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Pain in Patients with Borderline Personality Disorder

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Abstract

Objective—Patients with borderline personality disorder (BPD) frequently present to primary care physicians and specialists with pain problems. The aims of the current study are to (i) examine the prevalence of pain symptoms in patients with a diagnosis of BPD compared to a diagnosis of another personality disorder; and (ii) identify the factors that predict pain experienced in patients with BPD.

Methods—Two-hundred and ninety inpatients meeting Revised Diagnostic Interview for Borderlines and DSM-III-R criteria for BPD and 72 patients who met DSM-III-R criteria for another personality disorder were assessed at baseline using semistructured interviews and self-report measures. Ratings of pain were assessed 16 years after baseline diagnosis and compared between diagnostic groups using t-tests. Regression analyses were used to identify predictors of pain among patients with BPD.

Results—Patients with BPD are more likely to experience pain and rate their pain as more severe than patients with other personality disorders. In multivariable regression models, there were three significant predictors of severity of pain among patients with BPD: older age, the presence of major depressive disorder, and the severity of childhood abuse other than sexual abuse.

Conclusion—Patients with BPD report significant pain which interferes with their lives. A focus on the management of medical and psychiatric comorbidities may improve their long-term functioning.

Keywords

borderline personality disorder; pain; personality disorder

Introduction

Patients with borderline personality disorder (BPD) are frequently encountered in a variety of clinical contexts, despite the relatively low population prevalence of 2% (1). Patients with BPD are seen frequently in both inpatient (2) and outpatient settings (3), and are also seen frequently in family medicine clinics where they account for 6% of the patients seen in routine clinical practice (4). Increasing severity of BPD symptoms is also associated with increasing health care utilization (5). When followed longitudinally, patients with BPD who have not remitted use significantly more health care services than patients with other personality disorders (6) and part of this increased health care utilization is related to the levels of pain they experience. Understanding the rates and severity of pain in patients with BPD can lead to improved physical and mental health care and may help with long-term functioning.

Previous research has demonstrated that patients with BPD experience significantly more pain disorders, such as chronic fatigue syndrome, fibromyalgia, and temporomandibular disorders, than patients with other personality disorders (6). Obesity and obesity-related illnesses, such as osteoarthritis, low back pain, and carpal tunnel syndrome, are also common among patients with BPD (7). Although rates of pain related disorders are higher in patients with BPD, how much self-reported pain they experience in their everyday lives, as well as how much it interferes in their functioning, has not been previously studied. In general, patients with BPD see both primary care physicians and specialists more frequently than those without BPD (8). They are also more frequently encountered in pain clinics or presenting with pain problems to primary care (9, 10). One study found that 6.8% of insured patients who presented to a pain clinic met criteria for BPD, although the diagnostic instruments used in this study lacked precision (11). A German clinical sample of patients with chronic pain found that 58% of patients had a diagnosis of BPD (12). These findings are troubling as pain conditions are associated with increased lifetime suicidal ideation, plans, and attempts (13). One study also found that childhood adversity, witnessing violence in particular, was a predictor of pain disorders in adulthood in those with BPD (14).

Chronic pain is also particularly important in patients with BPD due to the risk of prescribing opioids in this population. Patients with BPD have a high degree of substance use disorder comorbidity, although the rates of comorbidity decrease significantly over time (15, 16). In psychiatric, primary care, and internal medicine clinics there are high rates of prescription medication abuse among patients with BPD (17).

The objectives of the current study are to describe the rates and severity of pain in patients with BPD compared to patients with other personality disorders, and to examine clinical and demographic factors associated with pain reported by patients with BPD. Our hypothesis was that patients with BPD are expected to report higher overall levels of pain, and the presence of a major depressive disorder diagnosis and history of childhood adversity are expected to predict pain severity ratings in patients with BPD.

Methods

Procedures

The methodology of this study, which was reviewed and approved by the McLean Hospital Institutional Review Board, has been described in detail elsewhere (18). Briefly, all subjects were initially inpatients at McLean Hospital in Belmont, Massachusetts. Each patient was first screened to determine that he or she: 1) was between the ages of 18-35; 2) had a known or estimated IQ of 71 or higher; 3) had no history or current symptoms of schizophrenia, schizoaffective disorder, bipolar I disorder, or an organic condition that could cause serious psychiatric symptoms; and 4) was fluent in English.

After the study procedures were explained, written informed consent was obtained. Each patient then met with a masters-level interviewer blind to the patient's clinical diagnoses for a thorough diagnostic assessment. Three semistructured diagnostic interviews were administered. These diagnostic interviews were: 1) the Revised Diagnostic Interview for Borderlines (DIB-R, 19) to assess the presence and severity of symptoms of BPD, 2) the Diagnostic Interview for DSM-III-R Personality Disorders (DIPD-R, 20) to assess for the presence and severity of BPD and other axis II disorders, and 3) the Structured Clinical Interview for DSM-III-R Axis I Disorders (SCID-I, 21) to assess for the presence of axis I psychiatric disorders. The inter-rater and test-retest reliability of all three of these measures have been found to be good-excellent (22, 23).

Three other semistructured interviews were also administered at baseline. These interviews were: 1) the Background Information Schedule (BIS, (22, 24) to collect demographic information and information pertaining to psychosocial functioning and treatment history, 2) the Revised Childhood Experiences Questionnaire (CEQ-R, 25) probing for the presence of childhood adversity as measured by three variables: childhood sexual abuse (presence/absence), other forms of childhood abuse including verbal and physical abuse (range=0-18), and childhood neglect (range=0-42), and 3) the Abuse History Interview (AHI, 26) assessing for the presence of four types of adult experiences of abuse: emotional, verbal, physical and sexual. In the AHI, examples of abuse include, but are not limited to, emotional abuse such as being shamed, humiliated, and receiving mixed messages; verbal abuse includes being put down, blamed, or yelled at; physical abuse includes being slapped or beaten; and sexual abuse includes fondling, and being forced to perform sexual acts against one's will. The interrater and test-retest reliability of these interviews have also been found to be good-excellent (27-29).

At each of eight follow-up waves, separated by 24 months, axis I and II psychopathology was reassessed via interview methods similar to the baseline procedures by staff members blind to baseline diagnoses. After informed consent was obtained, our diagnostic battery was readministered (with the SCID I focusing on the past two years and not lifetime axis I psychopathology as at baseline). The follow-up interrater reliability (within one generation of follow-up raters) and follow-up longitudinal reliability (from one generation of raters to the next) of these measures have been found to be good-excellent (30, 31).

The follow-up versions of the BIS and the AHI were also administered at each of the study's eight follow-up periods. The follow-up interrater reliability and follow-up longitudinal reliability of these two measures have also been found to be good-excellent (26, 32). Adult experiences of adversity were extracted as binary variables from the AHI and combined to form a quantitative measure for the number of types of adversity experienced, ranging from 0 forms of abuse experienced to all 4 forms of abuse experienced. Data from the 16-year follow-up was used for this study.

The Brief Pain Inventory (BPI) (33) was used to assess physical pain and the interference caused by physical pain in the domains of activity and affect. The BPI was added to the assessment battery at the 16 year follow-up. It consists of 17 questions, most of which are rated on a Likert scale from 0 to 10, that assess pain and pain interference during the previous 24 hours, with severity measured by the question asking the average pain rating in the past 24 hours. The BPI was originally developed to assess pain in cancer patients (34), but it has been used extensively in other populations with diverse causes of chronic pain (35, 36). Internal consistency ranges from 0.80 to 0.92 (37) and test-retest reliability ranges from 0.83 to 0.93 depending on the item assessed (38).

Variables such as baseline diagnosis and child adversity were assessed at baseline, whereas other variables, such as the presence of major depressive disorder, adult adversity, and measures of pain, were assessed at the 16-year follow-up time point.

Statistical Analyses

Descriptive statistics were used to report the frequencies, means, and SDs of the predictor and outcome variables. Categorical variables are reported as % (*n*); averaged continuous data are reported as means with standard deviations (SD). Statistical significance required 2-tailed $p < 0.05$.

In patients with a baseline diagnosis of BPD, simple linear regression models were used in univariate analyses to determine the effects of individual predictors of average ratings of pain; subsequently, multiple regression models were used in multivariable analyses to determine the most salient subset of predictors of average ratings of pain. To select the subset of predictors to be retained in the most parsimonious multivariable model, we compared a sequence of models in a step-down manner. The regression analyses yield a beta coefficient and 95% confidence interval (95% CI) for the association with a given predictor.

Statistical analyses were conducted using STATA 9.2 and 12.0 (Statacorp 2005, 2011).

Results

Two hundred and ninety patients met both DIB-R and DSM-III-R criteria for BPD and 72 met DSM-III-R criteria for at least one non-borderline axis II disorder (and neither criteria set for BPD). Of these 72 comparison participants, 4% met DSM-III-R criteria for an odd cluster personality disorder, 33% met DSM-III-R criteria for an anxious cluster personality disorder, 18% met DSM-III-R criteria for a non-borderline dramatic cluster personality disorder, and 53% met DSM-III-R criteria for personality disorder not otherwise specified

(which was operationally defined in the DIPD-R as meeting all but one of the required number of criteria for at least two of the 13 axis II disorders described in DSM-III-R).

In terms of baseline demographic data, 77% (N=279) of the subjects were female and 87% (N=315) were white, 20 (6%) were African American, nine (3%) were Hispanic, eight (2%) were Asian, and ten (3%) were biracial or of other racial or ethnic backgrounds. The average age of the subjects was 27.0 years (SD=6.3), their mean socioeconomic status was 3.3 (SD=1.5) (where 1=highest and 5=lowest), and their mean GAF score was 39.8 (SD=7.8) (indicating major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood).

With respect to continuing participation, 87.5% (N=231/264) of surviving borderline patients (13 died by suicide and 13 died of other causes) were reinterviewed at the eighth follow-up wave. A similar rate of participation was found for axis II comparison subjects, with 82.9% (N=58/70) of surviving patients in this study group (one died by suicide and one died of other causes) being reassessed at the 16-year follow-up wave.

Patients with a baseline diagnosis of BPD were significantly more likely to have experienced pain as measured on the BPI ($\chi^2=12.99$, $p<0.001$), with 80.3% of BPD versus 57.1% of non-BPD patients reporting pain. Among those from both diagnostic groups who experienced pain, BPD patients also experienced significantly higher levels of worst pain ($t=3.23$, $p<0.005$), least pain ($t=2.65$, $p<0.01$), average pain ($t=2.65$, $p<0.01$), and current pain ($t=2.93$, $p<0.005$) during the past 24 hours. The degree to which pain interfered with functioning was significantly greater in the BPD group ($t=3.44$, $p<0.001$), and on all individual measures of pain interference and the total affective and total activity subscales (see Table 1).

Next, we consider predictors of average pain rating in patients with BPD. Ten potential predictors of pain among BPD patients were examined, including two demographics variables, four clinical variable, and four psychosocial variables. Of the demographic variables, increasing age was a significant predictor of increasing levels of pain. Major depressive disorder was the only significant clinical predictor. Among the psychosocial predictors, the severity of adult abuse, severity of childhood neglect, and severity of other forms of childhood abuse, but not childhood sexual abuse, were significant predictors (see Table 2).

When the five significant univariate variables were considered into a multiple regression model using a step-down procedure, only three variables remained significant predictors of pain: older age, current major depressive disorder, and severity of other forms of child abuse (see Table 3).

Discussion

There are two main results from this study. The first is that patients with a baseline diagnosis of BPD report experiencing more pain and having more interference caused by this pain than patients with a baseline diagnosis of another personality disorder. Among the 80% of BPD patients that experienced pain, the mean severity was 4.47, which corresponds to

moderate pain as assessed in cancer patients (39) and is near the cut-off of 4.7 that indicates when subjective pain interferes in one's life (40) or is unmanageable (41). As previously discussed, patients with BPD are frequently represented in various pain clinics (9-11) and the significantly increased amount of pain and pain interference may also provide a partial explanation for why patients with BPD also frequently present to general practitioners. This is partially related to the increased physical morbidity in patients with BPD compared to those with other personality disorders, including higher rates of obesity, cardiac disease, osteoarthritis, and pain syndromes (6, 7). In contrast to these findings, psychophysiological pain research has consistently demonstrated that patients with BPD have higher pain perception thresholds than patients without a diagnosis of BPD (42-45). These two sets of results suggest that, when a stimulus reaches the elevated pain threshold found in patients with BPD, it may be rated as subjectively more intense than in other populations. In other words, minor pain may be ignored, but more intense pain is emphasized. This may be why patients with BPD engage in relatively superficial self-harm but also have higher ratings of overall pain. These findings are also consistent with the "black and white" thinking that is commonly seen in patients with BPD (46), although instead of having idealized and devalued relationships, their own internal experiences are experienced at a similarly high or low intensity. If pain is experienced very intensely, it follows that this pain would significantly impair functioning in all areas of one's life. Similar results of a higher pain perception threshold have also been found in a meta-analysis in patients with major depressive disorder, but there are no consistently identified difference in pain tolerance thresholds (47).

The second finding is the identification of factors that predict pain experienced in patients with BPD, namely increasing age, a current diagnosis of major depressive disorder, and experiences of both childhood and adult adversity. Increasing age is an expected association, as older people tend to report more pain than younger or middle-aged people (48). Patients with major depressive disorder are more likely to experience pain symptoms (49) and pain syndromes (50), and patients with BPD also experience more pain symptoms and pain syndromes. Among patients treated for pain conditions, the presence of major depressive disorder accounted for the increased pain ratings among those with higher levels of BPD features, but this study did not limit themselves to a sample of patients rigorously diagnosed with BPD, so symptomatic overlap between some BPD and major depressive disorder symptoms may have accounted for these findings (51). In an additional regression analysis (data not presented) with the entire sample of patients with BPD and other personality disorders, BPD diagnosis and major depressive disorder were found to be independent predictors of pain.

Childhood neglect and abuse, along with adult abuse, were significant univariate predictors of pain ratings in the BPD group. In the multivariable analysis, severity of childhood neglect and severity of adult experiences of abuse were no longer significant, leaving non-sexual forms of childhood adversity as the remaining predictor. This variable includes emotional, verbal, and physical abuse. Previous research has demonstrated a relationship between childhood adversity and pain problems in adulthood (52). Granot et al. (53) also found higher pain thresholds combined with higher pain intensity rating in women who were sexually abused. In this sample, the trait of harm avoidance mediated part of this effect.

Similar to our current study, data from the National Comorbidity Survey has also identified childhood abuse and depression as independent predictors of pain severity (54), suggesting that several different pathways may be involved. In summary, the results of this study are consistent with the existing literature that indicate that the experience of pain is multifactorial with a number of related but independent risk factors that likely operate through several pathways.

This study has several limitations. The first limitation is that this study is reporting on the results of a single well known and validated measure of pain, but this measure focuses only on the previous 24 hour period and may not reflect more stable pain conditions. Since this instrument was only introduced at the 16-year follow-up, it is important to continue following this sample prospectively. A second limitation is related to the decision to focus on the experience of physical pain at the time of assessment regardless of etiology or treatment, meaning that this study does not differentiate pain related to physical illnesses or injuries from those related to somatoform disorders and that medication use was not examined. A third limitation is that all patients were initially inpatients and were therefore seriously ill at baseline. This sample may not entirely reflect the diversity of patients with BPD encountered in the community or clinical practice. A final limitation is that many of these patients received various forms of medical and psychiatric treatment that may have affected their experiences of pain (55, 56).

In conclusion, these findings demonstrate that patients with BPD suffer from elevated levels of pain and have more interference in their lives from pain. Several predictors of the amount of pain experienced were identified, although the presence of major depressive disorder is the only modifiable predictor. Those who treat patients with BPD should be alert to the frequent and severe pain issues that are commonly present in this population. These results further highlight the importance of proper assessment and treatment of psychiatric comorbidities, particularly major depressive disorder, in addition to counselling and assistance in managing physical health concerns.

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Table 1
Pain measures and pain interference scores by diagnostic group in patients experiencing pain

	BPD Group Mean	OPD Group Mean	t-statistic	p-value
Average pain	4.47	3.31	2.65	0.009
Worst pain	5.45	3.94	3.23	0.001
Least pain	2.70	1.56	2.65	0.009
Current pain	4.08	2.59	2.93	0.004
Total pain interference	4.09	2.37	3.35	0.0009
Total affective interference subscale	4.00	2.43	2.91	0.004
Total activity interference subscale	4.15	2.33	3.44	0.0007
General activity interference	3.26	1.07	4.81	<0.0001
Mood interference	3.56	1.70	3.96	0.0001
Walking ability interference	3.09	1.55	3.17	0.002
Normal work interference	3.57	1.25	4.78	<0.0001
Relations with other people interference	2.55	0.95	3.84	0.0002
Sleep interference	3.42	1.45	4.05	0.0001
Enjoyment of life interference	3.53	1.52	4.10	0.0001
Ability to concentrate interference	3.01	0.96	4.50	<0.0001
Appetite interference	2.30	0.80	3.55	0.0004

OPD: Other personality disorders

Table 2
Univariate predictors of average pain at 16 years follow-up in all patients with BPD

Variable	Coefficient	SE	t	p	95% Confidence Interval
<i>Demographic</i>					
Age	0.11	0.03	3.73	<0.001	0.05 0.17
Sex	0.16	0.46	0.36	0.72	-0.75 1.08
<i>Current Diagnoses</i>					
Alcohol Dependence	-0.48	0.97	-0.49	0.62	-2.40 1.44
Drug Dependence	-0.26	1.57	-0.16	0.87	-3.36 2.84
Major depressive disorder	1.39	0.35	3.95	<0.001	0.70 2.09
PTSD	0.70	0.52	1.35	0.18	-0.32 1.73
<i>Psychosocial</i>					
Childhood sexual abuse	-0.23	0.42	-0.55	0.58	-1.05 0.59
Severity of other childhood abuse	0.11	0.03	3.39	0.001	0.05 0.18
Severity of childhood neglect	0.05	0.02	2.96	0.003	0.02 0.09
Severity of adult abuse	0.44	0.20	2.16	0.032	0.04 0.84

Table 3
Multivariate predictors of average pain at 16 years follow-up in all patients with BPD

Variable	Coefficient	SE	t	p	95% Confidence Interval
<i>Demographic factors</i>					
Age	0.08	0.03	2.74	<0.007	0.02 0.14
<i>Clinical factors</i>					
Major depressive disorder	1.17	0.35	3.38	<0.001	0.49 1.85
Severity of other childhood abuse	0.08	0.03	2.31	0.022	0.01 0.14