



# The relationship of chronic medical illnesses, poor health-related lifestyle choices, and health care utilization to recovery status in borderline patients over a decade of prospective follow-up



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## ABSTRACT

**Background:** The interaction of borderline personality disorder (BPD) with physical health has not been well characterized. In this longitudinal study, we investigated the long-term relationship of chronic medical illnesses, health-related lifestyle choices, and health services utilization to recovery status in borderline patients over a decade of prospective follow-up.

**Method:** 264 borderline patients were interviewed concerning their physical health at 6-year follow-up in a longitudinal study of the course of BPD. This sample was then reinterviewed five times at two-year intervals over the next ten years. We defined recovery from BPD based on a Global Assessment of Functioning score of 61 or higher, which required BPD remission, one close relationship, and full-time competent and consistent work or school attendance. We controlled for potentially confounding effects of time-varying major depressive disorder.

**Results:** Never-recovered borderline patients were significantly more likely than ever-recovered borderline patients to have a medical syndrome, obesity, osteoarthritis, diabetes, urinary incontinence, or multiple medical conditions ( $p < 0.0063$ ). They were also significantly more likely to report pack-per-day smoking, weekly alcohol use, no regular exercise, daily sleep medication use, or pain medication overuse ( $p < 0.0083$ ). In addition, never-recovered borderline patients were significantly more likely than ever-recovered borderline patients to undergo a medical emergency room visit, medical hospitalization, X-ray, CT scan, or MRI scan ( $p < 0.0063$ ).

**Conclusions:** Over a decade of prospective follow-up, failure to recover from BPD seems to be associated with a heightened risk of chronic medical illnesses, poor health-related lifestyle choices, and costly health services utilization.

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## 1. Introduction

Little is known about the relationship between borderline personality disorder and physical illness. Few studies have attempted to characterize the association of borderline personality disorder with medical co-morbidities and health care utilization. One early study showed a relationship between symptoms of borderline personality disorder and obesity (Sansone et al., 2001). A recent study found a significant relationship between the presence of borderline personality disorder and higher rates of arteriosclerosis,

arthritis, cardiovascular disease, gastrointestinal disease, hypertension, liver disease, venereal disease, and “any assessed medical condition” (El-Gabalawy et al., 2010). Previous research has also reported correlations between the presence of borderline personality disorder and use of higher numbers of primary care physicians and medical specialists (Sansone et al., 2011), as well as increased utilization of medical office visits (Ansell et al., 2007; Sansone et al., 1996; Sansone et al., 1998), telephone calls to medical offices (Sansone et al., 1998), medication prescriptions (Sansone et al., 1996; Sansone et al., 1998), emergency room visits (Black et al., 2006), and inpatient hospitalizations (Black et al., 2006). Another recent study of adults between 55 and 64 years of age found that the number of BPD features predicts negative health perceptions, decreased physical functioning, more role limitations and more pain at baseline, as well as more negative health perceptions, lower

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energy, higher health care utilization, and more medication usage six months later (Powers & Oltmanns, 2012).

In 2004, we published the first study to examine medical health in a well-diagnosed sample of remitted and non-remitted borderline patients (Frankenburg and Zanarini, 2004). We found that non-remitted borderline patients were more likely than remitted patients to have a syndrome-like medical condition, specifically chronic fatigue, fibromyalgia, or temporomandibular joint syndrome (TMJ). Borderline patients who had not achieved remission also had a higher prevalence of certain chronic medical conditions, particularly back pain, diabetes, hypertension, obesity, osteoarthritis, and urinary incontinence. In addition, we observed that non-remitted borderline patients more often reported poor self-care in the form of pack-per-day smoking, daily alcohol use, daily sleep medication use, lack of regular exercise, and overuse of pain medications. Finally, non-remitted borderline patients were more likely to undergo a medically-related emergency room visit, a medical hospitalization, or both.

The current study is the first to describe the long-term longitudinal course of chronic medical illnesses, health-related lifestyle choices, and utilization of health care services in borderline patients. Specifically, we assessed the relationship of these medical variables among patients who recovered from BPD versus borderline patients who never recovered over a decade of prospective follow-up. Given existing evidence for a relationship between major depressive disorder (MDD) and higher rates of both general medical illness and increased health services utilization, (Druss et al., 2000; Katon, 2003; Simon et al., 1995a; Simon et al., 1995b) we also controlled for potential confounding effects of time-varying MDD on participants' physical health, health-related self-care, and health care utilization. This extends our initial cross-sectional design that compared non-remitted borderline patients with remitted borderline patients. We hypothesized that patients who never recovered from BPD would be more likely than borderline patients who recovered to have a poorly defined medical syndrome or other chronic medical condition over ten years of follow-up. We also hypothesized that patients who never recovered from BPD would be more likely to make poor health-related lifestyle choices than borderline patients who recovered over a decade of follow-up. Additionally, we hypothesized that patients who never recovered from BPD would be more likely to utilize costly medical services than borderline patients who recovered over a prospectively observed period of ten years. Finally, we hypothesized that patients who never recovered from BPD would be more likely to face financial challenges related to their health status than borderline patients who recovered over a decade of follow-up.

## 2. Methods

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, which was reviewed and approved by the McLean Hospital Institutional Review Board, has been described in detail elsewhere (Zanarini et al., 2003). Briefly, all patients were initially inpatients at McLean Hospital in Belmont, Mass. Each patient was screened to determine that he or she was 18–35 years of age, had a known or estimated IQ of 71 or higher, had no history or current symptomatology of schizophrenia, schizoaffective disorder, bipolar I disorder, or an organic condition that could cause psychiatric symptoms, and was fluent in English.

After the study procedures were explained at baseline, written informed consent was obtained. Each patient then met with a master's-level interviewer blind to the patient's clinical diagnoses. Three semistructured diagnostic interviews were administered: the

Structured Clinical Interview for DSM-III-R Axis I Disorders (SCID-I) (Spitzer et al., 1992), the Revised Diagnostic Interview for Borderlines (DIB-R) (Zanarini et al., 1989), and the Diagnostic Interview for DSM-III-R Personality Disorders (DIPD-R) (Zanarini et al., 1987). Good-to-excellent levels of interrater and test–retest reliability were achieved at baseline for both axis I and II disorders (Zanarini & Frankenburg, 2001; Zanarini et al., 2002).

Patients were interviewed six times from June 1998 through December 2010. At each 24-month 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 re-administered (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 (Zanarini and Frankenburg, 2001; Zanarini et al., 2002).

At 6-year follow-up and at each subsequent follow-up wave, the Medical History and Services Utilization Interview (MHSUI) was administered to all patients by a well-trained interviewer. The MHSUI assesses the health of the patients, lifestyle issues related to physical health, and health care utilization (Frankenburg & Zanarini, 2004). Interviewers prompted participants to clarify their answers to MHSUI questions as needed. Medical 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 ( $\kappa$ ) were found after comparing patient report and medical record information: any serious medical condition in patient ( $\kappa = 0.91$ ), any serious medical condition in first-degree relative ( $\kappa = 0.77$ ), any traditional medical treatment ( $\kappa = 0.88$ ), and any alternative treatment ( $\kappa = 0.43$ ). For quantitative measures, the following intraclass correlation ( $p$ ) coefficients were also found: number of visits to primary care physician ( $p = 0.72$ ), number of visits to specialists ( $p = 0.68$ ), and number of high-risk lifestyle issues ( $p = 0.61$ ). 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.

Body mass index (BMI) was computed for all subjects using their self-reported height and weight at each 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 30 kg/m<sup>2</sup> or higher (Mokdad et al., 2001).

Our measure of recovery was a GAF score of 61 or higher (which none of our participants had at baseline). This outcome measure offers a reasonable description of a good overall outcome—some mild symptoms or some difficulty in social, occupational, or school functioning but generally functioning fairly well and having some meaningful interpersonal relationships. We operationalized this score to enhance its reliability and meaning. To be given a GAF score of 61 or higher, a borderline patient typically had to be in remission from BPD (defined as no longer meeting DIB-R and DSM-III-R criteria for BPD for a period of at least two years), have at least one emotionally sustaining relationship with a close friend or life partner or spouse, and be able to work or go to school consistently, competently, and on a full-time basis. Recovery status was assessed at each two-year follow-up: participants who recovered from BPD during the 10-year longitudinal study period were categorized as “ever recovered” and those who did not were categorized as “never recovered.”

Generalized estimating equations, with BPD recovery status (ever recovered versus never recovered) and time as main effects of

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