BMC Psychology

RESEARCH

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Borderline personality disorder in Trichotillomania and skin picking disorder: a survey study

Jon E. Grant[1,4*], Madison Collins[1] and Samuel R. Chamberlain[2,3]

Abstract

Background Comorbidity studies in trichotillomania and skin picking disorder (known as Body-Focused Repetitive Behaviors, BFRBs) have traditionally not examined rates of borderline personality disorder. When it co-occurs, borderline personality disorder may necessitate different treatment approaches and if untreated may interfere with the response to the treatment for trichotillomania or skin picking disorder. The objectives of this study were to (1) examine the rate of co-occurring borderline personality disorder in BFRBs; and (2) explore associations between co-occurring borderline personality disorder and relevant clinical characteristics (such as demographic features, BFRB symptom severity, lifetime history of suicide attempt[s], levels of dissociation, and other comorbidities including impulsive conditions that are often unmeasured in studies).

Methods Adults with skin picking disorder, trichotillomania, or both completed an online survey. The survey was comprised of demographic and clinical questions, plus instruments to measure for probable borderline personality disorder, as well as BFRB severity, dissociation, impulse control conditions (including BFRBs), and alcohol use disorder. Each participant also completed questions about previous formal mental health diagnoses.

Results Of the 281 adults with BFRBs ($n = 105$ with skin picking disorder; 93 with trichotillomania, and 82 with both disorders), 105 (37.4%) screened positive for a probable diagnosis of borderline personality disorder. Participants screening positive for probable borderline personality disorder reported significantly worse pulling and picking symptoms ($p < .001$), higher rates of dissociation ($p < .001$), and were significantly more likely to report lifetime suicide attempts ($p < .001$) and to endorse co-occurring alcohol problems ($p < .001$), compulsive buying disorder ($p < .001$), gambling disorder ($p < .001$), compulsive sexual behavior ($p < 001$), and kleptomania ($p = .005$).

Conclusions These data suggest relatively high rates of borderline personality disorder in people with BFRBs, in turn linked to more severe psychopathology and elevated lifetime suicide attempt risk. Perhaps the comorbidity with borderline personality disorder reflects a possible subtype of these behaviors that is more impulsive and may necessitate different treatment approaches.

Keywords Trichotillomania, Skin picking, Borderline personality disorder, Comorbidity

*Correspondence:
Jon E. Grant
jongrant@uchicago.edu
[1]Department of Psychiatry & Behavioral Neuroscience, Pritzker School of Medicine, University of Chicago, Chicago, IL, USA
[2]Department of Psychiatry, Faculty of Medicine, University of Southampton, Southampton, UK
[3]NHS Southern Gambling Service / Southern Health NHS Foundation Trust, Southampton, UK
[4]Department of Psychiatry & Behavioral Neuroscience, University of Chicago, 5841 S. Maryland Avenue, MC 3077, 60637 Chicago, IL, USA

Introduction

Trichotillomania and skin picking disorder have been discussed in the medical literature for centuries and yet have seemingly defied easy understanding regarding how best to conceptualize them and, relatedly, to develop effective treatment approaches. One potentially important approach to better understand these disorders, and possibly develop more effective or tailored treatments, is by a more thorough examination of co-occurring conditions. Comorbidity studies in trichotillomania and skin picking disorder have generally found that these two disorders often co-occur with a range of other psychiatric disorders including obsessive-compulsive disorder (OCD) [1], attention deficit hyperactivity disorder (ADHD), mood disorders, anxiety disorders, post-traumatic stress disorder, and impulse control disorders [2–10]. What is less studied however is the rate of personality disorders among those with trichotillomania and skin picking disorder. This may have clinical importance as the co-occurrence of a personality disorder may impact clinical features, risk of suicide attempts, and potentially have a negative effect on the treatment outcome of the primary disorder [11, 12].

Trichotillomania and skin picking disorder have long been associated with significant comorbid affective symptoms, and affective variables are often cited as a cue to pulling/picking, a reinforcer of the behaviors, and/or a variable that maintains the behaviors [13]. Reductions in anxiety and tension after pulling/picking often seem to function as negative and positive reinforcers for hair pulling and skin picking. Studies have found that affective regulation seems to underpin many episodes of pulling and picking [13]. Thus, particularly important to trichotillomania and skin picking disorder may be the comorbidity with borderline personality disorder, a disorder with prominent aspects of affective dysregulation. The prevalence of borderline personality disorder in the general adult community seems to range from 1.4 to 5.9% and has a prevalence of approximately 10% among individuals seen in outpatient mental health clinics [14]. In an early study of 48 females with trichotillomania, Christenson found that 2.1% had borderline personality disorder [15]. Swedo and Leonard [16] reported a rate of 18% having borderline personality disorder in a sample of 43 adults with trichotillomania. Schlosser and colleagues reported a rate of 14% of a small sample ($n=22$) of women with trichotillomania [3]. In a study of 31 females with skin picking (examined prior to the DSM-5 criteria), 26% met criteria for borderline personality disorder [17]. Finally, Lochner and colleagues reported rates of 33.3% having borderline personality disorder in 21 adults with skin picking disorder and 13.3% having it among 68 adults with trichotillomania [18]. None of these early studies, however, examined the impact of borderline personality disorder on the clinical characteristics of these body-focused repetitive behaviors (BFRBs).

The field of OCD may provide some insight into why the comorbidity with borderline personality disorder may be important clinically for trichotillomania and skin picking disorder. In one study, OCD patients with borderline personality disorder were more likely to report skin picking disorder, greater mental compulsions, and worse non-planning and motor impulsivity [19]. In a clinical trial of clomipramine in OCD, comorbid borderline personality disorder was associated with worse outcomes [20]. In a longitudinal study of OCD ($n=263$ participants), researchers found that those with a personality disorder reported worse OCD and depression symptom chronicity over 5 years [21]. It is important to note, however, that OCD is not the same as trichotillomania and skin picking disorder, but a possible comorbidity with borderline personality disorder may provide clues as to why treatments for trichotillomania and skin picking disorder have produced inconsistent results.

Given this background, a deeper understanding of how borderline personality disorder impacts the clinical characteristics of trichotillomania and skin picking disorder appears to be warranted and may be important in understanding symptom severity and treatment response. The first aim of this study was to determine the rates of probable borderline personality disorder in adults with trichotillomania and/or skin picking disorder (BFRBs); and the second aim was to examine how this comorbidity of borderline personality disorder in BFRBs relates to the wider clinical profile/characteristics (such as demographic features, dissociation, BFRB symptom severity, lifetime history of suicide attempt[s], and occurrence other comorbidities).

Methods

Participants

281 adults were recruited from the community via support websites and completed an online survey. Inclusion criteria for the clinical sample were: (a) diagnosis of trichotillomania or skin picking disorder based on DSM-5 criteria; (b) age greater than 18 years; and (c) fluency in English. Participants were excluded if they were unable to understand the study procedures.

The Institutional Review Board of the University of Chicago approved the study and the consent statement. 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.

Participants read the online informed consent page and chose to participate in the survey or to opt out. The survey told all participants that the information they provided was confidential. Participants were compensated at

the conclusion of the survey using random prize drawings. All of those completing the survey were entered into a prize drawing and 15 participants were randomly chosen to receive a $100 gift certificate. Quality checks were performed through rule logic, and REDCap automatically excluded users who had already completed the survey and calculated the time taken for survey completion (participants completing the survey in <10 min were flagged and excluded as <10 min for completion was unrealistic).

Assessments

The intent of the online survey was to collect data regarding the clinical phenomenology of trichotillomania and skin picking disorder, in order to measure rates of probable borderline personality disorder, and to evaluate differences on relevant features between people with versus without co-occurring probable borderline personality disorder. Toward that end, the online survey collected data regarding previously diagnosed psychiatric comorbidities and assessed for a range of impulsive disorders and behaviors using validated screening instruments. Rates of borderline personality disorder were identified by having participants complete the Personality Assessment Inventory – BPD Module [22]. The PAI-BOR scale consists of 24 items (answered on a likert scale of 0–3) with a total score ranging from 0 to 72. A score of 38 or higher indicates significant symptoms of borderline personality disorder. The scale demonstrated good internal consistency in the present study, α=0.88).

For psychiatric comorbidities, participants were presented with a list of psychiatric disorders and asked to mark the ones with which they had previously been diagnosed by a healthcare professional. To better understand the role of impulsive conditions in trichotillomania and skin picking disorder, each participant completed the previously validated self-report version of the Minnesota Impulsive Disorders Interview version 2.0 (MIDI 2.0) [23, 24].

Additionally, participants completed the following scales: Generic Body-Focused Repetitive Behavior (BFRB) Scale-8 (trichotillomania and skin picking severity scale) [25] (internal consistency in the present study was α=0.80); Alcohol Use Disorders Identification Test (AUDIT) [26] (internal consistency in the present study was α=0.93); and the Dissociative Experiences Scale (DES) [27] (internal consistency in the present study was α=0.97).

Statistics

To address the first aim of the study, the overall percentage of participants with BFRB(s) who screened positive for probable borderline personality disorder was determined and reported descriptively. We then compared the rate of probable borderline personality disorder between trichotillomania and skin picking disorder using a chi-square test to evaluate if the association was common across these two BFRBs; or alternatively, if it differed across them.

To address the second aim of the study, salient demographic and clinical features were statistically compared between people with BFRBs who did and did not have probable borderline personality disorder. Between-group differences were tested using chi-square or fisher exact tests (when assumptions for chi square are violated) for categorical variables; or independent samples t-test or welch two-sample t-test (when variances were unequal between the two groups). Symptom severity (Generic BFRB Scale-8 scores) was calculated as mean values (standard deviations). The level of significance for all statistical tests was corrected to 0.01 to account for multiple comparisons.

Results

The study comprised 281 adults with trichotillomania or skin picking disorder (mean age=29.1 [SD=7.87] years [range 18 to 58 yrs]; 79.4% female), of whom 93 had trichotillomania, 105 had skin picking disorder, and 83 had both. For the entire sample of 281 participants, 249 identified as Caucasian (88.6%).

Of the 281 adults with trichotillomania and/or skin picking disorder, 105 (37.4%) screened positive for meeting criteria for probable borderline personality disorder. The mean total PAI-BOR scale score for those screening positive was 45.38 (SD=6.13; Range: 38–64). Whereas for those not screening positive the mean total score was 25.52 (SD=8.31; Range: 3–37). Rates of probable borderline personality disorder did not differ between those with trichotillomania compared to those with skin picking disorder [$X^2(2)=2.40$, $p=.30$].

Demographic and clinical characteristics of the two groups of interest, are presented in Table 1, along with results of the statistical tests for comparisons. The BFRB participants with probable comorbid borderline personality disorder did not significantly differ from those without in terms of age or race/ethnicity (both $p>.05$). The two groups differed however in terms of sex, with relatively more males in the borderline personality disorder group.

Probable borderline personality disorder in BFRBs was significantly associated with worse symptom severity according to the Generic BFRB Scale-8 [18.27 (4.35) compared to 15.93 (3.93); $t(279) = -4.66$; $p<.001$]; greater dissociative symptoms [44.87 (21.79) compared to 22.04 (16.62); $t(157.04) = -8.76$; $p<.001$]; a greater lifetime history of suicide attempt(s) [46.7% versus 16.5%; $X^2(1)=29.26$, $p<.001$); a greater likelihood to have problematic alcohol use based on the AUDIT [11.11 (10.69)

Table 1 Adults with Trichotillomania/Skin picking disorder and Borderline personality disorder compared to those without Borderline personality disorder

	BFRB + BPD (*N* = 105)	BFRB Only (*N* = 176)	Statistic
Age, mean (SD)	28.87 (7.54)	29.22 (8.06)	$t(279) = 0.35, p = .73$
Sex, n (%)			$p = .003$
Female	73 (69.5)	150 (85.2)	
Male	31 (29.5)	25 (14.2)	
Intersex	1 (1.0)	1 (0.6)	
Race, n (%)			$X^2(1) = 0.63, p = .43$
Caucasian	91 (86.7)	158 (89.8)	
Other	14 (13.3)	18 (10.2)	
Generic BFRB Scale-8 Total, mean (SD)	18.27 (4.35)	15.93 (3.93)	$t(279) = -4.66, p < .001$
Time Spent Per Day Engaging in BFRB, n (%)			$X^2(3) = 2.56, p = .46$
15 min or less	0 (0)	0 (0)	
16–30 min	22 (21.0)	52 (29.5)	
31–60 min	34 (32.3)	52 (29.5)	
1–2 h	27 (25.7)	41 (23.3)	
2 + hours	22 (21.0)	31 (17.6)	
DES Total, mean (SD)	44.87 (21.79)	22.04 (16.62)	$t(157.04) = -8.76, p < .001$
Lifetime Suicide Attempt, n (%)	49 (46.7)	29 (16.5)	$X^2(1) = 29.26, p < .001$
AUDIT Total, mean (SD)	11.11 (10.69)	4.87 (6.04)	$t(132.86) = -5.28, p < .001$
Psychiatric Comorbidities,[a] n (%) (by self-report)			
ADHD	33 (31.4)	50 (28.4)	$X^2(1) = 0.29, p = .69$
Autism Spectrum Disorder	11 (10.5)	7 (4.0)	$X^2(1) = 4.63, p = .031$
Bipolar Disorder	16 (15.2)	3 (1.7)	$X^2(1) = 19.11, p < .001$
Body Dysmorphic Disorder	13 (12.4)	8 (4.5)	$X^2(1) = 5.84, p = .02$
Eating Disorder	21 (20.0)	17 (4.0)	$X^2(1) = 6.01, p = .01$
Major Depression	60 (57.1)	84 (47.7)	$X^2(1) = 2.33, p = .13$
Generalized Anxiety Disorder	52 (49.5)	97 (55.1)	$X^2(1) = 0.82, p = .36$
Obsessive Compulsive Disorder	19 (18.1)	35 (19.9)	$X^2(1) = 0.14, p = .71$
Post-Traumatic Stress Disorder	16 (15.2)	21 (11.9)	$X^2(1) = 0.63, p = .43$
Schizophrenia	7 (6.7)	0 (0)	$p < .001$
Substance Use Disorder	8 (7.6)	3 (1.7)	$p = .022$
MIDI Impulse Control Disorders,[b] n (%)			
Binge Eating Disorder	15 (14.3)	19 (10.8)	$X^2(1) = 0.81, p = .37$
Buying Disorder	31 (29.5)	16 (9.1)	$X^2(1) = 20.35, p < .001$
Compulsive Sex	29 (27.6)	7 (4.0)	$X^2(1) = 33.67, p < .001$
Gambling Disorder	15 (14.3)	4 (2.3)	$p < .001$
Intermittent Explosive Disorder	2 (1.9)	1 (0.6)	$p = .56$
Kleptomania	7 (6.7)	1 (0.6)	$p = .005$
Pyromania	1 (1.0)	1 (0.6)	$p = 1$

[a] Based on self-report

[b] Based on sample size of $n = 97$ for BPD + BFRB and $n = 164$ for BFRB only due to missing data for the MIDI

BFRB = Body-focused Repetitive Behavior

BPD = Borderline Personality Disorder

DES = Dissociative Experiences Scale

AUDIT = Alcohol Use Disorders Identification Test

MIDI = Minnesota Impulse Disorder Interview

compared to 4.87 (6.04); $t(132.86) = -5.28$; $p < .001$]; and a greater likelihood to endorse compulsive buying disorder [$X^2(1) = 20.35$; $p < .001$], gambling disorder [$p < .001$], compulsive sexual behavior [$X^2(1) = 33.67$; $p < .001$], and kleptomania [$p = .005$] based on the MIDI.

Discussion

Exploring borderline personality disorder in people with BFRBs could be important from several perspectives. First, if this personality disorder is relatively common in people with BFRBs, this highlights the need for clinical screening and potentially for treatment to be adapted to

address comorbid cases. Second, co-occurrence could shed light on potential subtypes and/or common psychological mechanisms contributing to both disorders. The results of the current study suggest that BFRBs (trichotillomania and skin picking) are associated with high rates of probable borderline personality disorder (37.4%). The rate of probable borderline personality disorder in trichotillomania and skin picking disorder is elevated compared to the rate reported in either the general population (5.9%) or the rate among patients in outpatient mental health clinics (10%) [14]. When we compare it to rates reported in previous studies of trichotillomania and skin picking disorder, it is notably higher than some studies (14–18%; [3, 16] but comparable to others (26–33%) [17, 18]. The variability in rates of personality disorder across studies could theoretically reflect factors such as severity of BFRBs, recruitment source, and/or the way the comorbidity was assessed. For example, we used a validated self-report tool, whereas asking patients about existing prior diagnosis of borderline personality disorder could lead to under identification due to under-recognition in medical practice. On the other hand, self-report tools could lead to over-identification. The reasons for the relatively high levels of probable borderline personality disorder in BFRBs reported herein, and in several previous studies, are unclear but could – for example – relate to common overlapping underlying psychological features (such as emotional dysregulation, or a tendency towards impulsivity) that predispose to both manifestations of psychopathology.

BFRBs overall were more common in women than in men, in both analysis groups (i.e. in those with probable borderline personality disorder, and in those without probable borderline personality disorder); this is to be expected based on most previous literature which reports higher levels of BFRBs in women overall. However, we found an association between probable borderline personality disorder in BFRBs and relatively higher likelihood of male sex, as compared to people with BRFBs who did not have the personality comorbidity. One possible explanation for this finding is that if trait impulsivity is a common linking feature across BFRBs and borderline personality disorder, this may explain this result – in the sense impulsivity tends to be generally higher in males. The link with sex would merit further research to confirm the association and explore what may account for it.

We also found that the comorbidity of BFRBs with borderline personality disorder was associated with important clinical characteristics such as worse BFRB symptom severity, more dissociative experiences, higher lifetime suicide attempts, higher rates of alcohol problems, and more other impulsive conditions. These data may suggest a subtype of BFRBs characterized by emotional dysregulation, impulsivity and identity disturbance. High levels of dissociative experiences have previously been reported in OCD and trichotillomania, which were in turn associated with higher rates of borderline personality disorder [18], consistent with our findings. If the borderline personality disorder is playing some role in worsening the pulling/picking behavior, then treatments that target the personality disorder may improve the pulling and picking. This may explain why dialectical behavior therapy, arguably the treatment of choice for borderline personality disorder, has shown promise in early studies for the treatment of trichotillomania [28, 29]. Studies need to be conducted in skin picking disorder as well and it may be worthwhile to consider using the comorbid diagnosis of borderline personality disorder as an inclusion criterion (or at least, as an important contextual variable to capture) for future studies.

Several limitations of this study should be considered. Probable diagnoses of borderline personality disorder were made using a validated self-report screening tool. Of course, the gold standard for diagnosis would be a face-to-face structured clinical interview using a validated instrument. Additionally, the psychiatric comorbidity data was collected as self-report of previous diagnosed conditions (except the MIDI diagnoses). Furthermore, 2023 survey data from the National Telecommunications and Information Administration showed that 12% of households in the United States do not have an internet connection, and so these results may not generalize to everyone [30]. Finally, approximately 80% of the sample were female, and therefore this study may not generalize to males with trichotillomania and skin picking disorder.

This study found that trichotillomania and skin picking disorder co-occurred frequently with borderline personality disorder using a validated screening tool, and that the comorbidity was associated with important clinical features. In particular, comorbid probable borderline personality disorder was associated with more severe BFRB symptoms, elevated rate of prior suicide attempt(s), higher rate of alcohol use disorder, more dissociative experiences, and certain other comorbidities (including several impulse control disorders). These findings may suggest a potential subtype of BFRBs that would benefit from tailored interventions beyond usual BFRB treatments. The results also highlight the importance to clinicians of considering the existence of borderline personality disorder in people presenting with BFRBs in clinical practice, as well as signaling an area that merits consideration when designing and conducting future BFRB clinical trials.

Author contributions

JEG designed and implemented the study. JEG drafted the article. MC and SRC revised and edited the article. MC performed data analysis. All authors reviewed the manuscript.

Funding
This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability
The data are available from the corresponding author on reasonable request and with a data sharing agreement in place.

Declarations

Ethics approval and consent to participate
The Institutional Review Board of the University of Chicago approved the study and the consent statement. The authors assert 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. Participants were first required to view the Institutional Review Board (IRB)-approved online informed consent page, at which point an individual could choose to participate in the survey or opt out. The survey asserted that all information was confidential.

Consent for publication
Not applicable.

Competing interests
Dr. Grant has received research grants from Janssen and Biohaven Pharmaceuticals. He receives yearly compensation from Springer Publishing for acting as Editor-in-Chief of the Journal of Gambling Studies and has received royalties from Oxford University Press, American Psychiatric Publishing, Inc., Norton Press, and McGraw Hill. Ms. Collins report no conflicts. Dr. Chamberlain receives a stipend from Elsevier for journal editor work. Ms. Collins reports no conflicts.

Received: 4 October 2024 / Accepted: 4 December 2024
Published online: 18 December 2024

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