Searching for Triggers of Suicidal Behavior

Suicide is a major cause of death in the United States and around the world. It is the third leading cause of death in young people in the United States and the leading cause of death in young adults in China, Sweden, Australia, and New Zealand among other countries. For every suicide, there are about 10 suicide attempts. Research into the causes of suicide and suicide attempts is urgently needed to provide a scientific basis for designing national plans for suicide prevention. Three papers in this issue of the *Journal* address factors that may trigger suicidal behavior. The study by Forman and colleagues examines the value of a history of multiple suicide attempts as a behavioral marker of severe psychopathology. This study is distinguished from previous work in that the study population principally comprised financially disadvantaged African Americans whose average age was 30 years. They were studied at the time of presentation to the emergency room at a general hospital shortly after having made a suicide attempt. They were divided into two groups on the basis of number of lifetime suicide attempts. Investigators compared individuals who had made one suicide attempt to individuals who had made multiple suicide attempts using a series of self-report questionnaires and clinician-completed rating scales. The two groups were found to be comparable in age, meaning that the first suicide attempt in the multiple-attempt group occurred at a significantly earlier age than the suicide attempt in the single-attempt group. Although the authors do not make a feature of this point, they are essentially comparing early-onset suicidal behavior to later-onset suicidal behavior, since they cannot rule out the possibility that their single-attempt group will go on to make multiple suicide attempts. Given this important caveat, their results are of great interest. Their multiple-attempt group does not differ in terms of the lethality of suicidal acts or the degree of suicide intent exhibited. However, they do differ significantly in terms of having greater severity of psychopathology, greater psychiatric comorbidity, and poorer functioning in terms of problem solving and interpersonal relationships. Their lives are characterized by more childhood emotional abuse and a more frequent family history of suicidal behavior. Their subjective psychopathology is more severe in terms of depression and hopelessness and, of particular interest, about 40% had psychotic features. The vast majority in both groups suffered from a mood disorder. The fact that the authors controlled for borderline personality disorder is a valuable design feature in this study and changed the results very little, although it did eliminate any significant difference in the objective severity of depression as assessed by the Hamilton Depression Rating Scale. This result is inconsistent with findings from other research groups that have indicated that it is the subjective severity of depression that distinguishes suicide attempters from nonattempters (1). In this case, it distinguished the multiple-attempt group from the single-attempt group. The authors discuss Aaron Beck's theory of modes, which offers a theoretical framework for conceptualizing suicidal behavior. Modes are defined as interconnected networks of cognitive, affective, motivational, physiological, and behavioral schemata that are activated simultaneously by relevant environmental events and result in goal-directed behavior. In terms of the suicidal mode, individuals experience suicide-related cognitions, negative affect, and the motivation to engage in suicidal behavior. The authors hypothesize that each time the suicidal mode becomes activated, it becomes in-

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creasingly accessible in memory and requires less triggering stimuli to become activated the next time. This kindling, or facilitation, is consistent with reports from Leon et al. (2) and Oquendo et al. (3), where each succeeding suicide attempt is associated with a greater probability of a subsequent suicide attempt.

From their clinical observation of individuals with multiple suicide attempts, the authors go on to make treatment recommendations. They suggest that clinicians should facilitate the patient's understanding of the triggering internal and external events as well as the key cognitions that occur at the time of the attempts, thus potentially deactivating the suicide mode and averting self-destructive behavior. This cognitive approach to suicide attempt prevention has merit based on a number of studies that they cite. However, the majority of those studies were conducted in nonpsychotic individuals. In this case, the population described is unusual both in terms of being African American and having a very high rate of psychotic features. It is doubtful that treatment that depends exclusively on cognitive behavior approaches should be used in suicidal individuals with psychotic features. Certainly, the clinician should actively treat the psychosis, then at some later point there may be a place for considering and implementing an additional cognitive behavioral therapeutic approach.

The theme of learning more about factors related to completed suicide in African Americans is taken up in the paper by Castle and colleagues. This study utilizes data from the 1993 National Mortality Followback Survey (NMFS). In that survey, conducted by the National Center for Health Statistics of the Centers for Disease Control and Prevention, a nationally representative sample of individuals age 15 years and older, who were residing in and died in the United States in 1993, was examined. The sample was based on 22,957 death certificates representing a systematic 10% sampling of all death certificates for that year. Next of kin identified on the death certificate were contacted and asked to participate in the survey. The survey oversampled deaths due to homicide, suicide, and unintentional injury. In the study conducted by Castle et al., suicide decedents served as cases and included 157 black and 1,331 white cases. These 1,488 suicide decedents were compared with 4,395 fatal accident decedents, comprising 783 black and 3,612 white cases. The causes of accidental deaths included motor vehicle accidents, poisoning, falls, and other accidents such as drowning and choking. The investigators considered that the possibility of misclassified suicide was low. Clinical constructs that were assessed included antisocial behavior, substance abuse, depressive symptoms, and psychotic symptoms. In addition, there were a number of demographic variables. The results of the analyses are striking because very few differences were found between white and black suicide groups. Four items distinguished suicides in both groups from accidents: death ideation, suicidal ideation, bizarre behavior, and withdrawn behavior. The latter two were part of the psychotic construct. In addition, use of marijuana distinguished suicides in white subjects. Race by variable interactions were found for community complaints about antisocial behavior and problem drinking, both of which were more frequent in white than in black subjects. No variable conferred greater risk in blacks. The authors do point out some limitations in their study, including the fact that the data had to be gathered by telephone interview with a proxy respondent, but such methodological limitations apply equally to both ethnic groups. However, there were significantly fewer black suicides (N=150) than white suicides (N=1,279), which would limit the statistical power of detecting effects in black individuals.

This study is an important step forward in that problems with alcoholism and antisocial behavior emerge as more important for suicide in white than in black subjects. Such a finding merely highlights how little we know about the factors that are important in suicide in black subjects. In particular what this study does not mention, but which has puzzled investigators for many years, is why the suicide rate in black women is so low. Although the suicide rate in black men has increased in recent years (it still has not reached the level of white men), what remains striking is the fact that the suicide rate in black

women is so much lower than in white women. Four times as many men commit suicide as women in the United States, and given that the suicide rate in black women is about half that of white women, further study of this group may reveal protective factors that will be of value in a public health approach to reducing suicide rates in the United States in keeping with the goals of the Surgeon General's National Strategy for Suicide Prevention.

In the third article, Verona and colleagues conducted a study of 4,745 participants in the Colorado Social Health Survey. This was a community sample recruited by household address. They took symptom count information and carried out a factor analysis that yielded two main dimensions of psychopathology: internalizing and externalizing. The internalizing factor was related to mood and anxiety disorders, and the externalizing factor was related to conduct disorder, antisocial personality disorder, and so on. They then utilized the fact that they had a large sample to examine results separately in men and women. An important design feature in this study that gives it a great deal of credibility and strength is that suicidality was defined as an actual suicide attempt. For both suicide attempt and psychopathology they used lifetime data. The factors were then used in a hierarchical logistic regression analysis to predict suicide attempt history. The major finding was that both in men and in women, the investigators confirmed a long-demonstrated role for internalizing symptoms being related to suicide attempts. This relationship was also true for the diagnostic categories that conformed to DSM-III based on the survey instrument used. It is interesting that for both men and women, an independent relationship to suicidality was demonstrated for externalizing psychopathology. Comorbidity was also predictive of suicidal behavior but more so among women. There is an uncanny similarity on the surface between internalizing and externalizing factors and Eysenck's constructs of extroversion and introversion. However, a more useful model is the one proposed that involves considering components of the stress-diathesis model for suicidal behavior (4), where stressors include elements like an acute psychiatric disorder and life events, and the diathesis includes components such as aggression/impulsivity and pessimism. Thus, the internalizing factors include pessimism and the externalizing factors relate to the aggression/impulsivity component. That model was initially based on a study of suicide attempts in a psychiatric population (1) and more recently has been shown by Oquendo et al. (3) to predict future suicide attempts. Thus, we have a remarkable confirmation of a model that was originally developed from studies in psychiatric patients in a community epidemiological sample. This model has now also been shown to have potential predictive properties in terms of future suicidal behavior and, as such, helps guide screening of individuals for risk for suicidal behavior and offers new targets for therapeutic intervention. Pessimism may be amenable to a combination of approaches involving both antidepressant treatment and cognitive therapy. Aggressive/impulsive traits may be amenable to other types of psychotherapy, such as dialectical behavior therapy and serotonergic agents including SSRIs or lithium. Biological correlates of these components may provide further tools for the clinician in detecting high-risk patients and guiding treatment. Finally, in relation to ethnicity, this study was conducted in a sample that predominantly involves Caucasians (84%), and clearly it would be of interest to further evaluate these findings in other ethnic groups.

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