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Association between familial suicidal behavior and frequency of attempts among depressed suicide attempters

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Abstract

Objective—Only a few studies have examined whether a family history of suicide influences the severity of suicidal acts and the results have been inconsistent. The current study aimed to examine whether a family history of suicidal acts predicts severity of suicide attempts.

Method—190 suicide attempters aged 18–75 years with a lifetime history of major depression were assessed for first-degree family history of suicidality and severity of suicide attempts (number and lethality of prior suicide attempts and age at first attempt).

Results—Regression analyses indicate that a positive family history of suicidal behaviors predicts a greater number of suicide attempts. Reasons for living predict number and lethality of prior attempts.

Conclusion—It is critical to assess for family history of suicidal behavior when treating depressed suicide attempters as it may serve as an indicator of the risk of repeat suicide attempt and as a guide for treatment.

Keywords

suicide; suicide attempt; severity; family history; first-degree relatives

Introduction

Research strongly suggests that having a family history of suicidal behavior increases risk of suicide attempt (1, 2). The relationship between family history of suicidal behavior and proband behavior is especially strong when first- and second-degree relatives are considered (2, 3). Studies have found that approximately 24% of suicide attempters report a history of completed suicide among first and second-degree relatives (2, 4).

Few studies have focused on other possible effects of familial history of suicidal behavior, such as increased severity of suicide attempt among relatives (2, 4–16). It is difficult to interpret findings from these studies and to relate them to depressed adults as: i) some studies included subjects with varied diagnoses (2, 5, 10); ii) other studies focused on a diagnosis other than major depression (6, 8, 12, 13); iii) several focused only on adolescents

and young adults (9, 14) and iv) several studies included any biological relative (7, 10, 13, 14, 16) The nature and extent of the impact of familial suicidal behavior may vary based on the degree of the relationship and, as such, their findings may not be applicable when examining individuals with a first-degree family history of suicidality. Thus, the findings of these studies may not be generalizable to adults with major depression with first-degree family history suicidality. In addition, findings from these studies have been inconsistent with some studies finding that a positive family history of suicidal behavior predicts an earlier age at first suicide attempt and greater number of prior attempts (6, 8) and others finding no such relationship (11, 13, 15, 16). This is the first study to examine multiple indices of severity of adult proband suicide attempt.

Aims of study

This study aims to examine whether having a family history of suicidal behavior among first-degree relatives predicts severity of suicide attempts among adult probands with major depression. We hypothesize that suicide attempters with a family history of suicidal behavior will have a greater number of prior suicide attempts, an earlier age at first suicide attempt and greater lethality attempts.

Material and methods

Sample

After providing informed consent and with the approval of the appropriate institutional review board, 190 individuals with a history of suicide attempt who met DSM-III-R criteria for major depression as determined by the Structured Clinical Interview for the DSM-III-R (SCID-I) (17) participated in this study. Participants ranged in age from 18 to 75 years. Exclusion criteria included current substance and / or alcohol abuse or dependence and any neurological impairment or medical condition that could affect accurate assessment.

Measures

A suicide attempt was defined as any act of self-harm that was committed with some degree of intent to end one's life. Suicidal behavior severity was assessed by examining lethality of suicide attempt using the Beck Lethality Scale (18), number of prior suicide attempts and age at first suicide attempt. A lifetime history of suicide attempts was assessed using the Columbia Suicide History Form (19). Current suicidal ideation was measured by the Scale for Suicidal Ideation (20). Family history of suicidal behavior (completed suicide and suicide attempt) among first-degree relatives was based on participant's self-report as either present or absent. Lifetime aggression and impulsivity were assessed with the Brown Goodwin Aggression History Scale (21) and the Barratt Impulsivity Scale (22). Life stressors were assessed using the St Paul-Ramsey Questionnaire (19). The Reasons for Living Scale (23) was used to assess protect factors against suicide attempt.

Statistical analysis

Suicide attempters with and without a family history of suicidal behavior among first-degree relatives were compared on a number of sociodemographic (age, sex, employment status, education and marital status) and clinical (impulsivity, aggression, social adjustment, reasons for living, life stressors, severity of depression, current suicidal ideation, age at first suicide attempt and age of onset of major depression) characteristics using *t*-tests and chi-squared tests as appropriate.

Multiple regression analysis was used to compare suicide attempters with and without a family history of suicide attempt on several indices of severity of suicide attempt: number of

prior suicide attempt, lethality of prior attempt and age at first suicide attempt. Three models were estimated; each included one of the three markers of severity as the outcome variable.

Results

The average age of participants was 35.68 years ($SD \pm 12.40$). The majority was female ($n = 125$, 65.8%), Caucasian ($n = 171$, 90%), with at least a high school degree (total years of education 13.30, $SD \pm 5.64$). Over half were married ($n = 102$, 53.7%) and currently employed ($n = 113$, 59.5%). Forty-six (25%) had a first-degree family history of suicidal behavior.

Characteristics of suicide attempters with and without a family history of suicidal behavior

Table 1 presents the results of the bivariate analyses comparing suicide attempters with and without a family history of suicidal behavior. Suicide attempters did not differ on sociodemographic or clinical variables (number of prior suicide attempts, age of onset of major depression, number of prior episodes of major depressive disorder or current suicidal ideation).

Family history of suicidal behavior as a predictor of severity of proband suicide attempt

Table 2 reports the results of the first regression predicting number of prior suicide attempts. A family history of suicidal behavior was found to significantly predict number of prior suicide attempts ($r^2 = 0.204$; d.f. = 12; $F = 4.431$; $P < 0.001$). Individuals with a positive family history of suicidal behaviors have a greater number of suicide attempts than those without a family history of suicidal acts ($\beta = 0.167$, $P = 0.01$). Additionally, higher levels of aggression ($\beta = 0.300$, $P = 0.001$) and fewer reasons for living ($\beta = 0.218$, $P = 0.003$) were significant predictors of having made a greater number of suicide attempts.

Table 3 reports results of the second regression predicting lethality of prior suicide attempts. Family history of suicidal behavior was not found to significantly predict lethality of attempt ($\beta = 0.094$; $P = 0.149$). However, individuals with higher levels of aggression ($\beta = 0.224$, $P < 0.002$), fewer reasons for living ($\beta = 0.245$, $P = 0.001$) and lower levels of impulsivity ($\beta = -0.144$, $P = 0.039$) make significantly more lethal suicide attempts.

Table 4 reports results of the third regression predicting age at proband's first suicide attempt. Family history of suicidal behavior did not significantly predict age at first attempt of proband ($\beta = -0.040$; $P = 0.664$), however, men ($\beta = -0.335$; $P = 0.001$), married individuals ($\beta = -0.296$; $P = 0.002$) and individuals with lower levels of impulsivity ($\beta = -0.239$; $P = 0.015$) were significantly more likely to have an earlier age at first suicide attempt.

Discussion

To the best of our knowledge this is the first study to specifically examine the effect of first-degree family history of suicidal behavior on multiple indicators of severity of proband suicide attempt among individuals with major depression. Results indicate that individuals with a positive family history of suicidal behavior among first-degree relatives make more suicide attempts than those without a family history of suicidal behavior.

Our finding that a positive family history of suicidal behavior significantly predicts number of proband suicide attempts is consistent with previous literature. Among depressed individuals, prior studies have found that multiple suicide attempters were more likely to have a family history of suicidality when compared with single suicide attempters (3, 7, 10).

Why is it that individuals with a family history of suicidality engage in suicidal behavior more often than those without a family history of suicidality? Several studies have found that impulsivity and aggression mediate the familial transmission of suicide (1, 3–5, 9). We also found that aggression contributed to the frequency of suicide attempts. Perhaps depressed individuals with a family history of suicidal behavior engage in suicidal behavior more often because they are more impulsive and more aggressive. Other studies have examined the problem-solving and coping abilities of suicide attempters with and without a family history of suicidality (10). Familial transmission of suicidality may be mediated by modeling of suicidal behavior as an appropriate coping mechanism (24) and by poor problem-solving skills (10). These risk factors for suicide can also increase frequency of suicidal acts.

In this study, higher levels of aggression and lower levels of impulsivity predicted greater lethality of suicide attempts. Perhaps individuals who are more impulsive do not put as much planning into their attempts resulting in behavior that are less likely to cause severe damage. A high level of impulsivity was also shown to predict an earlier age at first suicide attempt (7). Given the high association between mood disorders and suicide attempt, this may explain why highly impulsive individuals attempt suicide at an earlier age.

Our results also indicate that reasons for living, as measured by the Reasons for Living Inventory (23), are predictive of number of prior suicide attempts and lethality of attempts. This is the only study we were able to identify that examines the relationship between severity of suicidal acts and reasons of living. The Reasons for Living Inventory (23) measures, among other things, the fear of suicide and the fear of social disapproval. Individuals who score low on these items find suicidal more acceptable and may have less of an aversion to death. Accepting attitudes towards death have been shown to be related to higher lethality suicide attempts (25).

Further research should focus on identifying the unique characteristics of suicide attempters with a family history of suicidality. Efforts should be made to identify potential psychological mediators of the family transmission of suicidal behavior in order to guide prevention and intervention programs. Potential mediators to consider may include patterns of communication, nature of interpersonal relationships and coping strategies. This knowledge would inform prevention and intervention programs and could improve existing practice guidelines for the assessment and treatment of individuals with suicidality.

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Significant outcomes

- First-degree family history of suicidal behavior does impact severity of proband suicide as measured by the number of proband suicide attempts.
- Suicide attempters with a family history of suicidal acts make a greater number of suicide attempts than those without such a family history.
- Thorough assessment is necessary to identify this greatly at-risk subset of suicide attempters to implement appropriate interventions.

Limitations

- The presence or absence of a family history of suicidal behavior among first-degree relatives was assessed by subject self-report during semi-structured interview. As this information is retrospective, it is subject to recall bias.
- The study focused on suicide attempters with major depression and findings may not be generalizable to individuals with other psychiatric disorders.
- The study examined suicidality among first-degree relatives and findings may not be generalizable to individuals who have a family history of suicidality among second- and third-degree relatives.
- The study did not examine the nature of the suicidal act of the first-degree relative. Thus, we do not know if family members were multiple attempters themselves when they engaged in suicidal behavior or the degree of lethality of the attempt.

Table 1
Sociodemographic and clinical characteristics of suicide attempters with and without a family history of suicidal behavior

Sociodemographic and clinical characteristics	With family history (<i>n</i> = 33)	Without family history (<i>n</i> = 144)	<i>t</i> -value or chi-square	d.f.	<i>P</i> -value
Age, mean (\pm SD) (years)	32.88 (11.1)	35.80 (11.7)	1.305	174	0.194
Years of education, mean (\pm SD)	13.03 (6.3)	13.60 (5.3)	0.536	174	0.591
Severity of depression (Beck Depression Inventory), mean (\pm SD)	29.87 (10.6)	29.03 (12.0)	-0.356	150	0.723
Number of prior episodes of major depression, mean (\pm SD)	3.76 (3.0)	3.18 (3.0)	-0.928	133	0.355
Age of onset of major depression, mean (\pm SD) (years)	22.41 (10.6)	22.69 (12.4)	0.121	170	0.904
Number of prior suicide attempts, mean (\pm SD)	2.61 (1.6)	2.42 (1.8)	-0.538	175	0.592
Age at first attempt, mean (\pm SD) (years)	21.47 (17.6)	22.69 (17.0)	0.365	172	0.715
Aggression, mean (\pm SD)	19.39 (5.4)	20.10 (6.1)	0.610	164	0.543
Impulsivity, mean (\pm SD)	54.93 (13.4)	50.99 (19.3)	-1.002	135	0.318
Life stressors, mean (\pm SD)	2.72 (0.8)	2.64 (0.9)	-0.443	150	0.658
Current suicidal ideation, mean (\pm SD)	7.09 (7.2)	9.79 (9.1)	1.556	164	0.122
Reasons for living, mean (\pm SD)	140.95 (46.7)	129.27 (38.6)	1.097	126	0.275
Sex, % (<i>N</i>)					
Female	60.6 (20)	66.7 (96)	0.437	1	0.509
Male	39.4 (13)	33.3 (48)			
Employment status, % (<i>N</i>)					
Employed	54.6 (18)	62.2 (89)	0.666	1	0.415
Unemployed	45.4 (15)	37.8 (54)			
Marital status, % (<i>N</i>)					
Married	60.6 (20)	52.5 (75)	0.718	1	0.397
Other	39.4 (13)	47.5 (68)			
Ethnicity, % (<i>N</i>)					
White	90.9 (30)	90.2 (129)	0.015	1	0.902
Non-White	9.1 (3)	9.8 (14)			

Table 2

Multiple regression predicting number of prior suicide attempts

	Beta weights	SE	P-value
FDR family history of suicidal behavior	0.167	0.273	0.010
Aggression	0.300	0.021	0.000
Reasons for living	-0.218	0.003	0.003
Severity of depression	0.031	0.010	0.664
Life stressors	-0.032	0.127	0.626
Current suicidal ideation	0.016	-0.030	0.687
Impulsivity	-0.074	0.006	0.279
Age	-0.103	0.009	0.180
Sex	0.112	0.201	0.083
Years of education	-0.113	0.034	0.091
Employment status	0.111	0.201	0.082
Marital status	-0.068	0.229	0.361

Values are in bold as they are the variables that reached statistical significance.

Table 3

Multiple regression predicting lethality of prior suicide attempts

	Beta weights	SE	P-value
Family history of suicidality	0.094	1.022	0.149
Aggression	0.224	0.077	0.002
Reasons for living	-0.245	0.010	0.001
Severity of depression	0.104	0.038	0.145
Life stressors	-0.005	0.476	0.937
Current suicidal ideation	0.022	0.058	0.771
Impulsivity	-0.144	0.021	0.039
Age	-0.124	0.035	0.112
Sex	0.094	0.751	0.150
Years of education	-0.082	0.129	0.230
Employment status	0.004	0.753	0.955
Marital status	-0.090	0.859	0.236

Values are in bold as they are the variables that reached statistical significance.

Table 4

Multiple regression predicting age at first suicide attempt

	Beta weights	SE	P-value
Family history of suicidality	-0.040	2.904	0.664
Aggression	-0.184	0.226	0.076
Reasons for living	-0.094	0.028	0.364
Severity of depression	-0.134	0.126	0.205
Life stressors	-0.032	1.440	0.740
Current suicidal ideation	0.178	0.161	0.085
Impulsivity	-0.239	0.061	0.015
Sex	-0.335	2.416	0.000
Years of education	-0.010	0.418	0.922
Employment status	-0.123	2.394	0.181
Marital status	-0.296	2.321	0.002

Values are in bold as they are the variables that reached statistical significance.