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Structural Equation Modeling of Childhood Trauma and Self-Stigma in Adult Inpatients with Borderline Personality Disorder

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Purpose: Child abuse and trauma are significant risk factors in the etiology of borderline personality disorder (BPD). Apart from affecting the risk of developing BPD, adverse childhood experiences seem to increase its symptoms and related disability. Self-stigma presents another common issue with equally prominent consequences for mental health. Despite being theoretically linked, the connections among childhood trauma, self-stigma, and mental health have not been explored in patients with BPD. This study aimed to provide first insights into this understudied topic.

Patients and Methods: This cross-sectional study included 283 inpatients diagnosed with BPD participating in a residential transdiagnostic psychotherapeutic program. The patients completed several measurements – the Internalized Stigma of Mental Illness Scale, the Childhood Trauma Questionnaire – Short Form, the Clinical Global Impression – Severity, the Beck Depression Inventory-II, the Beck Anxiety Inventory, the Dissociative Experiences Scale, the Sheehan Disability Scale, and a demographic questionnaire. The data was statistically analyzed using IBM SPSS and AMOS 26 programs, and bivariate correlation tests and structural equation modeling explored the hypotheses.

Results: Retrospectively reported childhood trauma positively correlated with current self-stigma. Both childhood trauma and self-stigma were also positively related to several indicators of general psychopathology and disability. The significance of these connections was subsequently confirmed by structural equation modeling, where self-stigma acted as a partial mediator of childhood trauma, general psychopathology, and disability.

Conclusion: Self-stigma significantly mediates the relationship between childhood trauma and selected mental health symptoms among adult patients diagnosed with BPD. Longitudinal studies are necessary to explore the causality of the findings. Therapeutic and societal efforts to tackle childhood trauma or self-stigma might benefit from reflecting its broader psychosocial context.

Keywords: borderline personality disorder, self-stigma, childhood trauma, depression, anxiety, disability

Introduction

Borderline personality disorder (BPD) is a common mental disorder that presents with impulsivity and pervasive instability in interpersonal relationships, affect, and self-concept. Other symptoms include anger management issues and short depressive or psychotic episodes. Abandonment anxiety is common, as are self-harm and suicidality.[1]

The prevalence of BPD in the general population is estimated at around 1% and rises to 12% in outpatient psychiatric settings and 22% in inpatient psychiatric care.[2] The consequences of BPD may be severe. Individuals with BPD experience functional impairment and reduced quality of life.[3,4] Although many patients' symptoms remit over time,[5] up to 40% do not experience sufficient recovery within twenty years of follow-up.[6] Moreover, remitted patients still tend to struggle with psychosocial functioning.[7,8]

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The etiology of BPD is multifactorial and intertwined.[9,10] Genetic factors account for approximately 40% of BPD variation and interact with environmental factors, increasing the risk of BPD.[9,11] Major environmental risks are childhood trauma and abuse. Individuals with BPD are more likely to report childhood adversity than non-clinical controls and other psychiatric patient groups.[12] According to Ball and Links,[13] between 74% and 93% of individuals with BPD experience at least one type of abuse or a significant loss in their childhood. A recent study by Schulze et al found that these experiences are usually moderate or severe.[14] The most common type is emotional neglect (62%), followed by physical abuse (48.3%), sexual abuse (45.8%), emotional abuse (28.4%), and physical neglect (14.5%).[14] Although individuals with BPD are generally highly interpersonally sensitive, those with BPD and a history of childhood maltreatment are even more sensitive and prone to feeling interpersonally threatened.[15,16] Apart from that, childhood trauma relates to more severe symptoms of dissociation,[17] anxiety,[18] depression,[19] and disability.[20]

While dealing with BPD can be challenging by itself,[20,21] many of these patients also struggle with stigma. Borderline personality disorder is one of the most stigmatized mental disorders.[22,23] The general population may misperceive BPD symptoms as purposefully disruptive or deliberately annoying, which can lead to increased social distance.[22–25] Since patients diagnosed with BPD are sensitive to rejection, they might perceive the consequences of the stigma as particularly hurtful.[24] Furthermore, they tend to react to perceived rejection by harsh self-criticism and self-insults.[25–28] Negative social attitudes, such as the stigma, thus might harmfully shape a person's relations towards themselves.

Self-stigma is another side of the BPD stigma. The term denotes a process in which an individual with a stigmatized characteristic becomes aware of prejudices about their condition, agrees with them, and applies them to themselves.[29] Self-stigma is prominent among patients with a diagnosis of BPD.[30,31] Individuals with diagnosed BPD often state that the knowledge of the diagnosis diminished their self-image and self-esteem and led to feeling helpless and burdensome.[32] They also tend to judge their mental health issues with self-labeling such as: "I am worthless", "I'm dysfunctional", or "I am evil"[25,31,33]. Furthermore, they frequently engage in self-invalidation, which is thought to result from an emotionally invalidating childhood environment.[34] Self-stigma presents one of three types of self-invalidation observed in BPD, along with harsh self-criticism and self-doubt.[25]

Compared to other patients, individuals with BPD might stigmatize themselves more intensely than individuals with anxiety disorders, attention deficit-hyperactivity disorder, or bipolar disorder.[30,31,35] Despite that, correlates of self-stigma in BPD have been less explored than in other mental disorders, and the knowledge base is sparse. Still, it seems that self-stigma in BPD positively correlates with more severe symptomatology, a higher number of psychiatric inpatient care, and the absence of a romantic relationship.[30,35]

Self-stigma has been connected with low self-esteem, depressed mood, anxiety, dissociation, and loss of motivation in other patient groups.[22,36,37] It also relates to more severe psychiatric symptoms, impaired social and occupational functioning, reduced income, and poor adherence to psychiatric treatment.[36,38] Furthermore, self-stigma positively correlates with an increased risk of suicide attempts and death by suicide.[39] Thus, self-stigma might severely impact patients' mental health and healthcare costs due to more significant disability and less favorable prognosis.[38]

Although both childhood trauma and self-stigma are prominent issues in BPD, their relations have not been studied in these patients. Still, there is some data about self-stigma and childhood adversities in patients with other psychiatric diagnoses. A recent study by Hofmann et al explored the topic in a mixed sample of individuals with unipolar depression or bipolar disorder.[40] The results showed that childhood trauma seems to be a significant predictor of self-stigma. Similar findings were published by Kolek et al,[41] who researched various factors influencing treatment resistance in patients with panic disorder, and by Holubova et al, who collected data from individuals with neurotic spectrum disorders.[36] Lee et al reported comparable findings in patients diagnosed with schizophrenia, highlighting the connection with emotional abuse and adding significant relations with physical abuse and bullying.[42] Stolzenburg et al then explored the connection between childhood trauma and self-stigma among individuals with alcohol use disorder.[43] Interestingly, depressive symptoms and a level of agreement with negative stereotypes fully mediated the relationship between childhood trauma and harm caused by self-stigma.

Aim of the Study

The study aimed to explore the relationship between self-stigma and retrospectively evaluated childhood trauma in patients with BPD. Since individuals with BPD and a history of childhood adversities were reported to be more interpersonally sensitive than patients without this history, we expected the childhood trauma to connect with more severe self-stigma. Furthermore, we expected both to positively relate to psychopathology and disability, as has been shown in BPD and other patient groups, and for self-stigma to mediate the connection between childhood trauma and these symptoms. An exploration of these connections would contribute to understanding factors shaping childhood trauma and self-stigma in BPD and provide insights for the treatment and future developments of anti-stigma campaigns in this populace.
We formulated the following hypotheses:

H1: Childhood trauma (CTQ) positively correlates with self-stigma (ISMI).

H2: Childhood trauma (CTQ) / H3: Self-stigma (ISMI) positively correlates with current severity of:

a) Anxiety (BAI)
b) Depressive symptoms (BDI-II)
c) Dissociation (DES)
d) Overall severity of psychopathology (CGI)
e) Disability (SDS)

H4: Self-stigma (ISMI) significantly mediates the relationship between childhood trauma (CTQ) and:

a) Psychopathology (Dependent variables in H2 and H3)
b) Disability (SDS)

Material and Methods

Study Design and Sample

This cross-sectional study took place between February 2015 and August 2022 in a transdiagnostic psychotherapeutic ward of the Department of Psychiatry, Olomouc, the Czech Republic. The target population was individuals with BPD who sought intensive inpatient treatment. Upon admittance, all patients underwent a thorough diagnostic process with an attending psychiatrist who confirmed the primary diagnosis and potential comorbidities according to ICD-10.[44] A senior psychiatrist and head of the department then independently reviewed and confirmed the diagnoses.

Patients meeting the following criteria were offered participation in the study. Inclusion criteria were adult age (18+) and BPD diagnosis according to ICD-10 research criteria.[44] Exclusion criteria were organic mental disorder, current substance use disorder, psychotic disorder, bipolar disorder, current moderate or severe depressive episode, intellectual disability, acute suicidality, and severe somatic illness (such as oncological disease or sclerosis multiplex). Figure 1 describes the enrollment process.

Ethics Approval and Consent to Participate

The study was conducted according to the principles of the Helsinki Declaration and approved by the Ethical Committee of the Faculty of Medicine, Palacky University in Olomouc (No. MZ13-FNOL-Grant 152/12). A researcher explained the study, including its aims, methodology, and all aspects of the potential participation, and provided written information and an informed consent form. All agreeing patients then signed the informed consent form and subsequently completed measurements.

Measurements

Internalized Stigma of Mental Illness Scale

This ISMI scale consists of 29 items measuring five facets of self-stigma: alienation, stereotype endorsement, perceived discrimination, social withdrawal, and stigma resistance.[45] Participants denote their agreement with each statement on

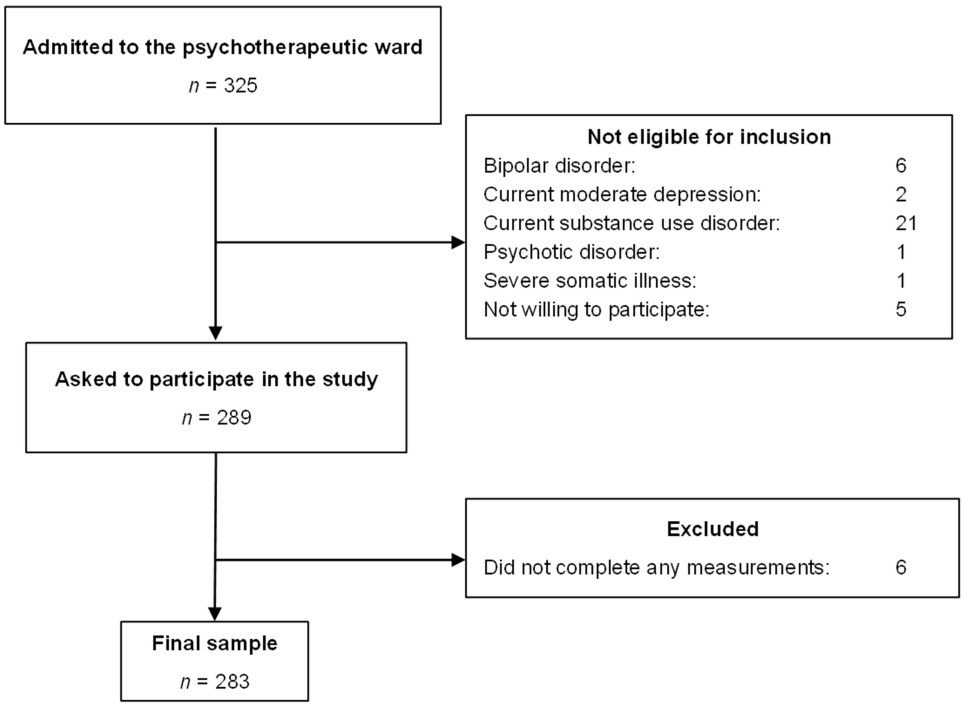

Figure 1 Flowchart of the enrollment.

a four-point scale, ranging from 1 (Strongly disagree) to 4 points (Strongly agree). Examples of items are: "People with mental illness cannot live a good, rewarding life" or "I am disappointed in myself for having a mental illness"[45]. These general statements may be tailored to the specific population by switching the term "mental illness" for more relevant, such as "borderline personality disorder"[45]. Total scores range from 29 to 116; the subscales' scores are variable, as they contain differing numbers of items. The total scores between 49 and 78 points suggest average self-stigma compared to results of a heterogeneous patient group.[46] The average item score may be interpreted as follows – minimal self-stigma: 1.0–2.0; mild self-stigma: 2.0–2.5; moderate self-stigma: 2.5–3.0; severe self-stigma: 3.0–4.0.[47] The scale is reliable (Cronbach's alpha = 0.91), stable in time (r = 0.90), and valid, as seen by the original study and Czech adaptation.[45,46] Subscale norms are sten-based and reported in detail by Ociskova et al.[46] The Cronbach's alpha was 0.88 in this study.

Childhood Trauma Questionnaire – Short Form

CTQ-SF is a retrospective questionnaire that measures the severity of selected childhood adversities: physical abuse and neglect, emotional abuse and neglect, and sexual abuse.[48] It has 28 items, of which three evaluate validity and are not calculated in the total score. Individuals choose from a five-point scale based on how true that particular experience was in their case. For example, the first item states, "I did not have enough to eat". Participants chose if that was never true (1 point), rarely true, sometimes true, often true, or very often true (5 points). The total score ranges from 25 to 125 points; each subscale has 5 to 25 points.[48,49] Bernstein and Fink created the following cut-off scores to distinguish moderate to severe adversity – emotional abuse: ≥ 13, physical abuse: ≥ 10, sexual abuse: ≥ 8, emotional neglect: ≥ 15, and physical neglect: ≥ 10.[48] Psychometric analyses found the questionnaire to be mostly reliable (Cronbach's alphas = 0.68-0.95), adequately internally structured, and valid.[50] As for the internal consistency, Cronbach's alpha was 0.86 in this study.

Clinical Global Impression – Severity

CGI-S evaluates the overall severity of the mental health issues.[51] It is rated on one seven-point scale with anchors ranging from 1 (Normal, not at all ill) to 7 (Among the most severely ill patients). The clinician version (CV) asks: "Considering your total clinical experience with this particular population, how mentally ill is the patient at this time?" while the patient version (PV) contains a question, "To what degree do you currently consider yourself ill?".[51,52] Both measures were used in this study. Two heads of the department completed the clinician version in this study (the first

from 2015 to 2017, the second from 2018 to 2022). Both of them were professors of psychiatry with extensive experience in clinical practice and research in the field. As for the psychometric properties, this one-item scale proved stable in time (r = 0.72-0.82) and valid when compared to other rating scales.[53]

Beck Depression Inventory-II

BDI-II is a 21-item inventory that measures the severity of common symptoms of major depression.[54] Participants choose one of four levels of severity for each symptom based on their perceived state during the last two weeks. For example, the item evaluating sadness has the following options: I do not feel sad (0 points), I feel sad much of the time, I am sad all the time, and I am so sad or unhappy that I cannot stand it (3 points). The total score ranges from 0 to 63, with higher scores interpreted as more severe depressive symptoms.[54] The total score falls into one of the severity categories – minimal symptoms: 0–13; mild: 14–19; moderate: 20–28; or severe: 29–63.[54] A total score of 17 has been used to detect clinically significant depressive symptoms.[55] The inventory has excellent internal reliability (Cronbach's alpha = 0.90) and stability over time (r = 0.77-0.83) and proved good convergent and discriminatory validity when compared with other measures.[54,55] The Cronbach's alpha was also 0.90 in this study.

Beck Anxiety Inventory

BAI is a 21-item inventory focusing on common symptoms of anxiety.[56] Compared to BDI-II, the evaluated period is one week. Patients score on a four-point scale based on how much the symptoms have bothered them. Examples of the symptoms are Numbness or tingling, Fear of losing control, or Inability to relax. The anchors are: Not at all (0 points), Mildly, but it did not bother me much, Moderately – it was not pleasant at times, and Severely – it bothered me a lot (3 points). The total score is 0 to 63 points, with higher scores meaning more severe anxiety.[56] A score of 17 distinguishes patient and non-clinical samples.[57] The total score has several severity categories: Minimal: 0–7, Mild: 8–15, Moderate: 16–25, and Severe: 26–63.[58] Similar to BDI-II, this inventory has excellent internal consistency (Cronbach's alpha = 0.92) and temporal stability (r = 0.75-0.90), as well as adequate convergent validity.[56,57] The Cronbach's alpha was also 0.92 in this study.

Dissociative Experiences Scale

DES has 28 items that measure common dissociative symptoms, specifically dissociative amnesia, absorption, depersonalization, and derealization.[59] An individual marks a spot on a 10-cm line according to how often they experience each symptom: 0% means "never", while 100% represents "always". For example, a participant considers an item. Some people find they have no memory of important events (for example, a wedding or graduation). The total score ranges between 0 and 100 points, based on the average time spent in dissociative states.[59] Twenty points have been suggested as a cut-off score for a more in-depth clinical exploration. The general population usually scores between 8 and 12 points, while patients with BPD tend to score around 28 points.[60] DES has excellent internal consistency (Cronbach's alpha = 0.88-0.92), good temporal stability (r = 0.81-0.84), and convergent validity.[61,62] The Cronbach's alpha was 0.94 in this study.

Sheehan Disability Scale

SDS consists of three scales that evaluate disability in work/school, social life/leisure activities, and family life/home responsibilities.[63] For example, a participant answers a question to what degree "the symptoms have disrupted your social life/leisure activities" on a scale ranging from 0 (not at all) to 10 (extremely). The Work/School subscale can be incomplete if the individual "has not worked or studied at all during the past week for reasons unrelated to the disorder". Scores 1–3 show a mild impairment, 4–6 a moderate impairment, and 7–9 a marked impairment in that area.[63] SDS has good internal consistency (Cronbach's alpha = 0.83-0.89), structure, and adequate convergent and discriminatory validity.[64–66] The Cronbach's alpha was 0.73 in this study.

Demographic Questionnaire and Clinical Documentation

This questionnaire asked for demographic data – age, sex, education, employment status, and relationship status. Clinical documentation provided information on the onset and duration of BPD, familial psychiatric history, the number of hospitalizations, and the currently used medication.

Statistics

Statistical software G*Power 3.1[67] was used to estimate a sample size with the studies of Holubova et al and Stolzenburg et al as reference points.[36,43] Results showed that at least 88 patients were required to detect a moderate effect size in a two-tailed correlation with $\alpha = 0.05$ and power 0.80. The sample size for the structural equation modeling was estimated with Soper's calculator and set at a minimum of 204 individuals to detect a moderate effect size with the same power and probability level.[68]

IBM SPSS and AMOS 26 programs analyzed the data. Descriptive statistics was applied to demographic and clinical data to obtain frequencies and percentages of categorical variables and numerical variable means and standard deviations. Missing data were analyzed using Little's MCAR test, and variables with less than 10% missing values were handled with multiple imputations, as Bennett recommended.[69]

Little's MCAR test was negative, showing the pattern of data missing completely at random ($\chi^2 = 594.9$, df = 598, *sig*.: 0.53). BAI, BDI-II, and DES did not have any missing values. Multiple imputations were performed on variables with less than 10% missing values and used for subsequent analyses: ISMI and its CGIs and SDS Family and Social life subscales. The CTQ subscales were missing values from 15.9 to 17.3% due to temporal mismanagement of questionnaires by the hospital personnel. The SDS Work/School subscale was often left incomplete by patients for an unknown reason (27.2%). These missing values were not imputed to avoid a bias in imputing larger portions of data.[69] The implications of the missing data are considered in the Discussion.

The Shapiro–Wilk test then analyzed the data distribution and found non-normal distribution in most variables ($W = 0.573$-0.975, $p \leq 0.05$) except for BDI-II ($W = 0.985$, $p = 0.13$) and the ISMI total score ($W = 0.994$, $p = 0.80$), its Perceived discrimination ($W = 0.982$, $p = 0.07$), Social withdrawal ($W = 0.987$, $p = 0.20$), and Stigma resistance ($W = 0.982$, $p = 0.06$) subscales.

Spearman's and Pearson's bivariate correlations explored the majority of the hypotheses. We used the total scores of the measurements to test all of them. Subscale analyses were explorative, as their connections varied in other studies. The Holm-Bonferroni method was used to correct the multiple comparisons.[70] This correction is more powerful than the traditional Bonferroni method and has been successfully applied in health care.[71,72]

Based on the current literature, we also made several assumptions regarding the inter-relations among childhood trauma, self-stigma, psychopathology, and disability. We hypothesized that childhood trauma would increase the proneness towards self-stigma and the severity of psychopathology and disability in adults with BPD. Since self-stigma has been related to early adverse experiences, mental health struggles, and functional impairment, we expected that self-stigma could be a mediator of these connections. The latent factors of psychopathology and disability were correlated because of the bidirectional nature of their connection. When creating the model, we made two adjustments. We did not include the work disability due to many missing values in the respective subscale. Further, we included the patient version of CGI instead of the clinician version because it provided a subjective perception of the patient, and other measurements were also self-reported (Figure 2).

The data were checked for multicollinearity, and none of the Variance Inflation Factor values were larger than the recommended 5 (according to Kim[73]), as their range was 1.12–1.73. Mardia's test in AMOS showed that the data met the multivariate normality (the critical ratio was 1.72) when applying ± 1.96 as the recommended cut-off value.[74]

The structural equation modeling was performed by applying the maximum likelihood estimation, and mediations were analyzed with 5000 bootstrapped iterations. Based on a recommendation of Hooper et al, the following fit indices and their interpretations were used: χ^2 (> 0.05), χ^2/df (< 3), Standardised Root Mean Square Residual (sRMR: < 0.08), Comparative Fit Index (CFI: > 0.95), Root Mean Square Error of Approximation (RMSEA: < 0.07), and Parsimony-Adjusted Measures Index (PNFI > 0.50).[75] The effect sizes of mediations were calculated as the indirect effect divided by the total effect and interpreted according to Cohen's guidelines along with other effect sizes.[76–78] The level of statistical significance was set at $p < 0.05$.

Results

Sample and Data Description

The sample consisted of 283 inpatients with BPD with an average age of 29.0 ± 9.7 years. See Table 1 for their demographic and Table 2 for clinical characteristics. The average BPD onset was reported at 18.8 years. Common comorbidities were

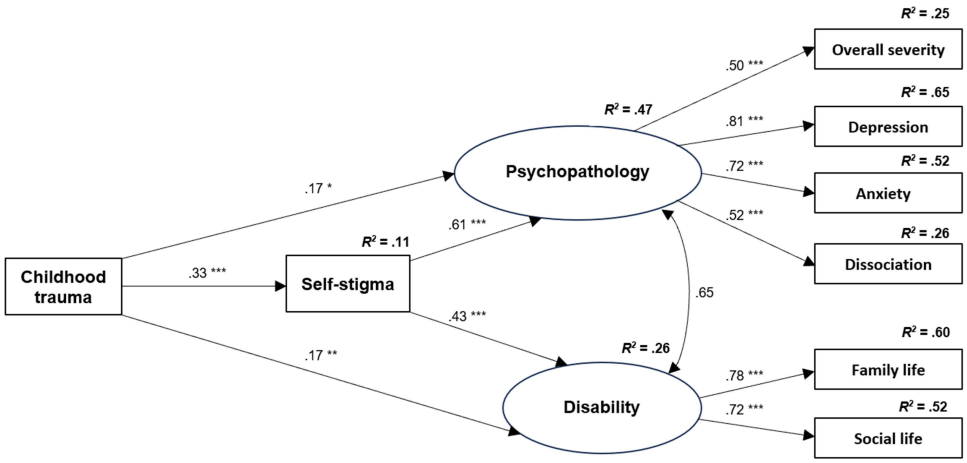

Figure 2 Standardized path estimates of the hypothesized model.
Note: * p<0.05; ** p<0.01; *** p <0.001.

anxiety disorders (38.5% of the sample), obsessive-compulsive disorder (11.3%), and unipolar depression (3.5%). The participants were admitted with medication prescribed by their outpatient psychiatrist. The most commonly prescribed medication was antidepressants (80.9% of the sample), followed by antipsychotics (29.3%), anxiolytics (22.6%), or anti-epileptics (20.1%) (Table 2). Forty-two individuals (14.8%) were medication-free. The severity of psychopathology was moderate in most parameters except anxiety and depressive symptoms. Self-stigma was mild to moderate. Emotional abuse and neglect were the most prominent types of childhood trauma (Table 3).

Table 1 Demographic Characteristics of the Sample

Characteristics	n	Percentage
Sex		
Male	46	16.3
Female	237	83.7
Age groups		
18–25	146	51.5
26–35	65	23.0
36–45	50	17.7
46–56	22	7.8
Education		
Primary	47	16.6
Vocational training	50	17.7
Secondary	148	52.3
Tertiary	36	12.7
N/A	2	0.7
Employment		
Student	79	27.9
(Self-)Employed	121	42.8
Unemployed	53	18.7
Disability rent	30	10.6
Marital Status		
Single	218	77.0
Married	37	13.1
Divorced	27	9.5
Widowed	1	0.4
Being in a Romantic Relationship		
Yes	126	44.5

Table 2 Clinical Characteristics of the Sample

Characteristics	n	Percentage
Psychiatric Family History		
None	91	32.2
Different Disorder	101	35.7
Same Disorder	85	30.0
Not Disclosed	6	2.1
Comorbid Anxiety Disorder (ICD-10)		
At least one anxiety disorder	109	38.5
Agoraphobia	15	5.3
Social Phobia	43	15.2
Panic Disorder	38	13.4
Generalized Anxiety Disorder	21	7.4
Mixed Anxiety Depressive Disorder	11	3.9
Comorbid Obsessive-Compulsive Disorder (ICD-10)		
Comorbidity Present	32	11.3
Predominantly obsessional thoughts or ruminations	3	1.1
Predominantly compulsive acts	2	0.7
Mixed obsessional thoughts and acts	26	9.1
Other obsessive-compulsive disorders	1	0.4
Comorbid Depressive Disorder (ICD-10)		
Comorbidity Present	10	3.5
Mild Depressive Episode	5	1.7
Mild Recurrent Depressive Episode	4	1.4
Other Depressive Episode	1	0.4
Characteristics	**Mean ± Standard Deviation**	**Percentage**
BPD Onset	18.8 ± 9.1	
BPD Duration	9.9 ± 8.6	
Psychiatric Hospitalizations	2.8 ± 2.9	
Antidepressant Index		
Patients using the medication (*n*)	229	80.9
Dosage in mg of paroxetine equivalent	43.5 ± 27.4	
Antipsychotic Index		
Patients using the medication (*n*)	83	29.3
Dosage in mg of risperidone equivalent	1.8 ± 2.3	
Anxiolytic Index		
Patients using the medication (*n*)	64	22.6
Dosage in mg of diazepam equivalent	13.8 ± 10.7	
Antiepileptic Index		
Patients using the medication (*n*)	57	20.1
Dosage in mg of lamotrigine equivalent	224.1 ± 148.5	

Bivariate Correlation Between Childhood Trauma, and Self-Stigma

Self-stigma positively correlated with reported childhood trauma. This was mainly due to a significant correlation between social withdrawal (the ISMI subscale) and childhood trauma (Table 4). All significant connections were small in size. None of the specific childhood adversities remained statistically significant after the correction, though the emotional abuse was near the cut-off significance value.

Table 3 Measures and Their Mean Scores

Measurement	Mean ± Standard Deviation	Category
Clinical Global Impression		
Clinician Version	4.3 ± 0.8	Moderately ill
Patient Version	4.3 ± 1.4	Moderately ill
Beck Depression Inventory-II	33.1 ± 11.8	Severe
Beck Anxiety Inventory	24.9 ± 12.7	Severe
Dissociative Experiences Scale	23.2 ± 16.8	Increased
Sheehan Disability Scale		
Work/School	6.6 ± 2.5	Moderate
Family Life/Home Responsibilities	6.2 ± 2.4	Moderate
Social Life/Leisure Activities	6.2 ± 2.3	Moderate
Internalized Stigma of Mental Illness Scale		
Total Score	70.5 ± 12.5	Mild
Alienation	16.5 ± 3.5	Moderate
Stereotype Endorsement	14.3 ± 3.6	Mild
Perceived Discrimination	11.3 ± 3.2	Mild
Social Withdrawal	14.8 ± 3.7	Moderate
Stigma Resistance	13.5 ± 2.5	Moderate
Childhood Trauma Questionnaire-Short Form		
Total Score	54.7 ± 16.5	N/A
Emotional Abuse	14.2 ± 5.4	Moderate
Physical Abuse	8.0 ± 4.4	Low
Sexual Abuse	7.4 ± 4.8	Low
Physical Neglect	8.9 ± 3.9	Low
Emotional Neglect	16.3 ± 4.7	Moderate

Table 4 Bivariate Correlation Matrix Between Childhood Trauma, and Self-Stigma

Factors	Self-stigma (Total score)	Alienation	Stereotype endorsement	Perceived discrimination	Social withdrawal	Stigma resistance
Childhood trauma (Total score)	0.23 *	0.21	0.14	0.21	0.22 *	0.06
Emotional abuse	0.21	0.18	0.13	0.19	0.20	0.10
Physical abuse	0.07	0.07	0.07	0.05	0.05	0.02
Sexual abuse	0.12	0.10	0.05	0.19	0.13	−0.10
Physical neglect	0.17	0.12	0.12	0.13	0.14	0.06
Emotional neglect	0.16	0.18	0.11	0.11	0.13	0.13

Notes: All coefficients are Spearman's *rho*. Values with an asterisk remained statistically significant after applying the Holm-Bonferroni method.

Bivariate Correlation Between Childhood Trauma, Psychopathology, and Disability

We subsequently explored the correlations between reported childhood trauma, psychopathology, and disability. Childhood trauma positively connected with the severity of depressive, anxiety, and dissociation symptoms but not with the overall severity of psychopathology measured by CGI. Most significant correlation coefficients were small in size (Table 5). As for the subscales, neither the connection with work or social life disability was statistically significant, though the latter did not pass the corrected p-value only by a small margin. Emotional and sexual abuse were the only specific adversities that were significantly connected with psychopathology.

Table 5 Bivariate Correlation Matrix Between Childhood Trauma, Psychopathology, and Disability

Factors	Childhood trauma (Total score)	Emotional abuse	Physical abuse	Sexual abuse	Physical neglect	Emotional neglect
Overall severity of psychopathology rated by a clinician	0.06	0.08	0.04	0.10	0.06	−0.03
Overall severity of psychopathology rated by a patient	0.15	0.17	0.10	0.13	0.07	0.07
Depression	0.26*	0.27*	0.06	0.22*	0.04	0.19
Anxiety	0.31*	0.30*	0.13	0.29*	0.17	0.15
Dissociation	0.25*	0.24*	0.05	0.27*	0.13	0.13
Work disability	0.08	0.09	0.001	0.05	0.05	0.07
Family life disability	0.25*	0.22	0.06	0.18	0.19	0.19
Social life disability	0.22	0.19	0.07	0.16	0.18	0.19

Notes: All coefficients are Spearman's *rho*. Values with an asterisk remained statistically significant after applying the Holm-Bonferroni method.

Bivariate Correlation Between Self-Stigma, Psychopathology, and Disability

Self-stigma positively correlated with all mental health symptoms and two types of disability, and these correlation coefficients remained significant after applying the Holm-Bonferroni method (Table 6). Connections between self-stigma, psychopathology, and disability ranged widely from small to large effect sizes. Stigma resistance was the only ISMI subscale that did not significantly correlate with any variable.

Model

The final model explored hypothesized interconnections among all variables, with childhood trauma being an independent variable, measures of psychopathology and disability being dependent variables, and self-stigma acting as a mediator. The model met the criteria of most fit indices except for the chi-square: $\chi^2 = 26.59$, df = 16, $p = 0.046$; χ^2/df = 1.66; sRMR = 0.04; CFI = 0.98; RMSEA = 0.05; and PNFI = 0.55. Figure 2 contains the path estimates. All paths were statistically significant. Childhood trauma positively predicted self-stigma and psychopathology, represented by the overall severity, anxiety, depression, dissociation, and disability, defined by functional impairment in the family and social life. Self-stigma also predicted the severity of mental health symptoms and functional impairment. The R^2 effect sizes ranged from small (for a prediction of self-stigma and disability) to moderate (for a prediction of psychopathology) (Figure 2).

A subsequent mediation analysis showed a significant direct effect of childhood trauma on the psychopathology (standardized direct effect: *SDE* = 0.169, *SE* = 0.057, $p = 0.003$) and the disability (*SDE* = 0.173, *SE* = 0.066, $p = 0.011$). The self-stigma was a partial mediator of both connections – between the childhood trauma and the psychopathology (standardized indirect effect: *SIDE* = 0.199, *SE* = 0.036, $p < 0.001$; the effect size = 0.54) and between the childhood trauma and the disability (*SIDE* = 0.141, *SE* = 0.031, $p < 0.001$; the effect size = 0.45).

Table 6 Bivariate Correlation Matrix Between Self-Stigma, Psychopathology, and Disability

Factors	Self-stigma (Total score)	Alienation	Stereotype endorsement	Perceived discrimination	Social withdrawal	Stigma resistance
Overall severity of psychopathology rated by a clinician	0.04	−0.002	−0.01	0.06	0.08	0.06
Overall severity of psychopathology rated by a patient	0.30*	0.27*	0.24*	0.19	0.26*	0.12
Depression	0.51*	0.42*	0.35*	0.38*	0.45*	0.14
Anxiety	0.44*	0.40*	0.34*	0.35*	0.41*	0.08
Dissociation	0.27*	0.21*	0.22*	0.30*	0.32*	−0.07
Work disability	0.19	0.13	0.14	0.13	0.14	0.15
Family life disability	0.40*	0.26*	0.30*	0.28*	0.41*	0.16
Social life disability	0.30*	0.25*	0.28*	0.22*	0.25*	0.11

Notes: All coefficients are Spearman's *rho* except the coefficients between the depression score (BDI-II) and self-stigma (ISMI Total score) along with perceived discrimination, social withdrawal, and stigma resistance (the ISMI subscales), which are Pearson's *r*. Values with an asterisk remained statistically significant after applying the Holm-Bonferroni method.

Discussion

Individuals diagnosed with BPD struggle with the symptoms of their condition and related stigma.[20,21] Despite being one of the most stigmatized groups, little is known about the predictors and consequences of the BPD stigma.[22,23] This study aimed to explore the connections between childhood trauma, self-stigma, general symptomatology, and disability in adults with BPD.

A total of 283 patients diagnosed with BPD underwent 6-week hospitalization in a psychotherapeutic department. They were primarily young adults who had been suffering from BPD for approximately ten years. Their symptoms and disability were moderately to largely severe on average. In contrast, their overall self-stigma was mild, as were most types of childhood trauma except for emotional abuse and neglect.

These characteristics might be somewhat surprising, given that individuals with BPD seem to suffer from more intense self-stigma than some other patient groups.[30,31] However, self-stigma was equally low in the study of Grambal et al (the ISMI total score was 71.2 ± 14.7 versus 70.5 ± 12.5 points in this study).[30] More frequent comorbidity with major depression, bipolar disorder, or substance use disorders and a different self-stigma measure might then explain different results of Rüsch et al[31]. This suggests that while patients diagnosed with BPD might struggle with more prominent self-stigma than their counterparts in some studies, they do not have to experience severe self-stigma necessarily. It also calls for careful examination of variables that might influence self-stigma in highly comorbid populations, such as individuals with BPD, and to avoid equating results of comparisons with severity indicators.[79]

The average reported childhood trauma was also low to moderate in this study. Adverse childhood experiences are common among individuals diagnosed with BPD, and their severity might be variable.[9,10,12] While Schulze et al found that childhood trauma is usually moderate or severe in this populace, it might not always be the case.[14] For example, a recent Wu et al study reported an average CTQ score of 48.5, which is considerably lower than ours (54.7 ± 16.5 points).[80] Interestingly, the average CTQ score was 50.8 ± 12.5 in Schulze et al study[14]. The heterogeneous conclusions (mild to moderate or moderate to severe childhood trauma) might come from applying different cut-off scores for interpretation.

Several hypotheses explored the topic of childhood trauma and self-stigma among individuals with BPD. The first hypothesis focused on the connection between the self-stigma and childhood trauma. The results showed that retrospectively reported childhood trauma and self-stigma positively correlated with each other. Similar findings have been reported by researchers studying other patient groups.[36,40–43] This might suggest that it presents a transdiagnostic issue. Childhood trauma has already been connected with numerous somatic and mental health issues, including heightened threat-related social processing that might generally increase the risk of self-stigma.[81,82]

However, the causality of this connection remains unclear. Childhood trauma has been found to increase interpersonal sensitivity among individuals with BPD,[15] including sensitivity towards potential social threats.[16] Since BPD symptoms might trigger negative social responses,[22,23] increased interpersonal sensitivity caused by childhood trauma might further exacerbate distress when experiencing rejection and trigger harsh self-criticism along with self-stigma.[25–28,32]

This line of interpretation reflects ongoing discussion about the centrality of trauma in the development of BPD. The eleventh revision of the International Classification of Diseases introduced complex posttraumatic stress disorder (cPTSD) as a new stress-related diagnosis with symptoms overlapping with BPD.[83] The new classification describes cPTSD as a disorder that may develop after chronic or repetitive traumatic events. Common examples include childhood sexual or physical abuse. cPTSD consists of diagnostic criteria of posttraumatic stress disorder (such as hyperarousal or intrusive memories of the trauma) and three other clusters of symptoms: affect dysregulation, negative self-concept, and interpersonal difficulties. The symptoms need to impair daily functioning significantly.[83,84]

This new diagnosis overlaps with BPD. Both disorders share symptoms of emotion dysregulation, difficulties in self-concept, and interpersonal struggles.[85] From this point of view, self-stigma presents one facet of a chronically negative attitude toward oneself that has been reported in cPTSD as a result of childhood trauma.[81,85] BPD is a multifactorial disorder with a common history of adverse childhood experiences, but these are not necessary for the diagnosis.[9,10] Childhood trauma may shape the self-concept of individuals diagnosed with BPD who experienced early adverse events, but non-traumatized individuals may also suffer from unstable and negative self-concepts.[81] Since self-stigma may be

a form of self-invalidation,[25] its social predispositions might include occasionally invaliding and hurtful but not necessarily traumatic events. Non-traumatic variants of childhood social environment that contribute to BPD development or its severity have been understudied and remain a topic for future research.

Despite the former research linking early traumatic experiences with later mental struggles, the causal direction of the connection between childhood trauma and self-stigma is not as straightforward. Many studies employed a retrospective and cross-sectional design,[30,36,40–43] including ours. This prevents us from making definite conclusions. A recent study reported poor agreement between retrospective and prospective observations of childhood maltreatment.[86] This was especially concerning retrospective questionnaires that showed only a slight agreement with prospective measures. There are many sources of the differences, ranging from imperfect measurements to memory bias and adult attachment.[86,87] It is important to consider that retrospectively accessed memories do not represent perfect presentations of actual events.

This raises the question of how much the current emotional state influences memory access and interpretation. Emotional suppression might hinder access to long-term memories,[88] while accessing emotionally-laden memories can be enhanced by emotional re-activation.[89] Retrospectively evaluated emotional abuse and neglect showed the weakest agreements with prospective measures in the study of Baldwin et al,[86] which makes the potential inferring processes all the more important. It is noteworthy that retrospective emotional abuse has been connected with BPD symptoms.[14] In light of the cognitive research, it is unclear to what extent this connection shows the impact of traumatic childhood on borderline symptoms and to what extent it might show the effects of current distressing symptoms on memory. Mood-congruent memory is a transdiagnostic issue that challenges the retrospective research.[90]

Being mindful of these limitations, we explored the remaining hypotheses. The second hypothesis focused on the relationship between childhood trauma, symptomatology, and functional impairment. As expected, the traumatic experiences showed small to moderate connections with the symptoms of depression, anxiety, and dissociation. These findings are comparable to reports by Krause-Utz,[17] Cattane et al,[18] and Martin-Gagnon et al,[19] who studied the topic in individuals with a BPD diagnosis or BPD traits. Neither the patient- nor the clinician-rated CGI significantly correlated with childhood trauma. Clinical Global Impression contains only one item and thus might be too short to identify significant connections. It is unclear what factors and with what weight influence general measurements such as CGI. More specific measures, such as CGI-BPD, might offer clearer interpretations.[91]

Similarly, Cotter et al stated that childhood trauma positively correlated with functional impairment in a sample that also included patients with BPD.[20] They reported significant connections with social and occupational functioning. The missing values in the Work disability subscale of SDS might explain the differing results in our study. The connection with social functioning was non-significant in our results. Different characteristics of the samples might explain this. Zanarini et al found childhood sexual abuse to be a significant predictor of functioning.[92] The patients in our study reported low average scores of childhood sexual abuse. A sample with more severe traumatic experiences could show more considerable impairment that could be traced to their childhood adversities.

We then explored the connections between the self-stigma, disability, and selected psychiatric symptoms. The correlation between patient-rated CGI and self-stigma was moderate, comparable to the findings of Grambal et al[30] in a similar patient group and Holubova et al[36] with Ociskova et al[37] in other diagnostic groups. However, the clinician-rated severity of the disorder did not significantly correlate with self-stigma. The patients seem to evaluate the overall severity differently than the physicians. This was already highlighted by Forkmann et al, who administered the CGI scales to patients with major depression, their treating therapists, and the therapeutic team.[93] The authors found low congruence among the measurements, indicating the need to include self-report and clinician-report measures in the research. The results of the current study might suggest that the patients also consider the stigma when evaluating their mental struggles, while their psychiatrists might focus on other aspects of psychopathology.

The self-stigma then positively correlated with the severity of depression, anxiety, and dissociation, all of which are connections that have been reported by other papers focusing on the same or different patient groups.[22,36–38,41] As Sheehan et al[22] hypothesized, these common symptoms might be exacerbated by what Scheel et al described as an existential shame, a profound feeling of inadequacy that permeates the whole being.[94] Shame has been identified as a core experiential feature of the stigma.[95] Since patients with BPD are prone to feeling intense existential shame,[94]

future research might benefit from incorporating this topic into its design. Furthermore, the self-stigma moderately correlated with functional impairment in the family and social life. The results are comparable to the findings of other patient groups, highlighting again the transdiagnostic nature of self-stigma.[36,38] Interestingly, the self-stigma did not significantly correlate with work disability. A large percentage of missing values is a likely cause.[96]

The final hypothesis aimed to explore whether self-stigma acts as a mediator in the connections between childhood trauma and psychopathology on one side and disability on the other side. All paths in the model were significant. Childhood trauma and self-stigma explained only a small variance of disability scores, indicating that more prominent factors may play a role. Robust predictors include baseline severity of borderline symptoms, a history of sexual abuse (which was low in this sample), and contextual factors such as housing or financial status.[97,98] Childhood trauma and self-stigma then explained a moderate variance of an aggregated symptomatology score, reflecting the well-established connections of these factors with mental health struggles.[38,99] Both latent factors, psychopathology and disability, are largely correlated. While they are partially independent and should be evaluated separately,[100] one can predict the other and vice versa.[101]

The hypothesized model showed good fitness in most parameters except for the chi-square, which is sensitive to a sample size.[102] Childhood trauma explained only a small variance of psychopathology and disability scores in this sample. Similarly, Stolzenburg et al reported that childhood trauma was a small to moderate predictor of self-stigma, including its last step – the harm.[43] This step refers to the consequences of applying negative social stereotypes on oneself, resulting in diminished self-respect and self-esteem.[29] Stolzenburg et al found that the agreement with negative stereotypes and depressive symptoms fully mediated the relationship between childhood trauma and harm.[43] Our analysis identified self-stigma as a partial mediator of the connection between childhood trauma and psychopathology, explaining 54% of the total effect. The second mediation between childhood trauma and disability was similarly large, as it explained 45% of the total effect. While Stolzenburg et al focused on the harm caused by self-stigma as the dependent variable, we opted for a more general look at psychopathology and disability.[43]

Limitations

Our study has several limitations that need to be mentioned. The most significant limitation is the cross-sectional design, which prevents making conclusions of causality. Since the sample consisted of inpatients with BPD, the representativeness of the results was also limited. The severity of their symptoms was marked but primarily not severe. The average severity of their childhood trauma and self-stigma was also mild to moderate. While we expect that the described connections might extend to individuals with more severe symptoms and self-stigma, we cannot verify that without studying these patients. A study design with mostly self-report measures is another limitation. The missing data in CTQ and SDS–Work subscales could have also decreased the validity of several results. Finally, we focused on general symptomatology (depressive symptoms, anxiety, dissociation, and global severity of the mental disorder) rather than on the specific borderline symptoms that would also be useful to explore in this population. Self-report instruments, such as Borderline Symptom List 23 (already adapted to Czech by Radimecka et al),[103] or some of the established rating scales could have provided valuable insights.

Future Research and Clinical Implications

Future studies could benefit from focusing on potential mediators or moderators of the connection between childhood trauma and self-stigma – increased interpersonal sensitivity, shame-proneness, or early maladaptive schemas. The impact of the work disability and the specific borderline symptoms also need to be explored. Apart from that, it would be interesting to find whether tackling childhood trauma in treatment automatically decreases self-stigma. If childhood trauma shapes the tendency towards self-stigma, psychoeducation might not suffice as the common strategy to bring relief and may instead require experiential therapeutic approaches.[104,105] Future research could explore their potential.

The findings have several clinical implications. Self-stigma might present an important topic in psychotherapy and general psychiatric management, as it significantly connects with various symptoms of mental disorders and retrospectively reported childhood trauma among individuals with BPD. Resolving childhood trauma might require paying attention to self-stigma that can connect childhood experiences with current suffering. Since self-stigma might be

partially explained by early maladaptive schemas,[106] it is important to explore patients' attitudes to their mental struggles and their connection with their childhood experiences. A case conceptualization might benefit from exploring self-stigma and its impact on an individual. Furthermore, Common psychotherapeutic methods, such as imagery rescripting or chairwork,[107,108] could then be applied to enhance the processing of both self-stigma and childhood trauma and bring a sense of relief and closure to patients.

Conclusion

This study aimed to explore the connections between childhood trauma, self-stigma, general symptomatology, and disability in 283 adults diagnosed with BPD. The results showed that self-stigma was a partial mediator of childhood trauma, acting as an independent variable, and mental health symptoms and disability as dependent variables. Since the study employed a cross-sectional design, the findings are preliminary, and their causality remains unclear. Future studies would benefit from a longitudinal design to explore causal trajectories. These initial findings suggest that therapeutic and societal efforts to tackle childhood trauma and self-stigma might benefit from reflecting its broader psychosocial context.

Disclosure

The authors report no conflict of interest in this work.

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