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Research article

Instability of the unstable, an observation of borderline personality disorder traits and impulsivity declaration during the pandemic

L'instabilité de l'instable, une observation des traits du trouble de la personnalité borderline et de la déclaration d'impulsivité pendant la pandémie

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ABSTRACT

Background. – Borderline personality disorder (BPD) is a complex mental health condition characterized by emotional, relational, and cognitive dysregulations. It is often misdiagnosed or underdiagnosed, contributing to stigmatization and inconsistent treatment. The COVID-19 pandemic, with its unique stressors, offered an opportunity to examine BPD traits in the general population.

Aims. – This study compares the manifestation of BPD traits during the COVID-19 pandemic across clinical and non-clinical populations in France. It hypothesizes that the general population, despite experiencing similar stress-induced behaviors, will exhibit different levels of BPD traits.

Methods. – We administered the Borderline Personality Questionnaire (BPQ), Impulsive Behavior Scale (UPPS), and Beck Hopelessness Scale (BHS) to a sample of 563 respondents via an online questionnaire.

Results. – The findings reveal that while all groups exhibited elevated impulsivity and anxiety, BPD patients exhibited significantly higher levels of hopelessness, suicidal tendencies, anxiety and depression. This indicates the chronic and pervasive nature of BPD compared with stress-induced behaviors in the general population or other clinical samples.

Discussion. – The results highlight the distinct nature of BPD traits and the necessity of refined diagnostic and treatment approaches. We specifically note that the “Emptiness” trait affects the overall severity of BPD. The analysis allows for the nuanced understanding that BPD, rather than being a unified pathological entity, is a disorder in which predominant traits can affect the overall severity.

Conclusion. – BPD is a prevalent yet underdiagnosed disorder, with traits such as chronic emptiness remaining stable despite external stressors such as the COVID-19 pandemic. Focusing on understudied traits such as emptiness could enhance therapeutic approaches, and further research is needed to refine diagnostic methods and better understand BPD's diverse symptom profiles.

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R É S U M É

Contexte. – Le trouble de la personnalité borderline (TPB) est un trouble psychiatrique complexe caractérisé par des dysrégulations émotionnelles, relationnelles et cognitives. Il reste souvent mal diagnostiqué ou sous-diagnostiqué, ce qui contribue à sa stigmatisation et à l'incohérence des approches thérapeutiques. La pandémie de COVID-19, avec ses facteurs de stress uniques, a été l'opportunité d'examiner les traits de personnalité correspondant au TPB dans la population générale.

Objectifs. – Cette étude vise à comparer la manifestation du TPB pendant la pandémie de COVID-19 dans la population clinique et non clinique en France. Elle émet l'hypothèse que la population générale, bien que présentant des comportements similaires au TPB induits par le stress, présentera des niveaux différents de symptomatologie.

Mots clés :

Trouble de la personnalité borderline

Urgence positive

Urgence négative

Sentiment de vide

Anxiété

Dépression

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Méthodes. – Nous avons utilisé le questionnaire de personnalité borderline (BPQ), l'échelle de comportement impulsif (UPPS), l'échelle de désespoir de Beck (BHS), dans un échantillon de 563 répondants à un questionnaire en ligne.

Résultats. – Les résultats révèlent que si tous les groupes présentent une dimension impulsive et une anxiété élevée, les patients souffrant de TPB présentent des niveaux significativement plus élevés de désespoir, de tendances suicidaires, d'anxiété et de dépression. Cela suggère la nature chronique et omniprésente du TPB par rapport aux comportements induits par le stress dans la population générale ou dans d'autres échantillons cliniques.

Discussion. – Les résultats soulignent la nature distincte des traits de TPB et la nécessité d'affiner les approches diagnostiques et thérapeutiques. Nous discutons en particulier du fait que le trait « sentiment de vide » a un impact sur la sévérité globale du TPB. L'analyse permet une compréhension nuancée de la TPB en tant que trouble où les traits prédominants peuvent avoir un impact sur la sévérité globale plutôt qu'en tant qu'entité pathologique unifiée.

Conclusion. – Le TPB est un trouble répandu mais toujours sous-diagnostiqué, avec des traits comme le « sentiment de vide » qui restent stables malgré des facteurs de stress externes comme la pandémie de COVID-19. Le fait de se concentrer sur des traits peu étudiés comme le « sentiment de vide » pourrait améliorer les approches thérapeutiques, et des recherches supplémentaires sont nécessaires pour affiner les méthodes de diagnostic et mieux comprendre les divers profils de symptomatologie dans le TPB.

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1. Introduction

1.1. Borderline personality disorder

Borderline personality disorder (BPD) symptoms include “frantic” attempts to avoid abandonment, impulsivity, dissociative symptoms, and emotional dysregulation [1], recalling the traits of bipolar disorder (BD) [2] or schizophrenia [3]. BPD patients often navigate multiple healthcare services and require extensive support, reflecting the complexity of their needs and recurrent relapses [4], and psychiatric hospital staff do not always have appropriate attitudes toward them [5]. For example, healthcare professionals (HCPs) exhibited less empathy and more negative attitudes toward, and favored shorter-term treatment approaches for, those with BPD, with only a minority expressing interest in enhancing their professional competencies in managing patients with this condition [5]. In 2020, personality disorder (PD) diagnoses still appeared to be undervalued or underestimated by HCPs [6,7], as the condition is still confused with behavioral eccentricities or abnormalities that occur in non-pathological human functioning.

BPD is often misdiagnosed as BD due to “stigma, unfamiliarity [...] and perceived difficulty in treating” [8] and heterogeneous phenotypes [9]. Clinicians even tend to avoid diagnosing BPD [10]. HCPs or the general population (including patients' families) may even conclude that BPD is not “real” [11]. More precisely, some studies indicate that certain clinicians perceive BPD patients as manipulative, attributing to them greater control over their emotions and behaviors compared with other patients, and viewing their actions as deliberate misconduct rather than symptoms of a mental illness [12,13]. HCPs can feel that they are failing if they find “just” a PD [14]. Patients themselves describe differences in their experiences of diagnostic procedures, differences that have a strong impact on follow-up and on their trust in care services [15]. In a systematic literature review on patients' experiences, Lester et al. reported that patients often face negative and unhelpful responses from HCPs, resulting in inconsistent care, lack of empathy, misunderstanding of self-harm behaviors, and feelings of invalidation and powerlessness [15]. From these negative experiences, broader concerns arise about the diagnosis, including doubts as to the validity of PD diagnoses and the stigma associated with BPD. Some patients felt that BPD was used as a label when clinicians were unsure of the appropriate diagnosis [16]. Positive experiences with

diagnosis communication were linked to factors such as promoting patient autonomy, offering psychoeducation, collaborating on more tailored therapies, and maintaining transparency within the therapeutic relationship [15].

In contrast, on the research side, data about BPD overdiagnosis have created confusion about its prevalence among PDs. When looking at the hypothetical PD overdiagnosis in an eating disorder sample in 2013, Von Lojewski et al. [17] showed that among those with PD diagnoses (58%), clusters C and B were the most represented; when checking for PD dimensions, however, they found significantly lower BPD scores, indicating that, depending on the trait descriptions, one can interpret the presence of a full BPD diagnosis when only a few criteria are met. Another research area that has created confusion is the examination of lifelong symptom expression. For example, misinterpreted longitudinal studies can be used to demonstrate high remission rates and low relapse rates, given that BPD can “self-resolve”, hiding the impact of periods of crisis when symptoms re-emerge and affect patient life [18]. This difficulty of consistently considering, diagnosing, and treating BPD has a strong impact on diagnostic politics (e.g., regarding the struggle to recognize child and adolescent detection [19]) and also hinders clinical care development [20].

The recent COVID-19 pandemic crisis represents a real-time experience of strong emotional dysregulation, relational issues, a sense of isolation or abandonment amid need, heightened suicide risk, impulsivity issues, and even of psychotic expressions: the general population experienced stress, sleep disorders, heightened depression-anxiety symptoms [21], and worsened mental health [22]. Research has mostly examined “mental health” or “psychological distress” rather than precise psychopathological issues [23]. In their systematic literature review of the mental health research focus during the COVID-12 pandemic, Liang et al. [23] analyzed keywords as representing the focus of articles. Some interest in pathological issues is indicated by the keywords “burnout”, “trauma”, “insomnia”, “psychiatry”, “psychotherapy”, “depressive symptoms”, “psychological intervention”, “anxiety”, “depression”, “PTSD”, and “suicidal ideation”, all of which were clustered as “stress” terms in the reviewed analyses, representing the 7th-ranked cluster of research terms during the pandemic, above the 8th-ranked cluster in the report (see Table 5 in [23]).

Considering how the specifically “vulnerable” psychiatric population reacted to the crisis can help us understand their reaction to heightened stress compared with that of the general population.

1.1.1. Aims

We aim to compare the prevalence of BPD traits during COVID-19 across a clinical and non-clinical population recruited via online questionnaires. We hypothesize that even if the general population undergoes similar BPD-like dysregulation, they will not have declared borderline trait levels comparable to those of BPD patients.

2. Methods

2.1. Procedures

The participants accessed the survey through a link and completed it in full. Research ethics committee approval was deemed unnecessary. The protocol adhered to Declaration of Helsinki ethics recommendations regarding patient information and collecting informed consent, and to General Data Protection Regulation (GDPR) rules regarding the collection of anonymous data. Participants provided online informed consent for both participation and the publication of results. The survey, which included clinical scales and demographic questions, took 20–30 minutes to complete online. The exclusion criteria were a known neurological disease and developmental disability. Participants were proficient in French, over 18 years old, and were naïve as to the purpose of the study.

2.2. Participants

We recruited 563 respondents via an online questionnaire in France from September 2020 to March 2021, excluding 49 responses due to missing data. The healthy control group during the pandemic¹ (Gp1) comprised the 246 participants with no declared psychiatric issues. The general clinical group during the pandemic (Gp2) comprised 241 participants with a history of anxiety or depression necessitating psychiatric care (at least once). These participants were called “clinical” based on their own declaration of having ever received psychiatric care. A small group of BPD patients was also recruited during the pandemic ($n = 27$). They constituted the BPD Group (Gp3) and were recruited by snowball sampling via a network of clinical psychologists and psychiatrists who were asked to share the questionnaire link with their BPD patients. As the link was anonymously shared, their diagnoses were considered to be self-declared, as we trusted the participants’ solemn declarations. The mean age of Gp1 was 32.4 years ($SD = 13.6$), of Gp2 was 35.6 years ($SD = 12.6$), and of Gp3 was 47.9 years ($SD = 11.3$). The gender ratio was 131 male, 380 female, and three non-gendered participants.

2.3. Measures

2.3.1. Borderline Personality Questionnaire

This questionnaire assesses the presence and severity of BPD traits. The Borderline Personality Questionnaire (BPQ) [24] is an 80-item true/false self-report measure with nine subscale scores corresponding to the nine criteria of BPD diagnosis: impulsivity, affective instability, abandonment, relationships, self-image, suicide/self-mutilation, emptiness, intense anger, and quasi-psychotic states. All subscale scores will be noted as the traits they represent by using upper case; for example, the abandonment subscale score = Abandonment and the emptiness subscale score = emptiness. BPQ has a Cronbach’s α of 0.93. Analyses indicated high internal consistency ($\alpha = 0.84$), good test–retest reliability ($r = 0.77$), significant discrimination from schizotypal

personality disorder ($r = -0.31$, $P < 0.05$), significant convergence with SCID-II ($r = 0.72$), and significant predictive validity for psychiatric diagnosis ($P < 0.01$) [25]. We applied a cutoff score of > 56 based on validation studies in a younger population [26] and corresponding to a previous finding of a mean score of > 52 in BPD patients (non validated) [27].

2.3.2. UPPS Impulsive Behavior Scale-Short version

The UPPS Impulsive Behavior Scale-Short version (UPPS-S) [28] is a self-report scale comprising 20 items assessing four factors of impulsivity:

- negative urgency);
- positive urgency
- lack of premeditation;
- lack of perseverance;
- sensation seeking.

Positive urgency assesses the level of impulsivity caused by positive emotions, and negative urgency assesses the level of impulsivity caused by negative emotions. We used the French version of the UPPS-S scale [28], which presented reliable internal consistency with Cronbach’s α values of 0.78 for negative urgency, 0.70 for positive urgency, 0.79 for lack of premeditation, 0.84 for lack of perseverance, and 0.83 for sensation seeking. Recent research has measured subscale mean scores in psychiatric disorders ranging from 9.85 (3.2) to 13.02 (2.86) for negative urgency, from 10.43 (2.84) to 12.56 (3.00) for positive urgency, from 7.26 (2.91) to 11.14 (2.92) for Sensation Seeking, from 7.26 (2.69) to 8.25 (2.86) for lack of premeditation, and from 7.12 (2.45) to 9.03 (3.21) for lack of perseverance [29]. We will use the reported mean scores for PD as reference scores for moderate impulsivity, with 8.49 (0.31) for negative urgency, 7.26 (0.26) for positive urgency, 7.27 (0.21) for lack of premeditation, 7.36 (0.22) for lack of perseverance, and 10.22 (0.30) for sensation seeking.

2.3.3. Beck Hopelessness Scale

The Beck Hopelessness Scale (BHS) is a widely used psychological assessment tool designed to measure the extent of negative expectations about the future. This scale comprises 20 true/false items evaluating three major aspects of hopelessness: feelings about the future, loss of motivation, and expectations; we used the French validation of this scale [30]. BHS has been validated in clinical and non-clinical populations and is notable for its strong psychometric properties (its Cronbach’s α coefficients typically range from 0.82 to 0.93, indicating high internal consistency) with a cutoff score of > 9 [31].

2.3.4. Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression Scale (HADS) is a self-assessment measure specifically designed to identify and quantify levels of anxiety and depression among patients in non-psychiatric hospital settings. HADS consists of 14 items, divided into two subscales: seven items for anxiety (HADS-A) and seven for depression (HADS-D) in the French validation, as in the original version [32]. Each item is rated on a four-point Likert scale, contributing to a score range of 0–21 for each subscale. In terms of reliability, its Cronbach’s α values are in the range of 0.68 to 0.93 for HADS-A and 0.67 to 0.90 for HADS-D, with cutoff scores of 7 for both subscales.

2.3.5. Suicidal Behavior Questionnaire-Revised

The Suicidal Behavior Questionnaire-Revised (SBQ-R) is a concise (four items) and efficient instrument designed for the assessment of suicidal behavior and tendencies [33]. Its multifaceted approach allows for the comprehensive evaluation of suicidal risk in various populations, including adolescents, adults, and specific clinical groups [34]. It is one of the few instruments

¹ “Pandemic” here refers here to the period of lockdowns and restrictive protections that occurred during the COVID-19 outbreak in France up to March 2021.

inquiring about both past and future suicidal thoughts/behaviors, including lifetime suicidal ideation, suicide plans, and attempts. Shakeri et al. (2015) [35] adapted it for use with psychiatric populations, with scores of 7 or higher in the general population and 8 or higher in psychiatric patients indicating significant suicide risk. We employed the French version validated by Potard et al. (2014) [36], which displays high reliability (Cronbach's $\alpha = 0.97$).

3. Results

We used jamovi open-source statistical analysis software (www.jamovi.org) to run our non-parametric tests (based on the non-normal distribution of all the results; see the Shapiro test results in Fig. 1). The level of significance was set to $P < 0.05$.

3.1. Descriptive results

All mean and SD values are presented in Table 1 for age and for the UPPS and BHS scores. Table 2 presents all mean and SD values for the BPQ trait scores and total BPQ scores across groups. Observing the cutoff scores for the scales, only Gp3 had a pathological score for SBQ-R and BHS. All three groups had superior to moderate levels of positive urgency and lack of premeditation, and only Gp2 and Gp3 had superior to moderate levels of lack of premeditation.

3.2. Comparison results

Significant differences were found at the comparative level among all groups for age, SBQ-R, HADS-A and HADS-D, BPQ total score, and BHS. The UPPS dimensions lack of premeditation and lack of perseverance were significantly different only between Gp1 and Gp2. At the subscale level of BPQ, all scores differed between Gp1 and Gp2 except for the Quasi-Psychotic State score. All results are presented in Table 3 and (Figs. 1 and 2). Notably, all groups had scores above the cutoff for HADS-A, but only Gp3 exceeded the cutoff for HADS-D.

3.3. Correlations

For Gp1 (Table 4), the strongest positive correlation is between emptiness (measured by the BPQ subscale score) and BPQ total ($r = 0.812, P < 0.001$). Anxiety (HADS-A) is significantly correlated with affective instability ($r = 0.583, P < 0.001$) and abandonment ($r = 0.476, P < 0.001$). Depression (HADS-D) is significantly correlated with anxiety ($r = 0.481, P < 0.001$) and emptiness ($r = 0.586, P < 0.001$). BPQ total displays significant positive correlations with almost all variables, reinforcing its likely cumulative nature. Mental health variables (i.e., HADS-A and HADS-D) are consistently correlated with personality and behavioral traits.

SBQ-R, a measure often used to assess suicide-related behaviors and ideations, displays a range of correlations with other psychological constructs. Notable correlations include moderate positive correlations with HADS-D ($r = 0.332, P < 0.001$) and positive urgency ($r = 0.085, P = 0.181$). These correlations suggest that higher SBQ-R scores are associated with higher levels of depression and, to a lesser extent, with positive urgency. BHS, which measures hopelessness, also displays several significant correlations. There is a strong positive correlation with HADS-D ($r = 0.472, P < 0.001$), indicating that higher levels of depression are associated with increased feelings of hopelessness. Another notable correlation is with BPQ total ($r = 0.592, P < 0.001$), suggesting that overall BPD traits are strongly linked to hopelessness. In summary, while both SBQ-R and BHS in Gp1's correlation matrix (see correlation matrix: group 1) are significantly correlated with depression, they each have unique associations with other psychological constructs, reflecting their specific focus areas within mental health assessment.

For Gp2 (Table 5), the strongest positive correlation is between emptiness and self-image ($r = 0.734, P < 0.001$), whereas the strongest negative correlation is between negative urgency and age ($r = -0.304, P < 0.001$). Many correlations are statistically significant ($P < 0.05$). For instance, HADS-A displays significant positive correlations with variables such as abandonment, self-image, and suicide/self-mutilation. HADS-D displays significant positive correlations with several variables, notably with emptiness ($r = 0.563, P < 0.001$). BPQ total displays significant positive correlations with almost all variables, confirming it as a cumulative or summary measure. Mental health-related variables (i.e., HADS-A and HADS-D) tend to have significant correlations with many personality and behavioral traits, such as affective instability, abandonment, and self-image. Age seems to have weaker or non-significant correlations with most variables, except for a moderate negative correlation with negative urgency. SBQ-R, associated with suicidal behaviors and ideations, displays significant correlations with several variables; notably, it has a moderate positive correlation with HADS-D ($r = 0.276, P < 0.001$) and a stronger one with HADS-A ($r = 0.280, P < 0.001$). These correlations suggest that higher SBQ-R scores are linked to higher levels of depression and anxiety, aligning with the expected patterns in psychological assessments, in which depression and anxiety levels correlate with heightened suicidal risk [37,38]. BHS, measuring hopelessness, also displays significant correlations with other variables. A strong correlation is observed with HADS-D ($r = 0.529, P < 0.001$), implying a strong link between depression and feelings of hopelessness. Additionally, BHS displays a notable correlation with BPQ total ($r = 0.493, P < 0.001$), indicating that overall psychological distress is closely associated with hopelessness. The correlations in correlation matrix: group 2 mirror those in correlation matrix: group 1, demonstrating consistent patterns across these two different groups. In summary, in the correlation matrix for Gp2, the analysis confirms the interrelatedness of SBQ-R and BHS with depression, anxiety, and overall psychological distress, underlining the importance of these measures in understanding the multifaceted nature of mental health. Both measures, while overlapping in some respects, play distinct roles in psychological assessments.

For Gp 3 (Table 6), the strongest positive correlation is between emptiness and BPQ total ($r = 0.700, P < 0.001$), as in Gp1, but there are no strong negative correlations, with absolute values being close to 1. Several correlations are significant ($P < 0.05$). Notably, HADS-A is significantly positively correlated with Affective Instability ($r = 0.605, P < 0.001$) and self-image ($r = 0.544, P = 0.003$). Positive urgency displays a strong significant correlation with lack of premeditation ($r = 0.671, P < 0.001$) in this BPD group. Emptiness displays strong positive correlations with BPQ total, self-image, and HADS-A, indicating a potential link to overall distress and self-perception issues. Age displays negative correlations with several variables, such as HADS-A and negative urgency, though not all are statistically significant. Comparing this correlation matrix with the correlation matrix: group 2, there are some consistent themes, such as the significance of the mental health variables (i.e., HADS-A and HADS-D) in relation to personality. However, the specific strengths and patterns of correlation can vary. In correlation matrix: group 3, SBQ-R displays a strong positive correlation with emptiness ($r = 0.700, P < 0.001$) and a moderate correlation with HADS-D ($r = 0.452, P = 0.018$). This suggests that higher SBQ-R scores are closely associated with feelings of emptiness and depression. BHS in correlation matrix: group 3 displays a notable positive correlation with BPQ total ($r = 0.703, P < 0.001$) and HADS-D ($r = 0.529, P < 0.001$), indicating that higher levels of hopelessness are linked with overall BPD traits and depression.

Across all three correlation matrices, SBQ-R consistently displays significant positive correlations with HADS-D, suggesting a stable relationship between suicidal behaviors and depressive

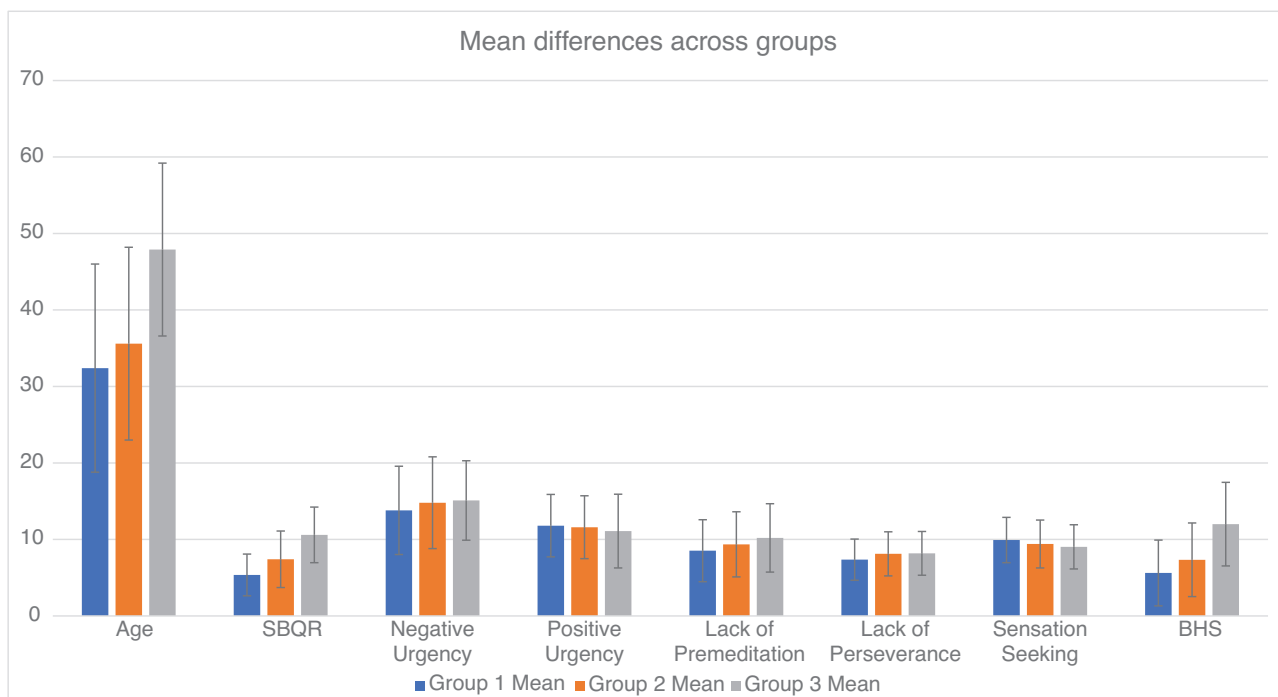


Fig. 1. Mean comparison for age, SBQ-R, UPPS, and BHS.

Table 1
Mean descriptions.

	Group	Age	SBQ-R	HADS-A	HADS-D	Negative urgency	Positive urgency	Lack of pre-meditation	Lack of perseverance	Sensation seeking	BHS
<i>n</i>	1	246	246	246	246	246	246	246	246	246	246
	2	241	241	241	241	241	241	241	241	241	241
	3	27	27	27	27	27	27	27	27	27	27
Mean	1	32.4	5.36	8.16	5.03	13.8	11.8	8.53	7.36	9.93	5.62
	2	35.6	7.41	10.2	6.34	14.8	11.6	9.36	8.12	9.41	7.34
	3	47.9	10.6	13.9	9.52	15.1	11.1	10.2	8.19	9.04	12.0
Standard deviation	1	13.6	2.73	4.11	3.61	5.77	4.08	4.05	2.69	2.96	4.30
	2	12.6	3.70	4.24	4.02	6.00	4.11	4.26	2.88	3.13	4.81
	3	11.3	3.63	3.58	3.71	5.19	4.82	4.47	2.86	2.89	5.46
Shapiro-Wilk <i>W</i>	1	0.872	0.800	0.962	0.921	0.972	0.990	0.965	0.926	0.976	0.901
	2	0.930	0.899	0.977	0.938	0.967	0.987	0.966	0.950	0.971	0.925
	3	0.944	0.950	0.942	0.971	0.977	0.973	0.944	0.961	0.959	0.917
Shapiro-Wilk <i>P</i>	1	<0.001	<0.001	<0.001	<0.001	<0.001	0.082	<0.001	<0.001	<0.001	<0.001
	2	<0.001	<0.001	<0.001	<0.001	<0.001	0.026	<0.001	<0.001	<0.001	<0.001
	3	0.153	0.214	0.134	0.623	0.794	0.678	0.151	0.393	0.345	0.033

Cutoff scores from the literature: SBQ-R > 8; HADS-A and D = 7; moderate impulsivity score for negative urgency 8.49 (0.31); positive urgency 7.26 (0.26); lack of premeditation 7.27 (0.21); lack of perseverance 7.36 (0.22); and sensation seeking 10.22 (0.30); BPQ total score > 56; BHS > 9.

symptoms. The degree of correlation varies, but the direction remains consistent, no matter the clinical status. SBQ-R correlates with the specific variable “Emptiness”, specifically in Gp3, a pattern of correlation that was not as pronounced in the matrices for Gp1 and Gp2. The relationship between BHS and overall BPD traits (as indicated by BPQ total) seems more pronounced in correlation matrix: group 3 than in correlation matrix: group 2, suggesting potential group-specific dynamics.

A general overview allows us to observe that, in all correlation matrices, variables such as HADS-A and HADS-D consistently display significant correlations with various personality traits. The analysis across the three matrices highlights consistent patterns in the relationships of SBQ-R and BHS with depression, underlining their importance in mental health assessments in periods of crisis. While there are group-specific differences in the correlations, the overarching trends suggest that both measures are sensitive indicators of depressive symptoms, with SBQ-R additionally reflecting

immediate suicide-related behaviors and BHS capturing a broader sense of hopelessness.

4. Discussion

Our results reveal the differences among people affected with emotion dysregulation, impulsivity issues, and relational issues, regarding BPD traits. Indeed, the clinical sample (Gp2) was the second most representative and the healthy controls (Gp1) had the lowest scores in all traits. The BPD participants displayed heightened levels of BPD traits.

Regarding the cutoff scores for the clinical measures of anxiety and depression, only Gp3 had over-threshold scores for Hopelessness, SBQ-R, and HADS-D, whereas the other groups only had over-threshold scores for HADS-D.

Moreover, for positive urgency, Gp1 had the second-highest score. This is congruent with literature showing that impulsivity was sometimes triggered by hedonistic behavior during

Table 2
Mean description for BPQ scores.

	Group	Impulsivity	Affective instability	Abandonment	Relationships	Self-image	Suicide/self-mutilation	Emptiness	Intense anger	Quasi-psychotic states	BPQ total
<i>n</i>	1	246	246	246	246	246	246	246	246	246	246
	2	241	241	241	241	241	241	241	241	241	241
	3	27	27	27	27	27	27	27	27	27	27
Mean	1	1.51	3.49	2.19	1.96	2.98	0.837	2.83	2.26	1.54	19.6
	2	1.85	5.20	3.05	2.59	4.24	1.92	4.05	3.05	1.85	27.8
	3	3.78	7.30	5.04	4.11	6.11	4.22	7.30	4.56	3.44	45.9
Standard deviation	1	1.43	3.16	2.08	2.25	2.10	1.46	2.97	2.63	1.47	13.1
	2	1.64	3.08	2.25	2.51	2.37	2.14	3.15	2.70	1.68	13.6
	3	2.15	2.33	2.16	2.89	2.44	2.47	2.54	2.97	1.91	12.0
Shapiro-Wilk <i>W</i>	1	0.870	0.888	0.875	0.813	0.867	0.633	0.853	0.805	0.872	0.937
	2	0.880	0.944	0.933	0.861	0.939	0.822	0.908	0.898	0.886	0.971
	3	0.932	0.915	0.960	0.904	0.778	0.860	0.868	0.935	0.928	0.967
Shapiro-Wilk <i>P</i>	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	3	0.078	0.030	0.372	0.016	<0.001	0.002	0.003	0.092	0.062	0.535

Cutoff scores from the literature: SBQ-R > 8; moderate impulsivity score for negative urgency 8.49 (0.31); positive urgency 7.26 (0.26); lack of premeditation 7.27 (0.21); lack of perseverance 7.36 (0.22); and sensation seeking 10.22 (0.30); BPQ total score > 56; H > 9.

Table 3
Mann-Whitney U comparisons.

Gp 1 & 2	Age	SBQ-R	HADS-A	HADS-D	Negative Urgency	Positive Urgency	Lack of Premeditation	Lack of Perseverance	Sensation Seeking	Impulsivity	Affective Instability	Abandonment	Relationships	Self-Image	Suicide/Self-Mutilation	Emptiness	Intense Anger	Quasi-Psychotic States	TOTAL	BHS	
Statistic	24022	18645	21230	23859	26801	28703	26168	25061	26677	26148	20250	22535	25040	20335	20829	22331	23703	26826	19144	22978	
p	<.001	<.001	<.001	<.001	0.067	0.544	0.025	0.003	0.055	0.021	<.001	<.001	0.002	<.001	<.001	<.001	<.001	0.063	<.001	<.001	
Mean difference	-4.000	-2.000	-2.000	-1.000	-1.000	3.04e-5	-1.000	-1.000	1.000	-3.02e-5	-2.000	-1.000	-5.63e-5	-1.000	-2.47e-5	-1.000	-1.000	-3.06e-7	-8.000	-2.000	
Effect Size	0.1896	0.3710	0.2838	0.1951	0.0959	0.0317	0.1172	0.1546	0.1001	0.1179	0.3169	0.2398	0.1553	0.3140	0.2974	0.2467	0.2004	0.0950	0.3542	0.2248	
Gp 1 & 3	Age	SBQ-R	HADS-A	HADS-D	Negative Urgency	Positive Urgency	Lack of Premeditation	Lack of Perseverance	Sensation Seeking	Impulsivity	Affective Instability	Abandonment	Relationships	Self-Image	Suicide/Self-Mutilation	Emptiness	Intense Anger	Quasi-Psychotic States	TOTAL	H	
Statistic	1195	860	1018	1254	2854	2942	2615	2717	2778	1316	1204	1122	1880	1174	968	929	1844	1421	540	1230	
p	<.001	<.001	<.001	<.001	0.230	0.330	0.069	0.118	0.161	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Mean difference	-18.000	-6.000	-6.000	-5.000	-1.000	1.000	-2.000	-1.000	1.000	-2.000	-4.000	-3.000	-2.000	-4.000	-3.000	-5.000	-2.000	-2.000	-28.000	-7.000	
Effect Size	0.640	0.741	0.693	0.623	0.141	0.114	0.213	0.182	0.164	0.604	0.637	0.662	0.434	0.646	0.709	0.720	0.445	0.572	0.838	0.630	
Gp 2 & 3	Age	SBQ-R	HADS-A	HADS-D	Negative Urgency	Positive Urgency	Lack of Premeditation	Lack of Perseverance	Sensation Seeking	Impulsivity	Affective Instability	Abandonment	Relationships	Self-Image	Suicide/Self-Mutilation	Emptiness	Intense Anger	Quasi-Psychotic States	TOTAL	H	
Statistic	1483	1715	1655	1742	3165	2984	2941	3175	3059	1531	1967	1667	2258	1801	1592	1434	2298	1698	1048	1702	
p	<.001	<.001	<.001	<.001	0.818	0.480	0.412	0.837	0.609	<.001	<.001	<.001	0.008	<.001	<.001	<.001	0.012	<.001	<.001	<.001	
Mean difference	-14.000	-4.000	-4.000	-4.000	-3.06e-5	1.000	-1.000	-3.21e-6	5.34e-5	-2.000	-2.000	-2.000	-2.000	-2.000	-2.000	-4.000	-2.000	-2.000	-19.000	-5.000	
Effect Size	0.5443	0.4730	0.4915	0.4646	0.0272	0.0828	0.0961	0.0241	0.0599	0.5294	0.3954	0.4876	0.3060	0.4466	0.5108	0.5594	0.2937	0.4783	0.6779	0.4769	

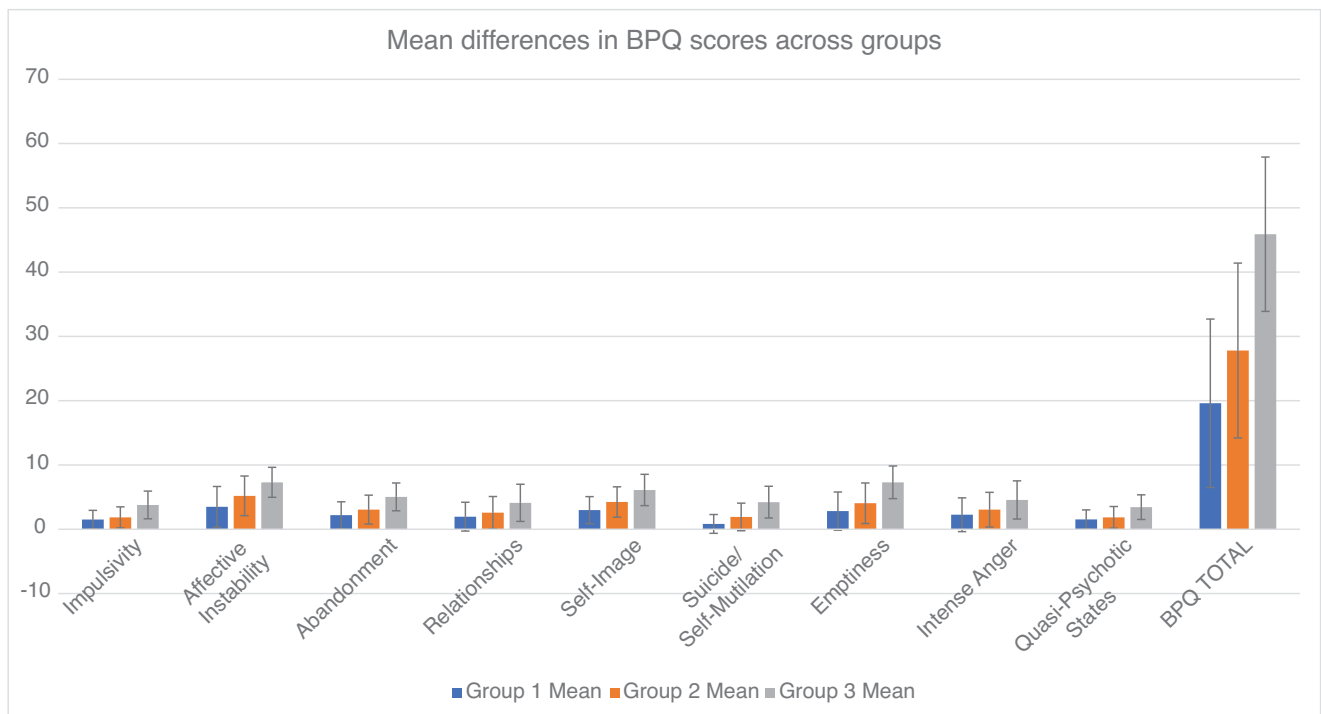


Fig. 2. Mean comparison for BPQ scores.

Table 4
 Correlation matrix: group 1.

		Age	SBQ-R	HADS A	HADS D	Negative Urgency	Positive Urgency	Lack of Premeditation	Lack of Perseverance	Sensation seeking	Impulsivity	Affective Instability	Abandonment	Relationships	Self-Image	Suicide/Self-Mutilation	Emptiness	Intense Anger	Quasi-Psychotic States	BPO TOTAL	
HADS A	Spearman's rho	-	0.215	—																	
	p-value	0.068	<.001	—																	
HADS Dn	Spearman's rho	.219	0.332	0.481	—																
	p-value	0.044	<.001	<.001	—																
negative Urgency	Spearman's rho	0.364	0.087	0.248	0.174	—															
	p-value	<.001	0.176	<.001	0.006	—															
Positive Urgency	Spearman's rho	0.248	0.085	0.350	0.133	0.478	—														
	p-value	<.001	0.181	<.001	0.037	<.001	—														
Lack of premeditation	Spearman's rho	0.197	0.111	0.279	0.172	0.361	0.403	—													
	p-value	0.002	0.081	<.001	0.007	<.001	<.001	—													
Lack of perseverance	Spearman's rho	0.045	0.148	0.026	0.230	0.059	0.065	0.265	—												
	p-value	0.485	0.020	0.689	<.001	0.354	0.313	<.001	—												
Sensation seeking	Spearman's rho	0.107	0.089	0.023	0.037	0.065	0.082	-0.133	0.040	—											
	p-value	0.093	0.163	0.716	0.566	0.313	0.203	0.036	0.536	—											
Impulsivity	Spearman's rho	0.063	0.155	0.079	0.131	0.029	0.058	-0.041	0.167	0.329	—										
	p-value	0.329	0.015	0.218	0.041	0.648	0.368	0.524	0.009	<.001	—										
Affective Instability	Spearman's rho	0.234	0.363	0.583	0.486	0.290	0.256	0.227	0.191	0.097	0.206	—									
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	0.003	0.128	0.001	—								
Abandonment	Spearman's rho	0.155	0.315	0.476	0.438	0.188	0.253	0.215	0.161	0.045	0.091	0.584	—								
	p-value	0.015	<.001	<.001	<.001	0.003	<.001	<.001	0.011	0.481	0.156	<.001	—								
Relationships	Spearman's rho	0.181	0.280	0.297	0.377	0.091	0.089	0.159	0.124	-0.032	0.144	0.433	0.603	—							
	p-value	0.004	<.001	<.001	<.001	0.157	0.166	0.012	0.051	0.618	0.024	<.001	<.001	—							
Self-Image	Spearman's rho	0.216	0.312	0.402	0.424	0.169	0.255	0.342	0.217	-0.047	0.015	0.459	0.548	0.383	—						
	p-value	<.001	<.001	<.001	<.001	0.008	<.001	<.001	<.001	0.461	0.809	<.001	<.001	<.001	—						
Suicide/Self-Mutilation	Spearman's rho	0.174	0.475	0.267	0.310	0.155	0.056	-0.008	0.064	0.112	0.086	0.311	0.249	0.253	0.224	—					
	p-value	0.006	<.001	<.001	<.001	0.015	0.381	0.906	0.316	0.081	0.180	<.001	<.001	<.001	<.001	—					
Emptiness	Spearman's rho	0.224	0.467	0.460	0.586	0.178	0.152	0.281	0.328	0.002	0.152	0.583	0.589	0.463	0.691	0.340	—				
	p-value	<.001	<.001	<.001	<.001	0.005	0.017	<.001	<.001	0.976	0.017	<.001	<.001	<.001	<.001	<.001	—				
Intense Anger	Spearman's rho	0.143	0.145	0.388	0.256	0.158	0.209	0.201	0.058	-0.024	0.165	0.516	0.393	0.319	0.287	0.144	0.300	—			
	p-value	0.025	0.023	<.001	<.001	0.013	<.001	0.002	0.363	0.705	0.009	<.001	<.001	<.001	<.001	0.024	<.001	—			
Quasi-Psychotic States	Spearman's rho	0.011	0.196	0.149	0.192	0.042	-0.016	0.003	0.066	0.091	0.065	0.245	0.369	0.287	0.241	0.189	0.297	0.133	—		
	p-value	0.866	0.002	0.019	0.003	0.515	0.804	0.961	0.306	0.156	0.311	<.001	<.001	<.001	<.001	0.003	<.001	0.036	—		
BPO TOTAL	Spearman's rho	0.238	0.449	0.570	0.572	0.253	0.241	0.285	0.253	0.087	0.286	0.811	0.786	0.650	0.700	0.427	0.812	0.598	0.434	—	
	p-value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	0.172	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—
BHS	Spearman's rho	0.045	0.344	0.324	0.472	0.078	0.050	0.251	0.295	-0.096	0.076	0.422	0.395	0.296	0.587	0.181	0.678	0.198	0.281	0.592	
	p-value	0.481	<.001	<.001	<.001	0.226	0.431	<.001	<.001	0.135	0.236	<.001	<.001	<.001	<.001	0.004	<.001	0.002	<.001	<.001	

COVID-19 [39]. As these results were not significant, however, they may not be strongly representative. Other impulsivity scores were not significantly different among all three groups except for lack of premeditation and lack of perseverance, which differed between Gp1 and Gp2. This is congruent with recent literature confirming the role of negative urgency in impulsivity (i.e., addiction) [40] and disengagement from emotion regulation [41]. A more precise analysis proved that urgency related to dysfunction in cognitive control and emotion regulation led to inhibition deficits in high-arousal contexts [42], like the highly stressful context of COVID.

Our results indicate that BPD scores are connected to depression but that BPD traits are not heightened in the case of general

crisis. This supports the evidence that PDs remain stable over time, and are not prone to changing with external circumstances. Recent research has showed that even though expressions of BPD symptomatology may be variable, depending on the context and age of the patient [43], BPD nevertheless has a stable core and sizeable situational component, such that stressful events do not significantly redirect the BPD trajectory [44]. At the everyday level, when looking at the fluctuation of BPD traits over a 100-day research period, Wright and Simms [45] showed in 2016 that the traits remained stable, and only their expression varied. For instance, personality traits, as conceptualized in normative personality models, are now hierarchically organized in the new framework of PDs,

Table 5
 Correlation matrix: group 2.

		Age	SBQ-R	HADS-A	HADS-D	Negative Urgency	Positive Urgency	Lack of Premeditation	Lack of Perseverance	Sensation Seeking	Impulsivity	Affective Instability	Abandonment	Relationships	Self-Image	Suicide/Self-Mutilation	Emptiness	Intense Anger	Quasi-Psychotic States	BPQ TOTAL	
HADS-A	Spearman's rho	-0.118	0.280	—																	
	p-value	0.067	<.001	—																	
HADS-D	Spearman's rho	-0.039	0.276	0.465	—																
	p-value	0.551	<.001	<.001	—																
Negative Urgency	Spearman's rho	-0.304	0.009	0.076	0.047	—															
	p-value	<.001	0.889	0.242	0.463	—															
Positive Urgency	Spearman's rho	-0.246	0.070	0.180	0.032	0.439	—														
	p-value	<.001	0.282	0.005	0.618	<.001	—														
Lack of Premeditation	Spearman's rho	-0.257	0.055	0.222	0.181	0.343	0.339	—													
	p-value	<.001	0.394	<.001	0.005	<.001	<.001	—													
Lack of Perseverance	Spearman's rho	-0.061	0.178	0.116	0.264	0.008	0.033	0.231	—												
	p-value	0.343	0.006	0.072	<.001	0.903	0.614	<.001	—												
Sensation Seeking	Spearman's rho	-0.118	0.056	-0.053	0.132	0.114	0.097	0.117	0.080	—											
	p-value	0.068	0.385	0.413	0.041	0.077	0.134	0.070	0.215	—											
Impulsivity	Spearman's rho	-0.116	0.158	0.206	0.131	0.109	0.068	0.052	0.121	0.273	—										
	p-value	0.072	0.014	0.001	0.042	0.090	0.294	0.424	0.060	<.001	—										
Affective Instability	Spearman's rho	-0.234	0.259	0.445	0.355	0.132	0.142	0.207	0.171	0.061	0.277	—									
	p-value	<.001	<.001	<.001	<.001	0.041	0.028	0.001	0.008	0.349	<.001	—									
Abandonment	Spearman's rho	-0.142	0.302	0.366	0.372	0.038	0.056	0.199	0.064	0.046	0.165	0.434	—								
	p-value	0.027	<.001	<.001	<.001	0.559	0.391	0.002	0.324	0.474	0.010	<.001	—								
Relationships	Spearman's rho	-0.040	0.276	0.259	0.272	-0.048	0.063	0.079	0.110	0.033	0.172	0.343	0.555	—							
	p-value	0.538	<.001	<.001	<.001	0.463	0.328	0.221	0.090	0.609	0.008	<.001	<.001	—							
Self-Image	Spearman's rho	-0.114	0.310	0.354	0.425	-0.015	0.115	0.230	0.237	0.062	0.172	0.385	0.404	0.287	—						
	p-value	0.078	<.001	<.001	<.001	0.819	0.074	<.001	<.001	0.337	0.008	<.001	<.001	<.001	—						
Suicide/Self-Mutilation	Spearman's rho	-0.280	0.541	0.253	0.133	0.012	0.070	0.093	0.079	0.103	0.120	0.291	0.318	0.186	0.167	—					
	p-value	<.001	<.001	<.001	0.039	0.848	0.277	0.150	0.220	0.111	0.064	<.001	<.001	0.004	0.009	—					
Emptiness	Spearman's rho	-0.136	0.398	0.390	0.563	0.001	0.071	0.241	0.354	0.119	0.112	0.393	0.488	0.399	0.734	0.246	—				
	p-value	0.035	<.001	<.001	<.001	0.988	0.275	<.001	<.001	0.066	0.083	<.001	<.001	<.001	<.001	<.001	<.001	—			
Intense Anger	Spearman's rho	-0.083	0.066	0.323	0.210	0.181	0.122	0.136	0.138	0.057	0.307	0.389	0.271	0.346	0.187	0.088	0.183	—			
	p-value	0.199	0.311	<.001	0.001	0.005	0.058	0.035	0.032	0.381	<.001	<.001	<.001	<.001	0.004	0.172	0.004	—			
Quasi-Psychotic States	Spearman's rho	-0.038	0.188	0.114	0.219	0.113	0.016	0.048	0.129	0.078	0.222	0.300	0.278	0.322	0.167	0.089	0.280	0.225	—		
	p-value	0.560	0.003	0.077	<.001	0.081	0.801	0.458	0.045	0.226	<.001	<.001	<.001	<.001	0.009	0.168	<.001	<.001	—		
BPQ TOTAL	Spearman's rho	-0.216	0.440	0.499	0.512	0.083	0.139	0.252	0.260	0.035	0.386	0.738	0.719	0.649	0.676	0.427	0.736	0.527	0.476	—	
	p-value	<.001	<.001	<.001	<.001	0.198	0.031	<.001	<.001	0.592	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	—
BHS	Spearman's rho	0.056	0.453	0.316	0.529	-0.139	0.054	0.088	0.324	0.136	0.128	0.258	0.337	0.339	0.496	0.139	0.647	0.102	0.227	0.493	—
	p-value	0.383	<.001	<.001	<.001	0.031	0.407	0.172	<.001	0.034	0.048	<.001	<.001	<.001	<.001	<.001	0.032	<.001	0.114	<.001	<.001

with abnormal levels of these traits being classified as personality “disorders”. Thus, pathological expressions of PD traits such as negative affectivity, urgency, detachment, exhibitionism, hostility, manipulateness, impulsivity, compulsivity, and psychoticism were assessed alongside over 220 PD-related traits based on DSM-5 criteria using the SCID-II instrument. Most participants reported experiencing each specific PD-related behavior at least once during the study. While this result primarily highlighted the variability of everyday PD traits, the authors acknowledged the presence of highly stable features, aligning with theoretical perspectives suggesting that personality is characterized not only by average trait levels but also by the consistency of behavior patterns in response to contextual and contingent factors [45].

On the other hand, we did find significant differences in the BPQ score comparison, and even though the healthy controls (Gp1) and clinical sample (Gp2) sometimes had comparable scores, they never approached those of the BPD patients (Gp3). Notably, Gp3 experienced more anxiety and depression than did the other two groups, even though all three groups were more anxious than normal.

BHS and SBQ-R differ among all groups but, interestingly, they are more strongly correlated to HADS-D and emptiness in Gp3 than in the other groups. This alerts us that the emptiness trait should be monitored closely in certain population groups. Emptiness is also correlated with HADS-A and self-image, connecting this trait to psychopathology issues more generally. This is consistent with the little and recent exploration of this specific trait, which has an

Table 6
 Correlation matrix: group 3.

		SBO-R	HADS-A	HADS-D	Negative Urgency	Positive Urgency	Lack of Premeditation	Lack of Perseverance	Sensation Seeking	Impulsivity	Affective Instability	Abandonment	Relationships	Self-Image	Suicide/Self-Mutilation	Emptiness	Intense Anger	Quasi-Psychotic States	BPQ TOTAL	
HADS-A	Spearman's rho	0.472	—																	
	p-value	0.013	—																	
HADS-D	Spearman's rho	0.452	0.389	—																
	p-value	0.018	0.045	—																
Negative Urgency	Spearman's rho	0.153	0.322	-0.192	—															
	p-value	0.445	0.101	0.337	—															
Positive Urgency	Spearman's rho	0.548	0.328	0.084	0.671	—														
	p-value	0.003	0.095	0.677	<.001	—														
Lack of Premeditation	Spearman's rho	0.543	0.343	0.273	0.351	0.601	—													
	p-value	0.003	0.080	0.169	0.073	<.001	—													
Lack of Perseverance	Spearman's rho	-0.162	0.035	0.311	-0.360	-0.521	-0.288	—												
	p-value	0.421	0.861	0.115	0.065	0.005	0.146	—												
Impulsivity	Spearman's rho	-0.184	0.061	0.164	-0.333	-0.278	0.104	0.148	—											
	p-value	0.360	0.761	0.415	0.090	0.160	0.606	0.460	—											
Affective Instability	Spearman's rho	0.601	0.605	0.421	-0.113	0.184	0.416	0.188	0.165	—										
	p-value	<.001	<.001	0.029	0.575	0.358	0.031	0.348	0.410	—										
Abandonment	Spearman's rho	0.304	0.391	0.222	-0.029	-0.001	-0.062	0.125	0.072	0.163	—									
	p-value	0.124	0.044	0.267	0.888	0.998	0.758	0.533	0.721	0.417	—									
Self-Image	Spearman's rho	0.629	0.544	0.571	-0.140	0.203	0.395	0.044	0.232	0.495	0.422	—								
	p-value	<.001	0.003	0.002	0.487	0.310	0.041	0.827	0.245	0.009	0.028	—								
Relationships	Spearman's rho	-0.055	0.413	0.280	-0.149	-0.122	-0.186	0.329	-0.023	0.177	0.540	0.068	—							
	p-value	0.787	0.032	0.157	0.458	0.545	0.352	0.094	0.909	0.376	0.004	0.737	—							
Suicide/Self-Mutilation	Spearman's rho	0.221	0.335	0.486	-0.051	0.030	0.255	0.517	0.138	0.442	0.346	0.363	0.263	—						
	p-value	0.267	0.088	0.010	0.799	0.880	0.199	0.006	0.493	0.021	0.077	0.063	0.186	—						
Emptiness	Spearman's rho	0.700	0.350	0.640	-0.162	0.236	0.394	0.013	-0.161	0.494	0.314	0.665	0.231	0.270	—					
	p-value	<.001	0.074	<.001	0.421	0.236	0.042	0.950	0.423	0.009	0.110	<.001	0.245	0.173	—					
Intense Anger	Spearman's rho	-0.128	0.123	-0.199	0.119	-0.071	0.303	-0.129	0.214	0.150	-0.079	0.041	-0.117	0.092	0.071	—				
	p-value	0.525	0.540	0.319	0.555	0.726	0.124	0.522	0.284	0.454	0.695	0.840	0.562	0.648	0.725	—				
Quasi-Psychotic States	Spearman's rho	0.296	0.384	-0.047	0.258	0.083	0.291	-0.122	-0.227	0.376	0.260	0.148	0.101	-0.016	0.298	0.261	—			
	p-value	0.133	0.048	0.815	0.193	0.679	0.142	0.544	0.255	0.053	0.191	0.463	0.616	0.938	0.131	0.189	—			
BHS	Spearman's rho	0.620	0.338	0.315	-0.102	0.157	0.185	0.084	-0.241	0.290	0.685	0.625	0.308	0.320	0.703	-0.061	0.265	—		
	p-value	<.001	0.085	0.110	0.614	0.434	0.355	0.677	0.225	0.142	<.001	<.001	0.118	0.103	<.001	0.764	0.181	—		
BPQ TOTAL	Spearman's rho	0.392	0.637	0.449	-0.116	-0.009	0.362	0.249	0.276	0.648	0.556	0.607	0.475	0.537	0.598	0.410	0.541	0.527	—	
	p-value	0.043	<.001	0.019	0.564	0.963	0.064	0.211	0.164	<.001	0.003	<.001	0.012	0.004	<.001	0.033	0.004	0.005	—	
Age	Spearman's rho	-0.351	-0.455	-0.065	-0.398	-0.361	-0.390	0.002	-0.048	-0.389	0.075	-0.383	0.196	-0.270	-0.200	-0.176	-0.074	-0.187	0.21	
	p-value	0.073	0.017	0.748	0.040	0.064	0.044	0.991	0.812	0.045	0.709	0.049	0.327	0.173	0.317	0.381	0.715	0.351	0.28	

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

impact on BPD severity [46], highlighting the challenges in defining and quantifying chronic emptiness. The research indicates that this condition often involves a feeling of detachment from oneself and others. In cases of frequent and high-intensity emptiness, it is linked to a lower likelihood of recovery in individuals with BPD. It is possible to distinguish emptiness from hopelessness, loneliness, and an inability to be alone, though further exploration is needed to thoroughly understand these distinct experiences [47]. Chronic emptiness in those with BPD may have a unique connection to depressive symptoms and has been found to correlate with self-harm, suicidal tendencies, and diminished social and occupational functioning [46]. To our knowledge, no recommended treatment for BPD focuses on reducing emptiness; it has only been

hypothesized that dialectical behavioral therapy, Systems Training for Emotional Predictability and Problem Solving (STEPPS), and transference focused therapy, for example, might be of use [47,48].

Various conceptual models have expanded our understanding of BPD, but more research is needed to better understand interactions between BPD's components, including situational factors activating BPD traits, in order to develop therapeutic approaches tailored to the heterogeneous BPD psychopathology. For example, in 2008 Lenzenweger et al. [9] defined phenotypically distinct groups of BPD, as follows:

- low level of traits expression;
- elevated paranoid features;

- elevated anti-sociality and aggression.

This suggests that BPD may be more complex to define, having various profiles, than clinicians and HCPs now assume.

Regarding the correlation results, differences in the correlation patterns were found, with the strength (magnitude) of correlations varying across the correlation matrices. This variation could be due to differences in sample sizes and demographic characteristics, but also because, when facing stress, healthy controls (Gp1) may have an overwhelming load of dysregulations that create stronger correlations with anxiety and/or mood disorder, but not creating PD-type dynamics. Anxiety and depression are reactive, not constructed on anchored dysfunctions with clear pathways, as a PD can have. This is consistent with current knowledge of BPD being heavily comorbid with anxiety and depression [49], encouraging a network perspective on PD and mental disorders involving anxiety (as has already been done with depression [50]). These correlations also call into question the practice of traditional diagnostic assessment in disregarding the impact of PDs in depressive patients; it is accordingly recommended to use semi-structured interviews together with clinical evaluation by experts [51].

The presence and strength of negative correlations also vary across the correlation matrices. For example, the first matrix (correlation matrix: group 1) indicates a moderate negative correlation between negative urgency and age, which is not as prominent in the other matrices. This could align with the classic theory that most facets of impulsivity decrease with age [52,53]; however, the fact that the UPPS-P scores are supposed to be invariant could mean that negative urgency is not as stable in unhealthy participants as it may be in clinical samples [54,55].

Our study has certain limitations. First, the gender ratio was biased towards female overrepresentation, although balanced gender representation is needed in psychological research [56]. Another limitation is that although age as a demographic variable played a significant role in our correlations, it also differed (in mean and SD) among all groups, with each group displaying distinct age characteristics. The variations in mean age and standard deviation of age across the groups underscore the importance of considering demographic factors when interpreting the results of psychological and behavioral measures. This is why these results should be qualified as observational and further research is needed to make comparisons that avoid significant differences in age across groups and include more sociodemographic variables to be controlled for, such as socio-economic status or income level.

5. Conclusion

BPD is a highly prevalent PD in the psychiatric field but is still underdiagnosed [57]. The stressful context of COVID-19 was used as a comparison point for demonstrating that even when undergoing tremendous stress and heightened suffering for a few months of lockdown and restrictive protections, neither the healthy controls (Gp1) nor clinical sample (Gp2) endured the same structure of suffering as did BPD patients (Gp3). There is a crucial need to better understand the constellation of symptoms that are intertwined in the BPD diagnosis because, as of 2024, the most researched symptoms continued to be abandonment issues, identity disruptions, and suicidal conduct [58].

Although the BPD situation has improved in terms of research and visibility [59], highlighting the importance of specific traits, such as emptiness, could be useful in order to improve therapeutic approaches.

Open science statement

The materials, data, and scripts cannot be accessed via URLs but will be made available upon reasonable request to the corresponding author.

Ethics approval and consent to participate

(Human, animals, plants and source) – the author asserts that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. The ethical approval is deemed unnecessary in French context as the study falls into the “Loi Jardé” RIPH3 for non-interventional research (Code de la santé publique, Articles L1121-1 à L1128-12). All participants provided written informed consent.

Consent for publication

All participants gave informed consent for publication of the results.

Availability of data and materials

Data are available under reasonable demand to the corresponding author.

Disclosure of interest

The author declares that he has no competing interest.

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Authors' contributions

Sylvia Martin made substantial contributions to the conception and design of the work; the acquisition, analysis, and interpretation of data; drafted the work, revised it critically for important intellectual content; approved the version to be published; and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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