No Evidence for Improvement in the Accuracy of Suicide Risk Assessment

To the Editor:

Hendin and associates recently reported that they were able to greatly improve on the positive predictive value of suicide prediction achieved by Pokorny in his landmark study of 4800 psychiatric patients (Pokorny, 1993). After using the Affective States Questionnaire in a sample of 240 patients, Hendin et al claim that it is now possible to “improve significantly our ability to predict acute risk of suicidal behavior” (Hendin et al., 2010). This conclusion does not appear to be supported by the data.

The positive predictive value of the Hendin et al study was 44% and exceeded the 2.9% reported by Pokorny, because of the higher base rate of suicidal behavior in his study and not because of improved psychometric properties of the Affective States Questionnaire. Hendin et al found that 16.6% of subjects made a suicide attempt, whereas Pokorny found that 1.4% of his subjects died by suicide. Pokorny’s suicide risk assessment model had a sensitivity of 55.5% and a specificity of 74%, a result that was similar to the sensitivity of 60% and specificity of 74% chosen by Hendin et al. The similarity of the psychometric properties of the risk assessment models in the earlier and later studies can be illustrated by the application of Hendin et al’s sensitivity and specificity to Pokorny’s base rate (yielding a positive predictive value of 3.1%) and by the application of Pokorny’s sensitivity and specificity to Hendin et al’s base (yielding a positive predictive value of 29%). Arguably, Hendin et al can claim a modest improvement in the prediction of suicide attempts from 3 in 10 correct to 4 in 10 correct—but not an improvement in predicting suicide because 97 of 100 predictions will be wrong using either model.

Hendin and associates question the 2004 American Psychiatric Association’s statement about the impossibility of predicting suicide, and go on to use words such as “prediction” and “accurate” in a way that requires clarification. First, risk assessment cannot predict who will suicide or even who will have suicide attempts, it places individuals at similar risk into high-risk and low-risk categories (Large et al., in press). Second, the rates of suicide or suicide attempts within groups of similar risk might be determined with accuracy if there was little uncertainty in the base rates, but this is a far cry from an accurate prediction about individuals.

There are almost certainly mathematical limits to the prediction of suicide arising from the nonlinear dynamics exhibited by multiple operating feedback loops involved in human behavior.

Matthew M. Large, FRANZCP
School of Psychiatry
University of New South Wales
Sydney, Australia
Mental Health Services
Prince of Wales Hospital
Randwick, NSW, Australia

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Evidence for Significant Improvement in Prediction of Acute Risk for Suicidal Behavior

To the Editor:

Large’s analysis (Large, 2010) of our paper (Hendin et al, 2010) is misleading. He ignores the fact that our focus was on acute risk for suicidal behavior, defined as suicidal behavior occurring within a 3-month period. We were examining 240 patients who were not selected as being at high risk for suicide; 80% were outpatients. In a population of that size and nature, we were not expecting and did not find a significant number of attempted suicides, but rather observed behaviors ranging from having a plan or buying a gun to behaving in ways that led clinicians to hospitalized patients because of concern that they were suicidal.

Large’s analysis is based on comparison of suicide attempts in our study with that of the study we cite of Alex Pokorny, first published in 1984. Pokorny, however, followed for 5 years a large sample of inpatients selected because scales designed for that purpose showed them to be at high risk for suicide. Large’s attempt to use the one variable of suicide attempts to compare 2 such different studies is not meaningful.

Pokorny’s work demonstrated the difficulties of suicide prediction and defined an approach to evaluate success. He found that, although a majority of the suicides were predicted by the scales he used, there were more than 30 patients predicted incorrectly (false positives) to everyone predicted correctly. Because the study was predicting suicide, an outcome with a much lower base rate than suicidal behavior, it was bound to suffer more false positives. Based on the results, Pokorny set a high standard for prediction stating that it would be valuable if there were no more than 50% false positives. Defining patients at high risk and low risk for suicide on the basis of scales then in use was not satisfactory in predicting acute risk for suicidal behavior and has not proven satisfactory since. That we were able to predict suicidal behavior within a 3-month period more successfully than the few comparable studies attempting to do that, and with a population not selected as being at high risk for suicide, is significant, relevant, and important.

In our prediction of acute risk for suicidal behavior indicated by a positive result on the Affective States Questionnaire (ASQ), with patients who also turned out to be at higher risk because of such factors as substance abuse or severe deterioration in their functioning in social and family relations, we did virtually reach the 50% figure. This result leads us to the next phase of this 15-year project. We will test the ASQ’s ability to distinguish among inpatients deemed at high risk which of them are at acute risk for suicidal behavior. This group is also more likely to include attempts. Large also misunderstands our mention of 10 suicide attempts at the conclusion of our study. We indicated that we were referring not just to the study but also to the pilot study that preceded it. However, even if the 10 patients were just drawn from the study group of 240, as Large seems to affirm, it would be 4.2% of our sample far less than the 16.6% referred to by Large.

Our success in prediction comes from the use of the ASQ, developed in the study of patients who did commit suicide, to measure the presence of intense affective states—anger, rage, desparation, abandonment, loneliness, hopelessness, self-hatred, guilt, and humiliation—that were intolerable and uncontrollable. That uncontrollable nature of the affects led to fear on the part of the patients that they were falling apart. This factor, which we have found crucial in predicting acute risk for suicide, is missing in...
the standard evaluation procedures for suicide risk. In addition in our past work in which clinicians administered the ASQ, they found that the ASQ predicted suicide in patients who had reason to deny or were unaware that they were at acute risk for suicide. This appears related to the fact that the ASQ does not ask any questions about suicide. The evidence for the significance of these affects in predicting both suicidal behavior and suicide has been published in previous papers, most recently in one in JNMD, and was confirmed in the current study.

Herbert Hendin, MD
Suicide Prevention International
New York, NY
Department of Psychiatry
New York Medical College
New York, NY

Rayan K. Al Jurdi, MD
Department of Psychiatry
Baylor College of Medicine
Houston TX
Michael DeBakey Veterans’ Affairs Medical Center
Houston, TX

Patricia R. Houck, MSH
Department of Psychiatry
University of Pittsburgh
Pittsburgh, PA
University of Pittsburgh Medical Center
Pittsburgh, PA

Susan Hughes, MS
Department of Neurology
Baylor College of Medicine
Houston, TX
Michael DeBakey Veterans’ Affairs Medical Center
Houston, TX

J. Blake Turner, PhD
Department of Psychiatry
Columbia University Division of Child Psychiatry New York State Psychiatric Institute
New York, NY

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