



Published in final edited form as:

J Clin Psychiatry. 2014 August ; 75(8): 879–885. doi:10.4088/JCP.13m08794.

Depressed parents' attachment: effects on offspring suicidal behavior in a longitudinal, family study

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Abstract

Objective—To investigate relationships of depressed parents' attachment style to offspring suicidal behavior.

Method—244 parents diagnosed with a DSM-IV depressive episode completed the Adult Attachment Questionnaire at study entry. Baseline and yearly follow-up interviews of their 488 offspring tracked suicidal behavior and psychopathology. Survival analysis and marginal regression models with correlated errors for siblings investigated the relationship between parent insecure attachment traits and offspring characteristics. Data analyzed were collected 1992–2008 during a longitudinal family study completed January 31, 2014.

Results—Parent avoidant attachment predicted offspring suicide attempts at a trend level ($p=0.083$). Parent anxious attachment did not predict offspring attempts ($p=0.961$). In secondary analyses, anxious attachment in parents was associated with offspring impulsivity ($p=0.034$), and

in offspring suicide attempters, was associated with greater intent ($p=0.045$) and lethality of attempts ($p=0.003$). Avoidant attachment in parents was associated with offspring impulsivity ($p=0.025$) and major depressive disorder ($p=0.012$). Parent avoidant attachment predicted a greater number of suicide attempts ($p=0.048$) and greater intent in offspring attempters ($p=0.003$). Results were comparable after adjusting for parent diagnosis of borderline personality disorder.

Conclusion—Insecure avoidant, but not anxious, attachment in depressed parents may predict offspring suicide attempt. Insecure parent attachment traits were associated with impulsivity and major depressive disorder in all offspring, and with more severe suicidal behavior in offspring attempters. Insecure parental attachment merits further study as a potential target to reduce risk of offspring psychopathology and more severe suicidal behavior.

Keywords

Attachment; Suicide attempt; Family study; Impulsivity; Depression

Introduction

Suicidal behavior clusters in families, yet less is understood about mechanisms of risk transmission from parents to offspring. Greater knowledge about inter-generational transmission of risk for suicidal behavior may aid prevention and treatment.¹ Attachment style, a person's characteristic way of relating to others, rooted in early experience with primary caregivers, has been linked to suicidal behavior, but remains an under-researched area. Insecure attachment is associated with suicidal ideation and attempt in mostly cross-sectional studies of adolescent samples.^{2–13} Our and others' studies found that insecure attachment in adults was associated with their suicide attempt history,¹⁴ suicidal ideation,¹⁵ and risk of suicide attempt during one-year, prospective follow-up.¹⁶

The suicidal phenotype and its antecedents are heterogeneous. Suicidal behavior may be impulsive or planned, triggered by an acute episode of mental illness or by socio-economic or interpersonal stressors. Attachment style is a component of interpersonal relatedness. Since attachment is associated with suicidal ideation and behavior in adults, and since attachment is thought to be influenced by early experience with primary caregivers, it raises the question of whether parental attachment style may affect risk for suicidal behavior among offspring.

Studies have examined whether adolescent suicidal behavior is associated with their *perceptions* of primary caregivers' parenting style.^{17–22} However, no study prospectively assessed parental *attachment* style as a predictor of offspring suicidal behavior. One study found that insecure attachment among adolescents correlated with higher potential lethality of their suicide plans.⁶ Higher lethality attempts are associated with higher rates of subsequent suicide.^{23,24}

Impulsivity is a risk factor for suicidal behavior,^{25,26} but little research has investigated the potential influence of parental attachment style on offspring impulsivity. Studies found that insecure attachment is associated with impulsivity within subjects.^{27–31} Two studies showed that parenting *characteristics*, though not specifically attachment style, predicted impulsivity

in offspring.^{32,33} To our knowledge, no study has demonstrated an effect of parental attachment style on offspring impulsivity.

In this analysis from a longitudinal family study, our primary aim was to determine whether *parent* attachment style predicts offspring suicide attempts. We hypothesized that insecure attachment in parents would predict greater risk of suicide attempt in offspring. Extending our prior work on attachment and suicidal ideation and behavior within subjects,^{14,16} we also tested associations of attachment style with psychopathology among parents. Exploratory analyses tested associations of parental attachment style to other known correlates of suicide risk, such as impulsivity, mood disorder and actual attempt lethality, in offspring.

Method

Subjects

The current sample is part of a longitudinal, family study of parents presenting for inpatient or outpatient depression treatment and their offspring.³⁴ This study analyzes unpublished data on attachment styles of parents (N = 244) and its effects on their offspring (N = 488). Subjects were recruited at two university hospitals: Western Psychiatric Institute and Clinic, in Pittsburgh, PA, and New York State Psychiatric Institute, in New York City. We have reported the demographic and clinical composition of the New York and Pittsburgh cohorts that permit analysis as a single sample.³⁴ Parents provided contact information for offspring. After a complete description of the study, all participants provided written informed consent as required by the institutional review boards of both sites. Parents in this sample entered the study between 1992–2005, and data were collected for parents and offspring for each subsequent one-year time period. The mean length of offspring follow-up was 6.8 years. This analysis included data collected 1992–2008 although the longitudinal study completed data collection on January 31, 2014. Several publications analyzed other data from this longitudinal project,³⁴ but this is the first report on attachment data.

Measures

Baseline consensus Axis I and II diagnoses utilized the Structured Clinical Interview for DSM-IV patient edition (SCID I and II).^{35,36} For offspring under 18, Axis I diagnoses were assessed using the Schedule for Affective Disorders and Schizophrenia for School-Age Children – Present and Lifetime Version.³⁷ Raters assessed suicide attempt history with the Columbia Suicide History Form.³⁸ A suicide attempt was defined as a self-destructive act with at least some intent to end one's life. Attempt lethality was assessed using the Lethality Rating Scale,³⁹ which rates attempts based on medical consequences: from 0 for minimal damage to 8 for death. Suicide intent was assessed using the Beck Suicide Intent Scale.⁴⁰ Raters were MA or PhD level psychologists or social workers. Inter-rater agreement and intra-class coefficients for clinical scales were good to excellent (ICC 0.71 – 0.97).⁴¹

Impulsivity was rated with the Barratt Impulsiveness Scale (BIS)⁴² for offspring age 18 years and older, and the impulsivity subscale of the Emotionality, Activity, Sociability, and Impulsivity Scale (EASI)⁴³ for offspring under 18. Z-scores were computed separately using

the BIS total score in offspring 18 years old or older at the last visit, and using the EASI impulsivity sub-score for offspring under 18. These two z-scores were merged into a single variable.

Attachment style in parents was rated with Simpson's Adult Attachment Questionnaire (AAQ).⁴⁴ The AAQ, a 13-item measure, asks subjects to rate themselves on a series of statements about "how you usually feel toward your romantic partners." Examples include, "I find it relatively easy to get close to others," "I'm not very comfortable having to depend on other people," "I rarely worry about being abandoned by others," and "I find it difficult to trust others completely." Subjects rate themselves on 7-point Likert scales ("Strongly agree" to "Strongly disagree"). We followed Simpson's recommendation to score the measure using a secure vs. avoidant factor (items 1–3 and 5–9) and a secure vs. anxious factor (items 4 and 10–13) (Simpson et al., 1992).⁴⁵ For simplicity, we refer to these as avoidant and anxious factors. Reverse-coded items were re-coded so that higher scores indicate less secure attachment of the avoidant or anxious type. A review of adult attachment self-report measures found the AAQ to have strong psychometric properties (Ravitz et al., 2010).⁴⁶

Data Analysis

Pearson correlations and *t*-tests were used to test associations of parent anxious and avoidant attachment style with parent characteristics. The primary analysis tested the association of parent attachment style to risk of offspring suicide attempt: Cox regression for clustered data was used to test the association of parent anxious or avoidant attachment with time from offspring birth to a first offspring suicide attempt.

Secondary analyses explored the association of parent attachment style to offspring major depressive disorder, impulsivity, and number, intent and lethality of attempts among offspring attempters. Marginal regression models with correlated errors for continuous or dichotomous outcomes were used, first in unadjusted models, then adjusting for parent borderline personality disorder, given the latter's association with suicidal behavior. We used SPSS version 16.0 for Windows (SPSS, Inc., Chicago, IL) and SAS (SAS Institute, Cary, NC).

Results

Parent characteristics

Parents (N=244) were 86% female, 69% white, and 11% Hispanic. At study entry, the mean age was 43.5 years (SD 8.8), mean education was 14.1 years (SD 2.7), and 47% were married. A total of 80% were diagnosed with lifetime Major Depressive Disorder (MDD), 20% with Bipolar Disorder (BD), and 51% had a history of a suicide attempt. Among parents, 20% had a co-morbid diagnosis of borderline personality disorder (BPD), 14% had a non-BPD personality disorder, 60% had an anxiety disorder, 47% had an alcohol or substance use disorder, and 62% had a history of physical and/or sexual abuse.

Table 1 summarizes tests of association of parent attachment styles with other parent characteristics. Parent anxious attachment was associated with parent suicide attempt

($p=0.002$), physical or sexual abuse history ($p=0.003$), BPD ($p=0.008$), alcohol or substance use disorder ($p=0.030$), and not married status ($p<0.001$). Parent avoidant attachment was associated with suicide attempt ($p=0.026$), younger age ($p=0.004$), less education ($p=0.001$), history of physical or sexual abuse ($p=0.004$), BPD ($p=0.006$), and not married status ($p<0.001$).

Offspring characteristics

At their last assessment, offspring ($N=488$) had a mean age of 19.8 years ($SD 7.7$) and 52% were male. Offspring time in study was associated, as expected, with age, but not with parent attachment or other key study variables. Mood disorder diagnoses were 126 (26%) with MDD and 28 (6%) with BD. Of 29 (6%) offspring with an Axis II disorder, 12 (2.5%) had BPD and 17 (3.5%) had a non-BPD personality disorder. During the study period, 38 offspring (7.8%) made a total of 74 suicide attempts.

Prediction of offspring suicide attempt

Of the offspring attempters, 28 (74%) were female, 25 (66%) had a history of MDD, 4 (10.5%) had a BPD diagnosis, and 15 (40%) had a history of physical and/or sexual abuse. The median lethality of the attempts was 2 (range 0–5), corresponding to mild injury requiring outpatient medical treatment (e.g. lethargic after a sedative overdose, simple wound care necessary, sprains or minor injuries). No suicide attempt resulted in death. Parent avoidant attachment predicted offspring suicide attempts at the trend level ($p=0.083$). Parent anxious attachment did not predict offspring suicide attempt ($p=0.961$) (Table 2).

Intent and lethality among offspring attempters

Both anxious ($p=0.045$) and avoidant ($p=0.003$) parent attachment predicted greater intent of the most lethal suicide attempt by offspring (Table 2). Anxious parent attachment predicted more lethal offspring suicide attempts ($p=0.003$; Table 2). Avoidant parent attachment predicted a greater number of offspring suicide attempts ($p=0.048$; Table 2).

Offspring impulsivity and depression

Parental anxious ($p=0.034$) and avoidant attachment ($p=0.025$) were associated with offspring trait impulsivity (Table 2). Parental avoidant attachment was associated with offspring MDD ($p=0.012$; Table 2).

Models adjusted for parent borderline personality disorder

Given the association of borderline personality disorder with impulsivity, depressive states, and suicidal behavior, we re-tested the above associations of parental anxious and avoidant attachment styles with offspring characteristics after adjusting for parental BPD diagnosis. In the adjusted model, parental anxious attachment still predicted greater intent and lethality in offspring attempters. Parental BPD explained about 25% of the association between offspring impulsivity and parental anxious attachment, which lost statistical significance in the adjusted model ($b=0.012$ vs. 0.016 unadjusted, $t=1.60$, $df=228$, $p=0.11$).

After adjusting for parental BPD, parental avoidant attachment remained associated with offspring MDD and predicted a greater number of suicide attempts and greater intent among offspring attempters. Parental BPD explained about 25% of the association between offspring impulsivity and avoidant parental attachment, which lost statistical significance in the adjusted model ($b=0.008$ vs. 0.011 unadjusted, $t=1.71$, $df=228$, $p=0.09$).

Discussion

We investigated relationships of attachment style in parents presenting with unipolar or bipolar depression to parent and offspring suicidal behavior and related psychopathology. We found trend-level support for our hypothesis that insecure parental attachment would predict offspring suicide attempt. This result, specifically for avoidant parent attachment, is consistent with our prior work showing that avoidant attachment in depressed adults ($N=136$) predicted suicide attempts during 1-year prospective follow-up.¹⁶ We also found support for related secondary outcomes in offspring. Among offspring attempters, anxious and avoidant attachment in the parent predicted greater suicidal intent, anxious parental attachment predicted greater offspring attempt lethality, and avoidant parental attachment predicted more offspring attempts. Among all offspring, avoidant parental attachment was associated with offspring major depressive disorder, and both types of insecure parental attachment were associated with offspring impulsivity.

The results require replication, but suggest that insecure parent attachment style is associated with more severe suicidal behavior in offspring who make attempts and with MDD and impulsivity among all offspring. The findings are clinically meaningful because suicidal intent and repetition of suicide attempts are associated with higher lethality.^{23,24,47,48} Impulsive aggression is an established correlate of suicidal behavior^{25,41} and MDD is one of the strongest risk factors for suicide attempt.^{49,50}

Disturbances in early attachment experiences are thought to contribute to borderline traits and may be transmitted from parents to children.⁵¹ Studies show familial clustering of BPD and heritability of borderline traits via genetic and environmental pathways.⁵² Thus parental BPD likely influences offspring suicidal behavior. However, even after adjusting for parent BPD, the associations between severity of offspring suicidal behavior and parent attachment style remained significant. The effect of parent avoidant attachment on offspring MDD was also independent of parental BPD. Taken together, the adjusted models suggest that insecure parental attachment traits independently predict transmission of risk for suicidal behavior to their offspring.

Our finding that anxious parental attachment predicted greater offspring suicidal intent and more lethal offspring attempts is consistent with Lessard and Moretti's report that in adolescents with suicide plans, a preoccupied attachment style, characterized by anxiety in close relationships, correlates with lethality of *contemplated* methods.⁶ Our results extend this to *actual* offspring suicide attempts.

Anxiously attached persons tend to expect separation, loss, and abandonment and are preoccupied with how available and responsive others are; hence, their attachment behaviors

are sensitive to activation.^{44,46} They experience higher levels of distress than both avoidant and securely-attached individuals.⁵³⁻⁵⁵ How parental anxious attachment transmits a risk of more lethal offspring suicidal behavior may involve high levels of emotional distress in the home environment. A study by Anestis et al.⁵⁶ found that BPD patients with high levels of distress were at a greater risk of highly lethal suicidal behavior. Children of anxiously attached parents exposed to high emotional distress may be drawn to more lethal suicidal behavior because the environment seems less helpful.

Individuals with an avoidant attachment style are suspicious, aloof, uncomfortable with intimacy, view others as too eager to commit in relationships, and find it hard to trust or depend on others.⁴⁴ They do not place a high value on close relationships, strive to be self-reliant,⁴⁶ are less likely to seek support when distressed,⁵⁴ and are less likely to provide support to others.⁴⁵ These characteristics may increase social isolation, which has been linked to suicidal behavior.⁵⁷ In our sample, parents with an avoidant attachment style may provide less support, leading to offspring depression and greater intent and repetition of attempts.

The association of insecure parental attachment style with offspring impulsivity was not statistically significant after adjusting for parent BPD, likely due to insufficient power. Parental BPD accounted for 25% of the total effect of anxious or avoidant parental attachment on offspring impulsivity, suggesting there is still an independent effect of parental insecure attachment. Several studies have linked insecure attachment to impulsivity within subjects, although results have been inconsistent. Impulsivity was associated with insecure attachment²⁷ and anxious attachment,^{29,31} but inversely associated with avoidant attachment in one study.²⁸ Our study differs from these in examining effects of parental attachment style on offspring.

Our study has limitations. Our attachment measure involved self-report and is thus vulnerable to recall and social desirability biases. The AAQ assesses conscious attitudes and may not detect less conscious factors. The AAQ measures adult attachment styles in romantic relationships and not specifically parent-child bonds. However, scores on the AAQ have been found to correlate with those from the gold-standard Adult Attachment Interview,⁵⁸ supporting the AAQ's validity. Attachment style is considered to develop early between the infant and caregiver, and to remain stable until adulthood, affecting attachment in all close relationships.⁴⁶

It is unclear how parents' attachment style in romantic relationships relates to their attachment style with their children, or to the children's own attachment style, which this study did not assess. A meta-analysis of 22 studies found strong, though not complete, concordance of secure versus insecure attachment between parents and children, and that approximately 12% of this concordance was transmitted through a "sensitive responsiveness" parenting style.⁵⁹ Attachment style is thought to be largely influenced by environmental factors (especially caregiver sensitivity) as opposed to genetic factors.⁶⁰ Therefore, it is reasonable to hypothesize that the attachment styles of parents in our study influenced those of their offspring, resulting in similar tendencies.

The relatively small number of offspring who attempted suicide is a limitation. Offspring data were restricted to those for whom we had follow-up assessments. The lethality range of suicide attempts was 0–5, so results may not be applicable to more lethal attempters. Differential attrition among those with suicidal behaviors could have affected results. We did not have data on family functioning or parenting practices, which could potentially moderate or mediate the effects of parental attachment style on offspring. Finally, we performed many statistical tests, thus there is a risk of false positives.

The results may be informative in developing or supporting novel therapeutic strategies, for example that focused on improving BPD patients' "mentalization" skills, which are thought to be damaged by early attachment disruptions and to lead to impulsivity, suicidal behavior and other pathology.⁵¹ The results suggest possible mediating variables, for example, of the reported efficacy of attachment-based family therapy for suicidal adolescents.⁶¹

In summary, results from this longitudinal family study suggest that an insecure attachment style in parents is associated with depression and impulsivity among offspring and with more severe suicidal behavior among offspring suicide attempters. Parent avoidant attachment, in particular, may predict offspring attempts. Overall, the results were robust to adjustment for parental BPD diagnosis. To our knowledge, this is the first prospective, longitudinal, family study to demonstrate how parental insecure attachment may affect offspring suicidal behavior. Further development of individual or family interventions to foster healthier attachment patterns may be worth testing in clinical trials aimed at reducing the intergenerational transmission of risk for psychopathology and suicidal behavior.

Acknowledgments

Support: This work was supported by NIH grants MH56612, MH48514, MH59710, MH096784-01A1, AA15630; the Conte Center for the Neurobiology of Mental Disorders (5-P50MH62185), MH056390, 5R01MH056612; the Nina Rahn Foundation; NARSAD. The sponsoring organizations were not involved in the design or conduct of the study.

Dr. Burke receives royalties for commercial use of the Columbia Suicide Severity Rating Scale from the Research Foundation for Mental Hygiene of New York State; Dr. Brent reports honoraria from CME events, other support from UpToDate Psychiatry and royalties from ERT, Inc., and Guilford Press; Dr. Oquendo receives royalties for the use of the Columbia Suicide Severity Rating Scale and received financial compensation from Pfizer for the safety evaluation of a clinical facility, unrelated to the current manuscript. She was the recipient of a grant from Eli Lilly to support a year's salary for the Lilly Suicide Scholar, Enrique Baca-Garcia, MD, PhD. She has received unrestricted educational grants and/or lecture fees from Astra-Zeneca, Bristol Myers Squibb, Eli Lilly, Janssen, Otsuka, Pfizer, Sanofi-Aventis, and Shire, and her family owns stock in Bristol Myers Squibb; Dr. Mann reports owning stock options in Qualitas Medical Inc. and receiving royalties for commercial use of the Columbia Suicide Severity Rating Scale from the Research Foundation for Mental Hygiene of New York State; Drs. MacGregor, Grunebaum, Galfalvy and Melhem report no financial or other relationship relevant to the subject of this article.

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Clinical Points

1. Insecure attachment traits in parents with mood disorders may be a pathway for intergenerational transmission of risk to offspring for psychopathology and suicidal behavior.
2. Treatments or family interventions that attempt to ameliorate insecure attachment patterns may help prevent suicidal behavior and other psychopathology in depressed parents and their children.

Table 1

Associations of parent attachment style with parent characteristics

| Anxious Attachment | N^a (%) | r | | p |
|---|--------------------------|----------|-----------|--------------|
| Age at study entry | 244 | -0.016 | | 0.805 |
| Years of education | 243 | -0.103 | | 0.109 |
| | | t | df | p |
| Sex (% Female) | 244 (86%) | 0.824 | 242 | 0.411 |
| Race (% White) | 244 (69%) | 0.857 | 242 | 0.392 |
| Ethnicity (% Hispanic) | 243 (11%) | -0.373 | 241 | 0.710 |
| Marital status (% Married) | 244 (47%) | 4.155 | 242 | 0.000 |
| Physical and/or sexual abuse history (% with) | 244 (62%) | 3.011 | 242 | 0.003 |
| Borderline personality disorder (% with) | 239 (20%) | -2.863 | 237 | 0.008 |
| Non-borderline personality disorder (% with) | 239 (14%) | -1.763 | 237 | 0.079 |
| Alcohol or substance use disorder (% with) | 244 (47%) | -2.180 | 242 | 0.030 |
| Anxiety disorder (% with) | 244 (60%) | -0.933 | 242 | 0.352 |
| Unipolar vs bipolar depression (% unipolar) | 244 (80%) | -0.331 | 242 | 0.741 |
| Suicide attempt status (% with past attempt) | 244 (51%) | -3.088 | 242 | 0.002 |
| Avoidant Attachment | N^a (%) | r | | p |
| Age at study entry | 244 | -0.182 | | 0.004 |
| Years of education | 243 | -0.220 | | 0.001 |
| | | t | df | p |
| Sex (% Female) | 244 (86%) | 0.068 | 242 | 0.946 |
| Race (% White) | 244 (69%) | 1.507 | 242 | 0.133 |
| Ethnicity (% Hispanic) | 243 (11%) | 0.111 | 241 | 0.912 |
| Marital status (% Married) | 244 (47%) | 4.184 | 242 | 0.000 |
| Physical and/or sexual abuse history (% with) | 244 (62%) | 2.888 | 242 | 0.004 |
| Borderline personality disorder (% with) | 239 (20%) | -2.766 | 237 | 0.006 |
| Non-borderline personality disorder (% with) | 239 (14%) | -1.903 | 237 | 0.058 |
| Alcohol or substance use disorder (% with) | 244 (47%) | -1.709 | 242 | 0.089 |
| Anxiety disorder (% with) | 244 (60%) | -1.714 | 242 | 0.088 |
| Unipolar vs bipolar depression (% unipolar) | 244 (80%) | 0.823 | 242 | 0.411 |
| Suicide attempt status (% with past attempt) | 244 (51%) | -2.242 | 242 | 0.026 |

^aCases where N<244 are due to missing data.

Table 2

Associations of parent attachment style with offspring characteristics

| Parent Anxious Attachment | | | | | | |
|--|----------------------|---|-----------|---------------|----------------|--|
| Offspring Characteristic | N^a | Hazard ratio^b | z | 95% CI | p-value | |
| Suicide attempt status (attempter/non-attempter) | 488 | 1.00 | 0.05 | 0.73 to 1.39 | 0.961 | |
| | N^a | Standardized Coefficient^b | df | t | | |
| Maximum lethality of suicide attempts | 38 | 0.63 | 32 | 3.16 | 0.003 | |
| Trait impulsivity Z-score – combined child and adult offspring | 450 | 0.13 | 234 | 2.14 | 0.034 | |
| Number of suicide attempts | 38 | -0.19 | 32 | -0.62 | 0.539 | |
| Intent of most lethal attempt | 33 | 1.77 | 30 | 2.10 | 0.045 | |
| Trait aggression | 159 | -0.13 | 102 | -0.23 | 0.819 | |
| Age at last assessment | 488 | 0.19 | 259 | 0.43 | 0.667 | |
| | | OR^b | df | t | | |
| Sex | 488 | 0.94 | 259 | -0.66 | 0.508 | |
| Major depressive disorder | 478 | 1.21 | 255 | 1.50 | 0.136 | |
| Bipolar disorder | 478 | 1.14 | 255 | 0.59 | 0.556 | |
| Borderline personality disorder | 344 | 1.38 | 207 | 1.02 | 0.308 | |
| Physical and/or sexual abuse history | 317 | 1.14 | 197 | 0.68 | 0.499 | |
| Parent Avoidant Attachment | | | | | | |
| Offspring Characteristic | N | Hazard ratio^b | z | 95% CI | | |
| Suicide attempt status (attempter/non-attempter) | 488 | 1.35 | 1.74 | 0.96 to 1.91 | 0.083 | |
| | N^a | Standardized Coefficient^b | df | t | | |
| Maximum lethality of suicide attempts | 38 | 0.30 | 32 | 1.423 | 0.163 | |
| Trait impulsivity Z-score – combined child and adult offspring | 450 | 0.10 | 234 | 2.2 | 0.025 | |
| Number of suicide attempts | 38 | 0.50 | 32 | 2.06 | 0.048 | |
| Intent of most lethal attempt | 33 | 2.49 | 30 | 3.30 | 0.003 | |
| Trait aggression | 159 | 0.30 | 95 | 0.61 | 0.541 | |
| Age at last assessment | 488 | -0.20 | 242 | -0.52 | 0.604 | |

| Parent Anxious Attachment | | N ^a | Hazard ratio ^b | z | 95% CI | p-value |
|--------------------------------------|--|----------------|---------------------------|-----|--------|--------------|
| Offspring Characteristic | | | OR ^b | df | t | |
| Sex | | 488 | 0.90 | 259 | -0.70 | 0.485 |
| Major depressive disorder | | 478 | 1.35 | 255 | 2.54 | 0.012 |
| Bipolar disorder | | 478 | 0.82 | 255 | -0.82 | 0.412 |
| Borderline personality disorder | | 344 | 1.11 | 207 | 0.39 | 0.695 |
| Physical and/or sexual abuse history | | 317 | 1.35 | 197 | 1.47 | 0.143 |

^a Cases where N<488 are due to missing data or non-attempter status.

^b Estimates are for 1 standard deviation difference in the parent attachment score