Deaths by Suicide and Other Causes Among Patients With Borderline Personality Disorder and Personality-Disordered Comparison Subjects Over 24 Years of Prospective Follow-Up

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ABSTRACT

Objective: This study has 4 aims. The first is to determine rates of mortality due to suicide and other causes for patients with borderline personality disorder (BPD) and personality-disordered comparison subjects over 24 years of prospective follow-up. The second and third aims are to determine the best predictors of time-to-suicide and time-to–premature death (not due to suicide) in patients with BPD. A final aim is to determine whether mortality rates are impacted by recovery status.

Methods: A total of 290 adult inpatients meeting rigorous Revised Diagnostic Interview for Borderlines and *DSM-III-R* criteria for BPD and 72 personality-disordered comparison subjects were recruited during inpatient admission at McLean Hospital between June 1992 and December 1995. Participants were followed and reassessed every 2 years, with data collection now entering its 26th year. Participant deaths were tracked over time.

Results: A total of 5.9% of borderline patients and 1.4% of comparison subjects died by suicide. Additionally, 14.0% of borderline patients and 5.5% of comparison subjects died by non-suicide causes. Among borderline patients, number of prior hospitalizations significantly predicted completed suicide (HR = 1.62, $P = .037$). Sociodemographic factors, physical health indicators, and psychiatric history significantly predicted premature death (not due to suicide) in bivariate analyses (all P values $< .05$). In multivariate analyses, male sex (HR = 3.56, $P = .003$) and more prior psychiatric hospitalizations (HR = 2.93, $P < .001$) significantly predicted premature death. Most borderline patients who died either by suicide (87.5%) or non-suicide–related causes (88%) were not recovered before death.

Conclusions: Taken together, these findings suggest that individuals with BPD are at elevated risk of premature death. Patients who did not achieve recovery were at a disproportionately higher risk of early death than recovered patients.

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Borderline personality disorder (BPD) is associated with an elevated rate of suicidality, with research suggesting that 3%–10% of patients with BPD eventually die by suicide.[1–3] Patients with BPD represent 9%–33% of all suicides in the general population,[4,5] and a high percentage of these patients (46%–92%) report a history of at least 1 suicide attempt.[6]

Most studies of risk factors for suicide in BPD have focused on suicide attempts—rather than completed suicide—particularly because the former are much more prevalent, and subjects can describe or explain their attempt(s). Suicide attempters and completers appear to represent largely overlapping groups, although there remain some important differences in the correlates and predictors of these outcomes.[7] The few studies that have examined predictors of completed suicide in patients with BPD have indicated that prior suicidal behavior, more/longer psychiatric hospitalizations, and psychiatric comorbidity (particularly major depression, substance use disorders, and antisocial personality disorder) increase risk for completed suicide.[6] Notably, these were not prospective investigations; rather, these studies utilized postmortem reports and/or chart reviews to assess predictors and other patient characteristics.

One meta-analysis[8] included data on 94 suicides across 8 studies of patients with BPD. Rates of suicide in subjects with BPD were significantly higher than rates observed in the general population, even though there was significant between-study variability in the rate of suicide in BPD subjects. This variability was very likely driven by sampling differences in the studied cohorts, including types of comorbidity and level of care. Furthermore, most suicides occurred in early follow-up periods, suggesting that suicide risk is highest in short-term follow-up (eg, postdischarge) as opposed to later.

There has been comparatively little research on non–suicide-related mortality in patients with BPD. One follow-back study of borderline patients who had been admitted to a general hospital[1] found that 7.9% of the originally identified sample died of natural causes over the 27-year follow-back period. The average age of death for the patients in that study was 42.4 years. A chart review study of psychiatric patients in the United Kingdom[9] found that personality-disordered patients had significantly shorter lives than members of the general population

and that all-cause mortality risk was especially elevated for younger (< 45 years old) cohorts (ie, 10 times greater than expected given population-based norms). However, that study examined mortality in patients with any personality disorder, rather than BPD specifically.

The current study has 4 aims. The first is to determine the cumulative rates of death due to suicide and other causes among borderline patients and personality-disordered comparison subjects over 24 years of prospective follow-up. The second aim is to determine the best set of baseline predictors of time-to-suicide in patients with BPD. The third aim is to determine the best predictors of time-to–premature death (not due to suicide) in patients with BPD. The fourth aim is to examine differences in mortality rates among recovered versus nonrecovered patients with BPD. This study is, to the best of our knowledge, the first prospective study of the incidence and prediction of mortality in a well-characterized sample of patients with BPD.

Clinical Points

- Risk for suicide is known to be elevated in patients with borderline personality disorder (BPD), but less is known about risk for other forms of premature mortality. Additionally, none of the existing studies of mortality in BPD used prospectively studied samples.
- A disproportionate number of deaths due to suicide and other causes occurred in patients who did not achieve recovery from BPD, highlighting important interactions between mental health, physical morbidity, and mortality.
- Targeting factors found to predict premature death in patients with BPD (eg, poor health behaviors, number of psychiatric medications, substance abuse) in treatment may help prevent or delay this outcome.

METHODS

Sample and Procedure

The current study is part of the McLean Study of Adult Development, a multifaceted longitudinal study of the course of BPD. The methodology of this study, which was reviewed and approved by the McLean Hospital Institutional Review Board, has been described in detail elsewhere.[10] Briefly, all subjects were initially inpatients at McLean Hospital in Belmont, Massachusetts, between June 1992 and December 1995. Each patient was screened to determine that he or she (1) was between the ages of 18–35 years, (2) had a known or estimated IQ of 71 or higher, and (3) had no history or current symptomatology of schizophrenia, schizoaffective disorder, bipolar I disorder, or an organic condition that could cause serious psychiatric symptoms.

After study procedures were explained, written informed consent was obtained. Each patient then met with a master's-level interviewer blind to the patient's clinical diagnoses for a thorough psychosocial history and diagnostic assessment. Four semistructured interviews were administered: (1) the Background Information Schedule (BIS),[11] (2) the Structured Clinical Interview for *DSM-III-R* Axis I Disorders,[12] (3) the Revised Diagnostic Interview for Borderlines (DIB-R),[13] and (4) the Diagnostic Interview for *DSM-III-R* Personality Disorders (DIPD-R).[14] The interrater and test-retest reliability of the BIS[11] and 3 diagnostic measures[15,16] have all been found to be good to excellent. Body mass index (BMI) was computed for each subject using their weight and height measured during index admission.

Participants were followed and reassessed every 24 months by staff members blind to previously collected information. Mortality status continued to be tracked for participants who discontinued participation in the study.

Death Information

All participant deaths were recorded when discovered. When possible, death certificates were obtained from relevant vital records offices. In some instances, informant reports, news reports, and/or obituaries were reviewed to obtain additional details regarding the nature and timing of deaths.

Recovery Status

Subjects were characterized as recovered if there was at least 1 two-year follow-up period during which they were concurrently in remission from their primary personality disorder diagnosis, had at least 1 emotionally sustaining relationship with a close friend or life partner/spouse, and were able to work or go to school consistently, competently, and on a full-time basis (including being a houseperson).

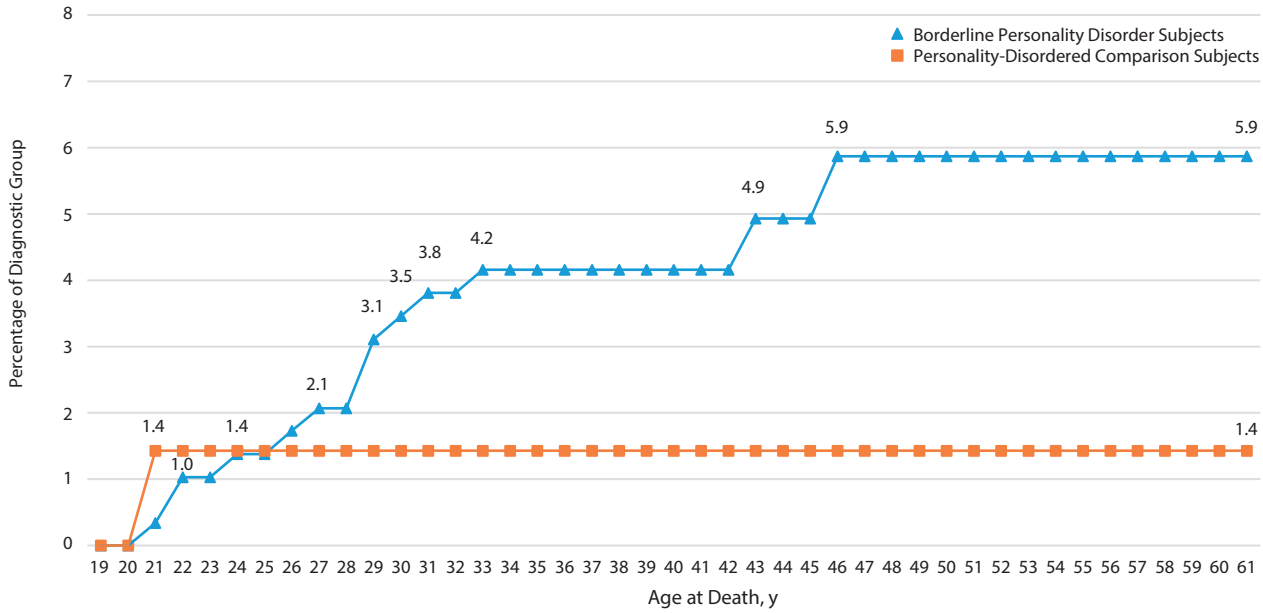
Statistical Analyses

Descriptive statistics were used to report the frequencies, means, standard deviations (SDs), and range of the predictor variables. Categorical variables are reported as % (n), and continuous variables are reported as mean (SD). All analyses were performed using STATA.[17]

The Kaplan-Meier product-limit estimator (of the survival function) was used to assess time-to-suicide and time-to–premature death (not due to suicide). We defined time-to-death as the age at which each participant died. Possible values for these outcomes ranged from participant's age at study entry to participant's age at the 24-year follow-up wave. Although a small group of participants were followed past age 60, we censored data for which time > 60 years to limit sparseness in our risk set. We also censored data for 4 participants who were lost to follow-up and for whom mortality status was not known, beginning at their age at last contact. Finally, for analyses pertaining to suicide, we censored data for participants who died by other cause (beginning at the age of death); similarly, for analyses pertaining to deaths not due to suicide, we censored data from participants who completed suicide.

Prediction of deaths by suicide and other causes. Cox proportional hazards survival analyses were used to assess bivariate and multivariate predictors of time-to-suicide and time-to–premature death (not due to suicide). These analyses provided estimates of hazard ratios (HRs) and their 95% confidence intervals (CIs).

Figure 1. Cumulative Incidence of Deaths by Suicide Over 24 Years of Prospective Follow-Up in Borderline Patients and Personality-Disordered Comparison Subjects



Predictor analyses were restricted to the BPD group. Separate sets of predictors were used for each outcome. For each outcome, the effect of each predictor was first tested in bivariate analyses. We then entered all the significant ($P < .05$, 2-tailed) predictors from the bivariate analyses simultaneously into a multivariate model and followed a backward-deletion procedure until all variables remaining were statistically significant at 2-tailed $P < .05$.

As noted in the previous paragraph, separate sets of predictors were used for analyses predicting time-to-suicide and time-to–premature death. The predictors examined in relation to suicide have been found to predict completed suicide in those with mood disorders[18,19] as well as completed suicide and high-lethality suicide attempts in those with BPD.[6,20] These included 2 sociodemographic characteristics (sex, level of education), personal history of self-destructive behavior (numbers of past self-injury episodes and suicide attempts), caretaker history of self-destructive behaviors (presence/absence of self-injury, suicide attempt, and/or completed suicide in at least 1 caregiver), number of prior hospitalizations, and history of major depression, any substance use disorder, and/or antisocial personality disorder (PD). The predictors examined in relation to non-suicide death were informed by the literature on premature mortality in the general population[21–23] and included age, sex, socioeconomic status, government disability status, history of alcohol and drug use disorders (entered separately), number of prior psychiatric hospitalizations, number of psychiatric medications, and obesity (BMI ≥ 30).

Mortality by recovery status. The log rank test was used to compare mortality rates in recovered vs never-recovered patients with BPD.

RESULTS

Sample Characteristics

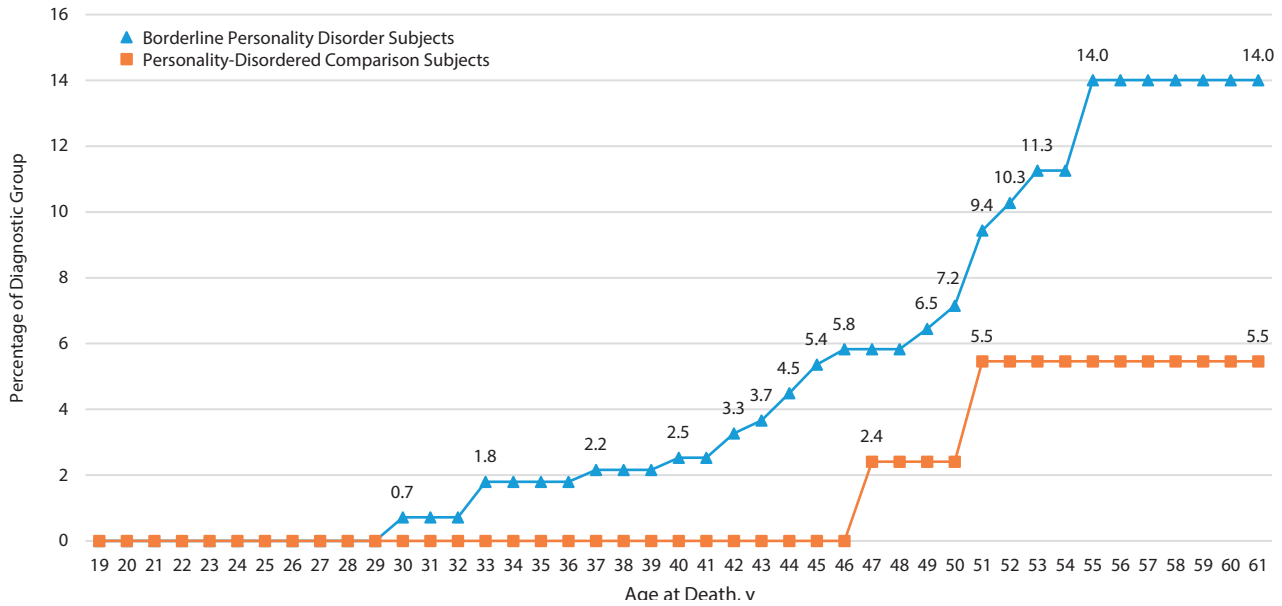
The sample and its diagnostic characteristics have been described before.[10] Two hundred ninety patients met both DIB-R and *DSM-III-R* criteria for BPD, and 72 met *DSM-III-R* criteria for at least 1 non-borderline personality disorder (and neither criteria set for BPD). The following diagnoses were found for these comparison subjects (n = 34): antisocial PD (n = 10, 13.9%), narcissistic PD (n = 3, 4.2%), paranoid PD (n = 3, 4.2%), avoidant PD (n = 8, 11.1%), dependent PD (n = 7, 9.7%), self-defeating PD (n = 2, 2.8%), and passive-aggressive PD (n = 1, 1.4%). Another 38 (52.8%) met criteria for PD not otherwise specified (which was operationally defined in the DIPD-R as meeting all but 1 of the required number of criteria for at least 2 of the 13 personality disorders described in *DSM-III-R*).

Baseline demographic data have also been reported before.[10] Briefly, 279 (77%) of the participants were female and 315 (87%) were white. The mean (SD) age of the participants was 27 (6.3) years, the mean (SD) socioeconomic status was 3.3 (1.5) (1 = highest and 5 = lowest), and their mean (SD) Global Assessment of Functioning[24] score was 39.8 (7.8) (indicating major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood).

Suicides

Figure 1 details the cumulative incidence of suicide among patients with BPD and personality-disordered comparison subjects. As can be seen, the incidence of suicide was 5.9% for patients with BPD and 1.4% for comparison subjects. The between-group difference in time-to-suicide was nonsignificant (HR = 4.42, $P = .150$). As Figure 1 illustrates,

Figure 2. Cumulative Incidence of Premature Deaths Not Due to Suicide Over 24 Years of Prospective Follow-Up in Borderline Patients and Personality-Disordered Comparison Subjects



incidence of suicide among borderline patients was variable over time. By comparison, suicide rates were generally low and stable for comparison subjects. The most common methods of suicide (aggregated across both diagnostic groups) were overdose (n = 8) and hanging (n = 6).

Premature Death Not Due to Suicide

Figure 2 details the cumulative incidence of premature death not due to suicide among patients with BPD and personality-disordered comparison subjects. As can be seen, the incidence of premature death not due to suicide was 14.0% for borderline patients and 5.5% for comparison subjects. The between-group difference in incidence and time-to-death was nonsignificant (HR = 2.93, $P = .144$). As Figure 2 illustrates, incidence of premature death has increased over time for both groups.

The most common causes of non-suicide deaths (aggregated across both diagnostic groups) were cardiovascular (eg, myocardial infarction; n = 11), followed by substance-related complications (eg, liver cirrhosis, n = 5), cancer (n = 4), and accidents (n = 4).

Prediction of Suicide

Table 1 presents the significant bivariate predictors of time-to-suicide for patients with BPD. As can be seen, 11 variables were studied, and of these, only 1 (number of hospitalizations before index admission) was statistically significant. Because only 1 predictor was significant, no multivariate models were tested.

Prediction of Premature Death

Table 2 presents the significant bivariate predictors of time-to–premature death not due to suicide for borderline patients. As can be seen, 9 variables were studied, and of these, 7 were statistically significant. The significant predictors were male sex, lower socioeconomic status, being on government disability, history of drug use disorder, number of psychiatric hospitalizations prior to index admission, number of psychiatric medications, and obese-range BMI (≥ 30).

Table 3 depicts the significant multivariate predictors of premature death after the previously described backward deletion procedure in a model that contained these 7 significant bivariate predictors was used. In this model, 2 of the 7 original baseline predictors remained statistically significant: male sex and greater number of prior psychiatric hospitalizations. The HRs reported in Table 3 indicate that presence of these risk factors was associated with a quicker time-to-death.

Mortality by Recovery Status

Of the patients with BPD who died by suicide, a significantly higher proportion of patients (87.5%) had never achieved recovery ($\chi^2_1 = 16.11$, $P < .0001$; n = 16). Similarly, of the patients with BPD who died by causes other than suicide, a significantly higher proportion (87.5%) were never-recovered ($\chi^2_1 = 16.11$, $P < .0001$; n = 24).

DISCUSSION

This study had several findings. The first set of findings concerns the cumulative incidence of suicides and other premature deaths. We found that 5.9% of borderline patients died by suicide over 24 years of follow-up, compared to 1.4% of personality-disordered comparison subjects. The prevalence of suicide found in the present study fell squarely

Table 1. Bivariate Baseline Predictors of Suicide Among Patients With Borderline Personality Disorder (N = 290)[a]

Baseline Predictor	Value	Hazard Ratio	*Z*	*P*	95% CI
Male sex	19.7 (57)				
Level of education, mean (SD)	14.3 (2.5)	0.99	−0.09	.926	0.78–1.26
No. of suicide attempts, median (IQR)[b]	2.0 (5.0)	1.06	0.24	.808	0.65–1.73
No. of self-mutilative acts, median (IQR)[b]	26.0 (96.0)	0.89	−0.77	.438	0.67–1.19
No. of psychiatric hospitalizations, median (IQR)[b]	**3.0 (7.0)**	**1.62**	**2.09**	**.037**	**1.03–2.57**
Caretaker suicide attempt	15.5 (45)	0.39	−0.92	.357	0.05–2.93
Caretaker self-mutilation	9.0 (26)	0.30	−1.15	.249	0.04–2.31
Caretaker completed suicide	2.8 (8)	< 0.01	< 0.01	1.000	0.00–0.00
History of major depression	86.6 (251)	0.82	−0.31	.754	0.23–2.90
History of substance use disorder	62.1 (180)	0.83	−0.38	.705	0.31–2.23
History of antisocial personality disorder	22.4 (65)	0.95	−0.16	.874	0.51–1.78

[a]Values are shown as % (n) unless otherwise noted. Boldface text indicates statistical significance.
[b]Log-transformed when used in analyses to approximate normal distribution. Median and interquartile range (IQR) are reported for these variables.

Table 2. Bivariate Baseline Predictors of Premature Death Not Due to Suicide Among Patients With Borderline Personality Disorder (N = 290)[a]

Baseline Predictor	Value	Hazard Ratio	*Z*	*P*	95% CI
Aged 26 y or older at baseline	44.5 (129)	1.78	1.03	.301	0.60–5.28
Male sex	**19.7 (57)**	**3.05**	**2.68**	**.007**	**1.35–6.89**
Socioeconomic status, mean (SD)	**3.4 (1.5)**	**1.56**	**2.51**	**.012**	**1.10–2.20**
Receiving government disability income	**40.7 (118)**	**3.91**	**2.87**	**.004**	**1.54–9.90**
History of alcohol use disorder	50.3 (146)	2.00	1.53	.125	0.82–4.87
History of drug use disorder	**46.6 (135)**	**3.12**	**2.40**	**.016**	**1.23–7.90**
No. of psychiatric hospitalizations, median (IQR)[b]	**3.0 (7.0)**	**2.80**	**4.57**	**<.001**	**1.80–4.35**
No. of psychiatric medications, median (IQR)[b]	**5.0 (6.0)**	**1.69**	**2.20**	**.028**	**1.06–2.70**
Obesity (BMI ≥ 30)	**25.5 (74)**	**2.91**	**2.58**	**.010**	**1.29–6.54**

[a]Values are shown as % (n) unless otherwise noted. Boldface text indicates statistically significant comparisons.
[b]Log-transformed when used in analyses to approximate normal distribution. Median and IQR are reported for these variables.
Abbreviations: BMI = body mass index, IQR = interquartile range.

Table 3. Multivariate Baseline Predictors of Premature Death Not Due to Suicide Among Patients With Borderline Personality Disorder

Baseline Predictor	Hazard Ratio	*Z*	*P*	95% CI
Male sex	3.56	3.02	.003	1.56–8.12
No. of psychiatric hospitalizations[a]	2.93	4.68	<.001	1.87–4.61

[a]Log-transformed to approximate normal distribution.

in the middle of estimates from previous follow-back studies,[1–3] which found that 3%–10% of borderline patients completed suicide. Additionally, the steepest increases in rates of suicide occurred in younger participants, a finding that is consistent with meta-analytic findings on the timing of suicides in patients with BPD.[8] Taken together, these findings suggest that risk for suicide is especially elevated in the initial stages of treatment-seeking for patients and appears to stabilize over time.

The present study also highlighted the prominence of premature death not due to suicide as an adverse outcome for patients with BPD. Specifically, we found that 14.0% of borderline patients died due to causes other than suicide, compared to 5.5% of comparison subjects. Thus, a sizeable portion of the sample died at a much younger age than the current US life expectancy of 78.8 years.[25] The truncated life expectancy observed for borderline patients is like that of patients with other serious mental illnesses (SMIs: psychotic disorders, major depression, and bipolar disorder), who on average die 14–32 years earlier than the general population.[26,27] Additionally, the risk of premature death due to natural causes is higher than the risk for suicide in both our sample and in the previously studied groups of patients with SMI. Conditions secondary to obesity, poverty, and/or chronic substance use are the most frequent causes of death across these patient groups.[26–28] Increasing rates of mortality due to cardiovascular and substance-related morbidities are also found in the general population, although the rates are higher and the life expectancies lower in the SMI and BPD groups.[29]

A disproportionate number of borderline patients who died were never able to recover from BPD. The complicated interplay between psychosocial recovery and physical health has been described in previous studies using this sample.[30–32] Never-recovered borderline patients are more likely to report chronic medical conditions (eg, medical syndromes, osteoarthritis, diabetes, urinary incontinence, multiple medical conditions), to engage in unhealthy lifestyle behaviors (eg, smoking; no exercise; regular alcohol, sleep

medication, and pain medication use), and to use costly medical services[30] than recovered borderline patients. Never-recovered borderline patients are also more likely than recovered patients to be obese.[30] Increases in BMI have in turn been associated with increased physical morbidity and declines in psychosocial functioning.[31,32]

We also examined predictors of suicide and premature death in our group of borderline patients. First, we found that only 1 of examined predictors (number of prior psychiatric hospitalizations) was significantly associated with an increased likelihood of completed suicide. By contrast, nearly all the examined baseline predictors of premature death were significant in bivariate models, including factors related to sociodemographic characteristics (sex, socioeconomic status, disability status), physical health (BMI), history of drug use disorder, and severity of psychiatric symptoms (numbers of psychiatric medications and hospitalizations).

Two factors were found to predict premature death in borderline patients in multivariate models: male sex and number of psychiatric hospitalizations at baseline. The first predictor may reflect that the causes of premature death we observed in the present study are more likely to occur in men.[33] Likewise, this difference may reflect a sex difference in self-care and/or willingness to seek medical treatment. Having a more extensive history of psychiatric hospitalization is a marker for severity of psychiatric illness. Psychiatric hospitalization history has previously been found to be a predictor of recovery status in this sample,[34] and as mentioned previously, never-recovered borderline patients are more likely to report chronic health conditions and unhealthy behaviors than recovered patients.[32] Similar physical morbidity in patients with other serious mental illnesses also increases their risk of premature mortality.[26–28]

The results of this study have important clinical implications. Many of the existing evidence-based treatments for BPD target suicidal and self-destructive behaviors, as these behaviors are often most alarming to clinicians (and harmful to patients). However, the present findings highlight the need for clinicians to view premature death as a relevant adverse outcome of BPD, particularly since it is more prevalent than suicide. The findings from the predictive analyses highlight some potentially malleable areas of risk that could inform early interventions and treatment decisions, including earlier targeting of health behaviors (eg, diet, physical activity, smoking), reducing the number of psychiatric medications, and referring patients to substance abuse treatment.

This study had several strengths. It is the first study of the cumulative incidence and prediction of mortality in a prospectively studied sample of borderline patients. The study's design allowed for a granular description of the timing of deaths, detailed information regarding causes of death, and examination of a robust set of clinically relevant predictors of mortality. Additionally, all patients in the study were reliably diagnosed via semistructured interviews at study entry. Finally, the statistical methods we used to estimate the rates and timing of mortality represent an advance from previous studies. Specifically, the use of survival analysis with appropriate censoring for attrition over time yielded more accurate estimates of these outcomes than calculating a strict percentage of the baseline sample.

Some limitations also must be considered when interpreting these findings. First, our outcomes (in particular, suicide) were relatively rare, limiting power to detect between-group differences and/or predictor effects. Additionally, though informed by the clinical and research literatures, we were able to study only a limited set of predictors in the present study. Furthermore, patients who met criteria for bipolar I disorder at baseline were excluded from this study, and the impact of excluding these patients on our mortality estimates is not known. Finally, most participants were involved in ongoing outpatient psychotherapy and/or psychopharmacologic treatment over the course of follow-up,[35] and the sample comprised individuals who were initially psychiatric inpatients. It is unclear whether the results would generalize to personality-disordered non-inpatients or patients who are not receiving ongoing treatment.

Taken together, the results of this study suggest that patients with BPD are at risk for reduced life expectancy and that premature death (not due to suicide) is an adverse outcome that warrants additional clinical attention. A disproportionate number of premature deaths occurred in patients who did not achieve recovery, further highlighting important interactions between mental and physical health.

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REFERENCES

1. Paris J, Zweig-Frank H. A 27-year follow-up of patients with borderline personality disorder. *Compr Psychiatry*. 2001;42(6):482–487.
2. McGlashan TH. The Chestnut Lodge follow-up study, III: long-term outcome of borderline personalities. *Arch Gen Psychiatry*. 1986;43(1):20–30.
3. Stone MH, Stone DK, Hurt SW. Natural history of borderline patients treated by intensive hospitalization. *Psychiatr Clin North Am*. 1987;10(2):185–206.
4. Runeson B, Beskow J. Borderline personality disorder in young Swedish suicides. *J Nerv Ment Dis*. 1991;179(3):153–156.
5. Kullgren G, Renberg E, Jacobsson L. An empirical study of borderline personality disorder and psychiatric suicides. *J Nerv Ment Dis*. 1986;174(6):328–331.
6. Black DW, Blum N, Pfohl B, et al. Suicidal behavior in borderline personality disorder: prevalence, risk factors, prediction, and prevention. *J Pers Disord*. 2004;18(3):226–239.
7. DeJong TM, Overholser JC, Stockmeier CA. Apples to oranges? a direct comparison between suicide attempters and suicide completers. *J Affect Disord*. 2010;124(1–2):90–97.
8. Pompili M, Girardi P, Ruberto A, et al. Suicide in borderline personality disorder: a meta-analysis. *Nord J Psychiatry*. 2005;59(5):319–324.
9. Fok MLY, Hayes RD, Chang CK, et al. Life expectancy at birth and all-cause mortality among people with personality disorder. *J Psychosom Res*. 2012;73(2):104–107.

10. Zanarini MC, Frankenburg FR, Hennen J, et al. The longitudinal course of borderline psychopathology: 6-year prospective follow-up of the phenomenology of borderline personality disorder. *Am J Psychiatry*. 2003;160(2):274–283.
11. Zanarini MC, Frankenburg FR, Khera GS, et al. Treatment histories of borderline inpatients. *Compr Psychiatry*. 2001;42(2):144–150.
12. Spitzer RL, Williams JB, Gibbon M, et al. Structured Clinical Interview for *DSM-III-R* (SCID), I: history, rational, and description. *Arch Gen Psychiatry*. 1992;49(8):624–629.
13. Zanarini MC, Gunderson JG, Frankenburg FR, et al. The Revised Diagnostic Interview for Borderlines: discriminating BPD from other axis II disorders. *J Pers Disord*. 1989;3(1):10–18.
14. Zanarini MC, Frankenburg FR, Chauncey DL, et al. The diagnostic Interview for Personality Disorders: interrater and test-retest reliability. *Compr Psychiatry*. 1987;28(6):467–480.
15. Zanarini MC, Frankenburg FR. Attainment and maintenance of reliability of axis I and II disorders over the course of a longitudinal study. *Compr Psychiatry*. 2001;42(5):369–374.
16. Zanarini MC, Frankenburg FR, Vujanovic AA. Inter-rater and test-retest reliability of the Revised Diagnostic Interview for Borderlines. *J Pers Disord*. 2002;16(3):270–276.
17. StataCorp. *Stata Statistical Software: Release 14*. College Station, TX: StataCorp LP; 2015.
18. Hawton K, Casañas I Comabella C, Haw C, et al. Risk factors for suicide in individuals with depression: a systematic review. *J Affect Disord*. 2013;147(1-3):17–28.
19. Leadholm AKK, Rothschild AJ, Nielsen J, et al. Risk factors for suicide among 34,671 patients with psychotic and non-psychotic severe depression. *J Affect Disord*. 2014;156:119–125.
20. Soloff PH, Fabio A, Kelly TM, et al. High-lethality status in patients with borderline personality disorder. *J Pers Disord*. 2005;19(4):386–399.
21. Doubeni CA, Schootman M, Major JM, et al. Health status, neighborhood socioeconomic context, and premature mortality in the United States: The National Institutes of Health-AARP Diet and Health Study. *Am J Public Health*. 2012;102(4):680–688.
22. Johnson NB, Hayes LD, Brown K, et al; Centers for Disease Control and Prevention (CDC). CDC National Health Report: leading causes of morbidity and mortality and associated behavioral risk and protective factors—United States, 2005–2013. *MMWR suppl*. 2014;63(S4):3–27.
23. Institute of Medicine and National Research Council. *Measuring the Risks and Causes of Premature Death: Summary of Workshops*. Washington, DC: The National Academies Press; 2015.
24. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. Third Edition, Revised. Washington, DC: American Psychiatric Association; 1987.
25. Kochanek KD, Murphy SL, Xu JQ, et al. Deaths: final data for 2014. *Natl Vital Stat Rep*. 2016;65(4):1–122.
26. Colton CW, Manderscheid RW. Congruencies in increased mortality rates, years of potential life lost, and causes of death among public mental health clients in eight states. *Prev Chronic Dis*. 2006;3(2):A42.
27. Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. *JAMA Psychiatry*. 2015;72(4):334–341.
28. Olfson M, Gerhard T, Huang C, et al. Premature mortality among adults with schizophrenia in the United States. *JAMA Psychiatry*. 2015;72(12):1172–1181.
29. Case A, Deaton A. Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. *Proc Natl Acad Sci U S A*. 2015;112(49):15078–15083.
30. Keuroghlian AS, Frankenburg FR, Zanarini MC. 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. *J Psychiatr Res*. 2013;47(10):1499–1506.
31. Frankenburg FR, Zanarini MC. Obesity and obesity-related illnesses in borderline patients. *J Pers Disord*. 2006;20(1):71–80.
32. Frankenburg FR, Zanarini MC. Relationship between cumulative BMI and symptomatic, psychosocial, and medical outcomes in patients with borderline personality disorder. *J Pers Disord*. 2011;25(4):421–431.
33. National Vital Statistics System. *Deaths, Percent of Total Deaths, and Death Rates for the 15 Leading Causes of Death in 5-year Age Groups, by Race and Sex: United States, 1999–2015*. Atlanta, GA: Centers for Disease Control; 2015.
34. Zanarini MC, Frankenburg FR, Reich DB, et al. Prediction of time-to-attainment of recovery for borderline patients followed prospectively for 16 years. *Acta Psychiatr Scand*. 2014;130(3):205–213.
35. Zanarini MC, Frankenburg FR, Reich DB, et al. Treatment rates for patients with borderline personality disorder and other personality disorders: a 16-year study. *Psychiatr Serv*. 2015;66(1):15–20.

Editor's Note: We encourage authors to submit papers for consideration as a part of our Focus on Suicide section. Please contact Philippe Courtet, MD, PhD, at pcourtet@psychiatrist.com.