

Pain and Pain Catastrophizing Among Internal Medicine Outpatients With Borderline Personality Symptomatology: A Cross-Sectional Self-Report Survey

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ABSTRACT

Objective: The extant literature indicates that individuals with borderline personality disorder generally report higher levels of pain than individuals without this disorder. This study examined relationships between borderline personality symptomatology, pain, and pain catastrophizing (a related aspect of the pain experience).

Method: Using a cross-sectional consecutive sample of internal medicine outpatients (N = 238) and a self-report survey methodology, we examined relationships between borderline personality symptomatology as measured by the Personality Diagnostic Questionnaire–4 and the Self-Harm Inventory; pain levels “now,” “over the past week,” and “over the past year”; and scores on the Pain Catastrophizing Scale (PCS) and its subscales (rumination, magnification, helplessness). Data were collected during November 2012.

Results: Scores on both measures of borderline personality disorder individually exhibited statistically significant correlations with self-reported pain levels at the time of the survey, during the past week, and over the past year ($P < .001$), as well as with total scores on the PCS and each of its subscales ($P < .001$). Participants who were positive on both measures of borderline personality disorder (a conservative indicator of borderline personality disorder) also demonstrated statistically significantly higher pain ratings now, over the past week, and over the past year, as well as higher scores on the total PCS ($P < .001$) compared with those who were negative on both measures or scored positively on only 1 measure.

Conclusions: Regardless of the measure used, individuals with borderline personality disorder symptomatology consistently demonstrated higher pain scores at all time points, as well as higher levels of pain catastrophizing.

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There appears to be a relationship between borderline personality disorder and chronic pain, an impression that is supported by 2 lines of research. In the first line of research, investigators have reported that participants with borderline personality disorder endorse higher levels of pain compared to participants without the disorder. For example, in a study of 777 individuals who were in rehabilitation for pain, researchers reported that the subsample with borderline personality disorder reported relatively greater pain severity, including higher levels of minimum and maximum pain during the past month.¹ Similarly, in a study of 80 internal medicine outpatients, investigators found statistically significant correlations between self-rated pain scores (ie, current pain and pain over the past 12 months) and scores on 3 self-report measures of borderline personality disorder.² Likewise, researchers compared patients with borderline personality disorder in symptom remission (n = 200) to those still evidencing active symptoms (n = 64)³; participants in remission reported significantly fewer “syndrome-like” conditions such as fibromyalgia and temporomandibular joint syndrome, as well as less back pain. Collectively, these preceding studies indicate that individuals with borderline personality disorder (at least those with active symptoms) generally report higher pain levels than individuals without the disorder.

In related research, in a sample of 116 internal medicine outpatients, investigators reported relationships between borderline personality disorder and scores on the Bradford Somatic Inventory.⁴ The Bradford Somatic Inventory has a number of items that query respondents about pain symptoms, such as severe headaches, pain or tension in the shoulders and neck, pain in the chest or heart, burning sensation in the stomach, aches or pains all over the body, low back trouble, and pain in the legs. Using 2 measures for borderline personality disorder, correlations in this study were 0.53 and 0.58 ($P < .001$).⁴

In addition to studies examining borderline personality disorder and its relationship to pain levels, a number of studies have reported higher-than-expected prevalence rates of borderline personality among individuals with various chronic pain symptoms.^{5–12} To summarize these studies, all 8 were published between the years 1994 and 2011, most consisted of participants from the United States, and study settings were diverse, including community, primary care, and tertiary care settings.^{5–12} Sample sizes varied from 17 to 1,323 participants, with a total of 3,041 individuals. The types of pain syndromes under study varied and included low back pain, chronic pain, and disabling occupational spinal disorders. The range of reported percentages for the prevalence of borderline personality disorder in these studies is 9.4% to 58.0%—all rates that exceed the proposed rate of borderline personality disorder encountered in the general population, which is around 6.0%.¹³ When all of the reported percentages (ie, if a given study used 3 assessment measures for borderline personality disorder, each percentage was accounted for in the total tally) are averaged, the prevalence of borderline

- Patients with borderline personality features report higher levels of pain as well as pain catastrophizing—characteristics that may need to be factored into the pain assessments for these individuals.
- When present, borderline personality disorder is often associated with substance misuse as well as suicide attempts—factors that need to be considered in the pharmacologic management of such individuals who present with pain.
- Overall, the presence of borderline personality disorder in a patient with pain indicates the need for closer clinical monitoring (eg, prescriptions, outside prescribers, suicide risk).

personality disorder in these collective studies is 30.0%. This resulting percentage resonates well with the findings of Dersh et al,⁹ who examined the largest sample of chronic pain patients to date (N = 1,323) and found a prevalence rate for borderline personality disorder of 27.9%.

While studies from the first line of research have documented relatively higher levels of pain endorsement among individuals with borderline personality disorder compared with peers without the disorder, whether pain is overemphasized or not by individuals with borderline personality disorder remains unknown. In other words, is pain or some aspect of pain cognitively or emotionally inflated among individuals with borderline personality disorder, thereby accounting for relatively higher pain ratings and thus associations between borderline personality disorder and pain syndromes? In this study, we examined pain symptoms and pain catastrophizing (ie, overemphasis of pain) among outpatients in an internal medicine setting to determine possible relationships with borderline personality disorder—relationships that we hypothesized would be present. Confirmation of such relationships might ultimately lead to focused and effective interventions in patients with chronic pain and borderline personality disorder.

METHOD

Participants

Participants in this study were men and women, aged 18 years or older, who were being seen at an internal medicine outpatient clinic for nonemergent medical care. The clinic is staffed by both residents and faculty in the department of internal medicine and is located in a midsized, midwestern US city. The majority of patients recruited for this study were seen by resident providers. We excluded individuals with compromising medical (eg, excessive pain), intellectual (eg, mental retardation), cognitive (eg, dementia), or psychiatric (eg, psychotic) symptoms (ie, symptoms of a severity to preclude the candidate's ability to successfully complete a survey [n = 13]). Due to the need for participants to complete materials before appointments with providers, this exclusion process was informal and undertaken by the recruiter as

patients registered for clinical service. We recognize that this initial assessment was imperfect, yet we believe it was conservative in that only 3.6% of patients were thus excluded on the basis of apparent inappropriateness for participation given their need for medical care.

At the outset, 349 individuals were approached and 244 agreed to participate, for a participation rate of 70%. As for the 105 individuals who did not participate, 68 refused, 13 appeared too distressed, 21 appeared too burdened (struggling with children), and 21 did not want to commit the time. Of the 244 individuals who agreed to participate, 238 completed the pain scales and at least 1 of the 2 borderline personality disorder measures. Of these 238 respondents included in our analyses, 63.0% were women and 37.0% were men, ranging in age from 21 to 80 years (mean = 45.59, SD = 14.98). Most participants were white (76.5%); however, 20.2% of participants were black, 0.8% were Asian, 1.7% were Hispanic, and 0.8% were "other." With regard to educational attainment, all but 2.1% had at least graduated from high school, whereas 24.4% had earned at least a bachelor's degree.

Procedure

During clinic hours, one of the authors (D.A.W.) positioned himself in the lobby of the internal medicine outpatient clinic, approached incoming patients following registration, and informally assessed exclusion criteria (ie, during the registration process, did the patient evidence any medical, intellectual, cognitive, psychiatric, or language difficulties that might impede the participant's ability to complete a survey?). With potential candidates, the recruiter reviewed the focus of the project (ie, a study examining pain and associated psychological features) and then invited each to participate. Each participant was asked to complete a 6-page survey that took about 10 minutes. Surveys were completed onsite in the lobby before appointments with health care providers. Participants were asked to return completed surveys in sealed envelopes by depositing them into a collection box in the lobby of the clinic.

This project was reviewed and exempted by the institutional review boards of the sponsoring hospital and the local university. Completion of the survey was assumed to be implied consent, which was explained to participants on the cover page of the survey. Data were collected in November 2012. There was no funding for this study.

Measures

The survey consisted of 4 core sections. The first section was a demographic query in which participants were asked about their sex, age, marital status, racial/ethnic origin, and educational level.

Pain assessment. Using an author-developed assessment, the second section of the survey explored pain intensity for 3 specific time points: "today," "over the past month," and "over the past year." Three time points were elected to discern any temporal effects among study variables. For each point in time, respondents were presented with the numbers 0–10

Table 1. Descriptive Data and Correlations Among Measures of Pain and Borderline Personality Disorder Symptomatology^a

Measure	1 PDQ-4 Score	2 SHI Score	3 PCS Score	4 PCS: Pain Rumination	5 PCS: Pain Magnification	6 PCS: Pain Helplessness
1. PDQ-4 score						
2. SHI score	0.79					
3. PCS score	0.69	0.56				
4. PCS: pain rumination	0.68	0.54	0.97			
5. PCS: pain magnification	0.70	0.59	0.97	0.93		
6. PCS: pain helplessness	0.67	0.53	0.98	0.93	0.93	
Descriptive data for each scale						
Mean (SD)	1.93 (2.50)	2.09 (3.27)	13.29 (13.13)	4.92 (5.28)	3.75 (3.56)	6.95 (7.13)
Range	0–9	0–15	0–44	0–16	0–12	0–24

^aAll correlations $P < .001$.

Abbreviations: PCS = Pain Catastrophizing Scale, PDQ-4 = Personality Diagnostic Questionnaire-4, SHI = Self-Harm Inventory.

positioned on a single line. Labels beneath the numbers were “no pain” under the number 0, “mild” under the numbers 1–3, “moderate” under the numbers 4–6, and “severe” under the numbers 7–10.

Pain catastrophizing. The third section of the survey assessed pain catastrophizing using the Pain Catastrophizing Scale (PCS).¹⁴ The PCS is a 13-item self-report measure of catastrophic thoughts and feelings about pain. This measure has a 5-point Likert-style response scale (0 = not at all to 4 = all the time), and the scoring range is 0–52, with higher scores indicating higher levels of catastrophic thoughts and feelings. The PCS has 3 underlying factors or dimensions of pain catastrophizing: rumination (items 8, 9, 10, and 11), magnification (items 6, 7, and 13), and helplessness (items 1, 2, 3, 4, 5, and 12). The PCS has been validated in both clinical and nonclinical populations.^{14–16} In the current study, the Cronbach α was 0.98 for the 13-item measure, 0.97 for the rumination subscale, 0.88 for the magnification subscale, and 0.96 for the helplessness subscale.

Borderline personality symptomatology. The fourth and final section of the survey consisted of 2 assessments for borderline personality disorder symptomatology: (1) the borderline personality disorder scale of the Personality Diagnostic Questionnaire-4 (PDQ-4)¹⁷ and (2) the Self-Harm Inventory (SHI).¹⁸ We used 2 assessments for borderline personality disorder, very different in construct (ie, predominantly psychological vs behavioral), to capture a more reliable diagnostic impression using self-report measures.

The PDQ-4 is a 9-item, true/false, self-report measure that consists of the diagnostic criteria for borderline personality disorder that are listed in the *DSM-IV*.¹⁹ A score ≥ 5 is highly suggestive of the diagnosis of borderline personality disorder. Previous versions of the PDQ have been found to be useful screening tools for borderline personality disorder in both clinical samples^{20,21} and nonclinical samples,²² including the use of the freestanding borderline personality disorder scale.²³

The second assessment, the SHI, is a 22-item, yes/no, self-report measure that explores participants' lifetime histories of self-harm behavior.¹⁸ Each item in the inventory is preceded by the statement, “Have you ever intentionally, or on purpose

Table 2. Ratings of Pain for 3 Different Time Periods: Descriptive Data and Correlations With Other Measures of Pain and Borderline Personality Disorder Symptomatology^a

Self-Reported Rating of Pain	Now	Past Month	Past Year
Score on the PDQ-4	0.48	0.42	0.42
Score on the SHI	0.37	0.28	0.29
Total score on the PCS	0.73	0.65	0.62
Mean (SD)	3.45 (2.88)	3.71 (2.86)	3.80 (2.83)
Range	0–10	0–10	0–10

^aAll correlations $P < .001$.

Abbreviations: PCS = Pain Catastrophizing Scale, PDQ-4 = Personality Diagnostic Questionnaire-4, SHI = Self-Harm Inventory.

...,” and items include “overdosed,” “cut yourself on purpose,” “burned yourself on purpose,” and “hit yourself.” Each endorsement is in the pathological direction, and the SHI total score is the summation of “yes” responses. A SHI total score ≥ 5 is highly suggestive of the diagnosis of borderline personality disorder. Specifically, in comparison with the Diagnostic Interview for Borderlines,²⁴ a benchmark for the diagnosis of borderline personality disorder in research settings, the SHI demonstrated an accuracy in diagnosis of 84%.¹⁸

RESULTS

The descriptive data for the PDQ-4, SHI, PCS, and the subscales of the PCS are presented in Table 1, as are the correlations among these scores. All correlation coefficients in the table were statistically significant ($P < .001$). Respondents who scored higher on measures of borderline personality symptomatology also scored relatively higher on the PCS and its subscales. Subsequent analyses included only the total score on the PCS because scores on the subscales of the PCS were so highly correlated. Data pertaining to the 3 self-reported ratings of pain for different time periods (now, over past month, over past year) are presented in Table 2. Again, all correlation coefficients in the table were statistically significant ($P < .001$). Respondents who rated their pain as greater tended to score higher on the measures of borderline personality symptomatology.

Of the 237 respondents who completed the PDQ-4, 49 (20.7%) exceeded the clinical cutoff score indicative of borderline personality disorder. Of the 237 respondents

Table 3. Comparisons Between Respondents Who Exceeded the Clinical Cutoff Score for Borderline Personality Disorder on Both the PDQ-4 and the SHI (n = 38) and Respondents Who Did Not (n = 198) With Regard to Reports of Pain

Exceeded Score for Borderline Personality Disorder	No		Yes		Statistic ^a		
	Mean	SD	Mean	SD	<i>d</i>	<i>F</i>	<i>P</i>
Rating of pain “now”	3.04	2.70	5.79	2.63	1.03	33.24	<.001
Rating of pain “over past month”	3.38	2.75	5.58	2.75	0.80	20.46	<.001
Rating of pain “over past year”	3.51	2.79	5.42	2.50	0.72	15.44	<.001
Total score on the PCS	10.23	11.30	29.58	9.89	1.82	97.06	<.001

^a*df* = 1,234.

Abbreviations: PCS = Pain Catastrophizing Scale, PDQ-4 = Personality Diagnostic Questionnaire-4, SHI = Self-Harm Inventory.

who completed the SHI, 53 (22.4%) exceeded the clinical cutoff score indicative of borderline personality disorder. However, of the 236 respondents who completed both the PDQ-4 and the SHI, only 38 (16.1%) exceeded the clinical cutoff score on both measures. Taking this criterion as the most conservative indicator of possible borderline personality disorder, we compared these 38 respondents to the remaining 198 respondents who either did not exceed the clinical cutoff score on either measure or did so on only 1 of the 2 measures. The results of these comparisons are presented in Table 3. In every instance, respondents who exceeded the cutoff score for borderline personality disorder reported greater pain levels at all time points, as well as a greater catastrophizing of pain (and the effect sizes were quite large: Cohen *d* values ranged from 0.72–1.82).

DISCUSSION

These data clearly indicate that regardless of the borderline personality disorder scale used, or being positive on either one or both, borderline personality symptomatology was associated with higher self-reported pain scores at the time of assessment, during the past month, and during the past year, as well as higher PCS scores. In other words, regardless of the statistical approach, the results remain the same: there is a clear association between borderline personality symptomatology and higher pain levels and between borderline personality symptomatology and the catastrophizing of pain. These findings indicate that, in comparison to those without such symptomatology, individuals with borderline personality symptomatology are more likely to report greater pain and to harbor catastrophic thoughts and feelings around their pain experience, a finding that may partially explain the historical association between borderline personality disorder and the overendorsement of pain symptoms.

From a psychodynamic perspective, what might explain the relationship between borderline personality disorder and the catastrophizing of pain? A number of explanations might be entertained. First, there is a frequent association between borderline personality disorder and the experience of childhood trauma (eg, sexual, emotional, and/or physical abuse). Trauma is known to be a contributory factor to hypervigilance as well as body image issues.²⁵ In the case

of hypervigilance, it is likely that intense scrutiny of the external environment is mirrored by an intense scrutiny of the internal environment or internal hypersensitivity.²⁵ If so, atypical internal sensations might unintentionally undergo a reinterpretive process, wherein these sensations are overexperienced and catastrophized. As for the effects on body image, it is entirely possible that the secondary development of a negative body image from trauma results in the misconception of a “bad body.”²⁵ This development might heighten the risk for the overinterpretation of internal sensations as potentially catastrophic.

In addition to trauma-related factors, dramatic pain symptoms may be utilized in individuals with borderline personality disorder to elicit caring responses from others.²⁵ Given the interpersonal limitations of individuals with borderline personality disorder, such elicitations through pain symptoms may be perceived as safer and more efficient.

As another possibility, it is feasible that the catastrophizing of pain is reflective of a general inability to effectively regulate pain—ie, that it is a manifestation of the general self-regulation difficulties encountered among individuals with borderline personality disorder. In this vein, findings with regard to the PCS might be a direct reflection of the general emotional dysregulation encountered in these individuals.

As a final possibility, the catastrophizing of pain may unconsciously reinforce the role of victim (ie, a “medical victim”).²⁵ Such self-handicapping may promote a disabled role, which supports the view by Kroll that the role of victim is a “basic theme in understanding borderlines.”^{26(p46)}

Note that the correlations between pain ratings and borderline personality symptomatology decrease over the various time points. However, there was no statistically significant difference in the magnitude of the correlations when *now versus last month versus last year* were compared. In other words, the strength of the correlations did not statistically decrease across the 3 time periods.

Clinically, the findings suggest that (1) clinicians need to be alert to the possibility of borderline personality disorder among patients with high ratings of pain as well as catastrophizing attitudes about pain; (2) when borderline personality disorder is present, clinicians may need to account for this disorder when drawing conclusions about the actual levels of pain being experienced by patients; (3) when this type of personality dysfunction is present, the prescription of analgesics is potentially complicated by the high lifetime prevalence rates of comorbid substance misuse encountered in individuals with borderline personality disorder; and (4) individuals with borderline personality disorder are characterized by self-destructive behavior, which may further complicate the pharmacologic treatment of pain in terms of overdose risk.

This study has a number of potential limitations. First, all data were self-report in nature and subject to the limitations of such data. Second, the borderline personality disorder measures in this study detect borderline personality symptomatology but cannot be used to make a diagnosis

of the disorder. Third, all of the PCS subscales were so highly intercorrelated in this sample that we were unable to examine different facets of pain catastrophizing. Fourth, the exclusion process was informal, which may have introduced unintentional selection bias. Fifth, 13 subjects were informally excluded and, had they been included, may have influenced the results, although these exclusions were primarily due to language concerns. Finally, the study was conducted in a resident-provider clinic, and findings may not generalize to other types of clinical settings. However, the sample size is reasonable, the sample is consecutive, and this study is the first to examine pain catastrophizing in borderline personality disorder. We found that patients with borderline personality symptomatology report higher levels of pain than patients without the symptomatology as in previous studies and that borderline personality symptomatology is associated with pain catastrophizing—a new finding in the literature.

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