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Item Type	Journal article
Authors	Boyda, David;Feeters, Danielle Mc;Dhingra, Katie;Galbraith, Niall;Hinton, Danny
Citation	Boyda D., Feeters DM., Dhingra K., Galbraith N., Hinton D. (2017) 'Parental psychopathology, adult attachment and risk of 12-month suicidal behaviours', Psychiatry Research, 260 (1), pp. 272-278 doi: 10.1016/j.psychres.2017.11.084
DOI	<a href="https://doi.org/10.1016/j.psychres.2017.11.084">10.1016/j.psychres.2017.11.084</a>
Journal	Psychiatry Research
Download date	2025-05-18 14:23:59
License	<a href="https://creativecommons.org/licenses/by-nc-nd/4.0/">https://creativecommons.org/licenses/by-nc-nd/4.0/</a>
Link to Item	<a href="http://hdl.handle.net/2436/621016">http://hdl.handle.net/2436/621016</a>

# Author's Accepted Manuscript

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PII: S0165-1781(17)30745-X

DOI: <http://dx.doi.org/10.1016/j.psychres.2017.11.084>

Reference: PSY11031

To appear in: *Psychiatry Research*

Received date: 2 May 2017

Revised date: 6 September 2017

Accepted date: 28 November 2017

Cite this article as: David Boyda, Danielle Mc Feeters, Niall Galbraith, Danny Hinton and Katie Dhingra, Parental Psychopathology, Adult Attachment and Risk of 12-Month Suicidal Behaviours, *Psychiatry Research* <http://dx.doi.org/10.1016/j.psychres.2017.11.084>

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Parental Psychopathology, Adult Attachment and Risk of 12-Month Suicidal  
Behaviours

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**Background:** The mechanisms by which parental psychopathology and vulnerability to suicide is transmitted to offspring is not well understood. Parental psychopathology and behaviour may impact upon the normal emotional and psychological adjustment of their offspring in various ways. Research shows attachment insecurities may also be a key factor in the facilitation of suicidal behaviours. **Objective:** To examine adult attachment insecurities as a potential mediating pathway between parental psychopathology and 12-month suicidality. **Method:** The study utilized data from the National co-morbidity Survey-Replication (NCS-R, N=5692). Parental psychopathology was assessed using items from the Familial History of Psychiatric Disorders section of the NCS-R in conjunction with items designed to capture dimensions of attachment and suicidal behaviours. **Results:** Resultant analyses demonstrated specificity effects in that, parental psychopathology was associated with specific suicidal components through specific dimensions of attachment. **Discussion:** The results align with literature linking parental psychopathology to both attachment insecurities and risk of suicide. Crucially, this study bridges these research areas by presenting attachment insecurity as possible risk indicator and intervening factor between parental mental health and behaviour and specific indicators of suicide.

Keywords: parental psychopathology, attachment styles, suicide, logistic mediation

## 1. Introduction

Suicide is a leading cause of death worldwide (World Health Organisation, 2014). Yet research seeking to uncover the causes of suicide has made little advancement (Klonsky and May, 2014; O'Connor and Nock, 2014). Prior studies which have examined correlates of suicidal thoughts and behaviours have shown strong associations with mental illness (Luoma et al., 2014), impoverished interpersonal bonds (Sheftall et al., 2013; Van Orden et al., 2012), exposure to childhood trauma (Barbosa et al., 2014; Park et al., 2015) and household dysfunction (Felitti et al., 1998). Parental history of admission to a psychiatric hospital has also been found to be a strong predictor of suicidality in their adolescent and young adult offspring (Beautrais, 2002; Fergusson and Lynskey, 1995; Hawton et al., 2002; Stenager and

Qin, 2008). Furthermore, research shows familial clustering of suicidal behaviours (MacGregor et al., 2014), with a greater attributable risk evident for families with a combined history of death by suicide and psychiatric illness compared to families with a psychiatric illness only (Agerbo et al., 2002; Qin et al., 2002; Stenager and Qin, 2008).

That said, the mechanisms by which parental psychopathology and vulnerability to suicide are transmitted from parent to child are not well understood. However, it is thought that both direct and indirect pathways may influence the emotional and psychological development of the child (McLaughlin et al., 2012). Direct pathways include hereditary factors which are genetically inherited from parents and create a vulnerability to psychiatric illness (Gureje et al., 2011). Indirect pathways may involve many distal life circumstances (e.g. neglect, early family conflict) that can ultimately predispose a child to psychiatric presentations, maladaptive behaviours and compromised patterns of attachment. This in turn can impact upon the normal emotional and psychological adjustment of the child (Frey and Cerel, 2015; Mayes and Lewis, 2012; Weiner and Freedheim, 2003).

Contemporary studies suggest that attachment is a powerful construct by which to explain psychopathology (Shevlin et al., 2014). Research demonstrates that specific dimensions of attachment can predispose individuals to particular patterns of mental disorders (Mikulincer and Shaver, 2012) including suicide (Levi-Belz et al., 2013; Palitsky et al., 2013; Venta and Sharp, 2015; Violato and Arato, 2004; Zeyrek et al., 2009). One of the key principles of attachment theory is that early attachment relationships become the prototype or internal working model by which individual's judge later relationships, and are predictive of individual differences in cognition, behaviour, emotion regulation and feelings about the self and others (Bowlby, 2008, 1977). A positive internal working model is formed when the primary caregiver is responsive, trustworthy, and accessible, leading to a secure attachment development. Conversely, unfavorable interactions lead to a negative internal working model of others as unpredictable and unavailable, leading to anxious or avoidant attachment development (Bowlby, 2008). As such, if the child's attachment with their parent is undermined due to parental psychopathology, this is likely to also disrupt the child across many stage-salient milestones commensurate with the child's phase of psychological and social development. This may not only precipitate the onset of clinical or subclinical

phenomena in later life but also influence the acquisition and maintenance of stable and enduring relationships (Mayes and Lewis, 2012; Shorey and Snyder, 2006).

Empirical evidence demonstrates that adult romantic attachment patterns are typically informed by early experiences with parents (Fraley, 2002; Mikulincer and Shaver, 2016; Waters et al., 2000) and often correspond with memories of parenting in childhood (Riggs, et al, 3007; Ward, et al, 2006). Parental marital discord and parental drinking problems have both been linked to insecure romantic attachment in adulthood, especially avoidant attachment (Brennan et al., 1991; Brennan and Shaver, 1993). In addition, various aspects of family functioning including parental maltreatment in early life have found to be associated with different configurations of insecure adult attachment (Bakermans-Kranenburg and van IJzendoorn, 2009; Cicchetti and Lynch, 1993; Lutz and Hock, 1995). Bringle and Baby (1992) found that avoidant adult romantic attachment was associated with cold parenting styles and family problems in both childhood and adulthood, while Wilhelm, Gillis, and Parker (2016) found a relationship between neglectful parenting and preoccupied attachment among men.

Research suggests that attachment insecurities may be a key factor in the facilitation of suicide (Levi-Belz et al., 2013). Indeed, many of the features of insecure adult attachment styles, including a distorted sense of worth and an unmet need for belonging (Lessard and Moretti, 1998) have conceptual overlap with constructs such as thwarted belongingness, which are central to contemporary theories of suicide (Joiner et al., 2009; Van Orden et al., 2010, 2008). Interpersonal difficulties arising from maladaptive parenting or early adversity are also common amongst individuals who are suicidal (Hardt et al., 2006; Johnson et al., 2002).

That said, almost no systematic research has been conducted examining the etiological role of parental psychopathology on adult attachment insecurities and the subsequent association with suicidality (Sheftall et al., 2013). Moreover, studies which use attachment theory to help explain suicidality tend to combine thoughts, plan or behaviors into an overall composite variable or examine them in isolation. However, each of these components holds significant predictive value since they characterize differential intents. Consequently, the failure to separate suicide components may produce equivocal results

which many hinder the identification of distinct aetiological pathways, developmental trajectories, and treatment strategies (Stepp et al., 2008).

In lieu of this, the present study attempted to identify the comparative impact of each parent's psychopathology on the respondent's adult attachment style. Secondly, compare the influence of different insecure adult attachment styles on 12-month suicide ideation and suicide plans. The final aim was to ascertain whether insecure adult attachment represents an intermediary link between parental psychopathology and suicidality.

## **2. Methods**

### *2.1. Sample*

The current study employs a secondary data analysis of the National Comorbidity Survey-Replication (NCS-R). The NCSR is a nationally representative household survey of the prevalence and correlates of mental disorders among English-speaking adults aged 18 and over in the US. The NCS-R employed a complex survey design involving multi-stage area probability sampling. This necessitated the use of stratification, clustering and weighting to adjust for differential probabilities of selection within households, systematic nonresponse bias, and residual socio-demographic differences between the respondents (Ericsson et al., 2012). For further details on design and field procedures see Kessler et al, (2004).

The survey was administered in two parts. Part I included a core diagnostic assessment of all respondents ( $n=9282$ ). Part II was administered to a subset of 5692 participants who met the criteria for any lifetime core disorder in Part I along with a 1-in-3 probability subsample of other respondents. Part II included questions about mental health correlates such as childhood experiences and retrospective recall of parental psychopathology (Kessler et al., 2005; Kessler and Merikangas, 2004). Sample weights and stratification have been applied to all analyses. Part II sample weights were used considering that the data presented within this study relates specifically to Part II of the survey (NCS-R,  $N = 5692$ ).

### **2.2. Measures**

#### **2.2.1. Background variables**

The mediation model was adjusted for a range of demographic factors known to be associated with suicide. These included: age, gender, socioeconomic status (SES), and probable substance abuse. A proxy variable for low SES was created if individuals endorsed receipt of assistance from a government welfare program (0) "No", (1) "Yes". Probable substance abuse was determined through the following items: "Did you ever use alcohol or drugs so much that your family or friends worried about you or repeatedly complained about your use?", "[...] it caused repeated arguments or problems either with your family or friends, people at work or school, or with the police?", "[...] it often interfered with your responsibilities at work, at school, or at home?". A new variable was computed whereby positive endorsement of at least one item was indicative of probable substance abuse: (0) "No", (1) "Yes".

#### 2.2.2. Maternal and paternal internalizing disorders

Fourteen diagnostic items for each parent were used to identify the presence of internalizing disorders, specifically depression and anxiety as specified from the Familial History of Psychiatric Disorders section (Andreasen et al., 1977). Example depression items included: "During the years you were growing up, did [woman/man who raised the respondent] ever have periods lasting 2 weeks or more where [he/she] was sad or depressed most of the time?", and example anxiety items included: "During the time you were growing up, did [...] ever have periods of a month or more when [he/she] was constantly nervous, edgy, or anxious?" Individuals who endorsed at least one of the items for each of the respective disorders were coded as (1) indicating the likely presence of the disorder, or (0) indicating the absence of the disorder. This process was replicated to generate four new variables: maternal depression, maternal anxiety, paternal depression, paternal anxiety.

#### 2.2.3. Maternal and paternal externalizing disorders

Eleven diagnostic items from the aforementioned section were identified for each parent which determined the presence of behaviors indicative of substance abuse and antisocial behavior. Example substance abuse items included: "[...] did [woman/man who raised



respondent] ever get professional treatment for a substance problem?" Anti-social behavior items included: "Was [...] ever arrested or sent to prison?" or "Growing up, [...] did [woman/man] often get into physical fights". Continuous items were recoded into binary variables whereby endorsement of "a lot" response category was coded as (1) "Yes". Individuals who endorsed at least one of the items for each of the respective disorders were coded as (1) representing the likely presence of the disorder and (0) indicating the absence of the disorder. This resulted in four new variables: maternal substance abuse, maternal anti-social behavior, paternal substance abuse, and paternal anti-social behavior.

### 2.3. Attachment framework

Our study chose to investigate only insecure attachment styles since previous research has demonstrated that secure attachment is related to fewer internalizing and externalizing disorders both of which have also been implicated as risk factors for suicidal behaviour (Cooper et al., 1998; Florian et al., 1995; Paterson et al., 1995).

#### 2.3.1. *Fearful-avoidant*

Fearful-avoidant attachment was derived from one statement: "I am somewhat uncomfortable being close to others; I find it difficult to trust them completely and difficult to depend on them. I am nervous when anyone gets too close to me." Response options were: (1) "a lot like me", (2) "some", (3) "a little" and (4) "not at all". To ensure individuals exhibited specific attachment types, a binary variable was created whereby respondents who endorsed "a lot like me" were coded as: (1) "High Fearful Avoidant" or otherwise (0) "No".

#### 2.3.2. *Anxious-preoccupied*

A measure of anxious-preoccupied attachment style was derived from the following statement: "I find that others are reluctant to get as close as I would like; I often worry that people who I care about do not love me or won't want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away." This item was re-coded in the same manner as the previous attachment item: (1) "High Anxious-preoccupied" otherwise (0) "No".

### 2.3.3. Suicidal ideation and plans

To assess respondent's 12-month history of suicidal thoughts and plans, two items were extracted from the suicidality section. Specifically, "Have you ever made a plan for committing suicide in the last year?" and "Have you ever seriously thought about committing suicide in the past year?" We ensured both categories were mutually exclusive therefore the ideator group was only comprised of individuals who had thought about suicide but had not formulated a suicide plan or engaged in other forms of suicidal behaviour.

### 2.4. Analytic Plan

Latent constructs for both parents were created for internalizing and externalizing disorders using the eight new variables constructed from the Familial History of Psychiatric Disorders section. The model was estimated using the weighted least squares mean and variance adjusted estimator (WLSMV). Goodness of fit was assessed using a range of fit indices including the comparative fit index (CFI; Bentler, 1990) and the Tucker-Lewis Index (TLI; Tucker and Lewis, 1973). A nonsignificant  $\chi^2$  and values greater than .90 for the CFI and TLI are considered to reflect acceptable model fit. Additionally, the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) was reported, where a value less than .05 indicated close fit.

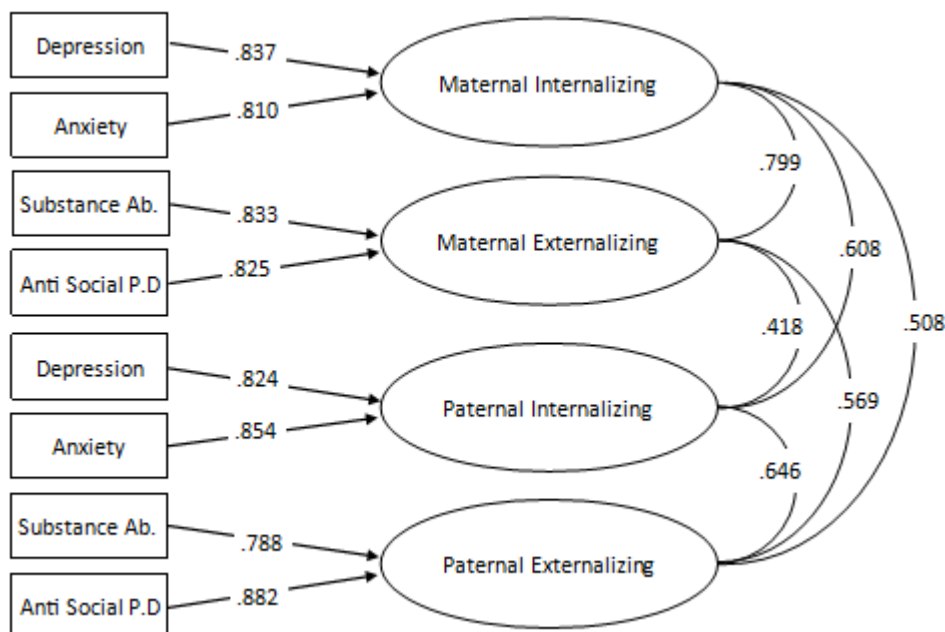
Factor scores were then calculated and extracted for use within a mediation model with dichotomous outcomes. Indirect effects were calculated using the product of two unstandardized paths linking the predictors (parental psychopathology) to the dependent variables (suicidal thoughts and behaviors) through the attachment mediators (e.g.  $a^1 \times b^1$ ). The mediation model was specified and estimated in Mplus 7.4 (Muthén and Muthén, 2016) using robust maximum likelihood (MLR) estimator to facilitate the estimation of odds ratios.

## 3. Results

Proportionally, females had a marginally higher representation than males ( $n=3020$ , 53%) and the mean age of the sample was 45 years. Almost twelve percent endorsed receipt of state benefits, while twenty-two percent of the sample indicated probable substance abuse

during their lifetime. Descriptive statistics and weighted percentages for all variables of interest are shown in Table 1.

Figure 1. Shows the Structural model.



The structural equation model evidenced good fit ( $\chi^2 = 38.371$ ,  $df = 14$ ,  $p = < 0.001$ , CFI = 0.994, TLI = 0.992, RMSEA = 0.017).

The results demonstrated significant relationships between maternal internalizing disorders and anxious-preoccupied attachment ( $B = 2.83$ , 95%CI=1.479– 4.199, OR = 17.0), and paternal externalizing disorders and anxious-preoccupation ( $B = 1.94$ , 95%CI=0.812 – 3.084, OR = 7.0). Respondents who reported paternal externalizing behaviours demonstrated an increased likelihood of having a fearful avoidant attachment style ( $B = 0.97$ , 95%CI=0.234 – 1.721, OR = 2.7). Significant relationships were observed between both fearful-avoidant attachment ( $B = 0.77$ , 95%CI=0.212 – 1.33, OR = 2.2) and anxious preoccupied attachment ( $B = 1.05$ , 95%CI=0.265 – 1.840, OR = 2.9) and 12-month ideation. The relationship between fearful avoidant attachment and plans for suicide was also significant ( $B = 1.73$ , 95%CI=0.824 – 2.642, OR = 5.7). Results are shown in Tables 2 and 3. Results from the mediated model showed fearful avoidant attachment mediated the relationship between paternal externalizing disorders and 12-month suicide plans ( $B = 1.689$ , 95%CI=0.178 – 3.200,  $P < 0.05$ ), whilst anxious-preoccupied attachment mediated the relationship between both maternal internalizing disorders ( $B = 2.988$ , 95%CI=0.335 –

5.215,  $P < 0.05$ ) and paternal externalizing disorders ( $B = 2.050$ ,  $95\%CI = 0.082 - 4.017$ ,  $P < 0.05$ ) and 12-month suicidal ideation. Results are shown in Table 4.

**Table 1.** Descriptive Statistics for all Variables of Interest.

Items	<i>N</i>	(%)
Maternal Depression	1345	(19.6)
Maternal Anxiety	1028	(13.6)
Maternal Substance abuse	464	(6.0)
Maternal anti-social behavior	595	(8.3)
Paternal Depression	572	(8.2)
Paternal Anxiety	428	(5.9)
Paternal Substance	1182	(17.0)
Paternal anti-social behaviour	1139	(17.0)
Fearful-avoidant attachment	575	(7.6)
Anxious-preoccupied attachment	167	(2.0)
Seriously thought about dying last year	118	(1.3)
Made plans to die by suicide last year	32	(0.4)

\*Unweighted *N*, Weighted %

**Table 2.** Direct Effects of Parental Psychopathology and Suicide Variables.

Items	12-month ideation	12-month plan
	O.R (95% CI)	O.R (95% CI)
Maternal Internalizing	1.56 (-0.166, 0.280)	1.50 (-0.365, 0.480)
Maternal Externalizing	0.63 (-0.242, 0.147)	1.11 (-0.382, 0.333)
Paternal Internalizing	0.22 (-0.307, 0.032)	13.4 (-0.160, 0.517)
Paternal Externalizing	2.56 (-0.064, 0.254)	0.30 (-0.488, 0.157)

Stratification and ample weights applied. O.R = Odds Ratio, 95% CI = 95% Confidence Internals, Model adjusted for: Age, Gender, SES and Substance abuse.

**Table 3.** Logistic Regression of Parental Psychopathology, Attachment and Suicide Variables.

Items	Fearful-avoidant	Anxious-preoccupied	12-month Ideation	12-month Plan
	O.R (95% CI)	O.R (95% CI)	O.R (95% CI)	O.R (95% CI)
Maternal internalizing	1.31 (-0.812, 1.346)	<b>17.0** (1.479, 4.199)</b>	1.45 (-1.482, 2.234)	1.89 (-2.271, 3.545)
Maternal externalizing	0.53 (-2.529, 1.256)	0.06 (-5.124, 0.381)	0.87 (-3.488, 3.098)	0.84 (-6.208, 5.867)
Paternal internalizing	0.53 (-1.775, 0.500)	0.12 (-0.391, 0.338)	0.27 (-3.692, 1.104)	17.4 (-0.660, 6.381)
Paternal externalizing	<b>2.7* (0.234, 1.721)</b>	<b>7.0** (0.812, 3.084)</b>	1.62 (-1.092, 2.060)	0.22 (-4.318, 1.339)
Fearful avoidant	--	--	<b>2.2** (0.212, 1.33)</b>	<b>5.7** (0.824, 2.642)</b>
Anxious preoccupied	--	--	<b>2.9** (0.265, 1.840)</b>	0.76 (-1.814, 1.265)

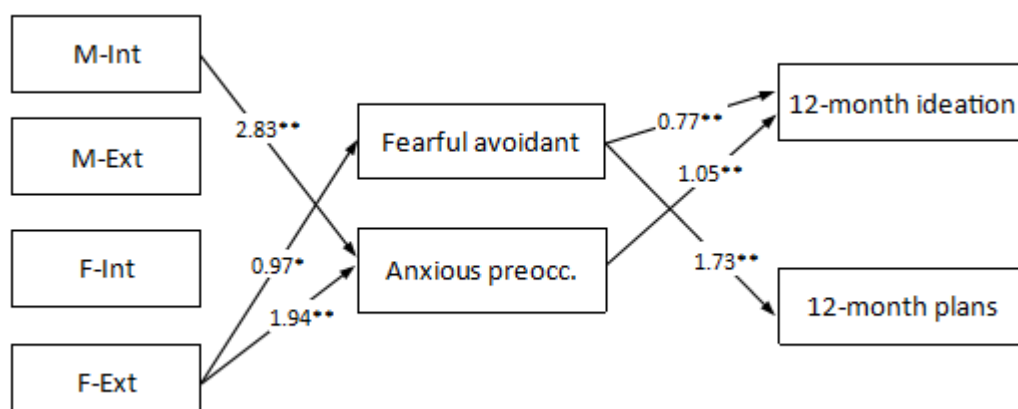
Stratification and sample weights applied, O.R = Odds ratios, Model adjusted for: Age, Gender, SES and Substance abuse, 95% CI= 95%Confidence Internals, \* = P <0.05, \*\*= P<0.001. Results in bold = Significant.

**Table 4.** Mediated effects defined as the product of two unstandardized paths linking X to Y through the mediators (e.g.  $a^1 b^1$ ).

From IV	To mediator	B	(S.E)	95% CI	To DV
Paternal externalising	Fearful	1.68*	(0.77)	<b>0. 178 – 3.200</b>	plans
Maternal internalising	Anxious	2.98*	(1.35)	<b>0.335 – 5.215</b>	ideate
Paternal externalising	Anxious	2.05*	(1.00)	<b>0. 082 – 4.010</b>	ideate

Stratification and sample weights applied. B = beta, (S.E) = Standard Error, 95% CI= 95% Confidence Internals, \* = P < 0.05. Results in bold = Significant.

Figure 2. Shows only the significant unstandardized estimates between parental disorders, adult attachment style, and suicide variables.



Stratification and sample weights applied, O.R = Odds ratios, Model adjusted for: Age, Gender, SES and probable Substance abuse, \* =  $P < 0.05$ , \*\* =  $P < 0.001$ , M-Int = Maternal internalising, M-Ext = Maternal externalising, F-Int = Paternal internalising, F-Ext = Paternal externalising. Anxious preocc. = Anxious preoccupied.

#### 4. Discussion

The degree to which early child-caregiver experiences may influence the future well-being of their offspring remains an important question, not least for improving our understanding of the social inheritance of clinical problems (Wan and Green, 2009). Most studies to date have primarily focused on the impact of maternal psychopathology and child rearing practices on attachment and the ensuing psychological well-being of their offspring. However, the current study aimed to pinpoint relationships between specific types of maternal and paternal psychopathology and specific types of attachment and suicidality. The second aim was to explore whether attachment helps to explain the relationship between maternal and paternal psychopathology and suicidality. Analyses revealed that the combination of the gender of the parent and type of parental psychopathology may be an important factor in the way in which attachment and suicidal behaviors manifest.

Results demonstrated a particularly strong relationship between maternal internalizing disorders and anxious-preoccupied attachment with individuals 17 times more likely to develop this attachment organization. In comparison, children of fathers with externalizing disorders were only 7 times more likely to develop this form of adult attachment. This disparity may be explained in part by evidence that suggests that children

identify with maternal figures more so than paternal figures due to more frequent and prolonged interactions; thus, children should be affected by maternal problems more so than paternal problems (Ohanessian et al., 2005). Accordingly, the normative psychological and emotional development of a child may be compromised if maternal internalizing disorders manifest since they may impede a mother's ability to parent in a warm, supportive, and consistent manner (Hammen et al., 1990). In fact, there is evidence to suggest that maternal internalizing disorders (e.g. depression) are strongly associated with inconsistent rule enforcement (Johnson et al., 2006). Since inconsistency in parenting is a key feature in the development of anxious attachment, and given that there is a degree of continuity in attachment throughout an individual's lifetime (Fraley, 2002; Waters et al., 2000), this may help to explain the strong relationship between recollection of maternal internalising disorders and anxious-preoccupied attachment in adulthood.

Paternal externalizing disorders were associated with both insecure attachment styles; however, a particularly strong relationship was observed with anxious-preoccupied attachment (OR = 7.0) compared to fearful avoidant (OR = 2.7). While it is difficult to delineate the precise reasons for the disparity in risk, prior studies have shown that different paternal psychiatric symptoms result in specific types of paternal behavior (Johnson et al., 2004). For instance, anti-social behaviors among fathers were found to be associated with low affection towards their child; whereas, substance abuse disorders were more likely to affect the time spent with their child and the quality of communication (Johnson et al., 2004). Adults with anxious attachments are also less likely to recall their father as being supportive in childhood than those with avoidant attachment (Feeney and Noller, 1990). As such, depending on the manifestation of the parental symptoms and the impact on different forms of parental behavior, this may ultimately determine the specific configuration of attachment insecurity which is formed. Research also shows that poor parenting styles composed of neglectful and controlling behaviors are associated with an anxious-preoccupied attachment style if both parents are perceived to parent in this style (Wilhelm et al., 2016). Therefore, plausibly, the distinction between attachment styles may be due, in part, to additive dyadic effects or by the moderating effects of one parent over another.

The results also showed that both attachment types were associated with suicidal ideation and plans, with the relationship between fearful attachment and 12-month suicidal plans conferring the highest risk (OR = 5.7). Both fearful and preoccupied attachment were also associated with ideation (OR = 2.2; OR = 2.9). The significance of these divergent pathways may be found within the internalized representation of self and others. For example, fearful avoidant attachment is characterized by negative thoughts of self and others; whereas, anxious-preoccupied attachment is characterized by negative thoughts only of self. Therefore, the valence of the underlying model of *other* may distinguish between these two patterns and the nature of associated suicidality in clinically relevant ways (Lessard and Moretti, 1998). Those with a negative model of self and others may typically avoid socially meaningful contact which can contribute to feelings of emotional pain and hopelessness. Social disconnectedness which is characteristic of fearful avoidant individuals is also a construct related to belongingness and has been shown to be associated with suicidal thoughts and behaviors (You et al., 2011). Conversely, preoccupied attachment is characterised by positive models of others, (Lessard and Moretti, 1998). This may help engender positive interpersonal relations, and buffer the effects of loneliness or isolation, and further progression along the pathway to suicidal enactment.

Finally, the findings confirmed the hypothesis that domains of attachment would mediate the associations between parental psychopathology and suicidality. Results showed that anxious-preoccupied attachment mediated maternal internalizing and paternal externalizing psychopathology on suicidal thoughts only, whilst fearful avoidant attachment mediated only the relationship between father externalizing disorders and suicide plans. Attachment theory has difficulty in accounting for divergent trajectories by which attachment styles lead to multiple outcomes (Egeland et al., 1996). That is, why one individual with a particular attachment style develops a particular outcome and another individual with the same attachment vulnerability develops differing outcomes. That said, considering the evidence, and given the varied ways in which parental psychiatric symptoms manifest in different forms of parental behavior, this may in turn influence the formation of specific attachment insecurities. From this, the disparity in the sense of self which helps to differentiate preoccupied from fearful attachment and the associated level of social



connectedness, may distinguish why some individuals only think about suicide while others progress to planning a suicide attempt.

The results of the current study also produced an unexpected finding. Researchers often test whether there is complete or partial mediation by testing whether the  $c'$  coefficient is statistically significant. This tests whether the association between the independent and dependent variable is completely accounted for by the mediator. However, scholars now argue significant tests for the total effect should not be used as a prerequisite for the test for the indirect effect, but, instead, stress the importance of confidence intervals over significance testing (Loeys et al., 2015; MacKinnon et al., 2000; Shrout and Bolger, 2002). Thus, there are several examples in published literature which an overall X to Y relation may be nonsignificant, yet mediation still exists as found in this study (MacKinnon et al., 2007, 2000).

#### **4.1. Limitations**

This study has several methodological limitations. First, cross-sectional analyses do not permit causal inferences. Therefore, it cannot be assumed that perceptions of parental psychopathology and behavior in childhood, causes attachment vulnerabilities or suicidality. The cross-sectional nature of the study also prohibits any statements concerning the stability or malleability of attachment styles across childhood to adulthood. Second, retrospective recall of early experiences may be subject to bias (e.g., denial of the severity of experiences, poor insight etc.) although research has found such reports of family dysfunction to be valid (Hardt and Rutter, 2004). Third, the measurement of attachment and suicidality was conducted using a minimal number of items which may not capture the true complexity of such experiences.

#### **4.2 Clinical implications and future research**

From a clinical perspective, an important stage of the therapy process involves understanding the origins of distal conflicts to better understand current dysfunction (Byng-Hall, 1995). By acknowledging the potential contributory role of parental psychopathology on the resultant parent-child relationship and the pervasive impact on the child's psychological well-being, this may constitute the initial foundation in which to explore and resolve long standing issues. Therefore, the present study adds support for existing

investigations that underscore the need for a family approach to the assessment of attachment for individuals presenting with suicidal thoughts and behaviors. Nonetheless, this area of research remains underdeveloped (Sheftall et al., 2013). Given the criticism of the utilised measure of attachment, future studies should not only seek to utilize more comprehensive measures of attachment and suicide but also seek to further disaggregate suicidal behaviors (e.g. plan and attempt).

## **5. Conclusions**

The findings from this study addressed several criticisms surrounding the comparative influence that each parent's psychopathology may have on offspring later attachment and suicide thoughts and plans. While attachment insecurities in isolation are unlikely to be sufficient causes of mental disorders including suicidality, it is plausible that they augment the effects of stressful life events, thus increasing the risk of psychopathology (Mikulincer and Shaver, 2012). That said, globally the findings contribute to a greater understanding of the mediating processes between parental psychopathology and offspring suicidality. More specifically, they demonstrate that particular pathways to suicidality may be contingent on the ways in which parental disorders manifest (i.e., in parental behavior), which subsequently impacts the developing attachment style (Santana et al., 2015).

### **Conflicts of interest**

No relevant conflicts of interest.

### **Role of the Funding source**

No funding has been obtained for this research.

### **Acknowledgements**

No acknowledgements necessary.

### **Authors' contributions**

Dr David Boyda conceptualised and designed the study as well as conducted the statistical analysis and contributed to the manuscript write up. Dr Danielle Mc Feeters assisted with the manuscript writing. Dr Niall Galbraith, Dr Danny Hinton and Dr Katie Dhingra provided critical feedback and assistance with proof reading.

## References

- Agerbo, E., Nordentoft, M., Mortensen, P.B., 2002. Familial, psychiatric, and socioeconomic risk factors for suicide in young people: nested case-control study. *Bmj* 325, 74.
- Ainsworth, M.D., 1989. Attachments beyond infancy. *Am. Psychol.* 44, 709–716.
- Andreasen, N.C., Endicott, J., Spitzer, R.L., Winokur, G., 1977. The family history method using diagnostic criteria. Reliability and validity. *Arch. Gen. Psychiatry* 34, 1229–1235.
- Anestis, M.D., Bagge, C.L., Tull, M.T., Joiner, T.E., 2011. Clarifying the role of emotion dysregulation in the interpersonal-psychological theory of suicidal behavior in an undergraduate sample. *J. Psychiatr. Res.* 45, 603.
- Bakermans-Kranenburg, M.J., van IJzendoorn, M.H., 2009. The first 10,000 adult attachment interviews: distributions of adult attachment representations in clinical and non-clinical groups. *Attach. Hum. Dev.* 11, 223–263. doi:10.1080/14616730902814762
- Barbosa, L.P., Quevedo, L., da Silva, G.D.G., Jansen, K., Pinheiro, R.T., Branco, J., et al. 2014. Childhood trauma and suicide risk in a sample of young individuals aged 14–35 years in southern Brazil. *Child Abuse Negl.* 38, 1191–1196. doi:10.1016/j.chiabu.2014.02.008
- Beautrais, A.L., 2002. A case control study of suicide and attempted suicide in older adults. *Suicide Life. Threat. Behav.* 32, 1–9. doi:10.1521/suli.32.1.1.22184
- Bentler, P.M., 1990. Comparative fit indexes in structural models. *Psychol. Bull.* 107, 238–246.
- Bowlby, J., 2008. *Loss - sadness and depression: attachment and loss*. Random House, London.
- Bowlby, J., 1977. *Maternal care and mental health*, Reprint. ed. Jason Aronson Inc. Publishers, Geneva, Switzerland.
- Brennan, K.A., Shaver, P.R., 1993. Attachment styles and parental divorce. *J. Divorce Remarriage* 21, 161–175. doi:10.1300/J087v21n01\_09
- Brennan, K.A., Shaver, P.R., Tobey, A.E., 1991. Attachment styles, gender and parental problem drinking. *J. Soc. Pers. Relatsh.* 8, 451–466.
- Bringle, R.G., Bagby, G.J., 1992. Self-esteem and perceived quality of romantic and family relationships in young adults. *J. Res. Personal.* 26, 340–356. doi:10.1016/0092-6566(92)90064-B
- Brown, T.A., 2006. *Confirmatory factor analysis for applied research, new ed edition*. ed. Guilford Press, New York.
- Byng-Hall, J. 1995. Creating a secure family base: Some implications of attachment theory for family therapy. *Family process*, 34(1), 45-58.
- Fraley, C. R., 2002. Attachment stability from infancy to adulthood: Meta-analysis and dynamic modeling of developmental mechanisms. *Personal. Soc. Psychol. Rev.* 6, 123–151. doi:10.1207/S15327957PSPR0602\_03

- Cicchetti, D., Lynch, M., 1993. Toward an ecological/transactional model of community violence and child maltreatment: consequences for children's development. *Psychiatry Interpers. Biol. Process.* 56, 96–118.
- Cooper, M.L., Shaver, P.R., Collins, N.L., 1998. Attachment styles, emotion regulation, and adjustment in adolescence. *J. Pers. Soc. Psychol.* 74, 1380–1397.
- Daniel, S.I.F., 2006. Adult attachment patterns and individual psychotherapy: A review. *Clin. Psychol. Rev.* 26, 968–984. doi:10.1016/j.cpr.2006.02.001
- Egeland, B., Pianta, R., Ogawa, J., 1996. Early behavior problems: Pathways to mental disorders in adolescence. *Dev. Psychopathol.* 8, 735–749. doi:10.1017/S0954579400007392
- Ericsson, N.S.-, Keel, P.K., Holland, L., Selby, E.A., Verona, E., Coughle, J.R., et al, 2012. Parental disorders, childhood abuse, and binge eating in a large community sample. *Int. J. Eat. Disord.* 45, 316–325. doi:10.1002/eat.20938
- Feeney, J.A., Noller, P., 1990. Attachment style as a predictor of adult romantic relationships. *J. Pers. Soc. Psychol.* 58, 281.
- Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., et al, 1998. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am. J. Prev. Med.* 14, 245–258.
- Fergusson, D.M., Lynskey, M.T., 1995. Suicide attempts and suicidal ideation in a birth cohort of 16-year-old New Zealanders. *J. Am. Acad. Child Adolesc. Psychiatry* 34, 1308–1317. doi:10.1097/00004583-199510000-00016
- Fisak, B., Grills-Taquechel, A.E., 2007. Parental modeling, reinforcement, and information transfer: Risk factors in the development of child anxiety? *Clin. Child Fam. Psychol. Rev.* 10, 213–231. doi:10.1007/s10567-007-0020-x
- Florian, V., Mikulincer, M., Bucholtz, I., 1995. Effects of adult attachment style on the perception and search for social support. *J. Psychol.* 129, 665–676.
- Frey, L.M., Cerel, J., 2015. Risk for suicide and the role of family a narrative review. *J. Fam. Issues* 36, 716–736. doi:10.1177/0192513X13515885
- Gureje, O., Oladeji, B., Hwang, I., Chiu, W.T., Kessler, R.C., Sampson, N.A., et al, 2011. Parental psychopathology and the risk of suicidal behavior in their offspring: results from the World Mental Health surveys. *Mol. Psychiatry* 16, 1221–1233. doi:10.1038/mp.2010.111
- Hammen, C., Burge, D., Stansbury, K., 1990. Relationship of mother and child variables to child outcomes in a high-risk sample: A causal modeling analysis. *Dev. Psychol.* 26, 24–30. doi:10.1037/0012-1649.26.1.24
- Hardt, J., Johnson, J.G., Courtney, E.A., Sareen, J., 2006. Childhood adversities associated with risk for suicidal behavior. *Psychiatr. Times* 23, 32–32.
- Hardt, J., Rutter, M., 2004. Validity of adult retrospective reports of adverse childhood experiences: review of the evidence. *J. Child Psychol. Psychiatry* 45, 260–273. doi:10.1111/j.1469-7610.2004.00218.x
- Hawton, K., Rodham, K., Evans, E., Weatherall, R., 2002. Deliberate self-harm in adolescents: self-report survey in schools in England. *Bmj* 325, 1207–1211.
- Hazan, C., Shaver, P., 1987. Romantic love conceptualized as an attachment process. *J. Pers. Soc. Psychol.* 52, 511–524.
- Johnson, J.G., Cohen, P., Gould, M.S., Kasen, S., Brown, J., Brook, J.S., 2002. Childhood adversities, interpersonal difficulties, and risk for suicide attempts during late adolescence and early adulthood. *Arch. Gen. Psychiatry* 59, 741–749.

- Johnson, J.G., Cohen, P., Kasen, S., Brook, J.S., 2006. Maternal psychiatric disorders, parenting, and maternal behavior in the home during the child rearing years. *J. Child Fam. Stud.* 15, 96–113. doi:10.1007/s10826-005-9003-z
- Johnson, J.G., Cohen, P., Kasen, S., Brook, J.S., 2004. Paternal psychiatric symptoms and maladaptive paternal behavior in the home during the child rearing years. *J. Child Fam. Stud.* 13, 421–437.
- Joiner, T., 2007. *Why people die by suicide*, 1 edition. ed. Harvard University Press, Cambridge, Mass.
- Joiner, T.E., Van Orden, K.A., Witte, T.K., Selby, E.A., Ribeiro, J.D., Lewis, R., et al, 2009. Main predictions of the interpersonal-psychological theory of suicidal behavior: empirical tests in two samples of young adults. *J. Abnorm. Psychol.* 118, 634–646. doi:10.1037/a0016500
- Kessler, R. C., Berglund, P., Chiu, W. T., Demler, O., Heeringa, S., Hiripi, E., et al, 2004. The US National Comorbidity Survey Replication (NCS-R): design and field procedures. *International journal of methods in psychiatric research*, 13(2), 69-92.
- Kessler, R.C., Berglund, P., Demler, O., Jin, R., Merikangas, K.R., Walters, E.E., 2005. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch. Gen. Psychiatry* 62, 593–602.
- Kessler, R.C., Merikangas, K.R., 2004. The National Comorbidity Survey Replication (NCS-R): background and aims. *Int. J. Methods Psychiatr. Res.* 13, 60–68.
- Kranzler, A., Fehling, K.B., Anestis, M.D., Selby, E.A., 2016. Emotional dysregulation, internalizing symptoms, and self-injurious and suicidal behavior: structural equation modeling analysis. *Death Stud.* 0, 1–9. doi:10.1080/07481187.2016.1145156
- Lessard, J.C., Moretti, M.M., 1998. Suicidal ideation in an adolescent clinical sample: attachment patterns and clinical implications. *J. Adolesc.* 21, 383–395.
- Levi-Belz, Y., Gvion, Y., Horesh, N., Apter, A., 2013. Attachment patterns in medically serious suicide attempts: The mediating role of self-disclosure and loneliness. *Suicide Life. Threat. Behav.* 43, 511–522.
- Loeys, T., Moerkerke, B., Vansteelandt, S., 2015. A cautionary note on the power of the test for the indirect effect in mediation analysis. *Front. Psychol.* 5. doi:10.3389/fpsyg.2014.01549
- Luoma, J.B., Martin, C.E., Pearson, J.L., 2014. Contact with mental health and primary care providers before suicide: a review of the evidence. *Am. J. Psychiatry.*
- Lutz, W.J., Hock, E., 1995. Maternal separation anxiety: relations to adult attachment representations in mothers of infants. *J. Genet. Psychol.* 156, 57–72. doi:10.1080/00221325.1995.9914806
- MacGregor, E.K., Grunebaum, M.F., Galfalvy, H.C., Melhem, N., Burke, A.K., Brent, D.A., et al, 2014. Depressed parents' attachment: effects on offspring suicidal behavior in a longitudinal, family study. *J. Clin. Psychiatry* 75, 879–885. doi:10.4088/JCP.13m08794
- MacKinnon, D.P., Fairchild, A.J., Fritz, M.S., 2007. Mediation analysis. *Annu. Rev. Psychol.* 58, 593. doi:10.1146/annurev.psych.58.110405.085542
- MacKinnon, D.P., Krull, J.L., Lockwood, C.M., 2000. Equivalence of the mediation, confounding and suppression effect. *Prev. Sci. Off. J. Soc. Prev. Res.* 1, 173.
- Mayes, L., Lewis, M., 2012. *The Cambridge Handbook of Environment in Human Development*. Cambridge University Press, Cambridge.

- McLaughlin, K.A., Gadermann, A.M., Hwang, I., Sampson, N.A., Al-Hamzawi, A., Andrade, L.H., et al, 2012. Parent psychopathology and offspring mental disorders: results from the WHO World Mental Health Surveys. *Br. J. Psychiatry* 200, 290–299. doi:10.1192/bjp.bp.111.101253
- Mikulincer, M., Shaver, P.R., 2016. Attachment in adulthood, second edition: structure, dynamics, and change. Guilford Publications, New York City.
- Mikulincer, M., Shaver, P.R., 2012. An attachment perspective on psychopathology. *World Psychiatry* 11, 11–15. doi:10.1016/j.wpsyc.2012.01.003
- Mikulincer, M., Shaver, P.R., 2010. Attachment in adulthood: structure, dynamics, and change. Guilford Press, New York.
- Muthén, L.K., Muthén, B.O., 2016. Mplus user's guide, fifth edition. ed. Muthen & Muthen, Los Angeles, CA.
- Ohannessian, C.M., Hesselbrock, V.M., Kramer, J., Kuperman, S., Bucholz, K.K., Schuckit, M.A., et al, 2005. The relationship between parental psychopathology and adolescent psychopathology: an examination of gender patterns. *J. Emot. Behav. Disord.* 13, 67–76.
- Palitsky, D., Mota, N., Afifi, T.O., Downs, A.C., Sareen, J., 2013. The association between adult attachment style, mental disorders, and suicidality: findings from a population-based study. *J. Nerv. Ment. Dis.* 201, 579–586. doi:10.1097/NMD.0b013e31829829ab
- Park, S., Hong, J.P., Jeon, H.J., Seong, S., Cho, M.J., 2015. Childhood exposure to psychological trauma and the risk of suicide attempts: the modulating effect of psychiatric disorders. *Psychiatry Investig.* 12, 171. doi:10.4306/pi.2015.12.2.171
- Paterson, J., Pryor, J., Field, J., 1995. Adolescent attachment to parents and friends in relation to aspects of self-esteem. *J. Youth Adolesc.* 24, 365–376. doi:10.1007/BF01537602
- Qin, P., Agerbo, E., Mortensen, P.B., 2002. Suicide risk in relation to family history of completed suicide and psychiatric disorders: a nested case-control study based on longitudinal registers. *Lancet Lond. Engl.* 360, 1126–1130. doi:10.1016/S0140-6736(02)11197-4
- Riggs, S.A., Paulson, A., Tunnell, E., Sahl, G., Atkison, H., Ross, C.A., 2007. Attachment, personality, and psychopathology among adult inpatients: self-reported romantic attachment style versus adult attachment interview states of mind. *Dev. Psychopathol.* 19, 263–291. doi:10.1017/S0954579407070149
- Santana, G.L., Coelho, B.M., Borges, G., Viana, M.C., Wang, Y.P., Andrade, L.H., 2015. The influence of parental psychopathology on offspring suicidal behavior across the lifespan. *PLoS ONE* 10, e0134970. doi:10.1371/journal.pone.0134970
- Sheftall, A.H., Mathias, C.W., Furr, R.M., Dougherty, D.M., 2013. Adolescent attachment security, family functioning, and suicide attempts. *Attach. Hum. Dev.* 15, 368–383. doi:10.1080/14616734.2013.782649
- Shevlin, M., Boyda, D., Elklit, A., Murphy, S., 2014. Adult attachment styles and the psychological response to infant bereavement. *Eur. J. Psychotraumatology* 5. doi:10.3402/ejpt.v5.23295
- Shorey, H.S., Snyder, C.R., 2006. The role of adult attachment styles in psychopathology and psychotherapy outcomes. *Rev. Gen. Psychol.* 10, 1.

- Shorey, H.S., Snyder, C.R., Yang, X., Lewin, M.R., 2003. The role of hope as a mediator in recollected parenting, adult attachment, and mental health. *J. Soc. Clin. Psychol.* 22, 685–715. doi:10.1521/jscp.22.6.685.22938
- Shrout, P.E., Bolger, N., 2002. Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychol. Methods* 7, 422–445. doi:10.1037//1082-989X.7.4.422
- Steiger, J.H., 1990. Structural model evaluation and modification: an interval estimation approach. *Multivar. Behav. Res.* 25, 173–180.
- Stenager, K., Qin, D.P., 2008. Individual and parental psychiatric history and risk for suicide among adolescents and young adults in Denmark. *Soc. Psychiatry Psychiatr. Epidemiol.* 43, 920–926. doi:10.1007/s00127-008-0385-2
- Stepp, S.D., Morse, J.Q., Yaggi, K.E., Reynolds, S.K., Reed, L.I., Pilkonis, P.A., 2008. The role of attachment styles and interpersonal problems in suicide-related behaviors. *Suicide Life. Threat. Behav.* 38, 592–607. doi:10.1521/suli.2008.38.5.592
- Tasca, G.A., Ritchie, K., Zachariades, F., Proulx, G., Trinneer, A., Balfour, L., et al, 2013. Attachment insecurity mediates the relationship between childhood trauma and eating disorder psychopathology in a clinical sample: a structural equation model. *Child Abuse Negl.* 37, 926–933. doi:10.1016/j.chiabu.2013.03.004
- Tucker, L.R., Lewis, C., 1973. A reliability coefficient for maximum likelihood factor analysis. *Psychometrika* 38, 1–10. doi:10.1007/BF02291170
- Van Orden, K.A., Cukrowicz, K.C., Witte, T.K., Joiner, T.E., 2012. Thwarted belongingness and perceived burdensomeness: construct validity and psychometric properties of the interpersonal needs questionnaire. *Psychol. Assess.* 24, 197–215. doi:10.1037/a0025358
- Van Orden, K.A., Witte, T.K., Cukrowicz, K.C., Braithwaite, S., Selby, E.A., Joiner Jr, T.E., 2010. The interpersonal theory of suicide. *Psychol Rev* 117, 575–600.
- Van Orden, K.A., Witte, T.K., Gordon, K.H., Bender, T.W., Joiner, T.E., 2008. Suicidal desire and the capability for suicide: tests of the interpersonal-psychological theory of suicidal behavior among adults. *J. Consult. Clin. Psychol.* 76, 72–83. doi:10.1037/0022-006X.76.1.72
- Venta, A., Sharp, C., 2014. Attachment organization in suicide prevention research. *Crisis.* 35 (1), 60–66.
- Violato, C., Arato, J.E., 2004. Childhood attachment and adolescent suicide: a stepwise discriminant analysis in a case-comparison study. *Individ. Differ. Res.* 2, 162–168.
- Wan, M.W., Green, J., 2009. The impact of maternal psychopathology on child–mother attachment. *Arch. Womens Ment. Health* 12, 123–134.
- Ward, M.J., Lee, S.S., Polan, H.J., 2006. Attachment and psychopathology in a community sample. *Attach. Hum. Dev.* 8, 327–340.
- Waters, E., Merrick, S., Treboux, D., Crowell, J., Albersheim, L., 2000. Attachment security in infancy and early adulthood: a twenty-year longitudinal study. *Child Dev.* 71, 684–689. doi:10.1111/1467-8624.00176
- Weiner, I.B., Freedheim, D.K., 2003. *Handbook of psychology, developmental psychology.* John Wiley & Sons, New Jersey.
- Wilhelm, K., Gillis, I., Parker, G., 2016. Parental bonding and adult attachment style: the relationship between four category models. *Int J Womens Health Wellness* 2, 016.

You, S., Van Orden, K.A., Conner, K.R., 2011. Social connections and suicidal thoughts and behavior. *Psychol. Addict. Behav. J. Soc. Psychol. Addict. Behav.* 25, 180–184.  
doi:10.1037/a0020936

Zeyrek, E.Y., Gençöz, F., Bergman, Y., Lester, D., 2009. Suicidality, problem-solving skills, attachment style, and hopelessness in Turkish students. *Death Stud.* 33, 815–827.  
doi:10.1080/07481180903142407

#### Highlights

- We bridge research areas using logistic mediation
- Parental psychopathology, attachment style and suicidality
- Results show specificity effects with different forms of psychopathology linked to differing types of suicidality via differing types of attachment.
- This is a vastly under researched area and this study adds and extends the research within this area.