

SUICIDAL BEHAVIOR IN BORDERLINE PERSONALITY DISORDER: PREVALENCE, RISK FACTORS, PREDICTION, AND PREVENTION

Donald W. Black, MD, Nancee Blum, MSW, Bruce Pfohl, MD,
and Nancy Hale, RN

Suicidal behavior is frequent in patients with borderline personality disorder (BPD); at least three-quarters of these patients attempt suicide and approximately 10% eventually complete suicide. Borderline patients at greatest risk for suicidal behavior include those with prior attempts, comorbid major depressive disorder, or a substance use disorder. Comorbidity with major depression serves to increase both the number and seriousness of the suicide attempts. Hopelessness and impulsivity independently increase the risk of suicidal behavior, as does a turbulent early life and the presence of antisocial traits. In summary, because BPD is frequently complicated by suicidal behavior, clinicians must avoid the mistake of thinking that a pattern of repeated attempts indicates little desire to die. Clinicians have an important role in preventing suicide attempts and completed suicides by understanding the risk factors.

Borderline personality disorder (BPD) is a major health problem having a community prevalence of nearly 1% (Samuels et al., 2002; Torgerson, Kringle, & Cramer, 2001). Widiger and Frances (1989) estimated that nearly 11% of all psychiatric outpatients and 19% of psychiatric inpatients meet diagnostic criteria for BPD. The disorder is found worldwide and its prevalence may be increasing (Paris, 1996). Further, BPD is associated with a high degree of morbidity and functional impairment (Gunderson, 2001; Nakao et al., 1992; Paris, 1996).

The symptom of BPD that probably makes the greatest demand on mental health resources is recurrent suicidal threats and gestures, and some investigators consider it a defining characteristic of the disorder (Soloff, Lynch, & Kelly, 2000). Suicidal thoughts themselves are nearly universal in these patients and, for many, suicidal behavior has become a lifestyle, as Kernberg (1984) observed. In fact, the DSM-IV criteria for BPD recognize the impor-

From the Department of Psychiatry, University of Iowa Roy J. and Lucille A. Carver College of Medicine.

This work was supported in part by a grant (MH63746) from the National Institute of Mental Health.

This work was presented at the 156th annual meeting of the American Psychiatric Association, San Francisco, CA, May 21, 2003.

Address correspondence to Donald W. Black, MD, Psychiatry Research/2-1266 MEB, University of Iowa Carver College of Medicine, Iowa City, IA 52242; E-mail: donald-black@uiowa.edu.

tance of suicidal behavior by requiring the presence of "recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior" (p. 654). Suicidal behavior is reported to occur in up to 84% of patients with BPD (Soloff et al., 2002), with a mean of 3.4 lifetime attempts per individual (Soloff, Lis, Kelly, Cornelius, & Ulrich, 1994).

Suicidal acts should be distinguished from self-mutilation, or deliberate self-harm (DSH), which can be potentially life threatening but is not generally motivated by a desire to die. The task of separating suicidal behaviors from DSH can be difficult, particularly because these behaviors frequently overlap. Research suggests that self-mutilation occurs in 62% of persons with a history of suicide attempts (Gunderson, 2001). Stone, Stone, and Hurt (1987) report that a history of DSH doubles the likelihood of suicide.

DSH is driven by a variety of psychological motives, including self-punishment, tension relief, or gaining attention (Shearer, 1994), and is typically carried out during an episode of intense emotions, such as those experienced following a disappointment. DSH takes a variety of forms (e.g., a nonserious drug overdose, wrist cutting, headbanging, or burning). These behaviors, although harmful, are generally not life threatening but they can lead to physical injuries, disfigurement, or lifelong handicaps (e.g., paralysis).

MORTALITY STUDIES OF PERSONALITY DISORDER

Mortality studies have frequently shown that patients with personality disorders are at high risk for excessive mortality including suicide. In an early study, Babigian and Odoroff (1969) reported that inpatients with "character disorders" had a 2.3 to 2.9 times greater likelihood of premature death than members of the general population. Sims and Prior (1978) reported similar findings for "neuroses," a category that includes personality disorders. Black, Warrack, & Winokur (1985a, b) and Black and Winokur (1987) reported from a study of nearly 6,000 formerly hospitalized patients that those diagnosed with a personality disorder were at more than five times greater risk for unnatural deaths than people in the general population and were at nearly 13 times greater risk for suicide. (Data were presented for standardized mortality ratios that take into account age and gender.) In this study, most suicides in personality-disordered patients occurred relatively early (within the first 2 years) during the follow up (Black & Winokur, 1987). In a similar study, mortality was examined in Israeli citizens who had been psychiatrically hospitalized (Zilber, Schufman, & Lerner, 1989); the investigators reported standardized mortality ratios for personality disorders of 2.8 in men, 2.5 in women, and 2.7 overall, each significantly greater than expectation; rates were highest for those patients aged 20 to 39 years. Suicide rates were 2.6 times expectation. Unfortunately, none of these studies specifically reported on "emotionally unstable" persons or patients with the diagnosis of BPD.

POSTMORTEM STUDIES AND PERSONALITY DISORDER

Retrospective studies of suicide completers ("psychological autopsy studies") in which survivors are interviewed and medical records are gathered to

TABLE 1. Personality Disorder in Suicide Completers: Post-Mortem Studies

Source	Year	No. Patients	Diagnosis	Personality Disorder (%)
Robins et al.	1959	134	N/A	0 ^a
Dorpat and Ripley	1960	114	?	9
Barraclough et al.	1974	100	?	27
Chynoweth et al.	1980	135	?	3
Rich et al. < 30 years	1986	133	DSM-III	10
≥ 30 years		150	DSM-III	1
Shafii et al. < 20 years	1988	27	DSM-III	29
Arato et al.	1989	?	DSM-III	0 ^b
Runeson < 30 years	1989	58	DSM-III	34
Lesage et al. ≤ 35 years	1994	75	DSM-III-R	28 ^c

^aNo criteria included. ^bAxis II disorder not reported. ^cBorderline personality disorder; antisocial, 15%; schizoid, 7%; schizotypal, 1%; obsessive-compulsive, 3%; not otherwise specified, 16%.

help piece together the psychological state of mind at the time of the suicide, are consistent in concluding that nearly all people who commit suicide are mentally ill at the time of the act. The percentage of people in these studies judged to have a primary personality disorder diagnosis ranges from zero to 34% as shown in Table 1. In few of these studies was a specific personality disorder diagnosis assigned, and many of them predated the BPD concept. More recently, Cheng, Mann, and Chan (1997) found an even higher percentage with personality disorders in Taiwan, concluding that from 47% to 77% of 116 suicides involved a personality disorder, most frequently the "emotionally unstable type," according to the ICD-10 classification (a diagnosis similar to BPD in many respects). In a study of adolescents and young adults aged 15 to 29 years who killed themselves, a personality disorder was found in 34%, and all but one of the patients were borderline (Runeson, 1989). In another study of young suicide completers aged 18 to 35 years, 28% were borderline. All of these studies indicate that personality disorders (including BPD) are relatively frequent among suicide completers and they suggest the diagnosis is more likely to be found in younger rather than older patients.

SUICIDAL BEHAVIOR IN BPD

The incidence of completed suicide in BPD patients ranges up to 10%, depending on the investigator, follow up methods, and length of follow up, as reflected in Table 2. These studies suggest that the suicide rate continues to rise during follow up and is not confined to the early years of the illness. In one of the more extensive follow-up studies, Paris and Zweig-Frank (2001) followed 165 patients over a 27-year period and reported that 10.3% of the cohort had killed themselves. Their mean age at death was 37 years; of the 17 suicides, six were men. Most suicides occurred before 40 years. These data are comparable to studies of lifetime risk for suicide in other diagnostic

TABLE 2. Suicides in Follow-Up studies of Patients with BPD

Source	Year	No. Patients	Length of Follow Up	Suicide (%)
Masterson	1980	37	4 years	0
Pope et al.	1983	33	4 to 7 years	7.4
Akiskal et al.	1985	100	6 to 36 months	4
McGlashan	1986	81	14 years	3
Paris et al.	1987	165	15 years	8
Stone et al.	1989	251	16 years	7.6
Modestin et al.	1989	26	5 years	8
Paris & Zweig-Frank	2001	64	27 years	10.3

Note. BPD = Borderline personality disorder.

groups. For example, research has shown that approximately 15% of hospitalized depressives (Guze & Robins, 1970), 10% of schizophrenic patients, and 10% of bipolar patients commit suicide (Tsuang, 1978). Suicide is an important and tragic outcome for many persons diagnosed with BPD.

RISK FACTORS FOR SUICIDE ATTEMPTS AND COMPLETERS

The population of suicide attempters and completers are largely discrete albeit overlapping; most suicide attempters never complete suicide. Tefft, Patterson, and Babigian (1977) and others (Avery & Winokur, 1977) have shown that suicide attempters and completers have different demographic, clinical, and diagnostic features. Although these investigators studied general psychiatric populations, it seems likely these distinctions probably apply to persons with BPD as well. These findings suggest that risk factors may be different for suicide attempts and completed suicide in patients with BPD.

RISK FACTORS FOR SUICIDE ATTEMPTS IN BPD

Psychiatric comorbidity has been identified as a potent risk factor in several studies of suicide attempts in persons with BPD (Table 3). Friedman, Arnoff, Clarkin, Corn, and Hurt (1983) concluded from a study of 53 depressed inpatients that depressed borderline patients attempted suicide more frequently than depressed patients with other Axis II disorders. They also made more medically and psychologically serious attempts; these investigators suggest there may be a synergistic effect between Axis I depression and BPD.

Similarly, Fyer, Frances, Sullivan, Hurt, and Clarkin (1988) identified comorbid major depression, comorbid substance abuse, and the two disorders co-occurring as risk factors for suicide attempts in BPD. These investigators concluded that comorbid major depression and substance abuse served to increase both the number and seriousness of suicide attempts. One observation made by Fyer and colleagues was that although suicide

TABLE 3. Major Findings from Studies on Suicide Attempters in BPD

Source	Year	No. Patients	Diagnosis	Findings
Friedman et al.	1983	53	DSM-III	Comorbid depression increases risk of SA
Fyer et al.	1988	180	DSM-III	Comorbid depression and substance abuse increase risk of SA
Shearer et al.	1988	40	DSM-III	Seriousness of SA associated with increasing age, prior suicide attempts, presence of an eating disorder, psychotic symptoms, family history variables
Soloff et al.	1994	61	DSM-III-R	SA associated with increasing age, impulsivity, antisocial personality disorder, depressive symptoms
Brodsky et al.	1997	214	DSM-III-R	SA associated with impulsivity, higher number of prior SA, childhood abuse
Soloff et al.	1994	81	DSM-III-R	Greater number of lifetime SA, and higher level of objective planning in patients with BPD and major depression
Soloff et al.	2002	61	DSM-III-R	A history of childhood sexual abuse was associated with higher number of lifetime SA

Note. SA = suicide attempt(s). BPD = Borderline personality disorder.

gestures may be related to BPD alone, "serious suicide attempts may be more subject to presence of comorbidity" (Fyer et al., 1988, p. 739).

Shearer, Peters, Quaytman, and Wadman (1988) studied 40 women with BPD; 87.5% had attempted suicide and 80% had engaged in self-mutilation. They reported high intercorrelations among measures of suicide intent, lethality, and empirically derived Suicide Risk Assessment Scale scores (Motto, Heilbron, Juster, 1985). Variation in the seriousness of suicide attempts was accounted for by age, number of prior attempts, presence of an eating disorder, psychotic symptoms, and family history variables, with generalized anxiety disorder (GAD) as a mitigating factor. These findings suggest these factors constitute a tentative risk profile for serious self-destructive behavior in female BPD patients. The finding that GAD may be a mitigating factor could indicate that borderline patients have a novel adaptation to internal distress.

Soloff et al. (1994) reported a comparison of 61 borderline patients with a history of suicide attempts and 23 patients with not history of suicide attempts. They found that attempters were older than nonattempters, had more evidence of impulsivity, comorbid antisocial personality disorder, and current depressive symptoms. Suicide attempts during the present episode of illness were best predicted by lifetime number of attempts.

Brodsky, Malone, Ellis, Dulit, and Mann (1997) examined the relationship between DSM-III-R criteria met and suicidal behavior in 214 borderline inpatients. They found that impulsivity was associated with a higher number of previous suicide attempts (after controlling for depression and substance abuse), but global severity was not associated with suicidal behavior. Childhood physical or sexual abuse was associated with number of lifetime suicide attempts. They concluded that impulsivity is a putative risk factor for

TABLE 4. Major Findings from Studies on Suicide Completers in BPD

Source	Year	No. Patients	Diagnosis	Findings
Kullgren	1988	15	DSM-III	Suicide associated with more prior attempts, hospitalizations; sought treatment earlier
Paris et al.	1989	14	DSM-III	Suicide associated with more attempts, higher level of education
Runeson/Beskow	1991	33 ^a	DSM-III	Antisocial personality disorder traits, substance abuse, comorbid depression associated with suicide
Kjelsberg et al.	1991	21	DSM-III	Predictors included early childhood parental loss, lack of treatment, longer hospitalizations, violating treatment contract
Rich/Runeson	1992	54 ^a	DSM-III	Suicide associated with depression, substance use, antisocial personality disorder, school/legal problems, parental separation, family history variables
Isometsa et al.	1996	43 ^b	DSM-III-R	Prior attempts, substance use, depression associated with suicide

Note. ^aYoung patients (< 30 years). ^bCluster B disorders.

future suicide attempts and that childhood abuse may be an etiologic factor for self-destructive behavior.

Soloff, Lynch, Kelly, Malone, and Mann (2000) compared suicidal behavior among borderline patients, patients with BPD and major depression, and patients with major depression alone. They found that patients with BPD and comorbid major depression have a greater number of lifetime suicide attempts and a higher level of objective planning to the attempts than those with BPD alone or major depression alone. Further, borderline patients had an earlier onset of suicidal behavior than the depressed patients, a finding they felt reflected the natural history of the disorder. There were no differences, however, in intent to die, degree of objective planning, violence of the method used, or degree of medical damage. Another finding from the study was that, using regression analysis, the number of lifetime attempts was associated with impulsivity and hopelessness across the three groups compared, suggesting that these variables constitute vulnerability factors independent of diagnosis. Soloff and colleagues (2000) concluded that the suicidal behavior of inpatients with BPD cannot be considered any less "serious" than attempts made by inpatients with major depression.

Finally, Soloff et al. (2002) reported that within their sample of 61 borderline patients 84% had a past history of suicide attempts; however, among the 28 patients reporting childhood sexual abuse, 96% had attempted suicide. Patients with a history of childhood sexual abuse made more lifetime suicide attempts (4.1 vs. 1.9). Using logistic regression and entering age and gender as covariates, the odds of a sexually abused patient making a suicide attempt was more than 10 times that of a nonabused patient.

STUDIES OF SUICIDE RISK FACTORS IN BPD

Relatively few risk factors have emerged from studies of suicide completers with BPD, as shown in Table 4. Kullgren (1988) studied 15 people with BPD who killed themselves and compared them to matched living controls. Kullgren reported that these patients had a history of having more suicide attempts and more prior hospitalizations as risk factors for suicide. Kullgren observed that risk was increased for many patients when staff discharged patients early from the hospital, despite the patient's desire to stay, and noted that the suicide "seemed to communicate aggressive and frustrated feelings toward the staff" (Kullgren, 1998, p. 43). Other findings suggest that patients who killed themselves were more severely ill; for example, having sought treatment earlier in life was a fact that occurred frequently in the group that committed suicide.

In a sample of 100 patients with BPD followed for 15 years, Paris, Nowlis, and Brown (1989) found that compared with those patients who were still living, the 14 patients who killed themselves had made more previous attempts and had higher levels of education. These investigators point out that the latter finding may reflect the crushed expectations of educated persons with severe psychopathology.

Runeson and Beskow (1991) assessed 33 adolescents and young adults retrospectively diagnosed with BPD and found that, in comparison with other suicide victims, patients with BPD showed more antisocial traits and were more likely to have substance use disorders. They observed that antisocial traits seemed to predispose particularly to suicide among young borderline patients, perhaps due to the combination of externally and internally directed aggression and low ego functioning typical of BPD. Yet, these investigators point out that BPD and antisocial personality disorder were rarely sufficient conditions for suicide because comorbid depression or substance use disorders were present in a majority of suicide completers.

Kjelsberg, Ikeseth, and Dahl (1991) studied 21 suicide completers and identified early childhood parental loss and lack of treatment as variables predictive of suicide. The completers also had experienced longer hospital stays and were more likely to have violated the treatment contract. These investigators conclude that childhood loss is the most important risk factor uncovered by their study, a finding concordant with "the psychodynamic view of the suicidal act as an expression of narcissistic crisis (stemming) from primary object loss" (Kjelsberg et al., 1991, p. 286). The finding of more frequent hospital discharges for violating treatment contracts among the suicide group fits with Kullgren's (1998) study; this finding suggests that factors in the hospital milieu that devalue patients can bring about a suicidal crisis.

Rich and Runeson (1992) reanalyzed data from the San Diego suicide study (Rich, Young, & Fowler, 1986) and reported that when 133 young (i.e., 30 years or younger) suicide completers were reevaluated to take BPD into account, 41% of patients met the criteria. Of those diagnosed with BPD, depression was diagnosed in 41% of the patients, a substance use disorder was diagnosed in 87% of the patients, and one or the other condition was diagnosed in 89% of the sample. Substance use disorders and antisocial per-

sonality disorder were more frequent among the borderline sample than among suicide completers without BPD. There were differences in family variables as well; borderline suicide completers were more likely to have evidence of past school or legal problems, parental separation, and family history of substance abuse. Other factors associated with suicide in this study were early parental absence, substance abuse in the home, employment and financial problems, lack of a permanent address, and having been adjudicated. Together, these findings suggest that young borderline patients at risk for suicide have histories suggesting a turbulent early life, ongoing social problems, and reckless and impulsive behavior.

Isometsa et al. (1996) took a different approach and divided a group of personality-disordered suicide completers into clusters; the 43 in cluster B—including borderline patients—were more likely than a comparison group without personality disorders to have a substance use disorder (79% vs. 40%), and prior suicide attempts (70% vs. 37%); 74% had a depressive syndrome at the time of the act. Overall, 95% of personality-disordered suicide completers had either a depressive syndrome, substance use disorder, or both. Isometsa et al. (1996) concluded that although the presence of at least one of these disorders seems necessary for a suicide to occur in cluster B patients, the usefulness of these disorders is limited because they are so common in these patients.

ASSESSING SUICIDE POTENTIAL

Assessment of suicidal risk begins with obtaining a thorough psychiatric history and conducting a complete mental status examination, and remaining alert to the possibility of suicide in patients who are depressed or display a depressed affect (Andreasen & Black, 2001). The assessment should focus on vegetative signs and cognitive symptoms of depression, death wishes, suicidal ideations, and suicidal plans. Patients need to be asked specifically about these symptoms. Because suicidal thoughts may fluctuate, clinicians should constantly reassess risk at each contact with the patient, whatever the treatment setting (e.g., inpatient unit, clinic) (Murphy, 1983). When the patient has a well-developed plan and a means to carry it out, hospitalization in a locked psychiatric unit is needed because it is the only way a clinician can reasonably ensure the patient's safety. Once hospitalized, treatment of comorbid psychiatric disorders can be initiated (or intensified) including, when appropriate, mood stabilizers, antidepressants, or antipsychotics. Because there are no standard treatments for BPD, clinicians often target the specific symptom clusters with the expectation of a less than robust response (Paris, 1996). The patient must also be given the psychological tools to help fight the suicidal urge and the clinician should maintain an empathetic and caring stance.

Jacobs (1992) has developed a tripartite model for the assessment of suicide potential in persons with BPD. First, clinicians are advised to consider the specific psychopathology related to BPD. For example, Kernberg (1984) developed a set of risk factors for suicide based on his considerable clinical experience, which include impulsivity, hopelessness, despair, antisocial features, and interpersonal aloofness. He noted that for many persons with

BPD, suicidal behavior has become a way of life, often arising at times of intense emotions and having the goal of establishing control over the environment (e.g., by inducing guilt). Second, psychiatric comorbidity needs to be considered because many BPD patients have comorbid diagnoses, some of which are clearly associated with an increased potential for suicidal behavior, such as depression or substance abuse. Third, clinicians must assess the suicide perspective of the individual. This involves (a) assessing the intent of the patient's suicidal statements (including whether the suicidal thoughts are active or passive); (b) evaluating the patient's reasons for living or dying; (c) evaluating the seriousness of the suicidal plan (e.g., overdose, hanging, gassing); and (d) evaluating any deterrents that may be present in the person's life (e.g., having children or pets).

TREATMENT OF SUICIDAL PATIENTS

Two treatment models have been shown to lower rates of attempted suicide but not rates of completed suicide. A randomized controlled trial of DBT, developed by Linehan, Armstrong, Suarez, Allman, and Heard (1991), showed that borderline patients who received the 1-year cognitive group treatment, combined with individual DBT administered by trained therapists, had fewer incidents of attempted suicide than borderline patients receiving usual care. The psychoanalytic partial hospital program developed by Bateman and Fonagy (1999) had similar results. Those patients who participated in the 18-month program had fewer suicide attempts during the program and during an 18-month follow-up period (Bateman & Fonagy, 2001).

CAN SUICIDE BE PREDICTED?

Predicting which individuals—including borderline patients—will ultimately commit suicide may not be possible. This harsh assessment is based on two studies (Goldstein, Black, Nasrallah, & Winokur, 1991; Pokorny, 1983). Pokorny (1983) used a historic-psychological model to identify characteristics that set apart suicide completers. A high-risk group could be identified, but no predictor variable was unique to the group. A computer program that used the predictor having the greatest discriminating value correctly predicted the 67 suicides that occurred among the 4,800 patients; however, when base rates of suicide were not taken into account, it successfully predicted 35 suicides but it also predicted suicide for 1,206 survivors. When base rates were taken into account, the program failed to identify a single suicide correctly. Subsequently, Goldstein et al. (1991) followed up 1,906 mood-disordered inpatients considered to be high risk for suicide. During the 2- to 12-year follow-up, 46 patients committed suicide. Logistic regression was used to develop a statistical model to predict suicide based on risk factors identified through a bivariate analysis of suicide completers and nonsuicides, but the model failed to identify any of the patients who committed suicide. Both studies demonstrate that even with excellent clinical, historical, and social data available regarding patients, predicting those who will eventually kill themselves is probably not possible. Based on their

experience, Goldstein et al. (1991) concluded that, "It appears unrealistic for the general public or the legal system to expect that health professionals be able to predict suicide in specific patients based on our present knowledge" (p. 422).

Murphy (1983) observed that although statistical manipulation of such data fails to identify those at risk for committing suicide, that "is not its purpose. Rather it seeks to provide the clinician with signals alerting him to heightened risk in a given patient" (p. 347). Murphy makes the distinction between statistical prediction, which is probably not possible, and clinical prediction in which "[the clinician] must bring his knowledge of the patient and his/her circumstances to bear on his assessment of suicidal risk" (Murphy, 1983, p. 347). This knowledge takes into account both the inconstancy of the suicidal urge, which may wax and wane, and the state-dependent nature of suicide (i.e., the knowledge that suicide rarely occurs in the affectively ill patient in the absence of depression).

Pokorny (1983) notes that under these conditions, psychiatrists appear to know which patients are highly suicidal: "The clinical work is in an entirely different time frame, dealing in minutes, hours, or days. It is commonly recognized that a 'suicidal crisis' will pass . . . so that after a few days the risk has abated and it may be safe for the patient to be discharged" (p. 257). Such a time frame—the clinical time frame, which is omitted from statistical prediction—is probably not researchable. Psychiatrists can never know with certainty that they have prevented a suicide. Therefore, the goal must focus on relieving the despair that forms the basis for most suicides.

PREVENTION OF SUICIDE IN PERSONS WITH BPD

Although the prediction of suicide in individual patients is probably not possible, preventive strategies can be targeted at the population of psychiatric patients and may have some value in reducing overall suicide risk, including patients with BPD. General preventive strategies include: (a) education of primary care physicians to appropriately evaluate depression as well as risk for suicide, and institute treatment when appropriate; (b) reducing the availability of methods to complete suicide; and (c) encouraging responsible media reporting.

Although suicide prevention centers probably do not lower suicide rates (Jennings, Barraclough, & Moss, 1978), there is some evidence that comprehensive education and treatment programs might help (Walk, 1967). One such program was introduced on the Swedish island of Gotland. Its goal was to provide knowledge about the diagnosis and treatment of depression to general practitioners (Rutz, Von Knorring, & Walinder, 1989). The suicide rate dropped significantly after the educational program was introduced.

There is evidence that reducing the toxicity of methods used to commit suicide might lower rates. Gas detoxification in Britain (i.e., switching from domestic coal gas to less toxic North Sea gas) was followed by a reduction in the national rate of suicide, and specifically the number of suicides using this method (Clarke & Mayhew, 1989). Switching to antidepressant drugs that are potentially less lethal may help as well. Farmer and Pinder (1990) compared death rates associated with different antidepressants, and con-

cluded that death rates are due to inherent drug toxicity. Because antidepressants for the most part are equally effective, consideration must be given to using drugs that are safe in patients at risk for suicide, such as the serotonin reuptake inhibitors.

Finally, because imitation is a factor in precipitating suicide in some individuals (particularly youth), the media should be persuaded to report responsibly on suicide. For example, Gould and Shaffer (1986) and Schmidke and Hafner (1988) both reported a clustering of adolescent suicides in the weeks following the broadcasting of sympathetic television stories about suicide, showing how the media can influence suicidal behavior.

CONCLUSION

Suicidal behavior is frequent in patients with BPD; more than three-quarters of borderline patients attempt suicide and approximately 10% will eventually complete suicide. Although risk factors for suicide attempts and completed suicide may differ, research suggests that the major risk factor for both is the presence of psychiatric comorbidity, particularly depression, or substance use disorder, or both. The presence of antisocial personality disorder (or traits) increases risk for both behaviors, perhaps because they are associated with reckless and impulsive acts. Impulsivity, hopelessness, and childhood abuse are also associated with suicide attempts. Suicide completers with BPD may have a particularly severe illness as evidenced by more frequent past hospitalizations and may have personal histories suggesting a turbulent early life. Knowledge of clinical risk factors for suicide in BPD is probably the most important tool for mental health professionals to help prevent suicide. General preventive strategies should be used to reduce overall risk for suicide.

REFERENCES

- Akiskal, H.S., Chen, S.E., Daris, G.C., Puzantian, V.R., Kashgarian, M., Bolinger, M. (1985). Borderline: An adjective in search of a noun. *Journal of Clinical Psychiatry*, 46, 41-48.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Andreasen, N.C., & Black, D.W. (2001). *Introductory textbook of psychiatry* (3rd ed.). Washington, DC: American Psychiatric Publishing, Inc..
- Arato, M., Demeter, E., Rihmer, Z., & Somogyi, E. (1988). Retrospective psychiatric assessment of 200 suicides in Budapest. *Acta Psychiatrica Scandinavica*, 77, 454-456.
- Avery, D., & Winokur, G. (1978). Suicide, attempted suicide, and relapse rates in depression—occurrence after ECT and antidepressant therapy. *Archives of General Psychiatry*, 35, 749-753.
- Babigian, H.M., & Odoroff, C.L. (1969). The mortality experience of a population with psychiatric illness. *American Journal of Psychiatry*, 126, 52-61.
- Barraclough, B., Bunch, J., Nelson, B., & Sainsbury, P. (1974). A hundred cases of suicide: Clinical aspects. *British Journal of Psychiatry*, 125, 355-373.
- Bateman, A., & Fonagy, P. (1999). Effectiveness of partial hospitalization in the treatment of borderline personality disorder: A randomized controlled trial. *American Journal of Psychiatry*, 156, 1563-1569.

- Bateman, A., & Fonagy, P. (2001). Treatment of borderline personality disorder with psychoanalytically oriented partial hospitalization: An 18-month follow-up. *American Journal of Psychiatry*, *158*, 36-42.
- Black, D.W., & Winokur, G. (1987). Prospective studies of suicide and mortality in psychiatric patients. *Annals of the New York Academy of Sciences*, *487*, 106-113.
- Black, D.W., Warrack, G., & Winokur, G. (1985a). The Iowa Record-linkage study, I: Suicides and accidental deaths among psychiatric patients. *Archives of General Psychiatry*, *42*, 71-75.
- Black, D.W., Warrack, G., & Winokur, G. (1985b). The Iowa Record-linkage study, III: Excess mortality among patients with 'functional' disorders. *Archives of General Psychiatry*, *42*, 82-88.
- Brodsky, B.S., Malone, K.M., Ellis, S.P., Dulit, R.A., & Mann, J.J. (1997). Characteristics of borderline personality disorder associated with suicidal behavior. *American Journal of Psychiatry*, *154*, 1715-1719.
- Cheng, A.T.A., Mann, A.H., & Chan, K.A. (1997). Personality disorder and suicide: A case-control study. *British Journal of Psychiatry*, *170*, 441-446.
- Chenoweth, R., Tonge, J.I., & Armstrong, J. (1980). Suicide in Brisbane - A retrospective psychosocial study. *Australia and New Zealand Journal of Psychiatry*, *14*, 37-45.
- Clarke, R.V., & Mayhew, P. (1989). Crime as opportunity - A note on domestic gas suicide in Britain and the Netherlands. *British Journal of Criminology*, *29*, 35-44.
- Dorpat, T.L., & Ripley, H.S. (1960). A study of suicide in the Seattle area. *Comprehensive Psychiatry*, *1*, 349-359.
- Farmer, D.T., & Pinder, R.M. (1980). Why do fatal overdose rates vary between antidepressants? *Acta Psychiatrica Scandinavica*, *80*, 25-35.
- Friedman, R.C., Aronoff, M.S., Clarkin, J.F., Corn, H., & Hurt, S.W. (1983). History of suicidal behavior in depressed borderline inpatients. *American Journal of Psychiatry*, *140*, 1023-1026.
- Fyer, M.R., Frances, A.J., Sullivan, T., Hurt, S.W., & Clarkin, J. (1988). Suicide attempts in patients with borderline personality disorder. *American Journal of Psychiatry*, *145*, 737-739.
- Goldstein, R.B., Black, D.W., Nasrallah, A., & Winokur, G. (1991). The prediction of suicide—sensitivity, specificity, and predictive value of a multivariate model applied to suicide on 1,906 patients with affective disorders. *Archives of General Psychiatry*, *48*, 418-422.
- Gould, M., & Shaffer, D. (1986). The impact of suicide in television movies: The impact of imitation. *New England Journal of Medicine*, *315*, 690-694.
- Gunderson, J. (2001). *Borderline personality disorder—A clinical guide*. Washington, DC: American Psychiatric Publishing, Inc.
- Guze, S.B., & Robins, E. (1970). Suicide and primary affective disorder. *British Journal of Psychiatry*, *117*, 437-438.
- Jacobs, D. (1992). Evaluating and treating suicidal behavior in the borderline patient. In D. Jacobs (Ed.), *Suicide and clinical practice* (pp. 115-130). Washington, DC: American Psychiatric Press.
- Jennings, C., Barraclough, B.M., & Moss, J.R. (1978). Have the Samaritans lowered the suicide rate? A controlled study. *Psychological Medicine*, *8*, 413-422.
- Isometsa, E.T., Henriksson, M.M., Heikkinen, M.E., Aro, H.M., Marttunen, M.J., Kuoppasalmi, K.I., & Lonnqvist, J.K. (1996). Suicide among subjects with personality disorders. *American Journal of Psychiatry*, *153*, 667-673.
- Kernberg, O.F. (1984). *Severe personality disorders: Psychotherapeutic strategies*. New Haven, CT: Yale University Press.
- Kjelsberg, E., Ikeseth, P. H., & Dahl, A. A. (1991). Suicide in borderline patients—predictive factors. *Acta Psychiatrica Scandinavica*, *84*, 283-287.
- Kullgren, G. (1988). Factors associated with completed suicide in borderline personality disorder. *Journal of Nervous and Mental Diseases*, *176*, 40-44.
- Lesage, A.D., Boyer, R., Grunberg, F., Vanier, C., Morissette, R., Menard-Buteau, C., & Loyer, M. (1994). Suicide and mental disorders: A case-cohort study of young men. *American Journal of Psychiatry*, *151*, 1063-1068.
- Linehan, M.M., Armstrong, H.E., Suarez, A., Allman, D., & Heard, H.L. (1991). Cognitive behavioral treatment of chronically parasuicidal borderline patients.

- Archives of General Psychiatry*, 48, 1060-1064.
- Masterson, J. F. (1980). *From borderline adolescent to functioning adult: The test of time*. New York: Brunner-Mazel.
- McGlashan, T. H. (1986). The Chestnut Lodge follow-up study, III: Long-term outcome of borderline personalities. *Archives of General Psychiatry*, 43, 2-30.
- Modestin, J., & Villiger, C. (1989). Follow-up study on borderline versus non-borderline personality disorders. *Comprehensive Psychiatry*, 30, 236-244.
- Motto, J. A., Heilbron, D. C., & Juster, R. P. (1985). Development of a clinical instrument to estimate suicide risk. *American Journal of Psychiatry*, 142, 680-686.
- Murphy, G. E. (1983). Problems in studying suicide. *Psychiatric Developments*, 4, 339-350.
- Nakao, K., Gunderson, J.G., Phillips, K.A., Tanaka, N., Yorifuji, K., & Takaishi J. (1992). Functional impairment in personality disorders. *Journal of Personality Disorders*, 6, 24-31.
- Paris, J. (1996). *Social factors in personality disorders—A biopsychosocial approach to etiology and treatment*. New York: Cambridge University Press.
- Paris, J., & Zweig-Frank, H. (2001). A 27-year follow-up of patients with borderline personality disorder. *Comprehensive Psychiatry*, 42, 482-487.
- Paris, J., Brown, R., & Nowlis, D. (1987). Long-term follow-up of borderline patients in a general hospital. *Comprehensive Psychiatry*, 28, 530-535.
- Paris, J., Nowlis, D., & Brown, R. (1989). Predictors of suicide in borderline personality disorder. *Canadian Journal of Psychiatry*, 34, 8-9.
- Pokorny, A.D. (1983). Prediction of suicide in psychiatric patients: Report of a prospective study. *Archives of General Psychiatry*, 40, 249-257.
- Pope, H.G., Jones, J.M., Hudson, J.E., Cohen, B.M., & Gunderson, J.G. (1983). The validity of DSM-III borderline personality disorder. A phenomenologic, family history, treatment response, and long-term follow-up study. *Archives of General Psychiatry*, 40, 23-30.
- Rich, C.L., & Runeson, B.S. (1992). Similarities in diagnostic comorbidity between suicide among young people in Sweden and the United States. *Acta Psychiatrica Scandinavica*, 86, 335-339.
- Rich, C.L., Young, D., & Fowler, R.C. (1986). San Diego suicide study I: Young vs. old. *Archives of General Psychiatry*, 43, 577-582.
- Robins, E., Murphy, G. E., Wilkinson, R. H., Gassner, S., & Kayes, J. (1959). Some clinical considerations in the prevention of suicide based on a study of 134 successful suicides. *American Journal of Public Health*, 49, 888-899.
- Runeson, B. (1989). Mental disorders in youth suicide. DSM-III R Axis I and II. *Acta Psychiatrica Scandinavica*, 79, 490-497.
- Runeson, B., & Beskow, J. (1991). Borderline personality disorder in young Swedish suicides. *Journal of Nervous and Mental Diseases*, 179, 153-156.
- Rutz, W., Von Knorring, L., & Walinder, J. (1989). Frequency of suicide on Gotland after systematic post-graduate education of primary practitioners. *Acta Psychiatrica Scandinavica*, 80, 151-154.
- Samuels, J., Eaton, W.W., Bienvenu, J., Clayton, P., Brown, H., Costa, P.T., & Nestadt, G. (2002). Prevalence and correlates of personality disorder in a community sample. *British Journal of Psychiatry*, 180, 536-542.
- Shafiq, M., Steltz-Lenarsky, J., McCue, A., Beckner, C., & Whittinghill, J.R. (1988). Comorbidity of mental disorder in the post-mortem diagnosis of completed suicides in children and adolescents. *Journal of Affective Disorders*, 15, 227-233.
- Schmidtke, A., & Hafner, H. (1988). The 'Werther' effect after television films: New evidence of an old hypothesis. *Psychological Medicine*, 18, 665-676.
- Shearer, S.L. (1994). Phenomenology of self-injury among inpatient women with borderline personality disorder. *Journal of Nervous and Mental Diseases*, 182, 524-526.
- Shearer, S.L., Peters, C.P., Quaytman, S., & Wadman, B.E. (1988). Intent and lethality of suicide attempts among female borderline inpatients. *American Journal of Psychiatry*, 145, 1424-1427.
- Sims, A., & Prior, P. (1978). The pattern of mortality in severe neuroses. *British Journal of Psychiatry*, 133, 299-305.
- Soloff, P.H., Lynch, K.G., & Kelly, T.M. (2002). Childhood abuse as a risk factor for

- suicidal behavior in borderline personality disorder. *Journal of Personality Disorders*, 16, 201-214.
- Soloff, P.H., Lis, J.A., Kelly, T., Cornelius, J., & Ulrich, R. (1994). Risk factors for suicidal behavior in borderline personality disorder. *American Journal of Psychiatry*, 151, 1316-1323.
- Soloff, P.H., Lynch, K.G., Kelly, T.M., Malone, K.M., & Mann, J.J. (2000). Characteristics of suicide attempts of patients with major depressive episode and borderline personality disorder: A comparative study. *American Journal of Psychiatry*, 157, 601-608.
- Stone, M.H., Stone, D.K., & Hurt, S. (1987). The natural history of borderline patient, I: Global outcome. *Psychiatry Clinics of North America*, 10, 185-205.
- Tefft, B.M., Patterson, A.M., & Babigian, H.M. (1977). Patterns of death among suicide attempters, a psychiatric population, and a general population. *Archives of General Psychiatry*, 34, 1155-1161.
- Torgerson, S., Kringlen, E., & Cramer, V. (2001). The prevalence of personality disorders in a community setting. *Archives of General Psychiatry*, 58, 590-596.
- Tsuang, M.T. (1978). Suicide in schizophrenics, manics, depressives, and surgical controls—A comparison with general population suicide mortality. *Archives of General Psychiatry*, 35, 153-155.
- Walk, D. (1967). Suicide and community care. *British Journal of Psychiatry*, 113, 1381-1391.
- Widiger, T. A., & Frances, A. J. (1989). Epidemiology, diagnosis, and comorbidity of borderline personality disorder. In A. Tasman, R. E. Hales, & A. J. Frances (Eds.), *American Psychiatric Press Review of Psychiatry* (vol. 8). Washington, DC: American Psychiatric Press.
- Zilber, N., Schufman, N., & Lerner, Y. (1989). Mortality among psychiatric patients - The groups at risk. *Acta Psychiatrica Scandinavica*, 79, 248-256.