INVITED ARTICLE

Childhood maltreatment, dissociation and borderline personality disorder: Preliminary data on the mediational role of mentalizing in complex post-traumatic stress disorder

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Abstract

Objectives: Treatments for borderline personality disorder (BPD) and post-traumatic stress disorder (PTSD) are less effective for patients with co-occurring symptoms of both disorders, who are considered to have complex PTSD (cPTSD), compared with patients with either condition alone. Evidence suggests that co-occurrence of symptoms indicates greater impairment in mentalizing. This study examines evidence for targeting mentalizing when treating individuals with co-occurring symptoms, irrespective of their exposure to developmental trauma and, for the first time, investigates the mediational role of mentalizing in the associations between BPD symptomatology and cPTSD.

Design: We identified in a routine clinical service a group of patients with BPD, with or without co-occurring symptoms of PTSD. We hypothesized that patients with co-occurring symptoms and a history of childhood maltreatment will show more severe clinical profiles and greater mentalizing problems, which in turn lead to symptoms consistent with cPTSD.

Method: Clinical profiles of 72 patients with BPD (43 with and 29 without co-occurring symptoms of PTSD; mean age in both groups 28 years, 79% and 83% female, respectively) were identified using the Structured Clinical Interview for DSM-IV Axis II Disorders. Patients completed self-report

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measures of BPD and PTSD symptoms, well-being, dissociation and reflective functioning. Childhood trauma histories were evaluated.

Results: Compared with patients with BPD-only, those with co-occurring BPD and PTSD showed greater severity in terms of BPD and dissociative symptoms, met a broader range of BPD diagnostic criteria, had a greater sense of personal worthlessness and self-evaluated their well-being as considerably diminished. This group was also more inclined to recall increased instances of childhood sexual abuse. In a mediation analysis, mentalizing acted as a partial mediator for the relationship between BPD severity and cPTSD, as well as between dissociative symptoms and cPTSD. Interestingly, mentalizing did not mediate the relationship between childhood sexual abuse and cPTSD.

Conclusions: Overall, the correlational findings are consistent with an intended focus on mentalizing to treat cPTSD symptoms in individuals who also meet criteria for a diagnosis of BPD.

KEYWORDS

borderline personality disorder, complex PTSD, dissociation, mentalizing, post-traumatic stress disorder, trauma

INTRODUCTION

Childhood maltreatment, including physical and sexual abuse and neglect, is linked to a wide range of severe mental health outcomes over time. In particular, it is associated with post-traumatic stress disorder (PTSD), complex post-traumatic stress disorder (cPTSD) and the emergence of borderline personality disorder (BPD) (Cloitre et al., 2019; Zanarini & Frankenburg, 1997). However, there is a degree of overlap among these disorders. Studies have sought to discern whether cPTSD and BPD are distinct enough to justify individual diagnostic categories (Owczarek et al., 2023). Notably, among patients diagnosed with BPD, approximately 30% also meet criteria for PTSD and around 50% for cPTSD (Møller et al., 2020).

Efforts to differentiate disorders are part of the continued attempts to maintain a categorical approach to classifying mental disorders even though there is a lack of consensus across classification systems. The early conceptualization of cPTSD in the 10th Revision of the International Classification of Disease (ICD-10) deemed it as an 'enduring personality change following a catastrophic experience' (World Health Organization, 1993). In contrast, the current ICD-11 (World Health Organization, 2022), which recognizes cPTSD as a diagnosis and downgrades BPD to a personality specifier, delineates the disorders more distinctly, whereas the DSM-5 (American Psychiatric Association, 2013) highlights a considerable overlap between BPD and PTSD.

In cPTSD, according to the ICD-11, the core PTSD symptoms, namely re-experiencing trauma, avoiding trauma-related reminders and a heightened sense of danger (apparent as hypervigilance and an exaggerated startle response), coexist with disturbances of self-organization (DSO), which manifest as affective dysregulation, a negative self-view and relational issues (Karatzias et al., 2017). These same disturbances are integral to the dimensional profile of complex personality functioning described in Criterion A, Section III of the Appendix of DSM-5 (American Psychiatric Association, 2013). Yet, a nuanced understanding reveals that although the two disorders use the same constructs, their

manifestations may differ. For instance, emotion dysregulation in DSO is marked by challenges in self-soothing and emotional numbness, whereas in BPD it is expressed as emotional instability and intense anger (Ford & Courtois, 2021). The negative self-perception in cPTSD leans towards a persistent feeling of guilt and worthlessness, contrasting with the fluctuating and fragmented self-image typical of BPD. It is also worth noting that dissociative episodes might be more prevalent in cPTSD patients than in those with BPD (Hyland et al., 2020). However, some individuals exhibiting cPTSD symptoms may not meet criteria for any personality disorder.

Evidence suggests that the manifestation of PTSD and cPTSD symptoms can curtail the efficacy of evidence-based psychological interventions both for BPD and for associated problems such as self-harm and suicidality. Conversely, the presence of BPD symptoms might compromise the effectiveness of conventional treatments for PTSD and cPTSD. Notably, patients who exhibit behaviours such as self-harm, suicide attempts and drug abuse are frequently excluded from trials of treatments for PTSD treatment (Karatzias et al., 2019; Ronconi et al., 2014), meaning that the effectiveness of standard treatments for PTSD in this group is uncertain. This underscores the imperative of re-evaluating tailored interventions for patients with personality disorders such as BPD and those with symptoms of PTSD and cPTSD. A transdiagnostic approach such as mentalization-based treatment (MBT) that considers and targets the cumulative repercussions of trauma for mental health rather than targeting symptoms by diagnosis might be more beneficial.

MBT is an evidence-based therapy for BPD (Storebø et al., 2020) that incorporates attachment trauma outcomes within its standard treatment regimen. The focal point of MBT is mentalizing—a core transdiagnostic psychological process involved in all primary mental health disorders. Effective mentalizing makes individuals more resilient against both internal and external stressors. Enhancing patients' mentalizing capacity may, therefore, address trauma symptoms and the relational and self-organizational symptoms that are inherent to psychopathology more widely—that is whether or not they are in the context of BPD or PTSD—as they commonly stem from suboptimal mentalizing (Bateman & Fonagy, 2013). Preliminary evidence for this assertion arises from a trial of two types of MBT with BPD patients, where the prevalence of childhood trauma was significant (Smits et al., 2020). Over 85% of participants met the threshold for significant childhood trauma (Smits et al., 2022). Interestingly, the presence of childhood trauma had a minimal effect on the positive outcomes of either intensive day-hospital-based MBT (MBT-DH) or outpatient MBT (MBT-IOP). However, although patients with pronounced childhood trauma or histories of emotional neglect showed rapid improvement with MBT-DH in terms of both general symptom severity and BPD symptoms, there was a discernible reduction in the rate of improvement tied to past trauma experiences. This effect is more discernible in dialectical behaviour therapy (DBT), the approach with the strongest evidence for efficacy in treating BPD (Stoffers et al., 2012; Storebø et al., 2020). Standard DBT did not yield significant improvements for patients with concurrent PTSD (Harned et al., 2008). Efforts to integrate prolonged exposure therapy into standard DBT to address this deficit resulted in increased dropout rates (Euler et al., 2021; Harned et al., 2014). Consequently, a phased intervention, known as DBT-PTSD, was devised for individuals with a history of childhood maltreatment, BPD characteristics and intricate PTSD presentations (Bohus et al., 2020). Prioritizing emotional regulation before delving into traumatic memories diminished dropout rates and rendered DBT-PTSD marginally but statistically superior compared with structured non-phased interventions.

Study aims

This paper presents the initial findings from ongoing research assessing the utility of targeting mentalizing when treating individuals with BPD-related symptoms, irrespective of their exposure to developmental trauma. As little is known about comprehensive clinical profiles of patients with BPD with and without symptoms of PTSD in routine clinical services, the initial aim of the current study was to provide a preliminary clinical characterization of these patients and to examine levels of clinical

functioning, specifically, well-being, dissociation and mentalizing. Our investigation also assesses whether mentalizing mediates the symptoms of PTSD in the context of BPD. We hypothesize that:

1. Patients with symptoms of both BPD and PTSD can be found within routine clinical services for personality disorder.
2. Individuals with concurrent BPD and PTSD will be identifiable by (a) greater BPD severity, (b) more severe dissociative tendencies and (c) histories of childhood trauma, with the effects of these attributes being principally mediated by compromised mentalizing.
3. Individuals with concurrent BPD and PTSD symptoms will recount a greater number of childhood traumatic experiences, corresponding to more severe BPD symptoms, compared with people with BPD-only.
4. The presence of PTSD will correlate with exacerbated mentalizing challenges, premised on the notion that a mentalizing deficit is foundational to the development of cPTSD.

As an exploratory endeavour, we also scrutinize whether a distinctive BPD symptom profile, heightened in those with a co-diagnosis, is primarily characterized by disturbance of self-function.

METHOD

Clinical characterization of the target group: Participants and procedure

During 2021–2022, a cohort of 72 French-speaking outpatients, meeting DSM-5 criteria for BPD, were enlisted from the University Hospitals of Geneva's specialized unit catering for adults with ADHD and BPD. The participants were sourced from referrals to the centre for BPD diagnostic assessment. Expert psychologists or psychiatrists, trained in personality disorder evaluation, conducted assessments to confirm the diagnosis of BPD and to rule out any organic or psychiatric anomalies influencing the clinical manifestations. The Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II) (First & Gibbon, 2004) was the primary tool for BPD diagnostic confirmation. Concurrently, the Post-traumatic Stress Disorder Checklist for DSM-5 (PCL-5) (Blevins et al., 2015) was used to assess symptoms of PTSD.

This diagnostic process was used to divide the participants into two cohorts: those with only BPD and those with co-occurring BPD and PTSD. Out of the 72 patients diagnosed with BPD, 43 (59.72%) met the PCL-5 criteria and hence merited a tentative diagnosis of PTSD. The other 29 (40.28%) were classified into the BPD-only category. In the BPD-only cohort, 24 were women (82.76%) and the average age was 28.04 years ($SD = 11.27$); the BPD-PTSD group included 34 female participants (79.07%) and this group's average age was 27.88 years ($SD = 7.57$).

The University Hospitals of Geneva's ethics committee granted approval for this study, and informed consent was obtained from all participants.

Assessment instruments

Borderline personality symptom list (BSL-23)

The BSL-23 (Bohus et al., 2009) is a concise self-rating tool assessing specific BPD symptoms over the preceding week. It comprises 23 items rated on a five-point Likert scale (0 = *none*, 4 = *strong*). The French version of this tool has high internal consistency ($\alpha = .94$) and test–retest reliability ($r = .84$) (Nicastro et al., 2016).

Post-traumatic stress disorder checklist for DSM-5 (PCL-5)

The PCL-5 (Blevins et al., 2015) is a self-assessment tool evaluating the 20 DSM-5 PTSD symptoms. Items are rated on a five-point Likert scale (0 = *not at all*, 4 = *extremely*) and the total severity score (range 0–80) is computed by summing item scores. A tentative diagnosis can be inferred when items score 2 or higher and align with the DSM-5 diagnostic criteria, necessitating specific items from each symptom cluster (US Department of Veterans Affairs, 2023). While a PCL-5 score between 31 and 33 typically indicates probable PTSD across cohorts, further investigations are warranted for confirmation (US Department of Veterans Affairs, 2023). Studies involving military veterans suggest that the present PCL-5 cut-offs predict PTSD diagnosis ($\kappa(.5) = .58$) based on the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5) (Weathers et al., 2018), taking into account the clinical sample (Bovin et al., 2016). The French version of the PCL-5 demonstrates exemplary internal consistency ($\alpha = .94$) with robust convergent and divergent validity (Ashbaugh et al., 2016). Its subscales also exhibit strong internal consistency ($\alpha > .79$) and test–retest reliability ($r = .89$) (Ashbaugh et al., 2016).

Childhood trauma questionnaire (CTQ)

The CTQ (Bernstein et al., 2003) is a 28-item instrument designed to evaluate histories of childhood maltreatment. Items are rated on a five-point scale (1 = *never*, 5 = *very often*) and are divided into five subscales, comprising emotional, physical and sexual abuse, and emotional and physical neglect. The French adaptation of the CTQ (Paquette et al., 2004) exhibits outstanding internal consistency ($\alpha = .68$–.91) and test–retest reliability ($r = .73$–.94).

World Health Organization-Five Well-Being index (WHO-5)

The WHO-5 (Topp et al., 2015) is a measure of subjective psychological well-being consisting of five items. Responses range from 0 (*at no time*) to 5 (*all the time*). The total raw score, which ranges from 0 to 25, is subsequently multiplied by 4, resulting in a final score where 0 represents the poorest conceivable well-being and 100 denotes optimal well-being. This tool has shown robust clinical validity across diverse settings. Moreover, it has shown promise in depression screening, with a sensitivity of 0.86 and specificity of 0.81. For such applications, a cut-off score of ≤50 is advocated (Topp et al., 2015).

Dissociative experiences scale (DES)

The DES (Bernstein & Putnam, 1986) is a self-report measure encompassing 28 items designed to assess the frequency of everyday dissociative experiences, such as amnesia, depersonalization/derealization and absorption. Items are scored on a scale from 0 to 100%. The validated French adaptation (Darves-Bornoz et al., 1999) was employed in this study, demonstrating strong internal consistency ($\alpha = .94$).

Reflective functioning questionnaire (RFQ)

The short (8-item) version of the RFQ (Fonagy et al., 2016) is a self-report tool gauging reflective functioning, a measure of mentalizing capacity focusing on variations in hypomentalizing and hypermentalizing. Respondents rate each item on a seven-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*) without a specified time frame. For this study, the validated French version of the RFQ was used (Badoud et al., 2015). This measure offers two subscales: certainty about mental states (RFQ_C) and

uncertainty about mental states (RFQ_U). Our analyses used only the RFQ_U subscale, based on prior recommendations (Müller et al., 2022).

Statistical analysis

Analyses were conducted using Stata v16. Group comparisons were performed using chi-square tests for categorical data and Student's *t*-tests for continuous data, with a significance threshold set at $p < .05$. Bivariate correlations were determined using Pearson's *r* coefficients.

To examine the potential mediating role of mentalizing deficits on the relationship between BPD and PTSD symptoms, a mediation analysis was employed based on the method proposed by Hicks and Tingley (2011), using the 'medeff' command in Stata v16.

In order to predict PTSD status, a backward stepwise logistic regression was applied, incorporating variables that exhibited significant differences between groups in univariate analyses ($p < .05$). Criteria for variable removal and addition to the model were set at *p*-values of .1 and .05, respectively. The final model reported odds ratios (ORs) and their associated 95% confidence intervals (CIs).

In further exploration of mediation, we assessed whether mentalizing deficits (as measured by RFQ_U) might mediate the relationships between: (1) childhood sexual abuse (CTQ SA), (2) dissociative symptoms (DES total score), (3) BPD symptoms (BSL-23) and the diagnostic group (BPD vs BPD-PTSD, with PTSD treated as a provisional diagnosis, indicating cPTSD). Again, the method of Hicks and Tingley (2011) using 'medeff' in Stata v16 was applied. Both the effect of the independent variables (1–3) on the mediator (RFQ_U) and the mediator's effect on the dependent variable (cPTSD) were delineated. The total effect of the independent variable on the dependent variable was articulated, comprising the sum of the indirect (ab) and direct effects (c': effect of exposure on the outcome independent of the mediator).

RESULTS

Patient characteristics and variable associations

The clinical and demographic characteristics of participants and group comparisons are summarized in Table 1. There were no significant differences between the BPD-only and BPD-PTSD groups in terms of demographic and clinical factors such as sex, age, employment status, living arrangements, parenthood status, history of hospitalization, suicide attempts or comorbidities.

Associations among study variables are detailed in Table 2. The correlation matrix demonstrates robust associations between trauma symptoms and BPD symptoms for most study variables, with the notable exception of the well-being measure (WHO-5). BPD symptom severity was significantly correlated with diminished mentalizing capacities, elevated dissociation scores and reported childhood trauma. However, the relationship between DES scores and experiences of childhood trauma was not significant. Although well-being (as assessed by the WHO-5) was higher in participants exhibiting fewer BPD symptoms, this measure showed limited correlation with other assessed variables.

Group comparisons: BPD-only versus BPD-PTSD

Differences between the BPD-only and BPD-PTSD groups were examined across all measures (Table 1). Notably, the two groups displayed minimal significant disparities concerning their history of childhood maltreatment. However, the participants in the BPD-PTSD group reported a marginally higher incidence of childhood sexual abuse ($M = 9.56$, $SD = 6.01$) compared with the BPD group

TABLE 1 Clinical and demographic characteristics of participants.

	BPD-only (N=29; 40.28%)		BPD-PTSD (N=43; 59.72%)				Fishers exact
	n	%	n	%	χ^2	p	
Sex (F)	24	82.76	34	79.07	0.15	.698	
Having a job (Y or N)	19	65.52	21	48.84	1.95	.162	
Living with someone (Y or N)	10	34.48	16	38.1	0.09	.756	
Having child/children (Y or N)	5	17.24	8	18.6	0.02	.883	
Hospitalization (Y or N)	16	55.17	26	60.47	0.2	.655	
History of suicide attempts	16	55.17	32	74.42	2.89	.089	
	Mean	SD	Mean	SD	t	p	Cohens d
Age (years)	28.04	11.27	27.88	7.57	0.06	.945	0.02
Number of comorbid disorders	2.37	1.37	2.79	1.53	1.16	.25	
BSL-23	1.91	0.89	2.5	0.67	−2.86	.006	0.77
SCID-II BPD criteria	6.74	1.21	7.21	1.37	−1.37	.173	0.36
DES total	41.09	21.59	60.06	22.43	−3.27	.002	0.86
WHO-5 total	42.54	21.51	27.11	16.36	3.31	.002	0.84
RFQ_U	1.19	0.72	1.71	0.72	−2.59	.012	0.72
CTQ emotional abuse	13.12	6.36	15.59	6.34	−1.52	.133	0.44
CTQ emotional neglect	15.11	4.37	15.31	4.97	−0.16	.865	0.07
CTQ physical abuse	7.34	4.39	8.17	4.56	−0.72	.473	0.3
CTQ physical neglect	8.68	4.59	9.37	4.29	−0.61	.547	0.32
CTQ sexual abuse	6.89	3.96	9.56	6.01	−2.04	.045	0.61
CTQ total score	51.29	18.77	58.01	20.96	−1.31	.196	0.46
PCL-5 total score	23.06	16.46	57.14	11.69	−9.65	<.0001	2.53

Abbreviations: BPD, borderline personality disorder; BSL-23, Borderline Personality Symptom List; CTQ, Childhood Trauma Questionnaire; DES, Dissociative Experiences Scale; PCL-5, Post-traumatic Stress Disorder Checklist for DSM-5; PTSD, post-traumatic stress disorder; RFQ_U, Reflective Functioning Questionnaire uncertainty about mental sates subscale; SCID-II, Structured Clinical Interview for DSM-IV Axis II Disorders; WHO-5, World Health Organization-Five Well-Being Index.

($M=6.89$, $SD=3.96$), $t(70)=−2.04$, $p=.045$, Cohen's $d=0.61$. This difference highlights the potential role of sexual trauma in the emergence of PTSD symptoms among these patients.

RFQ scores spotlighted a noteworthy deficit in mentalizing within the BPD-PTSD group, evidenced by pronounced uncertainty about mental states, $p=.012$, Cohen's $d=0.72$.

Comparatively, the BPD-PTSD group showed more severe BPD and dissociation symptoms and reported diminished well-being on the WHO-5. Although the total number of SCID-II criteria showed no significant difference between the groups, there was a trend suggesting a higher aggregate in the BPD-PTSD group ($M=7.21$, $SD=1.37$) than in the BPD-only group ($M=6.74$, $SD=1.21$), $t(70)=−1.37$, $p=.173$, Cohen's $d=0.36$. Specific item scores are shown in Table 3; only criterion 4 (impulsivity or self-damaging behaviours) differentiated the groups.

Exploration of levels of impairment of self-function in those with a co-diagnosis depicted the BPD-PTSD group as comprising more severe BPD cases on the BSL-23, with a significantly higher mean score than the BPD-only group, $p=.006$, Cohen's $d=0.77$. A closer examination at the individual-item level revealed differences between the groups in three items—worthlessness, self-punishment and a disbelief in one's right to life—after Bonferroni correction (see Table 4).

TABLE 2 Correlation matrix of study variables.

	cPTSD	PCL total	BSL23 mean	SCID BPD	DES total	WHO total	RFQ_U	CTQ EA	CTQ PA	CTQ SA	CTQ EN	CTQ PN	CTQ total
cPTSD	1												
PCL total	0.7723***	1											
BSL23 mean	0.3538**	0.355**	1										
SCID BPD	0.1698	0.159	0.419**	1									
DES total	0.3805**	0.454***	0.478***	0.443***	1								
WHO-5 total	−0.3773**	−0.165	−0.523***	−0.106	−0.32*	1							
RFQ_U	0.3327*	0.363**	0.433***	0.432***	0.445***	−0.224	1						
CTQ EA	0.1926	0.436***	0.451***	0.220	0.221	−0.106	−0.002	1					
CTQ PA	0.0927	0.289*	0.099	−0.027	0.128	−0.024	0.023	0.487***	1				
CTQ SA	0.2512*	0.373**	0.156	0.0117	0.198	−0.087	0.147	0.361**	0.379**	1			
CTQ EN	0.0219	0.242	0.33*	0.155	0.247	0.018	0.009	0.678***	0.510***	0.278*	1		
CTQ PN	0.0779	0.381**	0.250	0.111	0.111	0.023	−0.025	0.705***	0.553***	0.340*	0.681***	1	
CTQ total	0.1664	0.454***	0.349**	0.137	0.238	−0.054	0.042	0.862***	0.728***	0.623***	0.809***	0.835***	1

Abbreviations: BSL-23, Borderline Personality Symptom List; CTQ, Childhood Trauma Questionnaire (EA = emotional abuse, PA = physical abuse, SA = sexual abuse, EN = emotional neglect, PN = physical neglect); DES, Dissociative Experiences Scale; PCL-5, Post-traumatic Stress Disorder Checklist for DSM-5; cPTSD, Post-traumatic Stress Disorder Checklist for DSM-5, diagnostic category; RFQ, Reflective Functioning Questionnaire (U = uncertainty); SCID BPD, Structured Clinical Interview for DSM-IV Axis II Disorders for BPD diagnosis; WHO-5, World Health Organization-Five Well-Being Index.

*p < .05, **p < .01, ***p < .001.

TABLE 3 SCID-II BPD criteria met in BPD-only and comorbid BPD-PTSD groups.

SCID-II BPD items	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9
BPD-only ($N=29$) (%)	$n=26$ (89.7)	$n=24$ (82.75)	$n=19$ (65.52)	$n=16$ (55.17)	$n=21$ (72.41)	$n=28$ (96.55)	$n=20$ (68.96)	$n=27$ (93.10)	$n=16$ (55.17)
BPD-PTSD ($N=43$) (%)	$n=39$ (90.69)	$n=35$ (81.39)	$n=28$ (65.11)	$n=36$ (83.72)	$n=32$ (74.41)	$n=39$ (90.69)	$n=36$ (83.72)	$n=33$ (76.74)	$n=30$ (69.77)
χ^2	0.02	0.022	0.001	7.036	0.036	0.919	2.182	3.338	1.599
p	.884	.883	.972	.008	.85	.338	.14	.068	.206

Abbreviations: BPD, borderline personality disorder; PTSD, post-traumatic stress disorder; SCID-II, Structured Clinical Interview for DSM-IV Axis II Disorders.

TABLE 4 BSL 23 mean individual-item scores for BPD-only and comorbid BPD-PTSD groups (items meeting Bonferroni criteria of significance are in bold).

BSL23 item	BPD-only		BPD-PSTD				Item description
	M	SD	M	SD	t	p	
1	2.21	1.07	2.68	0.97	1.81	.07	It was hard for me to concentrate
2	2.50	1.20	2.81	0.94	1.17	.25	I felt helpless
3	1.41	1.30	2.14	1.34	2.04	.05	I was absent-minded and unable to remember what I was actually doing
4	1.93	1.14	2.59	1.07	2.41	.02	I felt disgust
5	1.64	1.40	2.60	1.26	2.69	.01	I thought of hurting myself
6	1.85	1.35	2.16	1.28	0.93	.35	I did not trust other people
7	1.21	1.37	2.46	1.30	3.73	.0004	**I did not believe in my right to live**
8	2.52	1.37	2.49	1.43	0.09	.93	I was lonely
9	2.75	1.00	3.11	1.05	1.39	.17	I experienced stressful inner tension
10	1.50	1.53	1.97	1.38	1.28	.1	I had images that I was very much afraid of
11	1.96	1.34	2.75	1.16	2.49	.02	I hated myself
12	1.09	1.41	2.19	1.41	2.89	.005	**I wanted to punish myself**
13	2.21	1.40	2.49	1.33	0.8	.42	I suffered from shame
14	2.59	1.30	3.32	0.91	2.54	.01	My mood rapidly cycled in terms of anxiety. anger. and depression
15	0.54	1.20	0.41	0.96	0.49	.63	I suffered from voices and noises from inside or outside my head
16	2.50	1.21	2.68	1.29	0.55	.59	Criticism had a devastating effect on me
17	2.46	1.32	3.11	1.10	2.14	.04	I felt vulnerable
18	1.27	1.51	1.76	1.44	1.29	.2	The idea of death had a certain fascination for me
19	2.43	1.35	2.57	1.32	0.42	.68	Everything seemed senseless to me
20	2.54	1.23	2.53	1.36	0.02	.98	I was afraid of losing control
21	2.21	1.40	2.39	1.27	0.52	.6	I felt disgusted by myself
22	2.37	1.55	2.73	1.24	1.03	.31	I felt as if I was far away from myself
23	1.95	1.40	2.97	1.19	2.97	.004	**I felt worthless**

Predicting PTSD status

The logistic regression analysis indicated that the most optimal predictors for PTSD status explained 22.17% of the variance (pseudo R^2). The significant predictors included WHO-5 (OR = 0.50; 95% CI [0.27, 0.92]), CTQ sexual abuse (OR = 2.50; 95% CI [0.97, 6.41]) and RFQ_U (OR = 2.05; 95% CI [0.99, 4.25]).

Mediation analyses

We conducted a mediation analysis to determine whether mentalizing deficits, operationalized as RFQ_U, would mediate the relationships among BPD symptoms (BSL-23), dissociative symptoms (DES total score), childhood sexual abuse (CTQ SA) and diagnostic group categorization (BPD vs BPD-PTSD, denoted as cPTSD) (Figures 1–3).

In our first mediation analysis (Figure 1), mentalizing deficits (RFQ_U) did not exhibit a significant mediating influence on the relationship between childhood sexual abuse (CTQ SA) and diagnostic group (cPTSD), with only 12% of the effect being mediated (p = .08; 95% CI [−0.01, 0.22]). Conversely,
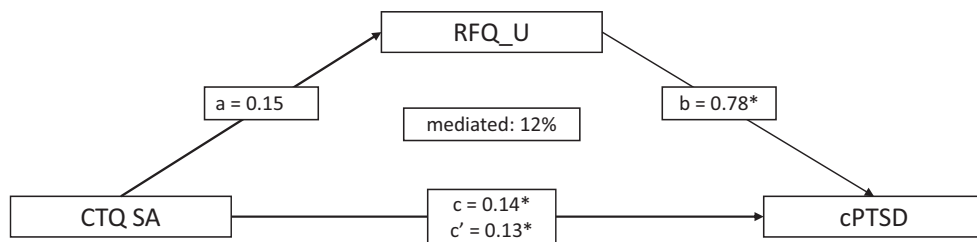
FIGURE 1 Mediation analysis summarizing the effect of childhood sexual abuse (CTQ SA) on BPD-PTSD diagnostic group categorization (cPTSD). *$p < .05$.
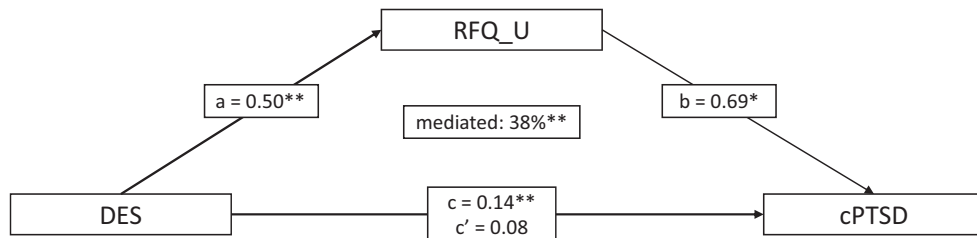

FIGURE 2 Mediation analysis summarizing the effect of dissociation symptoms (DES) on BPD-PTSD diagnostic group categorization (cPTSD). *$p < .05$; **$p < .01$.
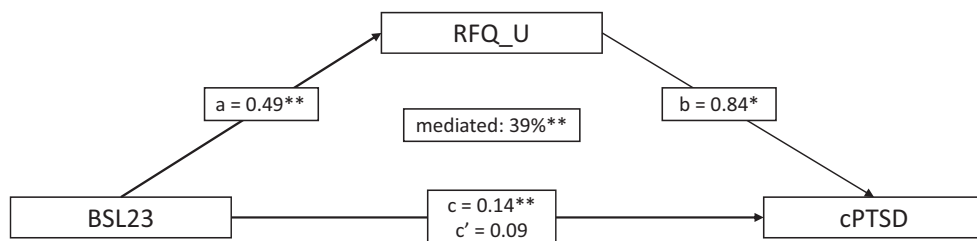

FIGURE 3 Mediation analysis summarizing the effect of BPD symptoms (BSL23) on BPD-PTSD diagnostic group categorization (cPTSD). *$p < .05$; **$p < .01$.

the second mediation model (Figure 2) revealed a significant mediating role of mentalizing deficits (RFQ_U) in the relationship between dissociation symptoms (DES) and diagnostic group (cPTSD), accounting for 38% of the effect ($p < .01$; 95% CI [0.17, 3.94]). The third mediation analysis (Figure 3) demonstrated that mentalizing deficits (RFQ_U) significantly mediated the relationship between BPD symptoms (BSL-23) and diagnostic group (cPTSD), explaining 39% of the effect ($p < .01$; 95% CI [0.18, 1.31]). In summary, these findings indicate that the relationship of dissociation and BPD symptoms with diagnostic categorization (BPD vs BPD-PTSD (cPTSD)) might be significantly mediated by deficits in mentalizing.

DISCUSSION

Our first expectation was confirmed. Patients with co-occurring BPD and PTSD are easily identifiable in clinical services for personality disorder. Within our general mental health service sample, consisting of patients with pronounced personality disorders, it was discernible that a significant proportion concurrently met the criteria for both BPD and PTSD. Specifically, the rate of co-occurrence

of BPD and PTSD diagnoses in this clinical cohort was approximately 60%. Consistent with our second prediction, patients with a co-occurring diagnosis showed greater severity in terms of BPD and dissociative symptoms, met a broader range of BPD diagnostic criteria and self-evaluated their well-being as considerably diminished compared with patients diagnosed with BPD-only. Notably, the BPD-PTSD group recalled more instances of childhood sexual abuse than the BPD-only group.

Further, in our exploration of the BPD individual-item scores, the BPD-PTSD group more frequently expressed feelings of worthlessness, contemplated self-punishment and exhibited an increased propensity to doubt their right to existence compared with their counterparts without PTSD, indicating an increased significance of disturbance of self-function in this group. Such a pronounced disturbance in self-perception strongly alludes to compromised mentalizing capacity. However, during a comparative analysis of individual-item scores on the SCID-II we found no discernible difference between the groups in terms of identity disturbance and the persistent volatility in self-image or self-essence (Item 3). A potential rationale could be that both groups displayed such pronounced identity disturbances that the raters struggled to distinguish between different degrees of self-identity disorganization. In addition, impulsivity (Item 4) was markedly more prominent in the BPD-PTSD group than the BPD-only group, suggesting a diminished capability to inhibit impulsive actions and a heightened susceptibility to capricious decision-making, which may make assessment of self-identity problematic.

Our final hypothesis, that mentalizing challenges underpin the presence of PTSD and BPD, was partially corroborated. Mentalizing deficits, specifically uncertainty about mental states, were more pronounced in patients diagnosed with both BPD and PTSD (cPTSD) compared with those diagnosed solely with BPD. Notably, this dimension of mentalizing was inversely correlated with PTSD symptoms. In the mediation analysis, mentalizing acted as a partial mediator for the relationship between BPD severity and cPTSD, as well as between dissociative symptoms and cPTSD. Interestingly, mentalizing did not mediate the relationship between childhood sexual abuse and cPTSD. This absence of mediation is somewhat perplexing. It is worth noting that the nature and severity of sexual trauma within this group was highly varied. The CTQ might indicate only the presence or absence of such trauma, potentially lacking sensitivity (resulting in false negatives) or specificity (leading to false positives) for more severely traumatic events. An optimized instrument, specifically designed to gauge the severity of sexual trauma, might provide clearer insights into whether mentalizing truly acts as a mediator in such contexts.

Collectively, our mediation analysis underscores the role of mentalizing as a significant, although not exclusive, mediator between BPD symptoms (as measured by the BSL-23) and PTSD symptoms, including potential cPTSD diagnoses. These correlational insights align well with the proposed emphasis on enhancing mentalizing capacities as a therapeutic strategy for addressing PTSD symptoms among individuals diagnosed with BPD. Moreover, the findings reinforce the perspective of BPD as a multifaceted diagnosis in which the manifestation of PTSD symptoms may denote a more severe variant of the disorder rather than a distinct disorder. We suggest that mentalizing constitutes a central cognitive mechanism undergirding borderline functioning. Thus, as mentalizing capacity deteriorates, PTSD symptoms may become more apparent. It follows that primary outcomes, such as the severity of BPD and dissociative episodes, could potentially be further understood by assessing degrees of mentalizing uncertainty. The association of PTSD status with BPD severity also aligns with secondary outcomes such as quality of life, which was observed to be poorer in the BPD-PTSD cohort. Although quality of life shows improvement after treatment with evidence-based interventions for BPD, it often remains below average (Bateman et al., 2021).

Limitations

The limited sample size in this study necessitates caution in drawing definitive conclusions. Furthermore, the cross-sectional nature of the findings precludes any causal interpretations, leaving the exact sequence and directionality of effects undetermined. Future research employing

a longitudinal design would be better positioned to elucidate the causal links among childhood trauma, mentalizing and trauma-related symptoms. Notably, our study did not incorporate measures of attachment representations, thus preventing exploration of the ramifications of disorganized attachment. Given the intricate interplay between attachment and mentalizing, which is potentially bidirectional in nature, it is conceivable that early instances of maltreatment could disrupt the attachment system. Such disturbances might then precipitate failures in mentalizing, particularly when the attachment system is triggered. The ensuing vulnerability in mentalizing could amplify arousal, thereby further compromising mentalizing and potentially contributing to cPTSD symptoms. Conversely, PTSD symptoms might lead to a reliance on secondary attachment strategies, impairing mentalizing and culminating in dissociative and borderline manifestations. Future studies should consider accounting for the interplay of these factors.

Clinical implications

In broader terms, our findings, albeit preliminary, lend some credence to the social-cognitive model of BPD and PTSD that is rooted in early attachment trauma. This aligns with contemporary literature. For instance, Wagner-Skacel et al. (2022) documented associations between adverse childhood experiences, diminished mentalizing, heightened dissociation and exacerbated PTSD symptoms. A substantial body of work substantiates the detrimental impact of adversity and trauma on the development of mentalizing (Luyten, Campbell, & Fonagy, 2020; Luyten & Fonagy, 2019). Such adversities seem to adversely influence caregivers' mentalizing (Wang, 2022). Significantly, the ability to mentalize in relation to traumatic experiences, termed trauma-specific reflective functioning, emerges as a potential protective buffer (Garon-Bissonnette et al., 2022) that mitigates the adverse effects of childhood adversities on outcomes in later life (Berthelot et al., 2015; Ensink et al., 2017). We postulate that the coexistence of conditions such as BPD and PTSD might reflect variations in the severity of presentation or overarching psychopathology (Caspi & Moffitt, 2018). The correlation between BPD symptoms and general psychopathology (the so-called p factor) is strong, with $r > .8$. This association suggests a potential conceptualization of the general psychopathology factor and latent BPD as a unified construct rather than disparate entities (Gluschkoff et al., 2021). The pervasiveness of mentalizing deficits across a broad spectrum of psychiatric conditions supports the perspective that overarching psychopathology encompasses mentalizing challenges (for reviews, see Luyten, Campbell, Allison, & Fonagy, 2020; Wendt et al., 2023).

Our preliminary results suggest that symptoms of BPD, the six symptom clusters of cPTSD and the subsequent impairments in self-experience, social adaptation and overall well-being can be attributed at least in part to suboptimal mentalizing. In particular, the level of uncertainty about mental states may render individuals increasingly vulnerable to the escalating severity of borderline symptoms and dissociation. Following this developmental psychopathology model, deficiencies in mentalizing detract from effective social communication, leading to rigidity in adapting to evolving situations. This inflexibility might stem from a reluctance to assimilate new information and the epistemic hypervigilance typically linked to social trauma. Tackling these mentalizing constraints, which fuel epistemic mistrust and a limited grasp of interpersonal motives, could be pivotal for therapeutic change and recovery (Bateman et al., 2018; Fonagy et al., 2015; Kampling et al., 2022). By stabilizing and augmenting a patient's capacity to mentalize about traumatic experiences, clinicians might facilitate the re-establishment of trust, in turn bolstering social learning and receptiveness to novel insights, fostering resilience (or *salutogenesis*, the ability to benefit from positive resources in the environment) and promoting enhanced adaptability through nurturing openness to others during and after treatment (Fonagy et al., 2017).

A central finding in this study is that uncertainty about mental states operates as a partial mediator in the relationship between BPD and PTSD. This underscores the need for therapeutic interventions to acknowledge the pronounced disorganization of self-experience and propensities for dissociation within this group of patients. Addressing these facets within an MBT framework might yield extensive benefits for patients, transcending specific diagnostic labels or clinical complexities.

Notably, MBT has already demonstrated superior efficacy compared with structured clinical management, particularly for more severely affected BPD patients characterized by elevated general psychopathology factors, as denoted by an intensification of symptoms and concurrent comorbid personality disorders (Bateman & Fonagy, 2009). In lieu of solely emphasizing differential diagnoses between BPD and cPTSD, treatment evaluations might be more fruitfully directed at assessing general psychopathology and well-being. A more subtle approach would entail conceptualizing patients' challenges through the lens of mentalizing deficiencies, probing into four core domains: mentalizing traumatic events, mental evasion/isolation, vigilance and mentalizing self-connoted shame. An adaptation of MBT focusing on trauma (MBT-Trauma Focused), which accentuates mentalizing trauma while concurrently addressing dissociation and self-experience, and which uses interventions targeting mentalizing and anxiety first, followed by mentalizing and trauma memory, could be especially beneficial for those with pronounced borderline symptoms. This would be especially relevant and would maximize therapeutic outcomes for patients who report extensive trauma histories, show PTSD symptoms and display diminished well-being.

CONCLUSION

The current study demonstrated that patients with a diagnosis of BPD in conjunction with PTSD may be characterized by higher BPD severity, higher indices of retrospectively reported childhood sexual abuse, lower levels of well-being and reduced capacities in the domain of self-functioning compared with patients diagnosed with BPD-only. Moreover, mentalizing partially mediated the associations between key variables (childhood sexual abuse, dissociation and BPD symptom load) and diagnostic group status (BPD-PTSD vs. BPD-only). Taken together, these findings underscore the role of ineffective personal and social functioning in trauma-related psychopathology and highlight the need to develop and test interventions that target transdiagnostic mechanisms such as mentalizing.

AUTHOR CONTRIBUTIONS
Anthony Bateman: Conceptualization; methodology; project administration; writing – original draft; writing – review and editing. **Eva Rüfenacht:** Data curation; formal analysis; writing – original draft. **Nader Perroud:** Data curation; formal analysis; investigation; methodology. **Martin Debbané:** Conceptualization; formal analysis; methodology. **Tobias Nolte:** Writing – original draft; writing – review and editing. **Lisa Shaverin:** Conceptualization; writing – original draft. **Peter Fonagy:** Conceptualization; writing – original draft; writing – review and editing.

CONFLICT OF INTEREST STATEMENT
No conflict of interest reported by authors.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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