Research Article

DEPRESSIVE CHARACTERISTICS OF ADULT PSYCHIATRIC INPATIENTS WITH A HISTORY OF MULTIPLE VERSUS ONE OR NO SUICIDE ATTEMPTS

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Background: *A growing body of research suggests that individuals with a history of multiple suicide attempts exhibit more severe psychopathology than individuals with only one or no previous suicide attempts. Given the strong link between diagnoses of major depression and suicide risk, our primary goal was to determine which specific depressive characteristics differentiate multiple attempters from patients with one or no previous attempts.* **Methods:** *Participants were 121 depressed adult psychiatric inpatients. Participants were administered diagnostic interviews to assess the course and characteristics of their depression history as well as measures of suicidal ideation, suicide attempts, depressive symptoms, hopelessness, and dysfunctional attitudes.* **Results:** *Patients with a history of multiple suicide attempts exhibited higher levels of suicidal ideation and depressive symptoms, but not hopelessness or dysfunctional attitudes, than the other two groups. In addition, multiple attempters reported an earlier age of major depression onset.* **Conclusions:** *The current results add to a growing body of research suggesting that multiple attempters may represent a distinct patient population. Depression and Anxiety 26:568–574, 2009.* Published 2008 Wiley-Liss, Inc.[†]

INTRODUCTION

A history of past suicide attempts is one of the best, if not the best, single predictors of future death by suicide.[1–3] Traditionally, researchers have grouped all patients with a history of suicide attempts into a single category. However, a growing body of research suggests that there may be meaningful differences between patients with a history of one versus multiple suicide attempts. Specifically, studies have found that multiple attempters exhibit more depressive symptoms, suicidal ideation, and hopelessness than single attempters.[4–8] Although multiple attempters also exhibit more symptoms of borderline personality disorder and are more likely to meet the criteria for the disorder than are single attempters,[5,8,9] attempter group differences in depressive symptoms, suicidal ideation, and hopelessness are maintained even after statistically controlling for diagnoses of borderline personality disorder,[5] suggesting that group differences are not due simply to the presence of this disorder. Also, there is no evidence that single versus multiple attempters differ in age,[4,5,8,10] suggesting that differences in the number of previous suicide attempts are not due simply to some individuals having a

greater opportunity to make repeated attempts because they are older.

Although major depression is the psychiatric disorder most strongly linked to suicide,[11] little is known about

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how the characteristics or course of this disorder may differ among patients with a history of multiple versus one or no suicide attempts. For example, although, as noted above, a number of studies have shown that multiple attempters do not differ in age from single attempters, it is possible that multiple attempters experience an earlier age of onset for depression. Although not focused specifically on diagnoses of major depression, there is some evidence that multiple attempters do have an earlier onset of axis I disorders than individuals with one or no suicide attempts.[8] In contrast, there is preliminary evidence that multiple attempters may not differ in the duration or recurrence of their depressive episodes.[8,12] Another question that remains unclear from previous research is the extent to which multiple attempters differ in terms of depressive cognitions. Specifically, although research has provided support for differences in hopelessness,[4,5,7,8] it is not clear whether these differences would extend to other cognitive factors such as dysfunctional attitudes. Finally, although there is clear support for attempt history differences in levels of suicidal ideation,[5,8] research has suggested that overall levels of suicidal ideation encompass two distinct factors, one reflecting motivation for suicide and the other reflecting preparation.[13–16] There is evidence that the latter of these two factors, termed "resolved plans and preparation", is more strongly linked to patients' history of suicide attempts and eventual death by suicide.[16] Joiner[17] has hypothesized that this factor would also distinguish multiple attempters from those with only one suicide attempt. In the only study of which we are aware to test this hypothesis, Holden and DeLisle[14] found that, consistent with Joiner's[17] hypothesis, women's number of previous suicide attempts was significantly related to their level of suicide preparation, but not motivation.

The primary goal of this study was to determine which characteristics of depressed adult psychiatric inpatients would differentiate those with a history of multiple attempts from those with one or no earlier suicide attempts. Specifically, we sought to replicate previous findings of attempt history differences in suicidal ideation, depressive symptoms, and hopelessness. In addition, we sought to extend previous findings by examining whether patients' attempt status history would also be related to their levels of dysfunctional attitudes and the characteristics/course of their depression (i.e., age of onset, number of depressive episodes, duration of most recent episode). Finally, in addition to examining overall levels of suicidal ideation, we focused on the separate dimensions of "resolved plans and preparation" and "suicidal desire and ideation". We hypothesized that patients with a history of multiple suicide attempts would exhibit higher levels of suicidal ideation (particularly the preparation dimension), depressive symptoms, hopelessness, and dysfunctional attitudes than would patients with one or no earlier suicide attempts. We also predicted that multiple attempters would report an earlier age of major depression onset. Finally, based on previous research[4,5,8,10,12], we did not expect that the attempt history groups would differ significantly in terms of lifetime number of major depressive episodes, the duration of the current episode, or demographic variables (sex, age, race, education).

METHODS

PARTICIPANTS

Participants in this study consisted of 121 depressed psychiatric inpatients recruited between 1991 and 1995 to participate in a treatment study comparing the efficacy of pharmacotherapy with or without cognitive-behavioral psychotherapy and family treatment. Participants in the treatment study were randomized to treatments that either matched or mismatched their levels of family or cognitive dysfunction.[18] Patients were recruited from an acute care university-affiliated psychiatric hospital. Inclusion criteria were: (a) currently living with one or more family members; (b) DSM-III-R diagnosis of major depressive disorder according to the Structured Clinical Interview for DSM-III-R;[19] and (c) score on admission to the hospital on the Modified Hamilton Rating Scale for Depression [MHRSD][20] and the Beck Depression Inventory [BDI][21] greater than 17. Subjects were excluded if they met any of the following criteria: (a) DSM-III-R criteria for a current episode of bipolar disorder, current alcohol or drug dependence, somatization disorder, or schizophrenia; (b) presence of organic brain syndrome; or (c) a medical condition for which antidepressants were contraindicated. The mean age of the patients was 37.97 years ($SD = 11.83$ years; range 17–71). Ninety (74.3%) of the patients were women and 113 (93.4%) were Caucasian. Details and results of the treatment outcome study are described elsewhere.[18]

MEASURES

The Modified Scale for Suicidal Ideation [MSSI],[23] an 18-item clinician-administered inventory, was used to assess patients' levels of suicidal ideation. The MSSI is a modified version of the Scale for Suicidal Ideation[22] with higher scores reflecting higher levels of suicidal ideation. In previous studies, total scores on the MSSI (MSSI-Total) have demonstrated strong internal consistency, interrater reliability, and concurrent validity with expert clinicians' ratings of suicidal ideation.[23,24] MSSI total scores have also been found to differentiate patients with and without a history of suicide attempts.[23,24] In addition to total scores, we also examined the Suicidal Desire and Ideation (MSSI-SDI) and Resolved Plans and Preparations (MSSI-RPP) subscales.[15] 1 As with the total scale score, these two subscales have demonstrated good internal consistency and there is evidence that MSSI-RPP scores discriminate patients with and without a history of suicide attempts.[15] Patients' histories of previous suicide attempts were assessed after the MSSI by a series of questions concerning number and types of previous suicide attempts. Specifically, participants were asked, "Have there been times when you tried to kill yourself?" Participants endorsing one or more earlier suicide attempts were asked a series of

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[1]Although Joiner et al.[15] reverse scored MSSI item 16 (Writing about Death/Suicide) when computing the MSSI-RPP factor, reliability analysis of our data suggested that the item–total correlation of item 16 with the other MSSI-RPP items was positive ($r = .13$). In addition, scoring the subscale without reverse-scoring item 16 resulted in stronger internal consistency than scoring the subscale with item 16 reverse scored. Therefore, the MSSI-RPP factor was created without reverse scoring item 16. This is consistent with the scoring of MSSI total scores, in which responses to all items are summed, without any reverse scoring.

follow-up questions, including questions regarding the total number of attempts and their age at the time of the first attempt. Consistent with previous studies,[8] patients' histories of earlier attempts were trichotomized into zero, one, or multiple earlier attempts.

Depressive symptoms were assessed using the MHRSD,[20] an interviewer-administered measure, and the BDI[21] a self-report measure. Total scores on the MHRSD can range from 0 to 72 and total scores on the BDI can range from 0 to 63, with higher scores on both scales indicating more severe levels of depressive symptoms. Studies have supported the reliability and validity of both measures.[20,25]

The Beck Hopelessness Scale [BHS],[26] a 20-item true–false self-report questionnaire, was used to assess participants' negative expectations regarding the future. Scores on the BHS can range from 0 to 20, with higher scores reflecting more hopelessness. The BHS has demonstrated good internal consistency and concurrent validity with clinician's ratings of hopelessness,[26] as well as good predictive validity for eventual suicide.[27–29]

The Dysfunctional Attitudes Scale [DAS],[30] a 40-item self-report inventory, was used to assess a variety of maladaptive attitudes including sensitivity to social criticism, perfectionistic performance standards, expectations of control, and rigid ideas about the world featured in[31,32] theory of depression. Response options to each of the questions range, on a 7-point Likert-type scale, from *totally agree* to *totally disagree*. Total scores for the DAS, which range from 1 to 280, are calculated by summing participants' responses to each of the 40 items, with higher scores indicating higher levels of dysfunctional attitudes.

As noted above, patients were administered the Structured Clinical Interview for DSM-III-R[19] to determine inclusion/exclusion criteria. Data from this interview were also used to determine the age of onset for patients' first episode of major depression, the total number of major depressive episodes, and the duration of the current episode.

PROCEDURE

All patients were recruited during a psychiatric hospitalization. After informed consent, patients received a battery of assessment measures and were randomly assigned to treatment, which began after discharge. All measures included in this study were administered while patients were hospitalized and before they were randomly assigned to treatment.

RESULTS

Preliminary analysis revealed that several of the variables exhibited significant skew. Although variables were initially transformed before further analysis, results using these variables were virtually identical to those obtained using the untransformed variables. Therefore, for ease of presentation and comparison with other studies, we present only results for untransformed variables.[2]

Descriptive statistics for the three attempt history groups are presented in Table 1. Attempter group (multiple, single, none) differences were examined with

a series of omnibus analyses of variance (for continuous dependent variables) or χ^2 tests (for categorical dependent variables). For the analyses of variance, significant omnibus tests were followed with Student–Newman–Keuls post hoc tests to determine the pattern of significant between-group differences. For the χ^2 analyses, significant 3 (attempt history: multiple, single, none) × 2 (dependent variable: yes, no) χ^2 tests were followed by a series of 2 × 2 χ^2 tests to determine the pattern of significant differences. The results of these analyses are presented in Table 1 and significant between-group differences are noted with different superscripts. As can be seen in Table 1, the three groups did not differ significantly on the demographic variables examined. As hypothesized, the three groups did differ significantly in terms of current suicidal ideation, with multiple attempters reporting significantly higher levels than single attempters, who in turn, differed significantly from patients with no history of suicide attempts. This pattern was observed for MSSI total scores as well as for the MSSI-SDI and MSSI-RPP subscales. Although we had hypothesized that multiple attempt status (multiple attempters versus patients with one or no earlier suicide attempts) would be more strongly related to scores on the MSSI-RPP subscale than scores on the MSSI-SDI subscale, the difference in the magnitude of these relations was not significant ($r_{\text{effect sizes}} = .39$ and .44, respectively; $z = -1.10$, $P = .14$). Consistent with our hypothesis, multiple attempters did report significantly higher depressive symptom levels (MHRSD and BDI) than patients with one or no suicide attempts, with these latter two groups not differing significantly. In contrast, there were no significant between-group differences in levels of hopelessness or dysfunctional attitudes.[3] Further, as hypothesized, multiple attempters reported an earlier age of major depression onset than did patients with one or no suicide attempts, with the latter two groups not differing significantly.[4] Multiple and single attempters also reported signifi-

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[2]For the total number of major depressive episodes variable, a number of participants reported "too numerous to count" ($n = 20$). These values were recoded to be one higher than the next highest value of this variable (i.e., recoded to a value of 21). For the total duration of present episode variable, there were two extreme outliers reporting values of 182 and 418 weeks (these values were 9.76 and 23.27 standard deviations, respectively, above the remaining sample's mean). These were recoded to be one and two values higher, respectively, than the next highest value reported (i.e., recoded to values of 105 and 106).

[3]Given these unexpected findings, we examined them further. Each of the effect sizes for the pairwise comparisons between multiple attempters and patients with one or no previous attempts on levels of hopelessness and dysfunctional attitudes were small ($r_{\text{effect sizes}} = .04–.16$), suggesting that the nonsignificant effects were not due simply to our sample size. In addition, although we also examined the DAS Performance Evaluation and Approval by Others subscales[33] in separate analyses of variance, no significant differences between the three attempt history groups were observed ($P = .30$ and .91, respectively).

[4]We also examined patients' age at first suicide attempt and found that multiple attempters were significantly younger at the time of the first attempt ($M = 19.75$, $SD = 9.45$) than single attempters ($M = 27.47$, $SD = 11.69$), $t(49) = 2.58$, $P = .01$, $r_{\text{effect size}} = .35$. Examining the discrepancy in age between the first MDD and the first suicide attempt as a function of suicide attempt history (multiple versus single), however, yielded a nonsignificant result, $t(49) = 0.64$, $P = .95$, $r_{\text{effect size}} = -.01$, suggesting that the age of first attempt differences overlapped with the age of the first MDD.

TABLE 1. Summary of analyses comparing inpatients with no, one, or multiple earlier suicide attempts

Measure	No attempts ($n = 70$)	Single attempters ($n = 19$)	Multiple attempters ($n = 32$)	$F/\chi2$
Demographics				
Age	39.43 (12.24)	34.95 (9.59)	36.47 (11.88)	1.42
Sex (% female)	68.57%	89.47%	78.13%	3.75
Race (% Caucasian)	94.29%	94.74%	90.63%	0.54
Education (% graduated H.S.)	82.86%	78.95%	84.38%	0.25
Suicidal ideation				
MSSI-Total	13.99 (12.22)[a]	21.11 (11.99)[b]	29.44 (13.31)[c]	17.10**
MSSI-SDI	7.74 (6.61)[a]	11.37 (5.58)[b]	15.75 (6.55)[c]	17.17**
MSSI-RPP	5.61 (5.39)[a]	8.47 (5.72)[b]	11.56 (5.96)[c]	12.67**
Depressive symptoms/cognitions				
MHRSD	36.56 (6.10)[a]	36.32 (6.34)[a]	40.41 (6.03)[b]	4.80*
BDI	32.21 (7.82)[a]	30.74 (8.95)[a]	37.16 (8.57)[b]	5.08*
BHS	14.44 (5.02)	14.95 (5.03)	16.09 (3.90)	1.33
DAS	153.75 (42.01)	161.65 (42.62)	166.97 (47.18)	1.08
Depression characteristics/course				
Age of first MD onset	31.90 (12.70)[a]	27.32 (9.96)[a]	19.78 (11.02)[b]	11.44**
Total # MDs	3.90 (4.93)[a]	8.00 (9.04)[b]	10.31 (8.62)[b]	10.53**
Duration present episode (weeks)	12.27 (22.00)	11.74 (15.56)	17.47 (25.42)	0.68

MSSI-Total, Modified Scale for Suicidal Ideation-Total Score; MSSI-SDI, Modified Scale for Suicidal Ideation-Suicidal Desire and Ideation subscale; MSSI-RPP, Modified Scale for Suicidal Ideation-Resolved Plans and Preparations subscale; MHRSD, Modified Hamilton Rating Scale for Depression; BDI, Beck Depression Inventory; BHS, Beck Hopelessness Scale; DAS, Dysfunctional Attitude Scale; MD, Major Depression.
Values presented are means (standard deviations) or percentages.
Means or percentages with different superscripts differ significantly at $P<.05$.
*$P<.01$; **$P<.001$.

cantly more episodes of major depression than patients with no history of attempts, but did not differ significantly from each other. Finally, there were no significant between-group differences in the duration of the current depressive episode.

It is possible that the differences observed between multiple and single attempters in terms of current symptoms (suicidal ideation and depressive symptoms) were due simply to the recency of any attempt made rather than to patients' lifetime history of multiple attempts.[5] A final set of analyses was conducted to examine this possibility, focusing on whether patients' current hospitalization was precipitated by a suicide attempt (suicide attempt at index). Of the patients in this study, 20 (39.2%) were hospitalized because of a recent suicide attempt. The proportion of patients with a history of multiple versus single suicide attempt who were currently hospitalized because of an attempt did not differ significantly (46.9 versus 26.3%; $\chi^2(1, N = 51) = 2.11$, $P=.15$, $r_{\text{effect size}} = .20$). This said, patients hospitalized for a recent suicide attempt, compared to patients hospitalized for other reasons, did exhibit higher scores on the MSSI-Total, $t(49) = 2.24$, $P=.03$, $r_{\text{effect size}} = .31$, and MSSI-RPP, $t(49) = 2.39$, $P=.02$, $r_{\text{effect size}} = .32$. However, suicide attempt at index (yes versus no) was not significantly related to scores on the MSSI-SDI, $t(49) = 1.74$, $P=.09$, $r_{\text{effect size}} = .24$, MHRSD, $t(49) = 0.96$,

$P=.34$, $r_{\text{effect size}} = .14$, or BDI, $t(49) = -1.73$, $P=.09$, $r_{\text{effect size}} = -.24$. Finally, we examined whether the multiple versus single attempter differences in current symptoms (suicidal ideation and depressive symptoms) reported above would be maintained after statistically controlling for suicide attempt at index hospitalization. Each of the significant effects reported above were maintained (all $P\leqslant.03$) with the exception of the attempt status difference in MSSI-RPP, which was reduced to a nonsignificant trend, $F(1, 47) = 3.59$, $P=.06$, $r_{\text{effect size}} = .27$. We should also note that suicide attempt at index hospitalization did not moderate any of the links between multiple attempter status and current suicidal ideation or depressive symptoms (all $P>.12$). These results suggest that the multiple versus single attempter differences were not due simply to the recency with which patients had attempted suicide.

DISCUSSION

Our primary goal in this study was to examine which depressive characteristics do versus do not differentiate patients with a history of multiple suicide attempts. Consistent with the results of previous studies,[4,5,8] we found that depressed adult psychiatric inpatients with a history of multiple suicide attempts reported more suicidal ideation and depressive symptoms at intake than did patients with one or no earlier suicide attempts. In addition, multiple attempters reported an earlier age of major depression onset than did patients

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[5]We thank an anonymous reviewer for suggesting this possibility.

with one or no earlier attempts. In contrast, however, we found no evidence for attempt status differences in hopelessness, dysfunctional attitudes, or duration of current major depression. Although we did find that multiple attempters reported more episodes of major depression than patients with no history of suicide attempts, single attempters exhibited the same pattern and did not differ significantly from multiple attempters.

There were also some unanticipated results in this study. First, both suicidal ideation subscales—resolved plans and preparations and MSSI-SDI—differentiated the three attempt history groups. In contrast to our hypothesis, multiple attempt status was not significantly more strongly related to the resolved plans and preparations factor than the suicidal desire and ideation factor. This is in contrast to Joiner's[17] theory, in which he hypothesized that multiple attempters would be more strongly characterized by levels of resolved plans and preparations than suicidal desire and ideation. One potential reason for the current findings may be that we focused on patients' current levels of suicidal ideation, and stronger effects for the resolved plans and preparations factor may be observed when focusing on patients' "worst point" suicidal ideation.[16] Future research should continue to test this possibility.

A second unexpected finding from this study was the nonsignificant group difference in hopelessness, which is in contrast to a number of previous studies.[4,5,7,8] This finding is also surprising given evidence that elevated levels of hopelessness are a risk factor for future death by suicide.[27–29] It is possible that the current lack of significant between-group differences may have been due, in part, to characteristics of our sample. Specifically, our focus on psychiatric inpatients diagnosed with major depression may have resulted in ceiling effects in terms of hopelessness. Indeed, the mean hopelessness scores in each of our three groups are higher than those reported in other studies of multiple versus single attempters.[5,7,8] In addition, whereas 10% of our sample attained the maximum possible level of hopelessness (score of 20 on the BHS), none of our participants exhibited ceiling effects on the other measures. Indeed, levels of suicidal ideation and depressive symptoms exhibited by participants in this study were similar to those reported in previous studies.[5,8] Therefore, it is possible that the lack of group differences in hopelessness was due to ceiling effects in our sample. We should also note that the other measure of depressive cognitions used in the current study, dysfunctional attitudes, also did not exhibit significant between-group differences. Although not due to ceiling effects on the DAS (no participants in this study scored the maximum possible on the DAS), it is possible that stronger differences would have been observed for forms of dysfunctional cognitions hypothesized to be more suicide-specific such as perceived burdensomeness[34] or self-injury implicit associations.[35] Finally, it is possible that

among depressed psychiatric inpatients, multiple attempters are more strongly differentiated by non-cognitive symptoms of depression (e.g., affective symptoms) than by cognitive symptoms.

The results of this study add to a growing body of research suggesting that individuals with a history of multiple suicide attempts may represent a distinct population characterized by an earlier age of onset and more severe psychopathology.[4,5,8,10] Given the significant link between previous suicide attempts, particularly multiple attempts, and eventual death by suicide,[36] the logical question becomes, how do we best identify those most at risk for repeated suicide attempts? The current results suggest that a strong developmental predictor may be an early age of onset for major depression (and first suicide attempt). What remains unclear is the mechanism by which these factors contribute to repeated attempts. Joiner[17] has suggested that the link between past and future suicide attempts is mediated by habituation (individuals habituate to the pain and social stigma of suicide attempts) and opponent process (as fear and pain decrease with repeated attempts, reinforcing qualities increase). Although there is some evidence from cross-sectional and retrospective studies supporting Joiner's hypothesis,[17] no prospective studies have been conducted. Clearly this is an important area for future research and the current results suggest that it may be particularly useful to focus on individuals with an earlier age of first suicide attempt (e.g., during childhood or adolescence) in testing these hypotheses.

We should also note that suicide attempt group classifications (multiple, single, none) in this study were based on assessments conducted at a single point in time. Given the high-risk nature of this sample, it is likely that some of the patients classified as single attempters (and possibly some with no lifetime attempts) will make a suicide attempt in the future.[37] Indeed, one or more of the nonsignificant between-group differences observed in this study may have been due to a subgroup of single attempters whose presentation was similar to multiple attempters and who may be at particular risk for making one or more suicide attempts in the future. To the extent this is true, an important question for future research would be how best to identify those individuals with one suicide attempt who are at greatest risk for making another suicide attempt in the future.

This study exhibited a number of strengths including its focus on clinician-administered measures of psychopathology and suicidal ideation and attempts. This said, however, there were limitations as well. The primary of these is that we could not examine whether suicide attempt history prospectively predicted future suicide attempts nor could we examine the hypothesized mediators of this relation. Second, because we focused specifically on depressed adult psychiatric inpatients, it is unclear whether the current results will generalize to other samples. Thus, although our focus

on depressed psychiatric inpatients maximized the base rate of individuals reporting multiple suicide attempts, and therefore our statistical power, it would be important to know whether the current results replicate in a less severely impaired sample (e.g., depressed outpatients), given the importance of understanding potential risk factors for suicide in depressed patients more generally. Also, all participants in this study were required to be living with at least one family member (e.g., parent, spouse), which may affect the generalizability of the current results. This said, the current findings are largely consistent with those reported previously,[4,5,7,8,10] giving us additional confidence in the results.

In summary, the current results add to the growing body of research suggesting that multiple attempters may represent a distinct patient population. Future research should focus not only on better differentiating factors that do versus do not distinguish these patients, but also on developmental variables that may help to determine which individuals are at greatest risk for suicide attempts in the future. Studies are also needed to determine the mechanism by which individuals with a earlier suicide attempt are at increased risk in the future. On the basis of the current results, it seems that the population of potentially greatest interest for this research would be those who experienced their first episode of depression during childhood or adolescence, particularly those who have already made one or more suicide attempts.

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