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## Suicidal ideation among French adolescents: Separation anxiety and attachment according to sex

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title: Suicidal ideation and affective insecurity during adolescence

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Authors: **C.Potard, C. Combes & F. Labrell**

Revue : **The Journal of Genetic Psychology**

### **Abstract**

The present study explored the links between the quality of adolescents' attachment to their mother and their father, separation anxiety and suicidal ideation. Self-report questionnaires were completed by French adolescents ( $n = 455$ ;  $M_{\text{age}} = 15.78$  years,  $SD = 1.61$ ) to probe their attachment styles, separation anxiety (related to school phobia, a secure base, and family members), and suicidal ideation. *Avoidantly* attached adolescents displayed greater school phobia than securely attached adolescents. Female adolescents with an *avoidant* attachment to their father tended to report less fear related to family members than their secure counterparts. Male adolescents who were insecurely attached to their mother reported more separation anxiety than securely attached males. The structural models were significant for both boys and girls ( $R^2 = .38$  and  $.44$ ,  $p < .001$ ) with good fit indices. Mediation analyses revealed that separation anxiety partially mediated the negative effect of attachment to mother (especially alienation) on suicidal ideation for both girls and boys, and partially mediated the negative effect of attachment to father (especially alienation) on suicidal ideation for boys. These results support an individuated conception of attachment patterns, with a differential influence of dyadic relationships, and could provide a better understanding of adolescents' suicidal ideation.

*Keywords:* attachment; suicidal ideation; separation anxiety; adolescence

Page 3 of 41

title: Suicidal ideation and affective insecurity during adolescence

## **Introduction**

In Europe, suicidal ideation and behaviors in adolescence are a significant public health problem, as suicide represents the second leading cause of death among 15- to 25-year-olds (WHO, 2014). In France, attempted suicides are especially high among the young (7.60 per 100 000; WHO, 2014). France has the third highest suicide rate in Europe. The prevalence of suicidal ideation in adolescence is approximately 30% (UNICEF, 2014). The continuum of suicidality runs from suicidal ideation or communication to attempting or completing suicide (Bridge et al., 2006; Miranda & Shaffer, 2013). *Suicidal ideation* refers to thoughts and cognitions about ending one's life. A close link has been established between the severity of suicidal thoughts and the risk of attempting suicide (Czysz & King, 2013; Lewinsohn et al., 1996; Reinherz et al., 2006).

## **Separation-individuation process and parental attachment in adolescents**

Suicidality in adolescence needs to be understood in a developmental context (Daniel & Goldston, 2009; Vander Stoep et al., 2009), and more specifically from a separation-individuation perspective (Blos, 1971; Demirdis & Celik, 2013; Feldman & Wilson, 1997; Meeus et al., 2005; Quintana & Kerr, 1993). *Separation-individuation* refers to the development of independence and autonomy in the context of relationships with significant others, such as parents (Mattanah et al., 2004). According to Blos (1971), adolescents disinvest (i.e., disengage) from prior infantile representations of their parents, and search for new external and extrafamilial objects (i.e., independence; Kaplan, 1978; Kroger, 1998). During this ambivalent process, adolescents establish autonomous ego functions and, at the same time, maintain a sense of connectedness to their parents (i.e., no rupture, maintaining positive family bonds; Aquilino, 1997). It is a developmental challenge, as

title: Suicidal ideation and affective insecurity during adolescence

adolescents' successful acquisition of autonomy is thought to determine their wellbeing and social adjustment (Allen & Hauser, 1994; Holmbeck & Leake, 1999; Lapsley & Edgerton, 2002; Mattanah et al., 2004; Ponappa, et al., 2014). The conflictual dimension of parent-adolescent relationships stems from difficulty achieving independence from one's mother or father (Boeninger et al., 2006; de Jong, 1992). When they encounter separation-individuation problems, adolescents may develop forms of either dysfunctional dependence, such as separation anxiety disorder or attachment anxiety, or dysfunctional independence, such as attachment avoidance (Kins et al., 2012).

Kaplan and Worth (1993) claimed that the psychological separation process and its inherent difficulties also need to be understood in terms of the developmental process of attachment in adolescence (e.g., Armsden & Greenberg, 1987; Booth-LaForce et al., 2014; Hock et al., 2001; Kins et al., 2012). According to attachment theory (Bowlby, 1969; Bretherton, 1985), during infancy, the movement of detachment and the creation of new relationships are determined in part by the style of parental attachment (i.e., psychological security derived from relationships with significant others). Attachment theory suggests that attachment security derives from children's sense that the attachment figure is available or accepting when needed, and supports autonomy, exploration, and individuation (Ainsworth, 1979; Bowlby, 1969). Conversely, an insecure attachment style characterizes people who are insensitive, inconsistent, or have had abusive parenting experiences. Attachment security in adolescence can be defined as a lasting affectionate bond with parents, based on general feelings of security, trust, and positive communication (Armsden & Greenberg, 1987). Once an internal working model has been established in infancy, a person tends to perceive future events through the filter of that model. Finally, some dysfunctional parenting behaviors lead to specific forms of *insecure (avoidant or ambivalent)* attachment (Koehn & Kerns, 2018).

Unresponsive and rejecting parenting leads to *avoidant attachment*, while inconsistent

title: Suicidal ideation and affective insecurity during adolescence

parenting in terms of providing warmth and emotional and autonomy support leads to *ambivalent* attachment (for a recent synthesis, see Koehn & Kerns, 2018). Previous studies have established that attachment is relatively stable from childhood to adolescence (e.g., Jones et al., 2018).

Children with a *secure* attachment style should be comfortable with both separation and intimacy renegotiation in adolescence (Groh et al., 2014; Scharf et al., 2004). As far as we know, very few studies have empirically tested this hypothesis (Mayseless et al., 1996; Mayseless & Scharf, 2009). These have reported that *secure* attachment is characterized by higher psychological independency from parents, and *insecure* attachment by greater dependency (Ponappa et al., 2014). These initial results suggested that children who have internalized positive mental representations of parents can more successfully resolve the second individuation process in adolescence (Holmbeck & Leake, 1999).

### **Parental attachment and suicidality in adolescents**

Suicidality among young people should be understood in terms of a psychological separation process and the parent-adolescent relationship. Research has underlined the importance of parental bonds in suicidal symptomatology in the transitional period between childhood and adulthood (Gouveia-Pereira et al., 2014; Lobo Prabhu et al., 2010). For example, studies have found that a negative father-child relationship is an especially significant risk factor for suicidal behavior in adolescents (Cero & Sifers, 2013; Sheftall et al., 2013). These initial results are encouraging for understanding adolescent suicidality in the context of family relationships (Lobo Prabhu et al., 2010), even if attachment in adolescence has received less empirical investigation.

Previous research has also highlighted significant relations between the quality of attachment (e.g., *insecure* attachment) and internalizing symptoms (for a review, see Groh et al., 2012), such as suicidal behaviors (e.g., de Jong, 1992; Frey et al., 2006; Stepp et al., 2010;

title: Suicidal ideation and affective insecurity during adolescence

Zortea et al., 2019) or different types of anxiety (e.g., Achtergrade et al., 2015; Colonnese et al., 2011) in adolescence. *Insecure* attachment, especially *ambivalent* attachment, was found to be significantly associated with a higher risk of suicidal ideation and attempts in a clinical sample of adolescents (Adams et al., 1996; Lessard & Moretti, 1998; Sheftall et al., 2013), while Manassis (2001) theorized that the *insecure* children display different types of anxiety: social phobia for *avoidant* and disorganized children, and separation anxiety for *ambivalent* children. Moreover, Roberto et al. (2009) suggested that adolescent satisfaction with the mother or father is related to attachment anxiety. *Attachment anxiety* is characterized by a strong desire for closeness in relationships and intense fear of rejection and abandonment (Jones et al., 2014).

### **Parental attachment and separation anxiety in adolescents**

As mentioned above, psychological separation from one's parents constitutes a major life transition and contributes to the construction of autonomy during adolescence (Beyers et al., 2003; Koepke & Denissen, 2012; Kroger, 1998). This transition can be viewed as an autonomy process, both for adolescents and their parents (Frank et al., 1990; Hock et al., 2001; Kins et al., 2012). In this context, adolescents can experience separation anxiety. *Separation anxiety* was defined by Levine and colleagues (1986) as having strong fears of losing contact with significant others, whether these feared separations are actual or perceived. It has been established that adolescents with higher separation anxiety exhibit fear of loss, social maladjustment, anxiety, and insecurity (e.g., Eliezer, 2012; Hock, 2001; Kins, 2011). Here, worries predominantly concern separation (or the possibility of being away) from attachment figures, as well as events befalling them (APA, 2013). A recent study underlined that individuals with an *ambivalent* attachment style tend to have higher levels of separation anxiety (Mabilia et al., 2019). However, the effect of separation anxiety on suicidality remains unclear. Some studies have suggested that separation anxiety is associated

title: Suicidal ideation and affective insecurity during adolescence

with higher suicidal ideation (Gould et al., 1998; Strauss et al., 2000) and attempts (Gould et al., 1998), but others have failed to find any link with suicide attempts (Strauss et al., 2000) or, more broadly, with suicide-related behaviors (Hill et al., 2011) in clinical adolescent samples. To our knowledge, no studies have specifically investigated the role of separation anxiety role in suicidality in a nonclinical sample.

### **Role of fathers' and mothers' attachment styles**

Regarding attachment relationships in adolescence, surprisingly little research has examined the differential influence of attachment to mother versus father on adolescent wellbeing or included assessments of both mothers and fathers. Father-child and mother-child attachments seem to have the same influence, although there have been very few studies of the former (Brumariu & Kerns, 2010a). This lack of knowledge is due to the fact that the majority of attachment research has focused on attachment to mother, minimizing the fathers' contribution to attachment.

Furthermore, most authors have failed to consider the fact that patterns of interaction in family relationships depend on the sex of both the parent and the adolescent (Hoeve et al., 2011; Russel & Saebel, 1997). For example, studies have shown that girls report more attachment security with mothers and fathers during adolescence than boys do, although these conclusions are controversial (Ruhl et al., 2015). According to Steinberg (1987) the separation-individuation process would be better described if four parent-adolescent dyads were taken into account: boys versus girls, each in relation to mothers versus fathers. The development of autonomy follows different pathways for girls and boys, especially in adolescence (Geuzaine et al., 2000; Sandhu, 2014; Stolz et al., 2005): for girls, emotional and cognitive processes serve as a means of disengaging themselves from their parents, whereas for boys, they serve as a means of maintaining relationships with them (Eliezer et al., 2012; Geuzaine et al., 2000).

title: Suicidal ideation and affective insecurity during adolescence

## The present study

Although some attachment-based family therapy for suicidal adolescents exists (e.g., Ewing et al., 2015), relatively few empirical studies of adolescents' suicidal thoughts have specifically focused on attachment relationships, separation anxiety, or parent–adolescent dyads. The aim of the present study was thus to understand suicidal ideation as a potential way for an adolescent to express the failure of the autonomy process. Suicide can be conceptualized as a response to loss, separation, or abandonment-separation disturbances (Feldman & Wilson, 1997). Furthermore, difficulty with the second process of separation-individuation, expressed by separation anxiety, may be related to *insecure* attachment and suicidality signs and symptoms during adolescence (see Fig. 1). Attachment status may also moderate the effect of separation distress. We therefore set out to test how separation anxiety mediates the relationship between the quality of attachment and suicidal ideation in a sample of French adolescents. More specifically, we hypothesized that both attachment to mother (H1) and attachment to father (H2) have direct effects on suicidal ideation, and that these direct effects are mediated by separation anxiety (H3). Given previous research, it seemed appropriate to use dyads (same-sex and opposite-sex parent-adolescent dyads) to consider suicidal ideation in relation to attachment and family dynamics. First, we tested whether the style of attachment to father or mother and separation anxiety significantly explained suicidal ideation, considering girls and boys separately. Second, we tested whether separation anxiety mediated the links between parental attachment and level of suicidal ideation, again considering girls and boys separately.

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## Methods

### *Participants*



title: Suicidal ideation and affective insecurity during adolescence

After excluding students with three or more missing values on the questionnaires ( $n = 56$ ), our sample included 455 participants: 68.6% were girls ( $n = 312$ ) and 31.4% were boys ( $n = 143$ ). Participants were French adolescents aged 12.0-18.0 years, with a mean age of 15.78 years ( $SD = 1.61$ ). Boys and girls differed significantly on age ( $M_{age} = 15.69$ ,  $SD = 1.60$  for girls, and  $M_{age} = 16.07$ ,  $SD = 1.62$  for boys,  $t(453) = -2.027$ ,  $p = .04$ ). School levels were as follows: middle school ( $n = 194$ , 42.6%), high school ( $n = 189$ , 41.5%), and first year of university ( $n = 72$ , 15.82%). The majority of the adolescents sampled lived in urban areas (53.70%,  $n = 245$ ), 14.8% ( $n = 67$ ) in peri-urban areas, and 31.5% ( $n = 143$ ) in rural areas.

In our sample, 1.2% ( $n = 5$ ) of adolescents reported that for various reasons (e.g., death, family breakdown, unknown mother or father), they had no contact with their father, and .2% ( $n = 1$ ) reported that they had no contact with their mother. These adolescents did not complete the attachment measure for the absent parent. As parental death was a potential bias, only students whose parents were both still alive were included in our study.

### ***Instruments***

Participants completed three measures of specific psychological constructs with the following self-report questionnaires:

*Inventory of Parent and Peer Attachment.* Quality of attachment to each parent was measured using the French version of the Inventory of Parent and Peer Attachment (IPPA; Vignoli & Mallet, 2004). This measure assesses three aspects of attachment: Trust (10 items), Communication (9 items), and Alienation (6 items). *Trust* refers to the adolescents' trust that parents understand and respect their needs and desires, *Communication* assesses the extent and quality of verbal communication, and *Alienation* refers to adolescents' feelings of anger and interpersonal alienation in attachment relationships with their parents. Respondents rate each item on a 5-point scale ranging from 1 (*Never true*) to 5 (*Always true*). A total attachment security score is computed by summing the Trust and Communication subscores

title: Suicidal ideation and affective insecurity during adolescence

and subtracting the Alienation subscore. Vivona (2000) proposed an attachment style classification, making a distinction between *secure*, *avoidant* and *ambivalent* insecure styles. Individuals with higher scores on Alienation than on Trust or Communication are classified as *avoidant*, and those with lower scores on Trust than on Communication or Alienation are classified as *ambivalent* (Guarnieri et al., 2010). Although the IPPA was designed to obtain continuous ratings of each of the three attachment patterns, it can also be used as a categorical measure of attachment. In the present study, internal consistency (alpha) coefficients for the IPPA's three subscales ranged from .86 to .91. Cronbach's alpha coefficients for Trust, Communication, and Alienation were .92, .86, and .70 for mothers, and .91, .84, and .68 for fathers.

*Separation Anxiety Symptom Inventory* (SASI; Brandibas et al., 2010). Participants completed the SASI, a 15-item self-report measure of separation anxiety symptoms. It can be used clinically to identify intrusive anxious symptomatology and difficulties in parent-child relationships. The SASI consists of three subscales: 1) School phobia, 2) Distress at being away from a secure base, and 3) Fear of harm befalling family members. The items are each rated on a Likert scale ranging from 0 (*I never had this feeling*) to 3 (*This feeling occurred very often*) and are summed to yield a total score. Higher scores indicate a higher level of anxiety. The SASI is a valid measure of separation anxiety for the developmental periods of mid-to-late adolescence. In the present study, Cronbach's alpha showed good internal consistency ( $\alpha = .73$  to  $.86$ ).

The French version of the *Suicidal Ideation Questionnaire* (SIQ-Fr; Potard et al., 2014). This is a self-report measure of specific thoughts and cognitions about suicide and death during the past month. Each of its 30 items is rated on a 7-point scale ranging from 0 (*Never had any thoughts*) to 6 (*Almost every day*). Each item deals with a specific suicidal thought (e.g., "I thought about how others would feel if I killed myself", "I thought that

title: Suicidal ideation and affective insecurity during adolescence

killing myself would solve my problems”). It was not designed to predict suicide, but to identify a broader range of individuals who have thoughts of death. Total scores range from 0 to 180, with higher scores indicating more severe suicidal ideation. This scale has good psychometric properties (Potard et al., 2014). In our study, Cronbach’s alpha was .94.

### ***Procedure***

After obtaining the permission of the school and university administrators, and the informed consent of the students (or their parents if they were aged under 18 years), we emailed individual invitations with links to the questionnaires in the form of an online survey. All the data were collected via the self-administered questionnaires. We explained the procedure for each questionnaire, emphasizing the confidentiality and anonymity of the data. The response rate was 68.3 percent for female adolescents and 54.8 percent for male adolescents.

### ***Statistics***

We performed Student’s *t* and chi-squared tests to compare the girls and boys on their group means for the different measures used in this study. We then assessed the links between students’ attachment to their mother and to their father (Trust, Communication, Alienation) and separation anxiety (School phobia, Distress at being away from a secure base, and Fear of harm befalling family members) in suicidal ideation using Pearson correlation coefficients. We used analyses of variance (ANOVAs) to compare attachment style (categorical variable), suicidal ideation, and separation anxiety separately for each sex. When ANOVAs yielded significant results, we ran Bonferroni post hoc comparisons to test the group contrasts (between *secure*, *ambivalent* and *avoidant* attachment). Finally, we conducted a mediation analysis using partial least-squares structural equation modeling (consistent PLS-SEM) for latent variable analysis with a bias-corrected nonparametric percentile bootstrap method. Direct and indirect effects were tested, based on 5000 bootstrap samples with 95% confidence

title: Suicidal ideation and affective insecurity during adolescence

intervals. To demonstrate the adequacy of the PLS model, high  $R^2$  and significant structural paths have to be demonstrated. The bootstrap procedure provides  $t$  values of the path coefficient in the model and indicates whether the path is statistically significant ( $t > 1.96$  for two-tailed tests; Hair et al., 2017, 2018). We used three other suggested fit indices (Leguina, 2013): variance inflation factor (VIF), effect sizes ( $f^2$ ), cross-validated redundancy ( $Q^2$ ), and variance accounted for (VAF). The standardized root mean square residual (SRMR) and the normalized fit index (NFI) were also examined. Statistical analyses were carried out using SPSS® version 23 and SmartPLS® version 3. We adopted the conservative strategy of only considering coefficients that were statistically significant at  $p < .05$ .

## Results

### *Relations between attachment, separation anxiety, and suicidal ideation*

The distribution of maternal and paternal attachment styles in our sample is shown in Table 1. The chi-squared test showed nonsignificant differences in both male and female adolescent groups on style of attachment to mother ( $\chi^2 = 1.524, p = .467$ ), and a significant difference on style of attachment to father ( $\chi^2 = 6.869, p < .05$ ). Table 2 shows mean scores, standard deviations and sex differences on suicidal ideation, attachment and separation anxiety scores.

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Table 2 also reports correlation coefficients between the dimensions of separation anxiety, attachment to each parent, and suicidal ideation scores. All correlations were significant, for both sexes, with  $r = -.25$  to  $.46, p < .001$  for girls, and  $r = .20, p < .05$  to  $-.49, p < .001$  for boys.

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title: Suicidal ideation and affective insecurity during adolescence

Concerning the correlations between separation anxiety scores and attachment dimensions, for girls they were significant for Trust ( $r = -.16, p < .01$  for maternal trust;  $r = .19, p < .001$  for paternal trust) and Alienation ( $r = .23, p < .001$  for maternal alienation;  $r = .17, p < .01$  for paternal alienation). Negative correlations were also found between paternal communication and Fear of harm befalling family members ( $r = -.16, p < .01$ ) and School phobia ( $r = -.13, p < .05$ ). For boys, School phobia was significantly correlated with all paternal and maternal attachment dimensions (with  $r = -.40-.33, p < .01$ ). For boys only, Distress at being away from a secure base was linked to Alienation ( $r = .29, p < .01$  for maternal alienation;  $r = .22, p < .05$  for paternal alienation).

### ***Comparisons between suicidal ideation and separation anxiety scores according to attachment style***

To determine differences between attachment styles on suicidal ideation and separation anxiety scores, we ran separate ANOVAs for girls and boys. Means and standard deviations are presented in Table 3. Contrasted group validity was investigated by comparing the SIQ-Fr and SASI scores of *secure*, *ambivalent* and *avoidant* adolescents, with post hoc comparisons indicating significant differences between groups. The SIQ-Fr score was significantly higher among the *ambivalent* and *avoidant* adolescents than among *Secure* adolescents. With respect to separation anxiety, among the sample of girls, a significant ANOVA was found for School phobia and attachment to mother, and a trend toward significance for attachment to father: adolescents with an *insecure (avoidant)* style had a higher score than adolescents with *secure* attachment (see Table 3 for details). In addition, for attachment to father, we noted a trend toward a significant difference between *secure* and *avoidant* girls on Fear of harm befalling family members. Female adolescents with an *avoidant* attachment to father tended to have higher score on this subdomain than *secure* girls. Boys with *insecure (ambivalent or avoidant)* attachment to their father scored significantly

higher on School phobia than the *secure* group. For maternal attachment, only *avoidant* adolescents scored significantly higher on School phobia than *secure* adolescents. Finally, male adolescents with *insecure* (*ambivalent* or *avoidant*) attachment to mother scored significantly higher on Distress at being away from a secure base than those in the *secure* group.

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### ***Examination of mediating effects***

The structural model was assessed in terms of the collinearity among the set of constructs, coefficient of determination ( $R^2$  adjusted value), significance of path coefficients, effect size ( $f^2$ ), and predictive relevance ( $Q^2$ ). First, we checked the structural model for collinearity issues, by examining the VIF values of all the sets of predictor constructs in the structural model. The VIF values for the set of independent variables on suicidal ideation ranged from 1.09 to 3.00 for girls and from 1.05 to 2.52 for boys, and were below the cut-off threshold of 5 for multicollinearity (Hair et al., 2017, 2018).

Figures 2 and 3 shows the adjusted  $R^2$  values of suicidal ideation and separation anxiety, explaining 39% and 10% (for girls) and 44% and 34% (for boys) of the variance. Falk and Miller (1992) proposed a value of .10 as the minimum acceptable level, and  $R^2$  values were above this threshold for all the endogenous latent variables. Chin (1998) classified  $R^2$  levels as *weak* (.19), *moderate* (.33), or *substantial* (.67). The path analysis diagram is also provided in Figures 2 and 3. The significance of path coefficients was examined by performing the nonparametric bootstrapping procedure of 5 000 resamples, as recommended by Hair et al. (2017, 2018). Classically, a standardized  $\beta$  coefficient below .20 is considered

title: Suicidal ideation and affective insecurity during adolescence

nonsignificant (Chin, 1998). For girls, attachment to mother was significantly positively related to suicidal ideation ( $\beta = .28, t = 2.18, p < .05$ ) and anxiety separation ( $\beta$

Page 15 of 41

$=.30, t = 2.58, p < .01$ ). Attachment to father was significantly negatively related to suicidal ideation ( $\beta = -.25, t = 1.97, p < .05$ ), but not to separation anxiety ( $\beta = -.04, t = .72, ns$ ). It should be noted that the standardized coefficients from attachment to father for girls have a negative value towards Separation Anxiety and Suicidal Ideation (see Figure 2), while those of attachment to the mother (girls and boys) and to father (boys) are positive. This is due to the fact that, in the first case, the attachment is one of good quality (cf. the values of Trust and Communication), contrary to what happens in the latter situations (cf. the values of Alienation). The attachment dimensions that contributed the most were Alienation for maternal attachment, and Trust for paternal attachment. The relationship between separation anxiety and suicidal ideation was significant ( $\beta = .31, t = 2.74, p < .01$ ).

For boys, attachment to mother was nonsignificantly related to suicidal ideation ( $\beta = .14, t = 1.59, ns$ ), but significantly positively related to separation anxiety ( $\beta = .39, t = 3.54, p < .001$ ). Attachment to father was significantly related to both suicidal ideation ( $\beta = .24, t = 1.98, p < .05$ ) and separation anxiety ( $\beta = .25, t = 1.98, p < .05$ ). Alienation was the dimension that contribute the most for both maternal and paternal attachment.

As an extra test, we examined effect size ( $f^2$ ) and predictive relevance ( $Q^2$ ). The  $f^2$  values for each relationship are summarized in Table 4. These values exceeded the minimum threshold of .02 recommended by (Chin, 1998, 2010). In addition, to assess the model's predictive capability, we performed a blindfolding procedure to report the value of  $Q^2$  (Chin, 1998, 2010). The  $Q^2$  values for suicidal ideation and separation anxiety were .32 and .03 for girls, and .20 and .06 for boys, suggesting that the model had predictive relevance. According

title: Suicidal ideation and affective insecurity during adolescence

to Fornell and Cha (1994), values above zero for  $Q^2$  suggest that a model has reasonable predictive capability. The model presented a good fit, as the SRMR was .08 for girls and .10 for boys, close to the recommended values of .08 (Hu & Betler, 1999) and .10 (Williams et

Page 16 of 41

al., 2009). The NFI was calculated to evaluate the global model, yielding values of .85 for girls and .72 for boys. NFI values above .90 are considered acceptable (Byrne, 2013).

To test the mediation effect of separation anxiety, we applied two-step bootstrapping procedures (Chin, 2010). First, we assessed the links between attachment to mother or father, and suicidal ideation without the mediator variable (see “Direct effects without mediator” section of Table 5). Second, we added separation anxiety as the mediator variable and computed the two coefficients of attachment and suicidal ideation. Table 5 shows that the indirect effect was significant in our mediation model, excepted for girls’ paternal attachment.

VAF values, which indicate the size of the indirect effect in relation to the total effect, were .31 and .37 for girls’ and boys’ attachment to mother, and .59 for boys’ attachment to father. VAF values between .20 and .80 indicate partial mediation (Hair et al., 2017), which was the case in our models.

### **Discussion**

Adolescents frequently think about death, sometimes constructively. Suicidal ideation is not necessarily emblematic of a morbid process, notably when it remains externalized and is not associated with acting-out strategies. In general, it reflects a malaise or psychological distress. Given the high rates of teenage suicide in France (7.60 per 100 000; WHO, 2014), it is particularly important to have a better understanding of parent-child relationship factors that may trigger acute suicidal ideation. The present study examined the relationship between security of attachment and level of separation anxiety in the context of



title: Suicidal ideation and affective insecurity during adolescence

adolescent suicidal ideation. By examining styles of attachment to both mothers and fathers, it is possible to investigate whether the sex of the parent and the adolescent moderates the link between security and suicidal ideation during the second separation-individuation process in adolescence. One of the primary aims of the present study was to examine whether separation anxiety mediates the relationship between parental attachment and adolescent suicidal

Page 17 of 41

ideation. As predicted, we found that *insecure* attachment was related to high levels of suicidal ideation in both boys and girls, but these levels differed between attachment to mother and attachment to father. We also found a strong association between *insecure* attachment relationships and separation anxiety, especially the School phobia dimension. Finally, the results of path analyses showed that separation anxiety partially mediated the relations between parental attachment and adolescent suicidal ideation. Results also showed that mediation pathways differed according to sex of adolescents.

***Relationships between attachment style, suicidal ideation and separation anxiety according to sex***

As anticipated, we found a stronger connection in our participants between being insecure and suicidal ideation, in line with the literature on adolescent suicidality (Cero et al., 2013; Lobo Prabhu et al., 2010; Sheftall et al., 2013). Adopting a categorical approach to attachment (three styles of attachment), we found that *avoidant* adolescents exhibited significantly higher suicidal ideation than either *ambivalent* or *secure* adolescents, for parentadolescent relationships of both sexes. In turn, *ambivalent* adolescents expressed higher suicidal ideation than *secure* adolescents. These findings were confirmed by adopting a dimensional approach to attachment. In our study, this association was especially high for maternal Alienation in both girls and boys. In boys specifically, paternal Trust and paternal

title: Suicidal ideation and affective insecurity during adolescence

Alienation were also highly related, bearing in mind that the Trust dimension measures the degree of respect and mutual understanding in the attachment relationship, while the Alienation dimension evaluates feelings of anger and interpersonal alienation (Guarnieri et al., 2010; Gullone & Robinson, 2005). First, it is important to note that these preliminary results provide empirical support for the theoretical assumption of an association between *insecure* attachment and internalizing symptoms in early childhood, and extend it to adolescents (e.g.,

Milan et al., 2013). Hypothesizing suicidal ideation in adolescent development in the context

Page 18 of 41

of family relationships is important: attachment to parents continues to be a crucial source of support for adolescents during the process of individuation. Second, these results highlight specific mother-daughter/son and father-son/daughter associations. Contrary to the classic maternalistic perspective (see Lamb, 1974), paternal attachment seems to be just as important as maternal attachment. Fathers are salient figures in the lives of adolescents, and paternal attachment contributes to the latter's psychological wellbeing (e.g., Duchesne & Ratelle, 2014; Flouri & Buchanan, 2003). Finally, these results highlight the relevance of a multidimensional measure (e.g., trust, communication, alienation dimensions) that takes the complexity of the attachment system into account (Gullone et al., 2005).

Regarding separation anxiety, our findings showed that more insecurely attached adolescents reported more separation anxiety, and more securely attached adolescents had lower levels of separation anxiety across all the dimensions. More specifically, our results indicated that *avoidantly* attached adolescents, both girls and boys, exhibited greater School phobia than securely attached adolescents. These findings were observed for both maternal and paternal attachment, and are consistent with Bowlby's notion of *pseudophobia* (1976, p. 258) whereby school phobia is determined by separation anxiety. Contemporary studies emphasize

title: Suicidal ideation and affective insecurity during adolescence

that more securely attached children report lower levels of social anxiety and school anxiety (Brumariu & Kerns, 2010b), and fewer anxiety disorders in emerging adulthood in the long term (Schimmenti & Bifulco, 2015). From an ethological perspective, this reflects an avoidance associated with a search for help and reassurance, where children actively seek out figures in their environment who will afford them security and protection (mother, father). For *insecure* adolescents, going to school represents a major separation from the family nucleus. In our study, *avoidantly* attached adolescents seemed to express more separation complaints linked to School phobia (e.g., not wanting to go to school, displaying physical symptoms before going to school, being very tense before going to school). By

Page 19 of 41

contrast, Manassis (2001) postulated that the *ambivalent* attachment style is associated with separation anxiety in childhood. This may simply be due to the differential effect of parent-child relationships in an adolescent context. Moreover, the literature solely concerns attachment to mother (e.g., Brumariu et al., 2010b).

In this context, our results suggest it is important to consider both parent and child sex when exploring specific associations. Girls with an *avoidant* attachment to father had a tendency to report lower Fear of harm befalling family members than *secure* girls. They tended to minimize the importance of connection to and support from the paternal attachment figure (Ruhl et al., 2015). Teenage boys who were insecurely attached to their mother exhibited more separation anxiety than their securely attached counterparts. We also found that adolescents with *insecure* (*avoidant* or *ambivalent*) versus *secure* attachment to their mother differed on Distress at being away from a secure base. These preliminary results emphasize the specificity of links between different attachment styles and dimensions of separation anxiety according to sex. An *avoidant* relationship between father and daughter

title: Suicidal ideation and affective insecurity during adolescence

seems to deactivate Fear of harm befalling family members, while *insecure* (especially *ambivalent*) attachment between mother and son seems to exacerbate Distress at being away from a secure base. This suggests that boys with *avoidant* attachment to mother and father may be particularly at risk of separation anxiety symptoms, in contrast to those with other types of attachment.

***Role of separation anxiety in the relationship between attachment and suicidal ideation: a mediational perspective***

According to Bowlby's theory, *secure* attachment plays a decisive role in the adolescent's process of individuation (Hock et al., 2001; Kaplan et al., 1993; Kins et al., 2012), and the quality of current attachment relationships may play a crucial role in psychological wellbeing in the long term (e.g., suicidal ideation during adolescence). Understanding the

Page 20 of 41

affective and emotional factors that lead adolescents to think about suicide will determine whether separation anxiety and/or the quality of adolescent-parent relationships are clinical markers of strong susceptibility to suicidal ideation.

As we indicated earlier, the present study tested the hypotheses that the quality of adolescent-parent attachment is linked to separation anxiety (H1 and H2) and suicidal ideation (H3). Our findings confirmed these hypotheses: attachment emerged as a predictor of both suicidal ideation and separation anxiety. We also highlighted sex differences in these associations, with attachment to father being a predictor of separation anxiety for both girls and boys, and attachment to mother being a predictor of separation anxiety essentially for boys. Considering suicidal ideation, attachment to father had direct effects across the sexes, but attachment to mother only had direct effects for girls. A significant association had previously been found between insecure attachment and internalizing problems, such as

title: Suicidal ideation and affective insecurity during adolescence

suicidality or anxiety disorders during the adolescent period (Groh et al., 2012; Madigan et al., 2012). Results from the current study showed that maternal Alienation and paternal Trust were significant predictors of attachment. In particular, having psychologically controlling parents may lead to problems for adolescents in dealing with the separation–individuation process (Soenens & Vansteenkiste, 2010). The findings of this exploratory study also suggested that male adolescents' suicidal thoughts are largely explained by maternal and paternal Alienation, and Distress at being away from a secure base. These results raise several key issues that are worth emphasizing here. First, they support the hypothesis that paternal bonds are more important to the adolescent development of sons than of daughters (Cero et al., 2013; Sheftall et al., 2013). Negative affective/cognitive experience of trust in the availability, accessibility and responsiveness of the father to their emotional need states (Armsden et al., 1987) has been found to predict more suicidal ideation among males. At the same time, maternal Alienation plays a major role in suicidal ideation. *Alienation* refers to

Page 21 of 41

emotional and behavioral withdrawal (e.g., feelings of anger, hopelessness or interpersonal alienation). In line with Manassis (2001), we hypothesized that adolescents who perceive themselves to be rejected or alienated by their mothers (i.e., experiences of isolation, resentment, anger, and detachment) may limit their social contacts, acquire fewer coping skills for social situations, and develop anxiety in the social context of school, leading to school phobia. Second, the School phobia dimension, which reflected separation anxiety rather than a phobic reaction to school, was a major predictor of suicidal ideation for girls, while for boys it had only a minor influence. Other dimensions of separation anxiety, especially Distress at being away from a secure base, were more significant for boys. These results, though limited, suggested excessive anxiety concerning separation from attachment

title: Suicidal ideation and affective insecurity during adolescence

figures for boys (affective source), and excessive anxiety about school (social source) for girls who had more suicidal ideas. These results suggest that boys who experienced elevated preoccupation or emotional distress about affective security showed more internalizing symptoms, such as suicidal ideation, whereas girls who expressed negative attitudes toward school had more suicidal thoughts. Thus, from an attachment perspective, female adolescent suicidal ideation is more an expression of anger about an unavailable attachment to the mother and school distress. Male adolescent suicidal ideation occurs more in response to a dysfunctional attachment to the father and a lack of success in achieving feelings of security far from a secure base.

The hypothesis that separation anxiety mediates the link between adolescent-parent attachment and suicidal ideation was partially supported (H3). The mediation pathway was confirmed for attachment to mother for girls and boys, although the direct pathways were also evident. Partial mediation was also confirmed for attachment to father for boys. Given the nonsignificant pathway from attachment to father to separation anxiety for girls, the mediated pathway to suicidal ideation was nonsignificant. More research is needed on mediation

Page 22 of 41

processes, such as those involving separation anxiety, that might explain associations between insecure attachment and mental health. Our exploratory study yielded initial indications that separation anxiety can be a vulnerability factor in the formation of suicidal ideation in adolescence, specifically for boys with insecure attachment. Relationships with both parents may be important in the development of vulnerability for suicidal ideation, as they may lead to separation anxiety. Insecure attachment may increase adolescents' sensitivity to feeling defeated and trapped (psychological state), thereby increasing the likelihood of suicidal thoughts (Zortea et al., 2019). By demonstrating mediational pathways between adolescent

title: Suicidal ideation and affective insecurity during adolescence

relationships with parents and suicidal ideation via separation anxiety, the current study sheds light on developmental vulnerability to suicidality. More specifically, providing they are replicated, our findings underscore the importance of considering secure relationships with both parents as potentially important factors for reducing the risk of adolescents engaging in suicidal ideas.

### ***Limitations***

Several limitations should be borne in mind. First, the sample was made up solely of French adolescents, which may reduce the generalizability of these findings. Given the small size of the sample, the overrepresentation of females, and the limited age range, our overall results should be regarded solely as preliminary findings to be confirmed by future research. The small size of our sample prevented the optimum use of regression analysis for sex, owing to the limited statistical power. In addition, this sample was composed solely of adolescents who had both male and female parent figures. Different family constellations (i.e., gay father families, lesbian mother families) would be important to consider in future studies. A larger sample could also test the effect of parental dyad insecurity (e.g., father-secure mother versus father-insecure mother). Furthermore, the self-report questionnaires reflected a subjective perception influenced by social desirability, and a multimethod approach would be preferable

Page 23 of 41

(e.g., semistructured interview, data from parents, categorical standardized diagnoses, etc.).

Finally, the cross-sectional nature of these data restricted our ability to test causal relations and to understand the mechanisms behind the path leading from affective insecurity to suicidal ideation. It might be useful to replicate this research in another cultural context, to examine whether these interactions are culturally specific. Future research should consider both larger samples and clinical samples, in order to determine whether differences in suicide

title: Suicidal ideation and affective insecurity during adolescence

severity can be attributed to psychological comorbidity (e.g., depressive symptomatology, general symptoms of anxiety) and suicidal behaviors. Additional research is needed to determine cognitive and emotional vulnerability factors for the risk of suicidal ideation among insecurely attached individuals.

### **Conclusion**

The findings of this study strongly suggest that poor quality of parent-adolescent bonds induces separation anxiety in adolescents, rendering them vulnerable to psychological disturbances, such as suicidal thoughts. It is important to consider attachment as multifactorial, in that specific insecure attachment patterns may be associated with specific separation anxiety symptoms. Because of their concomitant effects, exploring both subjective separation anxiety and attachment as a function of sex differences in their symptomatic expression seems a promising way of developing an understanding of suicidal ideation among adolescents. Future research and etiological models of adolescent suicidality will need to identify parent-child attachment patterns and specific separation anxiety symptoms as possible risk factors for the development of suicidal ideation, and differentiate between the roles of each parent. If our initial results are confirmed by more extensive studies, attachment-focused interventions or (multi)systemic family therapies targeting interventions in mother/father-son/daughter dyads might help to reduce suicidal ideation in adolescents.

Individual psychotherapy to address suicidal symptoms could be effectively combined with

Page 24 of 41

family therapy, social skills training, and peer support activities to promote more adaptive attachments and develop alternative *secure* attachments to peers. Adding the facets of attachment and separation anxiety to the assessment battery could also be useful to clinicians as potentially important predictors of adolescent adjustment and suicidality.



title: Suicidal ideation and affective insecurity during adolescence

**Conflict of Interest:** The authors declare that they have no conflict of interest.

For Peer Review

Page 25 of 41

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title: Suicidal ideation and affective insecurity during adolescence

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Page 33 of 41

**Figures to be inserted**

Figure 1:

*Mediational hypothesis of separation anxiety in the relationship between attachment and suicidal ideation*

Distress at being

title: Suicidal ideation and affective insecurity during adolescence

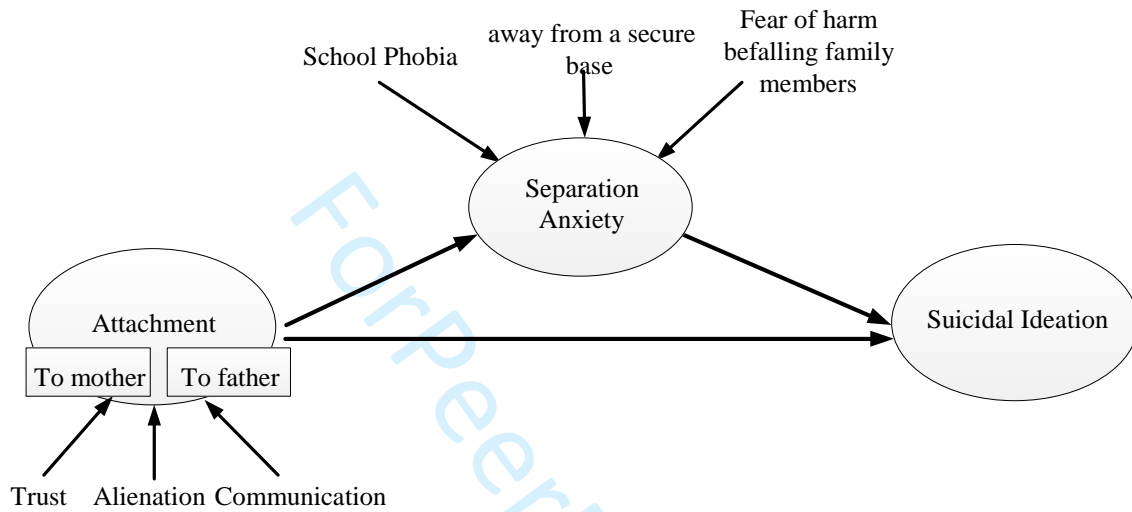
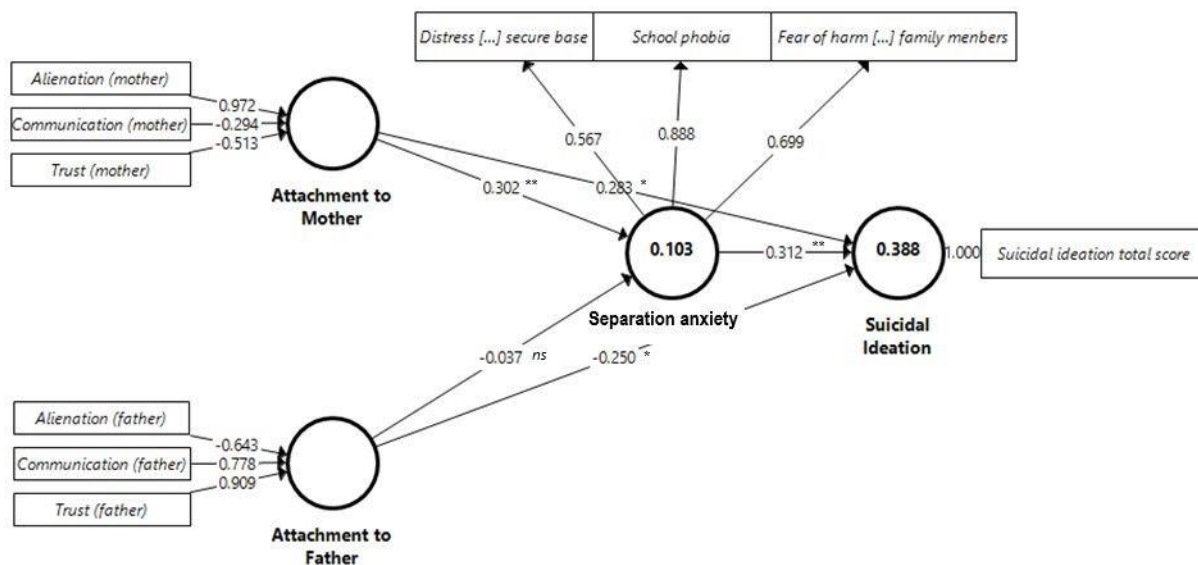


Figure 2

*Model of relations among attachment to mother, attachment to father, separation anxiety, and suicidal ideation for girls.*

title: Suicidal ideation and affective insecurity during adolescence

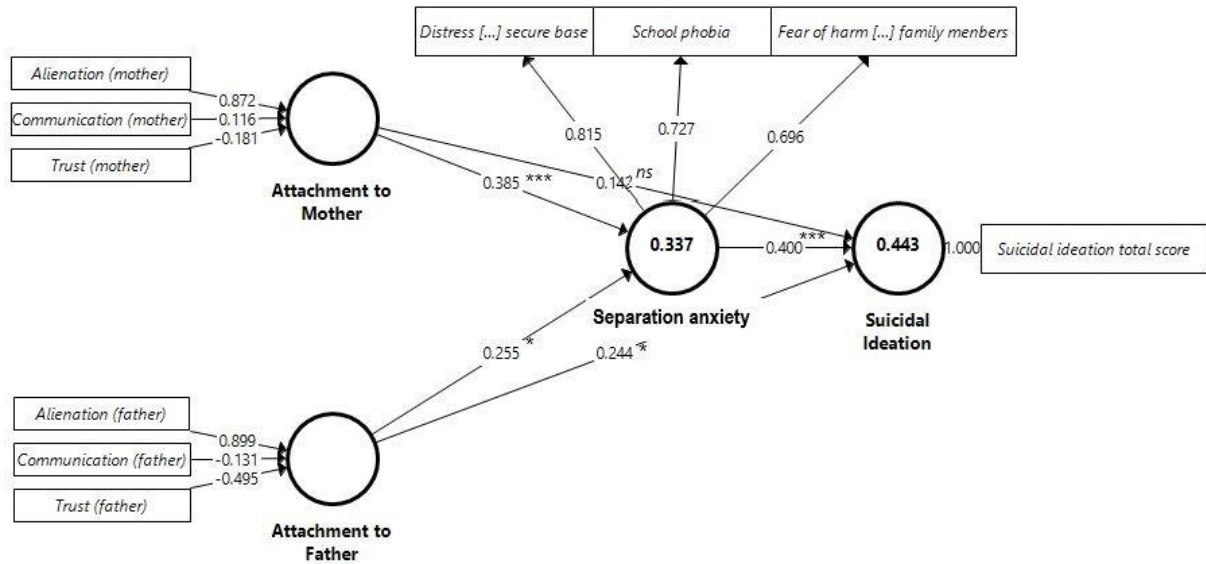


Note. Numbers are standardized coefficients. Numbers in bold are  $R^2$ . \*  $p < .05$ . \*\*  $p < .01$ . ns: nonsignificant.

Figure 3

*Model of relations among attachment to mother, attachment to father, separation anxiety, and suicidal ideation for boys.*

title: Suicidal ideation and affective insecurity during adolescence



Note. Numbers are standardized coefficients. Numbers in bold are  $R^2$ . \*  $p < .05$ . \*\*\*  $p < .001$ . ns: nonsignificant.

Tables to be inserted

Table 1

	Secure attachment		Ambivalent attachment		Avoidant attachment	
	To mother	To father	To mother	To father	To mother	To father
<b>Girls</b>	62.8% (n = 196)	57.1% (n = 178)	17.3% (n = 54)	11.9% (n = 37)	19.6% (n = 61)	29.5% (n = 92)
<b>Boys</b>	67.7% (n = 63)	64.5% (n = 60)	18.3% (n = 17)	18.3% (n = 17)	14.0% (n = 13)	17.2% (n = 16)

title: Suicidal ideation and affective insecurity during adolescence

*Distribution of styles of attachment to mother and father*

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title: Suicidal ideation and affective insecurity during adolescence

Page 37 of 41

Table 2

*Mean scores and correlations between dimensions of attachment, separation anxiety, and suicidal ideation scores*

	<b>Suicidal Ideation</b>				<i>t</i>	<i>P</i> value
	Girls <i>r</i>	Boys <i>r</i>	Girls <i>M</i> ( <i>SD</i> )	Boys <i>M</i> ( <i>SD</i> )		
	-.39 ***		21.86 (11.88)	22.14 (11.36)		
	-.34 ***		14.52 (4.04)	14.88 (4.02)		
	-.25 ***	-.20 *	19.61 (4.04)	19.03 (5.64)		
	.46 ***	.42 **	12.27 (3.95)	11.77 (3.87)		
	-.38 ***	-.49 ***	16.13 (12.59)	18.13 (12.23)		
	-.33 **	-.48 ***	13.22 (4.79)	13.87 (4.43)		
	-.29 ***	-.34 **	15.86 (6.58)	16.30 (6.20)		
	.30 ***	.39 ***	13.00 (4.98)	12.04 (4.40)		
	.30 ***	.39 ***	11.79 (7.39)	7.62 (5.76)		
	.46 ***	.43 ***	2.54 (2.11)	2.32 (1.90)		
	.14 *	.34 **	1.69 (1.16)	1.33 (1.16)		
	.18 **	.20 *	1.68 (1.19)	1.47 (1.35)	1.793	<i>ns</i>
<b>Total attachment to</b>	<b>-.36</b>	<b>mother score</b>	<b>***</b>			
					.270	<i>ns</i>
Maternal Trust					.003	<i>ns</i>
						**
Maternal Communication					.014	<i>ns</i>

title: Suicidal ideation and affective insecurity during adolescence

Maternal Alienation	.471	<i>ns</i>
<b>Total attachment to father</b>	1.163	<i>ns</i> <b>score</b>
Paternal Trust	2.408	<i>ns</i>
Paternal Communication	.480	<i>ns</i>
Paternal Alienation	.259	<i>ns</i>
<b>Total Separation anxiety</b>	13.490	*** <b>score</b>
School phobia 3.759	*	
Fear related to secure base 7.028	**	
Fear related to family members		

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*Note.* \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . *ns*: nonsignificant.

Table 3

*Comparison of mean and standard deviations for suicidal ideation and separation anxiety scores for the secure, ambivalent and avoidant attachment styles*

<b>Secure attachment</b>		<b>Ambivalent attachment</b>		<b>Avoidant attachment</b>		<i>F</i>		<i>P</i> value		Bonferroni post hoc test	
Mother	Father	Mother	Father	Mother	Father	Mother	Father	Mother	Father	Mother	Father
<b>Girls</b>											



	53.87	52.12										
	(31.45)	(27.74)										
	6.55	6.57	68.86	65.32	82.79	81.01	17.621	21.75				
	(5.15)	(4.97)	(35.43)	(36.19)	(42.23)	(43.58)						
	2.29	2.29	6.72	6.41	5.85	5.99	.575	.423				
	(2.19)	(2.21)	(3.80)	(3.87)	(4.88)	(5.11)						
	1.69	1.73	2.74	2.49	3.20	2.96	3.862	2.576	.001		Av>Am>S	
	(1.35)	(1.35)	(2.18)	(1.91)	(2.67)	(2.53)						
	1.73	1.83	1.83	1.65	1.57	1.60	5.444	.308	<i>ns</i>		--	
	(1.51)	(1.48)	(1.11)	(1.11)	(1.43)	(1.41)						
			1.80	1.43	1.43	1.47	1.215	2.391	.07		Av>S	
Suicidal Ideation			(1.26)	(1.21)	(1.49)	(1.49)			.001	<i>ns</i>	--	
Total Separation anxiety score									<i>ns</i>	.08	--	S>Av
School phobia									.02			
Fear related to secure base									<i>ns</i>			
Fear related to family members									<i>ns</i>			
<b>Boys</b>												
	54.63	55.80	76.65	54.88	89.23	101.50						

Suicidal Ideation	(31.74)	(33.76)	(49.00)	(15.02)	(40.77)	(50.69)	6.144	11.486	.003	.001	Av>Am>S
Total Separation	3.10	3.08	3.82	3.47	3.00	3.44					
anxiety score	(3.90)	(3.88)	(2.83)	(2.75)	(2.24)	(3.27)	.310	.116	<i>ns</i>	<i>ns</i>	--

	1.81	1.80	2.53	2.00	3.00	3.38						
School phobia							2.737	4.746	.07	.01	Av>S	Av>Am>S
	(1.92)	(1.73)	(1.87)	(1.50)	(1.47)	(2.39)						
Fear related to	1.05	1.05	1.88	1.53	1.77	1.19						
							4.643	1.132	.01	<i>ns</i>	Am>Av>S	--
secure base	(1.04)	(1.03)	(1.57)	(1.18)	(.72)	(1.56)						

1.19	.167	1.064	<i>ns</i>	<i>ns</i>	--	Fear related
(1.34)						to

*Note.* *ns*: nonsignificant; S: secure; Am: ambivalent; Av: avoidant.

1.24

1.05

1.18

1.35

1.00

family

members

(1.33)

(1.29)

(1.55)

(1.17)

(1.22)

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Table 4

<i>Effect size (<math>f^2</math>)</i>	Separation Anxiety		Suicidal Ideation	
	Girls	Boys	Girls	Boys
	$f^2$	$f^2$	$f^2$	$f^2$
Attachment to Father	.01	.24	.06	.06
Attachment to Mother	.05	.11	.08	.10
Separation Anxiety			.20	.62

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Table 5  
*PLS regression results for mediation model*

Hypothesis pathway	Path coefficient		T value		Mediation strength	
	Girls	Boys	Girls	Boys	Girls	Boys
	-0.22					
<b>Direct effects without mediator</b>	-0.35					
Attachment to father => Suicidal ideation		-0.38	2.01*	2.88**	N/A	N/A
Attachment to mother => Suicidal ideation		-0.20	3.37**	1.98*	N/A	N/A
	-0.03					
<b>Indirect effects</b>						
Attachment to father => Separation anxiety => Suicidal ideation	-0.13	-0.29	.14	2.59**	None	Partial
Attachment to mother => Separation anxiety => Suicidal ideation		-0.23	1.96*	2.05*	Partial	Partial

Note. \*  $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .