

# Suicidal Ideation and Attempts Among Psychiatric Patients With Major Depressive Disorder

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**Background:** Few studies have investigated risk factors for suicidal ideation and attempts, or possible variations in them, among representative samples of psychiatric patients with major depressive disorder.

**Method:** As part of the Vantaa Depression Study in Vantaa, Finland, 269 patients with DSM-IV major depressive disorder (MDD), diagnosed by interview using semistructured World Health Organization Schedules for Clinical Assessment in Neuropsychiatry, version 2.0, and Structured Clinical Interview for DSM-III-R Personality Disorders, were thoroughly investigated. Information was gathered on patients' levels of depression, anxiety, hopelessness, perceived social support, social and occupational functioning, and alcohol use. Suicidal behavior was assessed by interviews, including the Scale for Suicidal Ideation, and by information from psychiatric records. Data were gathered from Feb. 1, 1997, to May 31, 1998.

**Results:** During the current MDD episode, 58% of all patients had experienced suicidal ideation; among the 15% of the total who had attempted suicide, almost all (95%) had also had suicidal ideation. In nominal regression models predicting suicidal ideation, hopelessness, alcohol dependence or abuse, low level of social and occupational functioning, and poor perceived social support were found to be significant ( $p < .05$ ) independent risk factors. High severity of depression and current alcohol dependence or abuse in particular, but also younger age and low level of social and occupational functioning, predicted suicide attempt.

**Conclusion:** Suicidal ideation is prevalent and appears to be a precondition for suicide attempts among psychiatric patients with MDD. The risk factors for suicidal ideation and attempts locate in several clinical and psychosocial domains. While these risk factors largely overlap, the overall level of psychopathology of suicide attempters is higher compared with that in patients with ideation, and substance use disorders and severity of depression may be of particular importance in predicting suicide attempts.

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Numerous studies have documented an association between suicidal behavior—completed suicide, suicide attempt, and suicidal ideation—and major depressive disorder (MDD). A meta-analysis<sup>1</sup> and 2 recent nationwide studies from Scandinavia<sup>2,3</sup> indicate that an inpatient with MDD has about a 20-fold risk of completed suicide. The risk of a nonfatal suicide attempt among patients with MDD is less precisely known, but is estimated to be about 40% following the first lifetime episode of MDD.<sup>4</sup> Depending on definition, the prevalence of suicidal ideation ranges from 47% to 69% in patients with MDD.<sup>5–7</sup> Various types of nonfatal suicidal behavior tend to be highly prevalent among patients with MDD, who also have a markedly elevated risk of completed suicide, for which nonfatal suicidal behavior is perhaps the most important risk indicator.<sup>1</sup>

While the 3 types of suicidal behavior probably represent a continuum of self-harming behaviors,<sup>8–14</sup> research on both types of nonfatal behavior (ideation and attempts) contributes to suicide prevention. More than half (52%) of subjects with major depression who complete suicide die at their first attempt, but many of these first-time attempters have communicated their intent.<sup>15</sup> Therefore, recognizing both suicidal ideation and attempts as important risk indicators is likely to improve sensitivity in predicting suicide risk; investigating the risk factors for both may also reveal more about the risk factors for completed suicide.

The numerous studies on nonfatal suicidal behavior among depressed patients have largely focused on risk factors for suicide attempts. Risk factors found to be important in several independent studies include a

suicide attempt in the past<sup>16,17</sup> or in the family,<sup>4,18–22</sup> high severity or early onset of depression,<sup>22–24</sup> comorbid personality disorder,<sup>17,25–29</sup> comorbid alcohol dependence or abuse,<sup>22,23,30</sup> comorbid chronic physical illness,<sup>30</sup> younger age,<sup>28,31</sup> marital isolation or discord,<sup>19,22,23</sup> recent adverse life events,<sup>18,28</sup> hopelessness,<sup>24,29,32</sup> and, not unexpectedly, suicidal ideation.<sup>4,23,24</sup> Whether comorbid anxiety disorders do in fact increase<sup>33</sup> risk of a suicide attempt or not<sup>34–37</sup> remains controversial.

The fewer studies that have investigated risk factors for suicidal ideation in depression have most consistently identified severity of depression,<sup>28,38,39</sup> comorbid personality disorder,<sup>28</sup> comorbid alcohol dependence or abuse,<sup>38,40</sup> comorbid anxiety disorder,<sup>41</sup> female gender,<sup>38,41</sup> age,<sup>42</sup> unemployment,<sup>38</sup> life events,<sup>43</sup> poor social support,<sup>39</sup> hopelessness,<sup>28,38,44</sup> and past suicide attempt.<sup>39</sup>

While such studies often provide important insights into the risk factors for nonfatal forms of suicidal behavior in depression, they also tend to have important limitations that compromise the generalizability, or sometimes even validity, of the findings. With few exceptions,<sup>30,39,42,45</sup> most of the available studies are cross-sectional and based on selected patient populations. Moreover, suicide attempters are often compared with nonattempters, who may also have high levels of suicidal ideation. If ideation and attempts share common risk factors, such a design feature weakens a study's ability to recognize risk factors.

Several studies have been conducted within exclusively inpatient settings,<sup>4,16,17,20,24,28,29,38,39</sup> involved only outpatients<sup>43</sup> or exclusively geriatric patients,<sup>32,39,42</sup> had small sample sizes,<sup>4,6,22–24,29,30,32,42,43,46</sup> or were retrospective.<sup>16,41</sup> To our knowledge, only 1 study has investigated the risk factors common to both suicidal ideation and attempted suicide.<sup>28</sup> Furthermore, suicidal ideation has often been measured with only a single item from a depression symptom scale such as the Hamilton Rating Scale for Depression (HAM-D) or Beck Depression Inventory (BDI).<sup>39,41,42</sup> In fact, very few studies can claim both a representative patient sample and rigorous methodology. Moreover, since the etiology of suicidal behavior is known to be multifactorial,<sup>47</sup> a broader range of explanatory variables, besides mere symptom measures, is desirable. For example, social support may protect against suicidal acts by providing reasons for living,<sup>24</sup> even among highly depressed patients.

In the present study, our aim was to examine the risk factors for suicidal ideation and suicide attempts, and any differences between them, in a sample of patients with MDD effectively representing psychiatric inpatients and outpatients in the city of Vantaa in Finland. We expected, first, to find that severe depression, hopelessness, comorbid cluster B personality disorders, comorbid anxiety disorders, and alcoholism each independently contribute to both types (suicidal ideation and suicide attempts) of non-

fatal suicidal behavior. Second, we hypothesized that lower level of functioning, poor perceived social support, and recent negative life events also independently contribute to suicidal behavior. Third, we expected to find that the differences in risk factors between ideation and attempts preceded by ideation would be more quantitative than qualitative, i.e., that risk factors overlap between the 2 behaviors but accumulate for attempts. Finally, we hypothesized that suicide attempts without reported ideation are particularly strongly related to cluster B and substance use disorders.

## METHOD

The Vantaa Depression Study (VDS) is a collaborative depression research project between the Department of Mental Health and Alcohol Research of the National Public Health Institute, Helsinki, Finland, and the Department of Psychiatry of the Peijas Medical Care District (PMCD), Vantaa, Finland. Vantaa is the fourth largest city in Finland with a population of 169,000 in 1997, and the PMCD provides free-of-charge psychiatric services to all of its citizens.<sup>48</sup> The VDS was accepted by the ethical committee of the PMCD in December 1996. Data for the present study were collected from Feb. 1, 1997, to May 31, 1998.

The methodology of the VDS is described in detail elsewhere.<sup>49</sup> In brief, the first phase of patient sampling for the VDS Cohort Study involved screening all patients (N = 806) in the PMCD for a possible new episode of DSM-IV MDD between Feb. 1, 1997, and May 31, 1998. The screening instrument included the 5 screening questions for depression from the World Health Organization (WHO) Schedules for Clinical Assessment in Neuropsychiatry, version 2.0 (SCAN 2.0).<sup>50</sup> The Scale for Suicidal Ideation (SSI)<sup>51</sup> was also completed in order to disclose cases with moderate-to-severe suicidal ideation or plans. After (1) a positive response to any of the SCAN screening questions, (2) clinical suspicion of depression by the interviewing personnel, or (3) a score of 6 or more on the SSI irrespective of any depressive symptoms, patients were fully informed about the study project and their participation was requested. Of the 703 eligible patients, 161 (22.9%) refused to enter the study, but 542 (77.1%) agreed and gave written informed consent. Those who refused did not differ from those who consented in terms of gender or age.<sup>49</sup>

In the second phase of sampling, the 542 consenting patients were interviewed face-to-face by a researcher (U.S.L., P.S.L.-M., T.K.M., H.J.R., or T.P.S.) using the WHO SCAN 2.0, for which all had received training by a WHO-certified training center. Two hundred sixty-nine of the 542 patients participating in the second phase of sampling were diagnosed with DSM-IV MDD and included in the MDD Cohort Study. Diagnostic reliability was inves-

tigated using 20 videotaped diagnostic interviews; the kappa coefficient for MDD was 0.86 (range, 0.58–1.0), with 95% observed agreement rate. The Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-II)<sup>52</sup> was also used in the VDS to assess diagnoses on Axis II. In addition to SCAN 2.0 and SCID-II, the cohort baseline measurements included the following observer scales: the 17-item HAM-D,<sup>53</sup> the SSI, and the Social and Occupational Functioning Assessment Scale of DSM-IV (SOFAS).<sup>54</sup> The self-report scales included the 21-item BDI,<sup>55</sup> Beck Anxiety Inventory (BAI),<sup>56</sup> Beck Hopelessness Scale (HS),<sup>57</sup> Interview for Recent Life Events (IRLE),<sup>58</sup> and Perceived Social Support Scale-Revised (PSSS-R).<sup>59</sup>

Suicidal behavior was investigated in several ways. Current suicidal ideation was first examined using the SSI.<sup>51</sup> The SSI is a 19-item observer-rated scale designed to quantify the intensity of current conscious suicide ideation in various dimensions of self-destructive thoughts or wishes: the extent of the wish to die, the desire to make an actual suicide attempt, and details of any plans. The SSI also assesses internal deterrents to an active attempt and subjective feelings of control and/or “courage” (level of intent) regarding a proposed attempt. Each item consists of 3 alternative statements graded in intensity from 0 to 2, with the maximum total score being 38. Here, suicidal ideation refers to patients who scored  $\geq 6$  on the SSI. Second, the interviewer asked the patient whether he or she had seriously considered suicide at any point during the current major depressive episode.

In addition, the occurrence of a suicide attempt during the current major depressive episode was investigated, based on both the interview and the psychiatric records. By definition, a suicide attempt had to involve at least some degree of intent to die; self-harm with no suicidal intention was not classified as a suicide attempt.

The multivariate nominal regression models were created, classifying suicidal behavior as the dependent variable into 3 mutually exclusive categories: nonsuicidal patients (the reference group), patients with suicidal ideation but without suicide attempts, and suicide attempters. The predetermined independent variables comprised sex, age, HAM-D score, HS score, alcohol dependence or abuse, PSSS-R score, SOFAS score, BAI score, IRLE score, and cluster B personality disorder. However, as BAI score, IRLE score, and cluster B personality disorder were not significantly associated with the independent variable in multivariate nominal regression model, they were omitted from the final analysis. To avoid circularity, we omitted the suicidality items of the depression rating scales in nominal regression models and checked the analysis with and without these items. The statistical methods included nonparametric and parametric analyses, and for univariate analysis we used the *t* test, analysis of variance, and Kruskal-Wallis test. Post hoc subgroup differences were

compared by using the Tukey honestly significant difference method. SPSS software, version 9.0, was used.<sup>60</sup>

## RESULTS

Overall, 156 (58%) of the 269 patients reported suicidal ideation during the current episode, men more often than women (50 [69%] vs. 106 [54%];  $\chi^2 = 5.109$ , *df* = 1, *p* = .02). During the current depressive episode, 15% of the patients had attempted suicide (9 men [13%] vs. 32 women [16%];  $\chi^2 = 0.572$ , *df* = 1, *p* = .449). The characteristics of patients without suicidal behavior, with suicidal ideation, and with suicide attempts are presented in Table 1. We found significant differences between the 3 groups in the degree of depression (both by HAM-D and BDI score) and suicidal ideation; the prevalence of psychotic features, alcohol dependence or abuse, cluster B personality disorder, and simple phobia; and the degree of anxiety, hopelessness, social and occupational functioning, and perceived social support. Furthermore, in post hoc subgroup comparisons, patients with suicidal ideation were found to have significantly higher levels of depression (HAM-D, *p* = .005; BDI, *p* = .001) and hopelessness (*p* < .001) and a lower level of perceived social support (*p* < .001) and functioning (*p* = .004). Patients with suicidal ideation were also more often male (*p* = .02) and had a greater prevalence of alcohol dependence or abuse (*p* = .01) than the nonsuicidal subjects. In addition, suicide attempters had a higher degree of depression (HAM-D, *p* < .001) and anxiety (*p* < .001), a lower level of functioning (*p* < .001), and a greater prevalence of alcohol dependence or abuse (*p* < .001) and simple phobia (*p* = .02) than those with suicidal ideation.

The overlap between the 2 types of suicidal behavior is presented in Figure 1. Among the 269 depressed patients, 158 (59%) had some suicidal behavior. Suicidal ideation according to the SSI (score  $\geq 6$ ) was current in 103 patients (38%), while 144 (54%) reported suicidal ideation at some point during the current major depressive episode. Of the 41 patients (15%) who had attempted suicide, only 2 (5%) had done so without suicidal ideation at any stage of the current depressive episode.

The nominal regression models predicting various types of suicidal behavior are presented in Table 2. The factors most strongly associated with suicidal ideation were high level of hopelessness, alcohol dependence or abuse, low level of social and occupational functioning, and poor perceived social support. Suicide attempt was associated with severity of MDD, alcohol dependence or abuse, younger age, and low level of functioning.

## DISCUSSION

We found that among psychiatric inpatients and outpatients with DSM-IV MDD, suicidal ideation was prev-

**Table 1. Characteristics of Patients With Major Depressive Disorder According to Suicidal Behaviors**

Characteristic	Nonsuicidal	Suicidal Ideation (no attempt)	Suicide Attempters	All Patients
Total N (%)	111 (41)	117 (44)	41 (15)	269 (100)
Sex, N (%)				
Male <sup>a</sup>	22 (20)	41 (35)	9 (22)	72 (27)
Female	89 (80)	76 (65)	32 (78)	197 (73)
Age, mean ± SD, y	40.5 ± 11.4	39.4 ± 11.1	37.8 ± 10.0	39.6 ± 11.1
Psychotic depression, N (%) <sup>b</sup>	4 (4)	11 (9)	7 (17)	22 (8)
HAM-D score, mean ± SD <sup>c</sup>	17.5 ± 5.1	19.8 ± 6.0	24.0 ± 5.2	19.5 ± 5.9
SSI score, mean ± SD <sup>d</sup>	0.5 ± 1.2	9.0 ± 7.6	15.0 ± 8.9	6.4 ± 8.1
BDI score, mean ± SD <sup>e</sup>	25.4 ± 8.3	29.4 ± 7.9	29.1 ± 10.0	27.7 ± 8.6
BAI score, mean ± SD <sup>f</sup>	20.2 ± 10.4	22.6 ± 10.3	27.5 ± 10.5	22.4 ± 10.6
HS score, mean ± SD <sup>g</sup>	8.9 ± 4.3	11.3 ± 4.9	11.0 ± 4.8	10.3 ± 4.8
Alcohol dependence/abuse, N (%) <sup>h</sup>	13 (12)	32 (27)	21 (51)	66 (25)
Personality disorder, N (%)	40 (36)	56 (48)	22 (54)	118 (44)
Cluster A	16 (14)	28 (24)	7 (17)	51 (19)
Cluster B <sup>i</sup>	9 (8)	18 (15)	12 (29)	39 (15)
Cluster C	27 (24)	40 (34)	18 (44)	85 (32)
Anxiety disorder (any), N (%)	61 (55)	61 (52)	30 (73)	152 (57)
Panic disorder	16 (14)	18 (15)	11 (27)	45 (17)
Agoraphobia without panic	12 (11)	11 (9)	8 (20)	31 (12)
Social phobia	26 (23)	17 (15)	10 (24)	53 (20)
Simple phobia <sup>j</sup>	23 (21)	28 (24)	17 (42)	68 (25)
OCD	6 (5)	7 (6)	5 (12)	18 (7)
GAD	18 (16)	14 (12)	5 (12)	37 (14)
PTSD	2 (2)	0 (0)	0 (0)	2 (0.7)
Smoking, N (%) <sup>k</sup>	42 (38)	48 (41)	25 (61)	115 (43)
SOFAS score, mean ± SD <sup>l</sup>	55.2 ± 9.7	50.8 ± 10.5	45.5 ± 11.8	51.8 ± 10.9
PSSS-R score, mean ± SD <sup>m</sup>	42.8 ± 11.2	36.3 ± 13.1	36.9 ± 13.4	39.1 ± 12.7

<sup>a</sup> $\chi^2 = 7.306$ ,  $df = 2$ ,  $p = .026$ .

<sup>b</sup> $\chi^2 = 7.646$ ,  $df = 2$ ,  $p = .022$ .

<sup>c</sup> $F = 21.67$ ,  $p < .001$ , ANOVA.

<sup>d</sup> $\chi^2 = 119.13$ ,  $df = 2$ ,  $p < .001$ , Kruskal-Wallis test.

<sup>e</sup> $F = 6.912$ ,  $p = .001$ , ANOVA.

<sup>f</sup> $F = 7.4$ ,  $p = .006$ , ANOVA.

<sup>g</sup> $F = 7.920$ ,  $p < .001$ , ANOVA.

<sup>h</sup> $\chi^2 = 7.019$ ,  $df = 2$ ,  $p = .03$ .

<sup>i</sup> $\chi^2 = 26.126$ ,  $df = 2$ ,  $p < .001$ .

<sup>j</sup> $\chi^2 = 10.946$ ,  $df = 2$ ,  $p = .004$ .

<sup>k</sup> $\chi^2 = 6.801$ ,  $df = 2$ ,  $p = .03$ .

<sup>l</sup> $F = 14.006$ ,  $p < .001$ , ANOVA.

<sup>m</sup> $F = 8.429$ ,  $p < .001$ , ANOVA.

Abbreviations: ANOVA = analysis of variance, BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, GAD = generalized anxiety disorder, HAM-D = Hamilton Rating Scale for Depression, HS = Beck Hopelessness Scale, OCD = obsessive-compulsive disorder, PSSS-R = Perceived Social Support Scale-Revised, PTSD = posttraumatic stress disorder, SOFAS = Social and Occupational Functioning Assessment Scale, SSI = Scale for Suicidal Ideation.

alent in almost all (95%) of the 15% of patients who had attempted suicide. As we hypothesized, the risk factors for suicidal ideation and attempts appeared largely to overlap, but the overall level of psychopathology and disability among the suicide attempters was higher. The role of substance use was probably especially crucial in the suicide attempts. Although cluster B personality disorders and anxiety symptoms according to BAI score were more prevalent among patients with suicidal ideation or attempts compared with the whole group, neither appeared to be of major importance as an independent risk factor for ideation or attempts.

The present study is among the few<sup>4,17,24,32</sup> to have employed a psychometric scale to measure current suicidal ideation and the only one involving a relatively large and unselected sample of both inpatients and outpatients with MDD. On the basis of an epidemiologic survey, we

have estimated that two thirds of all depressed subjects in the general population in the city of Vantaa seeking treatment from psychiatrists are treated in the PMCD.<sup>48</sup> We carefully diagnosed patients and evaluated their comorbidity using standardized semistructured SCAN 2.0 and SCID-II interviews. Furthermore, patients' symptomatic and demographic status was evaluated with a number of standardized observer scales and questionnaires.<sup>49</sup> Level of social and occupational functioning, recent adverse life events, and perceived social support were also examined. Besides cross-sectional symptoms, suicidal ideation during the whole current major depressive episode was explored by direct questioning. Suicide attempts were investigated by collecting all available data from the patients' interviews and records.

Nevertheless, some methodological features need consideration. First, the cross-sectional nature of the study



Figure 1. Suicidal Behavior Among Depressed Patients (N = 269)

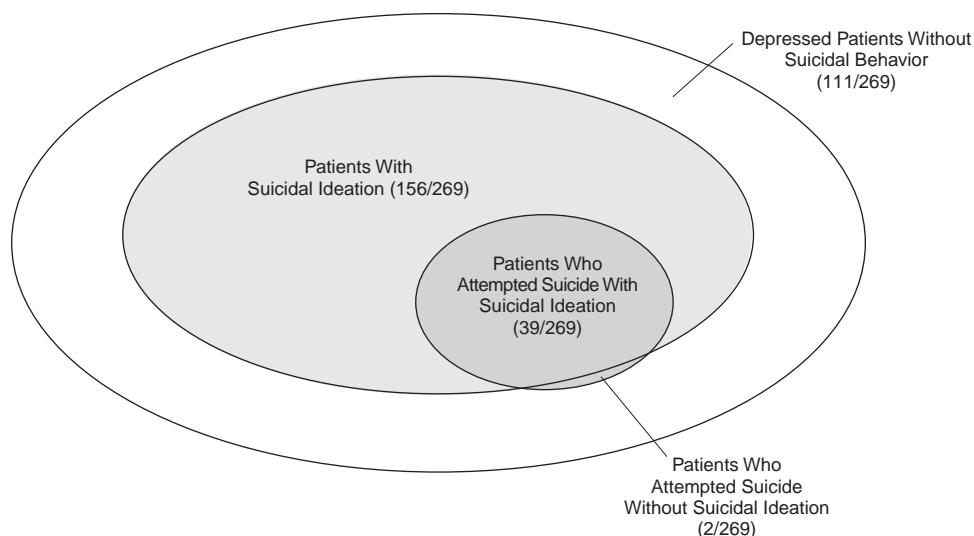


Table 2. Nominal Regression Models for Different Suicidal Behaviors

Variable	Nonsuicidal OR <sup>a</sup>	Suicidal Ideation				Suicide Attempt			
		OR	95% CI	Wald $\chi^2$	p	OR	95% CI	Wald $\chi^2$	p
Male sex	1.0	1.52	0.76 to 3.04	1.421	.23	1.34	0.47 to 3.87	0.300	.58
Age	1.0	0.98	0.95 to 1.00	3.208	.07	0.96	0.92 to 1.00	3.789	.052
HAM-D score	1.0	1.05	0.99 to 1.11	2.571	.10	1.16	1.06 to 1.27	10.880	.001
HS score	1.0	1.08	1.01 to 1.15	5.149	.02	1.06	0.97 to 1.16	1.471	.23
Alcohol dependence/abuse	1.0	2.19	1.01 to 4.74	4.010	.04	6.29	2.40 to 16.41	14.097	.001
PSSS-R score	1.0	0.97	0.95 to 1.00	4.369	.04	0.97	0.93 to 1.00	2.698	.10
SOFAS score	1.0	0.96	0.93 to 0.99	7.398	.007	0.94	0.90 to 0.98	8.653	.003

<sup>a</sup>Reference group.

Abbreviations: HAM-D = Hamilton Rating Scale for Depression, HS = Beck Hopelessness Scale, OR = odds ratio, PSSS-R = Perceived Social Support Scale-Revised, SOFAS = Social and Occupational Functioning Assessment Scale.

limited our ability to make causal inferences.<sup>61</sup> Second, we used a predetermined cutoff point (SSI score  $\geq 6$ ) to define moderate-to-severe current suicidal ideation. In retrospect, this cutoff may have been somewhat high,<sup>62</sup> although applying an alternative lower cutoff point (SSI score  $\geq 2$ ) did not change our findings. Third, as in other studies, the temporal relationship prior to interview between suicidal ideation and suicide attempt may be complicated.

We found suicidal ideation to be associated in univariate analyses with certain features, which accords with previous studies. These features include severe depression,<sup>28,38,39</sup> alcohol dependence or abuse,<sup>38</sup> poor social support,<sup>39</sup> hopelessness,<sup>28,38,42</sup> and gender.<sup>38,41</sup> Age,<sup>42</sup> unemployment,<sup>38</sup> severe anxiety or presence of an anxiety disorder,<sup>38,41</sup> marital status, and education were not associated with suicidal ideation in our sample. On the other hand, low level of social and occupational functioning was associated with suicidal ideation. By further refining the independent risk factors for suicidal ideation using nominal

logistic models, which adjusted for possible confounding factors, several separate clinical domains of independent risk factors for suicidal ideation emerged. These included the degree of hopelessness, presence of alcohol dependence or abuse, perceived poor social support, and low level of social and occupational functioning.

The suicide attempters were characterized by markedly higher levels of overall psychopathology, as indicated by more severe depression and functional disability and higher prevalence of psychotic features and comorbid disorders. Attempted suicide was also associated in univariate analysis with several putative risk factors identified in earlier studies, including severity of depression,<sup>4</sup> anxiety or anxiety disorder, alcohol dependency or abuse,<sup>22,23,30</sup> cluster B personality disorder,<sup>26</sup> low level of functioning, and smoking. In contrast, gender, age,<sup>25</sup> hopelessness, social support, education, marital status, and employment were not significantly associated with suicide attempt. In the nominal logistic model for suicide

attempt, the independent risk factors were higher level of depression, presence of alcohol dependence or abuse, low level of functioning, and, perhaps, younger age. The risk factor domains overlapped, but were not identical to those of suicidal ideation. It also appeared that the impact of alcoholism and level of depression may be greater for suicide attempts. It is noteworthy that although cluster B personality disorders and anxiety symptoms were more prevalent among the suicide attempters, neither seemed important as independent risk factors. Contrary to our expectations, there were virtually no impulsive suicide attempts without reported ideation. Asking about suicidal ideation may thus be a highly sensitive way of assessing the risk of a suicide attempt during a depressive episode.

Although all patients with a major depressive episode need treatment, being better able to predict completed suicide would prove a major benefit in suicide prevention. Seen from this perspective, the present findings are consistent with the continuum view of suicidal behavior. Among these patients with depression, the risk factors for both suicidal ideation and attempts were by and large similar to those for completed suicide.<sup>63</sup> However, although male gender is a major risk factor for completed suicide among depression sufferers,<sup>63</sup> it appears less important for nonfatal suicidal behavior. The roles of level of social and occupational functioning and of perceived social support as independent risk factors for completed suicide warrant further investigation. Substance dependence has been demonstrated as a risk factor for completed suicide in psychological autopsy studies with case-control designs,<sup>64,65</sup> but whether the role of personality disorders as risk factors for suicide is direct, or is related to other more causal factors, needs further investigation.

In conclusion, suicidal ideation is markedly prevalent among psychiatric patients with MDD and appears to be a precondition for suicide attempts during depression. The risk factors for suicidal ideation and attempts comprise factors from several clinical and psychosocial domains. While these risk factors largely overlap, substance abuse and severity of depression may be of particular importance in predicting suicide attempts.

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