# The Association Between Borderline Personality Disorder and Chronic Medical Illnesses, Poor Health-Related Lifestyle Choices, and Costly Forms of Health Care Utilization

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***Objective:*** The physical health of patients with borderline personality disorder has not been well studied. The purpose of this study was to compare the physical health, lifestyle choices affecting physical health, and health care utilization of patients with remitted and nonremitted borderline personality disorder.

***Method:*** 200 patients who no longer met the Revised Diagnostic Interview for Borderlines (DIB-R) and DSM-III-R criteria for borderline personality disorder and 64 patients who still met study criteria for borderline personality disorder were interviewed from June 1992 through December 2001 concerning their physical health, lifestyle choices, and use of medical care 6 years after their initial participation in a larger study of the longitudinal course of borderline personality disorder.

***Results:*** Remitted borderline patients were found to be significantly less likely than nonremitted borderline patients to have a history of a "syndrome-like" condition (i.e., chronic fatigue, fibromyalgia, or temporomandibular joint syndrome) ($p = .049$) or to have a history of obesity ($p = .026$), osteoarthritis ($p = .025$), diabetes ($p = .001$), hypertension ($p = .028$), back pain ($p < .001$), or urinary incontinence ($p < .001$). They were also found to be significantly less likely to report pack per day smoking ($p = .002$), daily consumption of alcohol ($p = .003$), lack of regular exercise ($p = .006$), daily use of sleep medications ($p < .001$), and sustained use of pain medications ($p = .026$). In addition, remitted borderline patients were significantly less likely than nonremitted borderline patients to have had at least 1 medically related emergency room visit ($p < .001$), 1 medical hospitalization ($p = .003$), or 1 of each ($p < .001$).

***Conclusions:*** The failure to remit from borderline personality disorder seems to be associated with a heightened risk of suffering from chronic physical conditions, making poor health-related lifestyle choices, and using costly forms of medical services.

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Borderline personality disorder is a common and serious disorder,[1] but surprisingly little attention has been paid to its medical comorbidities. Health problems have been studied in other psychiatric disorders. The association between poor physical health and depression is well known.[2] Poor physical health has also been described in Vietnam combat veterans with posttraumatic stress disorder.[3] In addition, Dixon et al.[4] showed that, in a cohort of over 700 persons with schizophrenia, most patients had at least 1 medical problem, and that having a greater number of medical problems was associated with more severe psychosis and depression and the likelihood of a suicide attempt.

In one of the few studies to study health problems in connection with remission from psychiatric disorders, Schmidt and Telch[5] examined medical comorbidity in a sample of 71 patients with panic disorder and looked at the relationship with recovery from the disorder. At the end of 12 sessions of cognitive-behavioral treatment, 71% of patients with good self-perceived physical health had recovered from their panic disorder, while only 35% of those who perceived their physical health as poor had recovered.

Although the actual medical health of patients with borderline personality disorder has not been studied, some studies have looked at related topics. For example, Sansone et al.[6] found an association between the symptomatology of borderline personality disorder and obesity. In addition, 2 studies[7,8] found an association between borderline personality disorder traits and the use of medical services. To the best of our knowledge, no study has carefully assessed the physical health of a well-diagnosed sample of borderline patients and looked at the relationship with remission from this disorder.


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The current study describes the physical health, health-related lifestyle choices, and use of medical services of a large sample of remitted and nonremitted borderline patients. We hypothesized that the remitted borderline patients would be less likely than the nonremitted patients to be suffering from poorly defined medical syndromes, such as chronic fatigue, fibromyalgia, or temporomandibular joint syndrome. We also hypothesized that the remitted borderline patients would be less likely to be obese and to have obesity-related medical problems, such as diabetes. Finally, we hypothesized that remitted borderline patients would be less likely to make poor lifestyle choices that could affect their health and less likely to use costly forms of medical treatment.

## METHOD

### Subjects

The current study is part of a multifaceted longitudinal study of the course of borderline personality disorder—the McLean Study of Adult Development (MSAD). The methodology of this study has been described in detail elsewhere.[9] Briefly, all patients were initially inpatients at McLean Hospital in Belmont, Mass. Each patient was screened to determine that he or she (1) was 18 to 35 years of age; (2) had a known or estimated IQ of 71 or higher; (3) had no history or current symptomatology of schizophrenia, schizoaffective disorder, bipolar I disorder, or an organic condition that could cause psychiatric symptoms; and (4) was fluent in English.

### Procedures

After the study procedures were explained at baseline, written informed consent was obtained. Each patient then met with a master's-level psychologist blind to the patient's clinical diagnoses. Three semistructured diagnostic interviews were administered: (1) the Structured Clinical Interview for DSM-III-R Axis I Disorders (SCID-I),[10] (2) the Revised Diagnostic Interview for Borderlines (DIB-R),[11] and (3) the Diagnostic Interview for DSM-III-R Personality Disorders (DIPD-R).[12] Good-to-excellent levels of interrater and test-retest reliability were achieved at baseline for both Axis I and II disorders.[13,14] Data were collected from June 1992 to December 2001.

At each follow-up wave, diagnostic information was assessed via interview methods similar to the baseline procedures by staff members blind to baseline diagnoses. After informed consent was obtained, the MSAD diagnostic battery was readministered (a change version of the SCID-I, the DIB-R, and the DIPD-R). Good-to-excellent interrater reliability was maintained throughout the course of the study for both Axis I and II diagnoses.[13,14] At 6-year follow-up, the Medical History and Services Utilization Interview (MHSUI) was administered to all patients. The MHSUI, developed by the 2 authors of this article, assesses the health of the patients, lifestyle issues related to physical health, and health care utilization. Diagnoses were not recorded unless they had been given to the subject by a physician. Medical services that were related to pregnancy were not included in the estimates of health care utilization.

In a validation study involving 14 patients, the following kappa values were found after comparing patient report and medical record information: any serious medical condition in patient (0.91), any serious medical condition in first-degree relative (0.77), any traditional medical treatment (0.88), and any alternative treatment (0.43). The following intraclass correlation coefficients were also found: number of visits to primary care physician (0.72), number of visits to specialists (0.68), and number of high-risk lifestyle issues (0.61). The interrater reliability of this measure has been assessed in 21 conjoint interviews. Kappa values pertaining to patient medical conditions ranged from 0.45 to 1.0, with a median of 1.0. Kappa values pertaining to lifestyle issues ranged from 0.89 to 1.0, with a median of 1.0. Kappa values pertaining to medical treatments ranged from 0.64 to 1.0, with a median of 1.0. Copies of this instrument may be obtained from the authors.

Body mass index (BMI) was computed for all subjects using their measured weight from their index admission and their self-reported height and weight at 6-year follow-up. BMI was calculated by dividing the weight in kilograms by the square of the height in meters. Obesity was defined as having a BMI of $\geq 30$ kg/m$^2$.[15]

### Statistical Analyses

Logistic regression modeling was conducted to determine if the remitted and nonremitted borderline patients were significantly different in sex, race, and age. In terms of health-related variables, prevalence rates for remitted and nonremitted borderline patients were contrasted using generalized linear modeling (GLM) methods[16] with logarithmic link and binomial family, which yields an estimated risk ratio (RR) and its 95% confidence interval (95% CI). The GLM method also permits adjustment for important covariates, and these can be either continuous or categorical variables. We adjusted for potentially confounding factors: sex, race, and age. In addition to the RR and its 95% CI, the GLM method yielded a test statistic (z statistic) and its associated p value. Due to the multivariate nature of these analyses, statistical significance was set at $p < .05$.

## RESULTS

Table 1 shows the demographic characteristics of the 200 ever-remitted borderline patients and the 64 never-remitted borderline patients. Remission was defined as not meeting DIB-R and DSM-III-R criteria for borderline

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**Table 1. Demographic Characteristics of Remitted (N = 200) and Nonremitted (N = 64) Borderline Patients at 6-Year Follow-Up**

| Characteristic | Remitted Borderline Patients | Nonremitted Borderline Patients | Odds Ratio | SE | z Score | p Value | 95% CI |
|---|---|---|---|---|---|---|---|
| Female, N (%) | 160 (80.0) | 53 (82.8) | 1.26 | 0.48 | 0.608 | .543 | 0.6 to 2.7 |
| White, N (%) | 172 (86.0) | 59 (92.2) | 1.85 | 0.95 | 1.197 | .231 | 0.7 to 5.1 |
| Age, mean (SD), y | 32.5 (5.8) | 34.5 (5.8) | 1.06 | 0.03 | 2.325 | .020 | 1.0 to 1.1 |

**Table 2. Prevalence of Chronic Medical Conditions, Poor Health-Related Lifestyle Choices, and Costly Medical Service Utilization by Remitted (N = 200) and Nonremitted (N = 64) Borderline Patients**

| | Remitted Borderline Patients | | Nonremitted Borderline Patients | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | N | % | N | % | Relative Risk Ratio | z Score | p Value | 95% CI | Significant Covariates |
| Chronic medical conditions | | | | | | | | | |
| Syndrome | 50 | 25.0 | 27 | 42.2 | 1.45 | 1.972 | .049 | 1.00 to 2.09 | Older, female |
| Obesity (BMI ≥ 30) | 48 | 24.0 | 26 | 40.6 | 1.52 | 2.232 | .026 | 1.05 to 2.20 | Older |
| Osteoarthritis | 15 | 7.5 | 11 | 17.2 | 2.29 | 2.241 | .025 | 1.11 to 4.73 | ... |
| Diabetes | 3 | 1.5 | 7 | 10.9 | 8.31 | 3.441 | .001 | 2.49 to 27.78 | Older, male |
| Hypertension | 9 | 4.5 | 8 | 12.5 | 2.78 | 2.201 | .028 | 1.12 to 6.90 | ... |
| Chronic back pain | 77 | 38.5 | 40 | 62.5 | 1.62 | 3.677 | < .001 | 1.25 to 2.10 | ... |
| Urinary incontinence | 10 | 5.0 | 12 | 18.8 | 3.21 | 3.861 | < .001 | 1.78 to 5.82 | Older |
| Multiple medical conditions | 51 | 25.5 | 37 | 57.8 | 2.19 | 4.981 | < .001 | 1.61 to 2.99 | Female |
| Poor health-related lifestyle choices | | | | | | | | | |
| Pack per day smoking | 81 | 40.5 | 39 | 60.9 | 1.50 | 3.101 | .002 | 1.16 to 1.95 | ... |
| Daily alcohol use | 50 | 25.0 | 28 | 43.8 | 1.75 | 2.987 | .003 | 1.21 to 2.53 | ... |
| Lack of regular exercise | 94 | 47.0 | 44 | 68.8 | 1.35 | 2.746 | .006 | 1.09 to 1.67 | Older |
| Daily use of sleep medication | 43 | 21.5 | 40 | 62.5 | 2.91 | 6.420 | < .001 | 2.10 to 4.03 | ... |
| Overuse of pain medication | 53 | 26.5 | 26 | 40.6 | 1.53 | 2.230 | .026 | 1.05 to 2.23 | ... |
| Multiple poor health-related lifestyle choices | 99 | 49.5 | 53 | 82.8 | 1.67 | 5.634 | < .001 | 1.40 to 2.00 | ... |
| Medical services utilization | | | | | | | | | |
| Medical ER visit | 102 | 51.0 | 51 | 79.7 | 1.56 | 4.761 | < .001 | 1.30 to 1.88 | ... |
| Medical hospitalization | 36 | 18.0 | 26 | 40.6 | 1.80 | 2.962 | .003 | 1.22 to 2.65 | Older |
| Both ER visit and hospitalization | 34 | 17.0 | 27 | 42.2 | 2.48 | 4.246 | < .001 | 1.63 to 3.78 | ... |

Abbreviations: BMI = body mass index, ER = emergency room.

**Table 3. Rates of Outpatient Care, Problems Related to Accessing/Paying for Medical Care, and Work-Related Negative Sequelae of Physical Illness Reported by Remitted (N = 200) and Nonremitted (N = 64) Borderline Patients**

| | Remitted Borderline Patients | | Nonremitted Borderline Patients | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | N | % | N | % | Relative Risk Ratio | z Score | p Value | 95% CI | Significant Covariates |
| Primary care physician visit | 174 | 87.0 | 60 | 93.8 | 1.08 | 1.767 | .077 | 0.99 to 1.17 | ... |
| Specialist visit | 92 | 46.0 | 35 | 54.7 | 1.19 | 1.261 | .207 | 0.91 to 1.56 | ... |
| Annual physical | 174 | 87.0 | 53 | 82.8 | 0.95 | –0.781 | .435 | 0.84 to 1.08 | ... |
| Regular dental care | 152 | 76.0 | 42 | 65.6 | 0.86 | –1.485 | .137 | 0.71 to 1.05 | ... |
| Difficulty accessing/paying for health care[a] | 43 | 21.5 | 14 | 21.9 | 1.02 | 0.064 | .949 | 0.60 to 1.73 | ... |
| Quit/lost job due to poor health | 8 | 4.0 | 10 | 15.6 | 3.91 | 3.014 | .003 | 1.61 to 9.47 | ... |

[a]Put off seeing doctor because of insurance problems, unable to afford medical attention, and/or gone into debt because of medical illness.

personality disorder for at least 2 years. As can be seen, the 2 groups, which together represent 96% of the surviving borderline patients, were very similar in sex and race. However, nonremitted borderline patients were slightly but significantly older than remitted borderline patients. Also, the nonremitted borderline patients were slightly more obese. At baseline, 15% of the remitted patients had had a BMI of ≥ 30 kg/m$^2$, while 25% of the nonremitted patients had had a BMI of ≥ 30 kg/m$^2$.

Table 2 documents the prevalence of the chronic medical conditions, lifestyle choices, and medical service utilization about which we had hypothesized. As can be seen, each of the medical conditions, poor lifestyle choices, and costly forms of treatment was significantly more common among the nonremitted borderline patients.

It is important to note that this pattern of poor health (among both groups of borderline patients to some extent) did not occur as a result of a lack of medical care. As can be seen in Table 3, the majority of those in both patient groups had an annual physical, saw their primary care physician or a specialist at least once in the 2-year

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period covered by the interview, and had regular dental care. Only about 20% of each group had any trouble accessing medical care or paying for it. However, nonremitted borderline patients were significantly more likely than remitted borderline patients to have quit work or lost a job because of ill health.

## DISCUSSION

The findings in our study are consistent with the literature that links psychiatric illnesses with medical problems and remission from psychiatric illness with improvement in physical health. Our study adds to the literature by examining closely the differences in medical health, lifestyle choices, and service utilization between remitted borderline patients and nonremitted borderline patients.

Four important findings have emerged. The first is that remitted borderline patients were significantly less likely than nonremitted patients to suffer from the disorders that we have linked together as a "poorly understood medical syndrome." We have included the disorders of chronic fatigue, fibromyalgia, and temporomandibular joint syndrome, because these disorders share some important characteristics. Their pathophysiology is not well understood. Diagnostic criteria and treatment for these illnesses are still not clear. The illnesses are chronic, with waxing and waning courses, and perhaps associated with affective disorders.[17,18] Our findings are consistent with the widespread clinical sense that there is a relationship between these medical conditions and psychopathology or psychological issues.[17–20]

The second finding is that remitted borderline patients were significantly less likely to be obese. However, even the remitted patients had a higher prevalence of obesity at 6-year follow-up than they did at baseline. Comparison of baseline prevalence with 6-year prevalence shows that the prevalence of obesity increased by 60% in each group. This increase is consistent with, but greater than, the general increase in obesity in the United States.[15] The prevalence of obesity in the United States was studied in the 2001 Behavioral Risk Factor Surveillance System (BRFSS) in a cross-sectional telephone survey conducted by the Centers for Disease Control and Prevention and state health departments.[15] In that study, the rate of obesity in Massachusetts was 16.1%. Although the methodology of these 2 studies is quite different, it appears that the prevalence of obesity in our subject group, most of whom live in Massachusetts, is higher than that reported by the BRFSS.

The relationships between eating disorders and borderline personality disorder[21,22] and body image disturbances and borderline symptomatology[6] have been studied, but, quite apart from these psychological issues, there are serious medical and psychosocial consequences of obesity itself in these patients. Conditions associated with obesity, such as osteoarthritis, diabetes, hypertension, back pain, and urinary incontinence, were significantly more common among the nonremitted borderline patients. In general, obesity seems to lessen life expectancy, especially among young adults.[23] As well as these health consequences of obesity, a prospective study has shown that obesity in adolescence and young adulthood has adverse social and economic consequences.[24]

The third finding is that remitted borderline patients were significantly less likely to have made poor health-related lifestyle choices. Patients whose borderline personality disorder had not remitted were more likely than remitted patients to smoke cigarettes, drink alcohol every day, use pain medication for sustained periods of time, and take sleeping medication. These patients also were less likely to exercise. The relationship between substance abuse and the failure to remit from borderline personality disorder has been well established.[25] Our findings that the nonremitted patients were more likely to report sustained use of pain medications is new and may be related to the finding of a substantial prevalence of borderline personality disorder symptomatology among primary care patients with pain syndromes.[26] There is also increasing interest in the relationship between pain and depression,[27] and it is possible that some of our patients were taking pain medications as a way of medicating either physical pain or dysphoria.[28] The finding that the nonremitted patients were more likely to take sleeping medication is also new. It is consistent with the findings that insomniacs have higher rates of psychiatric illness and that insomnia itself is a risk factor for the development of depression.[29] The use of these medications is associated with tolerance and dependence and, in some cases, the impairment of sleep[30] or residual daytime sedative effects that impair daytime functioning.[31]

The relationship between exercise and psychopathology is again complex. For example, in a study of health in over 20,000 Harvard College alumni, researchers found that physical activity may itself have some antidepressant effects, while lack of sociability or initiative may make exercising more difficult or less enjoyable.[32] In another study of physical activity among over 80,000 adults in the United States, Goodwin[33] found a negative association between regular physical activity and depression or anxiety. This is consistent with our findings of less physical activity in the nonremitted patients.

Although the nonremitted patients were making several poor health decisions, the cross-sectional nature of these data makes causality determinations difficult. Perhaps in some cases the decisions could be conceived of as resulting from borderline personality disorder and as a way of being self-destructive or, in other cases, as a way of self-medicating dysphoria.[28] The choices to drink alcohol regularly, use pain medications for substantial periods

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of time, use sleep medication, and not exercise regularly can exacerbate or prolong borderline symptomatology, as well as result from it.

The fourth finding is that remitted borderline patients were significantly less likely to have used expensive forms of medical treatment, e.g., emergency room visits or hospitalizations. Remitted borderline patients were also significantly less likely than nonremitted borderline patients to have quit work or lost a job because of ill health. One implication of this finding is that the economic costs of nonremitted borderline personality disorder are likely to be considerable, in terms of both medical care and lost employment. There are serious ramifications of losing a job because of ill health. These include financial problems and loss of self-esteem, daily structure, and relationships. As well, people who lose their jobs because of illness may lose their health benefits, which will affect their ability to get medical care. Finally, they may find it much more difficult to get hired again, since employers are often wary of hiring people with medical problems. These findings are consistent with those of Hueston et al.,[8] who found that patients with several personality disorder traits, including borderline personality disorder traits, have more outpatient, emergency, and inpatient visits than do other patients and are more likely to have overall lower health-related functional status.

Limitations of this study include the uncontrolled use of psychotropic medications by our patients. Many of our patients were treated, either episodically or on an ongoing basis, with psychotropic medications that are associated with weight gain[34] and sedation. The use of these medications may be associated with medical complications of borderline personality disorder and perhaps some poor lifestyle choices, such as lack of exercise. As we have reported before,[35] it is not unusual for borderline patients to be treated with several medications concurrently. As well, doses and classes of medications often changed. For these reasons, the relationship between medication and weight gain is a complicated topic that cannot be dealt with fully in this article.

Another limitation is that our data were obtained by self-report. It is possible that the patients' perceptions of their physical health and activity are not accurate due either to denial or to exaggeration. However, Dixon et al.[4] compared the self-reports of their subjects with Medicaid claims and concluded that the self-reports of their patients were reasonably valid. In general, studies have found that self-reported health status is highly associated with actual health status.[5] Carnethon et al.[36] found that subjects reported their exercise accurately. Mokdad et al.[15] report that subjects may underestimate their weight, so our findings may err on the conservative side in reporting the 6-year follow-up incidence of obesity in this sample.

In conclusion, we have found that poor physical health accompanies failure to remit from borderline personality disorder. Whether or not the medical problems cause or are caused by ongoing borderline personality disorder cannot be determined in this naturalistic study. There may be a feedback system or bidirectional association in which poor health hinders the patient's ability to make progress with his or her psychiatric problems, and in which psychiatric problems, in turn, discourage the patient from making good health choices. Psychotropic medication further complicates the issue by possibly contributing to obesity with its myriad of medical complications.

Borderline patients are usually fairly young at first presentation and may appear both to be physically healthy and to have overwhelming psychological problems. The findings of this study suggest that borderline patients as they age have more medical problems than is currently recognized and that these medical problems are associated with failure to remit from borderline personality disorder.

In future studies, we will follow the health problems, lifestyle choices, and medical service utilization of these patients and will attempt to better understand the various connections between these conditions.

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