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Suicidal Ideation and the Subjective Aspects of Depression

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Abstract

Background—Suicidal ideation is common in depression, but only moderately related to depression severity - in part because certain clusters of symptoms, such as those related to core mood disturbance, have a differential relationship to suicidal thinking.

Methods—400 medication free participants with current major depression were assessed with either or both the Hamilton Depression Rating Scale (HDRS, n=396) and Beck Depression Inventory (BDI, n=366), and the Scale for Suicide Ideation (SSI). Depression rating scales were decomposed into symptoms clusters previously reported (Grunebaum et al., 2005), in order to evaluate their association to suicidal thinking.

Results—Correlations between overall depression severity ratings and the measure of suicidal ideation were modest, and reduced when specific items assessing suicidal thinking on these depression scales were removed. Symptom clusters assessing Psychic Depression (HDRS), Subjective Depression (BDI), and Self-Blame (BDI) were the strongest correlates of suicidal ideation; other somatic and vegetative symptoms had little or no association to suicidal ideation. Severity of these symptom clusters effectively discriminated those with (SSI>0) and without (SSI=0) ideation; severity of these symptom clusters was less strongly associated with the severity of ideation once ideation was present.

Limitations—This is a cross-sectional study, and the dynamic relationship between changes in the severity of various depressive symptoms and change in suicidal thinking remains to be explored.

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Conflicts of Interest

The authors report no conflicts of interest with the material presented in this manuscript.

Contributors

Drs. Mann, Oquendo, Burke, Galfalvy and Keilp originally developed the protocol (Conte Center grant) for the project from which data for this study was derived.

Drs. Oquendo and Burke supervised all data collection.

Drs. Keilp and Gorlyn conceived of these analyses from a large Center dataset.

Dr. Keilp wrote the first draft of the manuscript.

Drs. Keilp and Gorlyn, and Ms. LeBlanc managed all literature searches and datasets.

Drs. Keilp, Grunebaum, and Galfalvy conducted all analyses.

Conclusions—Depression severity is moderately associated with suicidal ideation, and accounted for primarily by core mood disturbance symptoms and self-punitive thinking. These associations may explain why suicide risk might remain high during treatment even though somatic and vegetative symptoms improve.

Depression and suicidality have a paradoxical relationship. Risk for suicidal thinking and behavior are increased in the *presence* of depression (Nock et al, 2010; Genischen et al, 2010), but there is only a modest association between suicide risk and the *severity* of depression as defined on standard rating scales. Suicidal thinking and suicide attempt may occur at all ranges of depression severity (VanGastel et al., 1997). This is reflected in the generally modest correlations between depression rating scales and suicide ideation scales (Beck et al., 1979; Witte et al., 2006). Moreover, depression rating scales typically include individual items that directly rate suicidal ideation, and these single items may account for a significant portion of their shared variance. Better understanding of the relationship between depressive symptomatology and the emergence and severity of suicidal thinking is needed to guide treatment of individuals who are both depressed and suicidal; identifying those aspects of depression most relevant to suicidality is critical for developing these treatment guidelines.

Subjective factors in depression appear to play a prominent role in the genesis of suicidal ideation. Suicide attempters commonly report higher levels of distress on subjective self-report measures such as the Beck Depression Inventory (BDI) compared to clinician-rated measures such as the Hamilton Depression Rating Scale (HDRS; Mann et al., 1999; Grunebaum et al., 2005). The BDI typically correlates more strongly with measures of ideation severity than the HDRS, and individual BDI items assessing the severity of subjective symptoms of depression are themselves most strongly associated with ideation (VanGastel et al., 1997). Clinician-rated instruments such as the HDRS typically place heavy emphasis on observable neurovegetative symptoms in quantifying depression severity, and it is not clear how these symptoms relate to the incidence and severity of suicidal thoughts. Beck and colleagues observed a moderate association between the BDI and the Beck Scale for Suicide Ideation ($r=.39$) that became non-significant when a measure of hopelessness was covaried (Beck et al., 1979). Measures of psychological distress or “psychic pain” are typically elevated in past attempter samples despite equivalent levels of objective depressive symptomatology (Olie, et al., 2010). In two epidemiological studies using the Center for Epidemiologic Studies for Depression scale (CESD), its mood disturbance items were most strongly associated with suicidal thinking, compared to items assessing somatic symptoms, lack of positive affect and interpersonal problems (Chabrol et al., 2007; Sugawara et al., 2011).

In our own previous work examining the factor structure of the HDRS and BDI (Grunebaum et al., 2005), the suicide item from the HDRS loaded on a factor assessing Psychic Depression (described below) with other items assessing core mood disturbance. The suicide item from the BDI did not load on any single factor, but was most closely associated with the Subjective Depression and Self-Blame factors (item/subscale correlations of .46 and .44, respectively), rather than Somatic Complaint (item/subscale correlation of .19). Suicidal ideation, therefore, may be more closely related to certain clusters of symptoms than to overall severity.

The purpose of this study was to determine if the distinct clusters of depressive symptoms that we had extracted from the HDRS and BDI in our previous study have differentiable associations to suicidal thinking. If certain symptoms are more closely related to suicidal thinking, these can be targeted in the treatment of depressed and suicidal individuals – before suicidal behavior emerges. In addition, we had previously found that these symptom

clusters – even those related to more subjective aspects of depression – have distinct neuroanatomical correlates in brain metabolism (Milak et al., 2005; Milak et al., 2010), suggesting that the association between suicidal ideation and specific symptoms can provide clues to the underlying pathophysiology of suicidal thoughts.

Factor-analytically derived symptom clusters from the HDRS and BDI were correlated with scores from a standard measure of suicidal ideation (the Scale for Suicidal Ideation; Beck et al., 1979) in a relatively large, well-characterized clinical sample of individuals with major depressive disorder. We hypothesized, first, that individual items assessing suicidal thinking on both the HDRS and BDI would account for much of the relationship between these severity measures and suicidal ideation. Second, we hypothesized that symptom clusters assessing mood disturbance and subjective distress factors in depression would have the strongest relationship to suicidal thinking because the link between suicidal thinking and depression severity is via the psychological distress features of the disorder, rather than its overt somatic manifestations.

The Scale for Suicidal Ideation (SSI) itself contains factor-analytically derived subscales for suicidal thinking and planning (Joiner et al., 1997; Witte et al., 2006). These subscores – labeled Suicidal Desire and Ideation (SDI) and Resolved Plans and Preparation (RPP) – were extracted here and included in secondary analyses to provide additional detail regarding the association with depression severity (Joiner, op cit; Witte, op cit).

Methods

Subjects

Subjects were 400 individuals with DSM-IV Major Depression, diagnosed via the Structured Clinical Rating Scale for DSM-III-R/IV (Spitzer et al., 1990). All subjects were currently depressed with a HDRS score > 16 at the time of admission to the study. All were free of current substance abuse or dependence (though a number had in the past) and psychosis. All were medication free at the time of assessment. Nearly all subjects completed the HDRS (n=396); a slightly smaller sample (n=366) completed the BDI.

Instruments

Suicidal behavior history was gathered via structured interview (Oquendo et al., 2003). Axis II diagnoses were established via the SCID-II (First et al., 1996). Hopelessness was assessed via Beck's Hopelessness Scale (Beck et al., 1974).

Depression severity was rated using the 24-item Hamilton Depression Rating Scale (Hamilton, 1960; 1967) - administered by trained Master's and Doctoral level raters - and the Beck Depression Inventory, a 21-item self-report scale (Beck et al., 1961). For analyses, scores on these scales were decomposed into component factors as described in Grunebaum, et al (2005), with scores on each factor reflecting the unweighted total of the items on that factor. On the HDRS, these factor scores assessed **Psychic Depression** (items assessing Depressed Mood, Guilt, Retardation, Helplessness, Hopelessness, Worthlessness), **Loss of Motivated Behavior** (Work and Activities impairment, Somatic Symptoms: Gastric, Genital Symptoms, Weight Loss), **Disturbed Thinking** (Lack of Insight, Depersonalization, Paranoia, Obsessions/Compulsions), **Anxiety** (Agitation, Psychic Anxiety, Somatic Anxiety, Hypochondriasis), and **Sleep Disturbance** (Insomnia: Early, Insomnia: Middle, Insomnia: Late). Note that the **Psychic Depression** factor was modified from our original version to exclude the Suicidal Thoughts item, to reduce overlap with the suicidal ideation measure, and because this specific item was analyzed separately.

On the BDI, extracted factors assessed **Subjective Depression** (Sadness, Pessimism, Lack of satisfaction, Loss of Interest, Indecisiveness, Appearance, Work Inhibition, Tiredness, Loss of Libido), **Self-Blame** (Sense of Failure, Guilt, Feeling of Punishment, Sense of disappointment, Self-Criticism), and **Somatic Complaint** (Disturbed Sleep, Appetite Loss, Weight Loss).

Suicidal ideation was measured via the Beck Scale for Suicidal Ideation (Beck et al., 1979). The scale consists of 19 items that assess suicidal thoughts and plans. Scoring for SSI requires that the participant receive a score of 1 or greater on at least one of the first five items for additional items to be administered. If the participant receives no score on the first five items, the total score is zero (no ideation). As a result of this scoring method, the distribution of scores typically includes many zeroes (for non-ideators) and a more parametric distribution of scores for those who acknowledge some suicidal thinking. This feature of the SSI was used to distinguish those with and without ideation in this sample, and examine severity of ideation among those reporting suicidal thoughts.

The SSI has been decomposed into factor scores for suicidal thinking and planning; the factor scores derived by Witte et al (2006) were used here to determine if correlations with symptom severity were different for these two aspects of suicidal ideation. These subscales include **Suicide Desire and Ideation** (SDI; items assessing Wish to Live, Wish to Die, Reasons for Living, Duration of Ideation, frequency of Ideation, Attitudes Toward Ideation, Control over Actions, Deterrents to Attempt) and **Resolved Plans and Preparation** (Specificity of Planning, Availability and Opportunity, Actual Preparation, Final Acts).

Procedures

Subjects were recruited by advertisement and referral from local physicians and therapists. Subjects signed informed consent, were washed out of all psychotropic medications (as part of their participation in associated biological studies), and were scheduled for initial interviews and ratings. Data collection for this study was conducted under protocols approved by the local institutional review boards.

Analyses

Demographic and other clinical features of the sample were summarized for the full sample, and then compared between those with no ideation (SSI total = zero) and at least mild ideation (SSI total > 0).

Analyses proceeded in three steps in order to examine (1) associations between depression severity and suicidal ideation in the full patient sample, (2) association of depression severity to the presence vs. absence of suicidal ideation (given the nature of the distribution of SSI scores), and (3) associations between depression severity and ideation severity among those who report at least some ideation (i.e. SSI scores of zero excluded).

In the first step, nonparametric correlations were used to compare depression severity measures, suicidal thinking items, and factor scores to SSI scores in the full sample, (given the nonparametric nature of the distribution of SSI scores in the full sample). Depression rating scores included (a) HDRS and BDI total scores, (b) individual suicide items from each scale, (c) abridged HDRS and BDI total scores with suicide items removed, and (d) HDRS and BDI factor scores (see Table 2). Significance level of each correlation is noted; those that were both significant ($p < .01$) and greater than .20 are highlighted.

In the next step of the analyses, those without (SSI total = 0) and with (SSI total > 0) suicidal ideation were compared on these depression rating scores using t-tests; effect sizes for significant differences (Cohen's d) were computed. Stepwise logistic regression was then

used to define a set of classifiers using depression factor scores to distinguish those with and without ideation.

In the last analyses, nonparametric correlations were computed between depression severity measures and ideation scores in ideators alone (SSI total > 0 only), to evaluate the extent of the relationship between severity measures and ideation severity once ideation was present. Though SSI scores in ideators alone (SSI > 0) have a more parametric distribution, nonparametric correlations were used for comparison to the full sample analyses. Parametric stepwise multiple regression, however, was used to determine if some combination of severity factors were predictive of ideation severity in this restricted group.

Results

Demographic and Clinical Features of Samples

Characteristics of the full sample and the ideator and non-ideator subsamples are presented in Table 1. The full sample was comprised of young to middle-aged adults with multiple past episodes of major depression, a quarter with comorbid borderline personality disorder, and nearly half with past suicide attempts. Mean HDRS score in the full sample was 27.5 ± 7.9 and mean BDI score 27.9 ± 10.6 . Individuals with current ideation (SSI>0) were younger with an earlier age of onset of depression, better educated, and more likely to have comorbid borderline personality disorder and past suicide attempt. The percentage of those living alone was slightly, but not significantly higher. The overall percentage of participants with a family history of bipolar disorder was low, but higher in non-ideators. Percentage of other family histories for depression, completed suicide, and suicide attempt were comparable between the groups. Characteristics of past suicide attempters in each group (number and lethality of past attempts) were comparable, including the time since most recent attempt.

Full Sample Correlations

Nonparametric correlations in the entire sample (Table 2.) revealed a modest association between the HDRS total score and the SSI, but a robust association between the single suicide item and the SSI. When this item was removed from the HDRS total, the correlation between the abridged total and the SSI total falls below .20. Among the HDRS factor scores, correlations were significant for Psychic Depression and Loss of Motivation, with only Psychic Depression greater than .20.

Correlation between the BDI total and SSI total was also modest, though greater than that for the HDRS. Again, there was a robust association between the BDI suicide item and SSI. Correlation between the BDI total with the suicide item removed and SSI was reduced, although not as markedly as for the HDRS. BDI factor scores for Subjective Depression and Self-Blame were most strongly associated with Ideation.

Depression severity correlations with the SSI-SDI factor score were almost identical to those with the SSI total score. However, correlations with the SSI-RPP factor score were consistently lower. RPP was, again, most strongly associated with the specific suicide questions on either scale, and correlations were strongest with BDI total, total minus the suicide item, and BDI Subjective Depression factor.

Correlations between the SSI and HDRS factor scores for Sleep Disturbance, Anxiety, and Disturbed Thinking, and BDI Somatic Complaint were not significant or just barely significant. Depression factor scores most closely associated with SSI were those assessing depressed mood and self-blame.

Suicide Ideators vs. Non-Ideators

Comparing those with and without suicidal ideation on the HDRS (Table 3.), ideators had significantly higher total scores, suicide item scores, total scores without the suicide item, as well as Psychic Depression and Loss of Motivation factor scores. Ideators also had lower Anxiety factor scores. On the BDI, ideators were higher on all measures except Somatic Complaint.

Effect sizes for these differences were greatest for suicide items on each scale, and large in magnitude ($>.80$). The next largest effect sizes, moderate in magnitude (.40–.60 range), were for the HDRS Psychic Depression and BDI Subjective Depression factors, followed by small to medium effects (.30–.40 range) for the HDRS Loss of Motivation and BDI Self-Blame factors. A small effect (.20–.30 range) was found for HDRS Anxiety, with ideators having fewer symptoms.

Stepwise logistic regression using depression factor scores was implemented to find those symptom clusters that contributed most strongly to the identification of individuals with suicidal ideation ($SSI > 0$). This analysis revealed that 87.2% of ideators but only 37.8% of non-ideators could be identified (overall 70.2% correct classification, but more sensitive than specific; $\chi^2=47.46$, $df=3$, $p<.001$). Equation included HDRS Psychic Depression ($OR=1.1$) and BDI Subjective Depression ($OR=1.1$) along with lower HDRS Anxiety ($OR=1.2$). Factors assessing vegetative symptoms did not enter this equation.

Suicide Ideators

Among ideators (non-zero scores on SSI) alone, the pattern of association between depression severity measures and SSI was similar to that in the full sample (Table 4.). However, associations tended to be weaker than for the full sample, with many correlations falling below .20.

Correlations between depression severity measures and SSI-SDI were again similar to those with the SSI total. Those with SSI-RPP uniformly fell below .20, with the exception of the association to the specific suicide items of each depression scale.

In a stepwise regression, only the HDRS Psychic Depression factor (standardized $\beta=.18$) and BDI Somatic Complaint factor ($\beta=.16$) were retained in an equation that explained 7.0% of the variance in SSI score (Multiple $R=.26$, $F[2,258]=9.66$, $p<.001$). BDI Self-Blame entered the equation ($\beta=.16$) if HDRS Psychic Depression was left out.

Discussion

Overall depression severity correlated modestly with the severity of suicidal ideation, as in previous studies (Beck et al., 1979; VanGastel et al., 1997; Witte et al., 2006). When the suicide items were removed from the depression rating scales, however, the correlation between the abridged HDRS total was reduced below .20, less so for the abridged BDI. Analyses of symptom clusters on each scale revealed that the primary link between depression severity and suicidal ideation was via subscales assessing mood disturbance and self-blame rather than vegetative or somatic symptoms. Van Gastel et al (1997), examining the relationship of specific items of the HDRS (17-item) and BDI to the SSI, had found a set of five BDI items that were most strongly correlated with suicidal ideation. Four of these items were included in our BDI Subjective Depression factor (Sadness, Pessimism, Loss of Interest, Appearance) and one in our Self Blame factor (Guilt). We chose to analyze our data at the level of these factors due to their psychometric coherence, their greater range, and their association to distinct correlates in brain metabolism (Milak, et al., 2005; Milak et al., 2010), suggesting pathophysiological relevance.

Data here are also consistent with findings from two epidemiological studies, one in a large sample ($n=6848$) of middle-aged Japanese workers (Sugawara et al., 2011) and the other in French adolescents (Chabrol et al., 2007). In both, a factor-analytically derived scale assessing depressed mood on the CES-D (comprised of items assessing feeling blue, depressed, like a failure, fearful, lonely, crying or sad; see Radloff, 1977 and Roberts et al, 1990) was the strongest correlate of suicidal thinking, relative to other derived scales assessing somatic symptoms, lack of positive affect, and interpersonal problems. In the adolescent study, somatic symptoms were actually negatively associated with suicidal thinking (Chabrol et al., 2007).

In contrast to our findings, one study of military personnel referred for high suicide risk found that insomnia and hopelessness were the strongest predictors of both ideation and subsequent attempt, more than other typical risk indicators such as depression severity, substance abuse, or PTSD (Ribiero et al., 2011). This study may have limited generalizability for understanding the emergence of suicidal ideation, since all subjects were already at high risk, likely attenuating the range of scores on severity measures. In addition, depression ratings in the military study were derived from a self-report personality disorder instrument (Millon Clinical Multiaxial Inventory) rather than targeted depression rating scales. Finally, hopelessness as a predictor is closely tied to the subjective elements of depression. In our own study, the strongest correlate of hopelessness (Beck Hopelessness Scale) was BDI Subjective Depression ($\rho=.56$, $p<.001$), followed by BDI Self-Blame ($\rho=.47$, $p<.001$) and HDRS Psychic Depression ($\rho=.38$, $p<.001$). No other correlation between hopelessness and depression factor scores was greater than .20. During clinical trials, insomnia is typically accompanied by (McCall et al., 2010) or less important than (Vitiello et al., 2009) persistent mood disturbance as a predictor of suicidal ideation.

Our data suggest that higher depression severity ratings are more strongly associated with the presence (vs. absence) of suicidal ideation than with the severity of ideation when it is present. The pattern of correlations in the ideator sample ($SSI>0$) was very similar to that in the full sample, suggesting that they are on a continuum with the full sample, and their slightly lower magnitude reflects an attenuation of range rather than the elimination of a group effect. However, there was a notable increase in certain specific depression severity ratings associated with the presence of ideation, suggesting an association between these symptoms and the origins of suicidal thoughts.

Analyses of the SSI subscales (SDI and RPP) suggest a much stronger association between depression severity factors and suicidal thinking rather than planning, consistent with previous research (Joiner et al., 1997; Witte et al., 2006). Planning may be more predictive of actual attempts (Joiner et al, op cit.; Borges et al., 2006; Nock et al., 2008), but may be influenced by environmental and situational factors that are not captured in most rating scales. Suicidal behavior initially begins with suicidal thinking (Nock et al., 2008) and understanding of the origins of suicidal thinking remains important for developing strategies for prevention.

Further research is needed to characterize other factors that might contribute to the relationship between mood disturbance and suicidal thinking. Cognitive impairments in depression, for example, may make it more difficult to function, adding to the likelihood that self-destructive thinking will emerge. Genetic or familial risk factors, chronicity, and comorbidity may contribute as well (Brent, 2010; Perroud et al., 2011).

The association of suicidal ideation with the mood disturbance and self-blame components of depressive disorder is relevant for clinical care because these symptoms can be among the last to respond temporally during a course of treatment with some antidepressants (Katz et

al., 2004; Papakostas et al., 2007). It is well-established that reductions in global depression severity lead to reductions in suicidal thinking (Szanto et al., 2007; Cukrowitz et al., 2009; Zisok et al., 2009; Courtet et al., 2010). However, many treatments may reduce suicide risk in the long run, but may initially target symptoms – namely vegetative and somatic symptoms - that are less closely associated with suicidal thinking. This may account for the paradox of patients appearing to improve clinically, yet continuing to entertain suicidal thoughts.

In the context of clinical care, suicidal ideation must be assessed explicitly (Malone et al., 1995). Even though ideation can be linked to mood disturbance and self-blame, these associations are far from isomorphic. On the other hand, these symptoms may be necessary for the maintenance of suicidal thinking and therefore appropriate targets for intervention. Tracking these symptoms may be most important in the early stages of treatment, when antidepressants may be more effective at reducing somatic and vegetative symptoms.

For research, findings here suggest that suicidal ideation may better be understood via careful characterization of the subjective aspects of depression. Subjective symptoms of depression have distinct and robust correlates in brain function (Milak et al., 2010) and constitute a central feature of the disorder. By emphasizing observable somatic and vegetative symptoms, standard depression rating scales may obscure associations to the components of depression – and their neurophysiological underpinnings - that engender suicidal thinking and behavior. Along these lines, use of the short-form 17-item HDRS in studies of suicidal individuals is not recommended, because it eliminates items that constitute nearly half of the Psychic Depression factor. The manner in which individuals manage the subjective elements of their depressive disorders - and how these subjective factors interact with environmental events, personality traits, and cognitive factors - may hold the key to understanding suicide risk.

Limitations of this study include its cross-sectional approach, which constrains us in attempting to determine if subjective mood disturbance precedes the onset of suicidal thinking or is a consequence of it. The ideal study of the relationship between depression severity and suicidal ideation would follow subjects through treatment, to longitudinally evaluate the relationship between symptom change and changes in suicidal thinking. Nonetheless, this study extends previous findings regarding the association between depression severity and suicidal thinking by identifying specific sets of depressive symptoms that are related to suicidal ideation, with implications for the treatment of suicidal individuals.

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Table 1

Demographic and Clinical Rating Data

Variable	Full Sample	Non-Ideators (SSI = 0)	Suicide Ideators (SSI > 0)	p-value^I
N	400	141	> 259	--
Age (yrs.)	37.8 ± 12.2	39.8 ± 13.5	36.7 ± 11.3	.02
Sex (% Female)	59.5% (238)	56.7% (80)	61.0% (158)	.41
Education (yrs.)	14.8 ± 3.0	14.0 ± 2.9	15.1 ± 3.0	<.001
Currently Unemployed	61.8% (244)	58.0% (80)	63.8% (164)	.26
Living Alone	32.0% (119)	26.0% (34)	35.3% (85)	.07
Age of Onset of MDD	24.7 ± 13.0	28.7 ± 15.1	22.6 ± 11.1	<.001
First Episode of MDD	29.0% (109)	33.6% (44)	26.5% (65)	.15
Number Past Depressive Episodes	6.3 ± 10.8 [median=3.0]	4.9 ± 8.7 [median=2.0]	7.1 ± 11.7 [median=3.0]	.07
Length Current Depressive Episode (wks)	109.1 ± 287.2 [median=22.0]	125.9 ± 327.2 [median=22.0]	99.8 ± 263.0 [median=24.0]	.41
Time Off Medication at Admission (wks)	73.4 ± 239.5 [median=2]	45.8 ± 142.7 [median=2]	84.7 ± 268.9 [median=2]	.25
Inpatient	66.6% (265)	66.7% (94)	66.5% (171)	.98
Family History MDD	47.0% (180)	47.0% (62)	47.0% (118)	.99
Family History Bipolar	6.8% (26)	10.6% (14)	4.8% (12)	.03
Family History Suicide	3.4% (13)	4.5% (6)	2.8% (7)	.38
Family History Suicide Attempt	12.0% (46)	10.6% (14)	12.8% (32)	.53
Axis II Diagnosis (% Borderline PD)	25.3% (101)	16.3% (21)	32.0% (80)	.001
Comorbid Anxiety Disorder	26.0% (104)	27.7% (39)	25.1% (65)	.58
Past Substance Abuse/Dependence	39.5% (158)	39.7% (56)	39.4% (102)	.95
Post Traumatic Stress Disorder (Lifetime)	14.8% (59)	12.1% (17)	16.2% (42)	.26
Past Suicide Attempt (%)	46.0% (184)	33.3% (47)	52.9% (137)	<.001
Number Previous Suicide Attempts (Attempters only)	2.4 ± 1.8	2.4 ± 1.7	2.4 ± 1.8	.93
Lethality of Most Recent Attempt (Attempters only)	2.7 ± 2.1	2.9 ± 2.4	2.6 ± 2.0	.40
Maximum Lethality of Attempt (Attempters only)	3.3 ± 2.1	3.6 ± 2.2	3.1 ± 2.0	.18
Time Since Most Recent Attempt (Attempters only/ months)	45.1 ± 89.8 [median=4.3]	55.6 ± 117.8 [median=1.3]	41.0 ± 76.1 [median = 5.0]	.36
1 Month since Attempt	35.4% (57)	46.7% (21)	31.0% (36)	.06
3 Months since Attempt	46.0% (74)	51.1% (23)	44.0% (51)	.41
1 Year since Attempt	62.1% (100)	66.7% (30)	60.3% (70)	.46
Scale for Suicide Ideation	6.9 ± 7.9	0.0 ± 0.0	10.7 ± 7.4	<.001

<u>Variable</u> (current)	<u>Full Sample</u>	<u>Non-Ideators</u> <u>(SSI = 0)</u>	<u>Suicide Ideators</u> <u>(SSI>0)</u>	<u>p-value</u> ^{<i>I</i>}
Beck Hopelessness Scale	12.5 ± 5.8	9.3 ± 5.6	14.1 ± 5.1	<.001

^{*I*} Omnibus ANOVA for continuous variables, chi-squared for categorical variables.

SSI = Scale for Suicidal Ideation

Table 2

Nonparametric Correlations between Depression Ratings and their Derived Factor Scores and Scale for Suicidal Ideation

Scale	SSI Total	SSI-SDI	SSI-RPP
HDRS Total (N=396)	.24 ***	.23 ***	.18 ***
Suicide Item (#3)	.49 ***	.48 ***	.39 ***
Total Minus Suicide Item	.17 **	.16 **	.13 *
HDRS Factor Scores:			
Psychic Depression	.26 ***	.25 ***	.19 ***
Loss of Motivated Behavior	.18 ***	.18 ***	.09
Disturbed Thinking	.05	.04	.05
Anxiety	-.09	-.09	-.07
Sleep Disturbance	.02	.02	.02
BDI Total (N=366)	.35 ***	.36 ***	.23 ***
Suicide Item (#9)	.58 ***	.56 ***	.47 ***
Total Minus Suicide Item	.31 ***	.32 ***	.20 ***
BDI Factor Scores:			
Subjective Depression	.32 ***	.34 ***	.20 ***
Self-Blame	.25 ***	.24 ***	.17 **
Somatic Complaint	.11 *	.11 *	.05

*
p<.05

**
p<.01

p<.001

Coefficients > .20 in bold

HDRS= Hamilton Depression Rating Scale; BDI = Beck Depression Inventory; SSI = Scale for Suicidal Ideation; SSI-SDI = Scale for Suicidal Ideation, Suicidal Desire and Ideation subscale; SSI-RPP = Scale for Suicidal Ideation, Resolved Plans and Preparation subscale.

Table 3

Depression Ratings and their Derived Factor Scores in Non-Ideators (SSI score = 0) and Suicide Ideators (SSI score > 0)

Scale	Non-Ideators	Suicide Ideators	p-value	d (Effect Size)
N for HDRS	140	256		
HDRS Total	25.7 ± 9.2	28.4 ± 6.9	.001	.35
Suicide Item (#3)	1.3 ± 1.3	2.2 ± 1.0	<.001	.86
Total Minus Suicide Item	24.4 ± 8.7	26.2 ± 6.6	.024	.24
HDRS Factor Scores:				
Psychic Depression	8.7 ± 3.8	10.3 ± 3.2	<.001	.47
Loss of Motivated Behavior	4.4 ± 2.4	5.2 ± 2.3	.004	.34
Disturbed Thinking	1.2 ± 1.5	1.2 ± 1.5	.70	--
Anxiety	4.8 ± 2.9	4.3 ± 2.1	.03	-.21
Sleep Disturbance	3.0 ± 2.0	3.0 ± 1.8	.68	--
N for BDI	127	239		
BDI Total	23.9 ± 10.4	30.0 ± 10.1	<.001	.60
Suicide Item (#9)	0.5 ± 0.7	1.3 ± 0.9	<.001	.98
Total Minus Suicide Item	23.4 ± 10.1	28.7 ± 9.7	<.001	.54
BDI Factor Scores:				
Subjective Depression	12.1 ± 5.2	15.4 ± 5.4	<.001	.62
Self-Blame	5.8 ± 3.7	7.3 ± 3.6	<.001	.41
Somatic Complaint	2.9 ± 2.1	3.0 ± 2.2	.45	--

HDRS= Hamilton Depression Rating Scale; BDI = Beck Depression Inventory; SSI = Scale for Suicidal Ideation; SSI-SDI = Scale for Suicidal Ideation, Suicidal Desire and Ideation subscale; SSI-RPP = Scale for Suicidal Ideation, Resolved Plans and Preparation subscale.

Table 4

Nonparametric Correlations between Depression Ratings and their Derived Factor Scores and Scale for Suicidal Ideation, Suicide Ideators only.

Scale	SSI Total	SSI-SDI	SSI-RPP
HDRS Total (N=256)	.23***	.21***	.15*
Suicide Item (#3)	.48***	.46***	.34***
Total Minus Suicide Item	.16**	.15*	.11
HDRS Factor Scores:			
Psychic Depression	.19**	.18**	.14*
Loss of Motivated Behavior	.12*	.14*	.03
Disturbed Thinking	.09	.07	-.03
Anxiety	-.05	-.05	.02
Sleep Disturbance	.09	.09	.04
BDI Total (N=239)	.28***	.30***	.13*
Suicide Item (#9)	.50***	.47***	.38***
Total Minus Suicide Item	.23***	.27***	.10
BDI Factor Scores:			
Subjective Depression	.17**	.23***	.06
Self-Blame	.21***	.21***	.12
Somatic Complaint	.16*	.18**	.05

*
p<.05

**
p<.01

p<.001

Coefficients > .20 in bold

HDRS= Hamilton Depression Rating Scale; BDI = Beck Depression Inventory; SSI = Scale for Suicidal Ideation; SSI-SDI = Scale for Suicidal Ideation, Suicidal Desire and Ideation subscale; SSI-RPP = Scale for Suicidal Ideation, Resolved Plans and Preparation subscale.