)
Job status (unemployment)	0.009	0.112 (0.911)	-0.069	-0.847 (0.398)	0.039	0.492 (0.624)	0.048	0.576 (0.565)	-0.068	-0.788 (0.432)	0.060	0.757 (0.451)
Monthly income (below 1,800$)	0.023	0.287 (0.775)	-0.004	-0.050 (0.960)	-0.008	-0.094 (0.925)	0.091	1.065 (0.289)	-0.087	-0.999 (0.320)	-0.090	-1.145 (0.255)
Marital status (living without partner)	0.053	0.561 (0.575)	-0.017	-0.174 (0.862)	0.054	0.566 (0.572)	0.106	1.065 (0.289)	-0.046	-0.451 (0.652)	0.186	1.964 (0.052)
Clinical variables												
Early Trauma (ETISR-SF)												
General	-0.192	-2.263* (0.025)	-0.083	-0.962 (0.338)	-0.248	-2.925** (0.004)	-0.129	-1.453 (0.149)	0.098	1.071 (0.286)	0.044	0.527 (0.599)
Physical	-0.031	-0.297 (0.767)	-0.140	-1.299 (0.196)	0.081	0.765 (0.446)	-0.061	-0.550 (0.583)	-0.011	-0.097 (0.923)	-0.046	-0.437 (0.663)
Emotional	0.202	2.244* (0.027)	0.185	2.022* (0.045)	0.179	1.987* (0.049)	0.149	1.572 (0.118)	0.281	2.925** (0.004)	0.371	4.234*** (<0.001)
Sexual	0.080	0.931 (0.353)	0.079	0.907 (0.366)	0.045	0.524 (0.602)	0.092	1.019 (0.310)	-0.008	-0.085 (0.932)	0.052	0.612 (0.542)
Coping strategies												
Problem-focused	-0.010	-0.116 (0.908)	0.011	0.120 (0.904)	-0.114	-1.317 (0.190)	0.132	1.455 (0.148)	-0.004	-0.039 (0.969)	-0.190	-2.177* (0.032)
Emotion-focused	0.363	4.059*** (<0.001)	0.280	3.116** (0.002)	0.411	4.642*** (<0.001)	0.189	2.025 (0.149)	0.113	1.188 (0.237)	0.248	2.772** (0.006)
Constant	-5.595		-3.940		0.095		-1.749		-0.426		1.256	
F	3.320*** (<0.001)		2.948** (0.001)		3.339*** (<0.001)		2.006* (0.029)		1.418 (0.166)		4.360*** (<0.001)	
R^2	0.239		0.218		0.240		0.159		0.117		0.311	

Reference group: gender (man), education (college or more), job status (others), monthly income (above 1,800$), and marital status (living with partner). *p<0.05; **p<0.01; ***p<0.001. APPQ, Albany Panic and Phobia Questionnaire; PDSS, Panic Disorder Severity Scale; SSI, Scale for Suicide Ideation; ETISR-SF, Early Trauma Inventory Self Report–Short Form

death, separation, or divorce) may lead to learned helplessness or a sense of lack of control, which could contribute to the development of agoraphobic or interoceptive fear symptoms in patients with PD.[50] Our findings align with previous research that emphasized the role of early emotional trauma experiences in shaping psychological responses and coping strategies in adulthood in patients with PD.

Our study indicates that early emotional trauma, combined with a higher tendency toward emotion-focused coping strategies and a lower use of problem-focused coping strategies, is associated with higher levels of social phobia in patients with PD. However, only emotional trauma was significantly associated with social phobic symptoms in HCs. Stress reactions depend more on early emotional traumatic experiences related to social interactions than on the diagnosis of social anxiety disorder.[51] However, a distorted negative self-image affecting social fear in patients with social anxiety disorder is linked to early emotional traumatic events, such as socially humiliating experiences.[52] Their negative self-images motivate them to use emotion-focused coping strategies such as safety-seeking avoidance behaviors, which might interfere with their social relationships or performance.[53,54] Therefore, early emotional traumatic events involving socially negative evaluations might leave lasting impressions on individuals' self-perceptions and beliefs, contributing to social anxiety symptoms combined with a higher tendency toward emotion-focused coping strategies in patients with PD.

Our findings show that early physical trauma is a significant predictor of high suicidal ideation in patients with PD, although only early emotional trauma was significantly associated with suicidal ideation in HCs. Early physical trauma is highly prevalent in patients with PD.[28,55,56] The higher the frequency of early traumatic experiences, including physical abuse, the greater the risk of suicidal ideation in patients with PD,[33] which aligns with our results. Early traumatic events can alter brain development and coping strategies, increasing the susceptibility to suicidal behaviors in adulthood.[57,58] Additionally, according to the interpersonal theory, early physically painful experiences can contribute to this acquired capability by habituating the individual to self-destructive behaviors.[59,60] Furthermore, habituation can result in a reduced fear of death and elevated physical pain tolerance in adulthood, both of which are components of the acquired capability for suicide.[61] Thus, the impact of early physical trauma is particularly potent among patients with PD, possibly amplifying their vulnerability to suicidal ideation or behaviors in adulthood.

After applying correction for multiple testing in multiple regression analyses to predict clinical symptoms in both groups, with a significance level of 0.008 (=0.05/6), several associations remained statistically significant. In particular, early emotion-al trauma was associated with increased anxiety symptomatology, and early physical trauma was associated with increased severity of suicidal ideation in patients with PD. In the HCs, the significance level related to clinical scales, including panic symptom severity and suicidal ideation, was maintained. Based on these findings, patients with PD were more influenced by early traumatic experiences than HCs. This suggests that individuals with PD are more vulnerable to the effects of early trauma, leading to the manifestation of specific clinical symptoms in adulthood.

Our study has several limitations. First, data on early traumatic experiences were collected using the ETISR-SF instruments, which depend on individuals' memories to recall and report early traumatic events. Some individuals may repress or suppress traumatic memories as a coping mechanism, whereas others may experience memory distortions due to the emotional impact of traumatic events.[62] Moreover, some individuals may be more likely to under-report and not disclose their early traumatic histories, including sensitive information. Therefore, it is important to use confidential self-report instruments in psychiatric interviews to evaluate early traumatic events and facilitate disclosure.[63] Second, our study included a higher number of patients with PD than the HCs. This unequal distribution of the sample size (1:4) might have caused a sampling bias. However, the sample size of HCs (n= 149) was larger than the required sample size (n=90) to achieve a high power of 95% for multiple regression analyses.[64,65]

Regardless of these limitations, our findings showed that the differentiation between the effects of early emotional and physical trauma types on anxiety symptomatology and suicidal ideation in patients with PD is a valuable contribution to the understanding of PD, compared to HCs. Such insights can guide clinicians in tailoring personalized treatment strategies to improve symptomatology and quality of life and appropriate interventions to prevent suicidal behaviors based on the types of early trauma experienced by at-risk patients with PD.

Supplementary Materials

The online-only Data Supplement is available with this article at https://doi.org/10.30773/pi.2023.0371.

Availability of Data and Material

The datasets included in this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

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