

# **PRELIMINARY EVIDENCE THAT THOUGHTS OF THWARTED BELONGINGNESS MEDIATE THE RELATIONS BETWEEN LEVEL OF ATTACHMENT INSECURITY AND DEPRESSION AND SUICIDE-RELATED THOUGHTS IN INPATIENT ADOLESCENTS**

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There are well-documented associations between adolescent depression, suicide-related thoughts, and interpersonal functioning, which include identified relations between these variables and insecure attachment. Dykas and Cassidy (2011) recently reframed traditional attachment theory into a social information processing model in which early caregiver experiences produce secure or insecure attachment-related schemas which, in turn, lead to biased social information processing. This model echoes Beck's cognitive theory, which suggests that negative schemas arise from negative experiences and act on daily life through negative thoughts about the self, the world, and others. No one has extended Dykas and Cassidy's (2011) model to the level of attachment-related thoughts to explore how attachment-related schemas relate to depressive cognitions. In this study, we sought preliminary evidence for this hypothesis with two specific aims. First, we sought to determine whether the relation between level of attachment security

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and depression was mediated by thoughts of thwarted belongingness and perceived burdensomeness, constructs of Joiner's Interpersonal Psychological theory. Second, we sought to evaluate whether the same constructs mediated the relation between level of attachment security and suicide-related thoughts. Analyses conducted with  $N = 124$  inpatient adolescents revealed that level of maternal attachment insecurity was significantly correlated with thwarted belongingness, depression, and suicide-related thoughts. Thwarted belongingness mediated the relation between level of maternal attachment security and depression as well as the relation between attachment security and suicide-related thoughts. Thus, interpersonal risk factors for depression and suicide-related thoughts, like level of attachment insecurity, may be mitigated by addressing thoughts associated with thwarted belongingness.

Depression and suicide-related thoughts are major public health concerns among adolescents. An estimated 11.2% of adolescents will receive a diagnosis of Major Depressive Disorder or Dysthymia in their lifetime (Merikangas et al., 2010) and, among inpatient adolescents, these rates rise as high as 38.7% (Venta & Sharp, 2014). Moreover, depression in youth is highly predictive of long-term impairment (Weissman et al., 1999), and is often cited as one of the most salient predictors of adolescent suicide attempts (Gould et al., 1998). Suicide-related thoughts are also highly predictive of suicide-related behaviors later on (Fergusson, Horwood, Ridder, & Beautrais, 2005; Langhinrichsen-Rohling & Lamis, 2008) and are extremely prevalent among inpatient adolescents, with 82.1% reporting previous suicide-related thoughts (Venta, Ross, Schatte, & Sharp, 2012). Together, these findings highlight the importance of better understanding the etiology of depression and suicide-related thoughts among adolescents.

Previous research suggests that, among adolescents in particular, both of these public health concerns are highly influenced by interpersonal factors (e.g., Jacobson & Mufson, 2010; Joiner, 2005; Venta & Sharp, 2014). For instance, dysfunctional parent and peer interaction is a known prospective risk factor for depression in adolescents one year after assessment (Allen, Porter, McFarland, McElhaney, & Marsh, 2007) and depressed adolescents report more conflict than their nondepressed peers (Sheeber, Davis, Leve, Hops, & Tildesley, 2007). Moreover, there is evidence that only interpersonal stress (as opposed to legal or other stress domains) predicts suicide among adolescents (Cooper, Appleby, & Amos, 2002) and suicide-related thoughts and behaviors in adolescents have been tied to interper-

sonal problems like social isolation (Bearman & Moody, 2004), peer rejection, and low peer social support (Prinstein, Boergers, Spirito, Little, & Grapentine, 2000).

It is against this background that interpersonal psychotherapy for depressed adolescents (IPT; Mufson, Dorta, Moreau, & Weissman, 2004) emerged as a treatment aiming to mitigate depression and suicide-related thoughts and behaviors in youth (Tang, Jou, Ko, Huang, & Yen, 2009; Jacobson & Mufson, 2010). Essential to the theoretical model underlying IPT is attachment theory (Jacobson & Mufson, 2010), the idea that interpersonal experiences with early caregivers affect interpersonal and emotional functioning later in life (Bowlby, 1973). Indeed, empirical research has shown that successful interpersonal functioning requires individuals to form attachments and negotiate social relationships, abilities that are heavily influenced by early experiences with caregivers (Crowell, Fraley, & Shaver, 2008; as cited by Grunebaum et al., 2010). In attachment theory, the central idea is that individuals who receive emotional and physical care (consistently) develop a sense of themselves as worthy of such care and view others as reliable sources of care (i.e., attachment security). Those who do not receive consistent care develop a sense of unworthiness and view others as unreliable caregivers (i.e., attachment insecurity). Dykas and Cassidy (2011) expanded upon traditional attachment theory by positing that early experiences produce attachment-related schemas that differ in response to the availability and consistency of care. In their model, attachment-related schemas are largely responsible for the processing of both positive and negative social information and will do so in a biased way. Individuals with a "secure" attachment-related schema will have a positive bias for social information processing whereas individuals with an "insecure" attachment-related schema will process social information either in a negatively-biased or defensive manner.

Empirical research also indicates that insecure attachment-related schemas are related to both depression and suicide-related thoughts and behaviors in adolescents. For instance, insecure attachment-related schemas have been associated with depression in inpatient adolescent females (Cawthorpe, West, & Wilkes, 2004), a large community sample of adolescents (Allen et al., 2007), and a longitudinal community study of adults (Grunebaum et al., 2010). Moreover, Woodhouse, Ramos-Marcuse, Ehrlich, Warner, and Cassidy (2010) note that adolescents with a secure attachment-related schema may

be less likely to experience depression because they have the skills to seek and receive support during times of distress (Cassidy & Kobak, 1988; Kobak & Duemmler, 1994); perceive others as supportive and the self as capable of managing emotions (Bowlby, 1973; Bretherton & Munholland, 2008; Cassidy, 1986); and are able to form stronger social contacts (Berlin, Cassidy, & Appleyard, 2008), which are known protective factors for depression. By the same token, adolescents with an insecure attachment-related schema are at greater risk of depressive symptoms because their biases (both about themselves and others) may decrease interpersonal functioning—limiting their ability to seek emotional support, producing depressive cognitions about the self and others, and isolating them from needed social networks.

Indeed, several studies have tied insecure attachment-related schemas to suicide-related thoughts and behaviors in adolescents, although this research has been somewhat mixed. Insecure attachment-related schemas have been associated with suicidal behaviors among adolescents undergoing psychiatric treatment (Adam, Sheldon-Keller, & West, 1996) and insecure attachment-related schemas in childhood have been identified as predictors of suicide-related thoughts and behaviors during adolescence (Violato & Arato, 2004). Research with college samples echoes these findings, indicating that suicide-related thoughts and behaviors are associated with insecure attachment-related schemas (Zeyrek, Gençöz, Bergman, & Lester, 2009). However, this body of research is relatively small and results are not consistently replicated (e.g., Venta & Sharp, 2014), indicating that more research exploring relations between attachment-related schemas and suicide-related thoughts and behaviors is needed. Indeed, research on suicide-related thoughts, specifically, is lacking, with most studies examining loosely defined constructs like suicidality or exploring previous suicide attempts.

Although these studies highlight the reality that early childhood experiences with attachment figures affect risk for depression and suicide-related thoughts and behaviors, no study has yet explored the way in which attachment-related schemas relate to cognitions about the self and others that place an adolescent at risk for depression or suicidal thoughts. In Beck's (e.g., Rush & Beck, 1988) cognitive theory, he posits that individuals acquire negative schemas as a result of negative experiences, and these schemas influence the way they process information about new situations. These negative schemas act upon the depressed individual's daily life is

producing negative cognitions about themselves, the world, and others. This theory is very similar to Dykas and Cassidy's (2011) idea that attachment-related experiences produce an attachment-related schema which, like Beck's negative schemas, bias social information processing. However, no study has yet explored whether attachment-related schemas operate on the individual's daily life through biased cognitions about the self and others.

First, this study sought to provide preliminary evidence for this hypothesis by exploring whether the relation between level of attachment insecurity and depression in adolescents is accounted for by negative, attachment-related cognitions. Second, this study sought to evaluate whether attachment-related cognitions would also mediate the relation between attachment insecurity and self-reported suicide-related thoughts. The present study is the first to explore cognitions extending from attachment-related schemas, as conceived by Dykas and Cassidy (2011). We suggest that attachment-related schemas may relate to cognitions in the two domains of Joiner's (2005) Interpersonal Psychological Theory—which suggests that people desire death because they experience sustained and co-occurring perceived burdensomeness and failed belongingness. Both of these constructs have demonstrated significant relations to depression among undergraduates (Davidson, Wingate, Grant, Judah, & Mills, 2011) and suicide-related thoughts and behaviors among adolescents (Pettit et al., 2002; Smith et al., 2012). Both constructs are operationalized as cognitions about the self and others. Thwarted belongingness refers to a perceived unmet need to belong and beliefs of not being cared about. The perception of not belonging can be the product of either lacking a social network or feeling that one is not truly connected to existing social contacts. At face value, the construct of thwarted belongingness seems to represent some cognitions that would follow from an insecure attachment-related schema—that is, this construct consists of cognitions like “These days, I feel disconnected from other people” and “These days, I feel that there are people I can turn to in times of need” (reversed). The second domain, perceived burdensomeness, refers to the individual's sense that he or she does not contribute to those around him or her and, rather, is a burden to others. This construct also seems to represent cognitions that would follow from an insecure attachment-related schema, including items like “These days the people in my life would be happier without me,” and “These days I think I matter to the people in my life” (reversed).

Identifying the mechanisms by which attachment-related schemas operate on an individual's daily life and relate to depression and suicide-related thoughts is likely to hold clinical significance by providing clinicians with a treatment target that is more accessible and malleable than the attachment-related schema itself. Indeed, negative cognitions associated with insecure attachment-related schemas could serve as treatment targets as well as measureable markers of treatment progress. Although there are likely many ways in which attachment-related schemas operate on individuals to produce a risk for depression or suicide-related thoughts, this study sought to evaluate whether level of attachment insecurity relates to depression and suicide-related thoughts (separately) through attachment-related cognitions, operationalized as thoughts associated with perceived burdensomeness and failed belongingness. Generally, the broader hypothesis is that attachment-related schemas operate on psychological functioning (in this case, depression and suicide-related thoughts) by producing cognitions of thwarted belongingness and/or burdensomeness. Although the present study is limited to a cross-sectional design and is therefore preliminary in nature, it is an important step towards testing this broader hypothesis, since attachment-related cognitions have never been evaluated in the context of attachment-related schemas and, further, Joiner's Interpersonal Psychological Theory has never before been evaluated in the context of attachment theory. Moreover, this theory has never been examined in the context of adolescent depression.

## METHODS

### PARTICIPANTS

The study was approved by the appropriate institutional review board. Data was collected for 278 adolescents admitted to an acute inpatient facility serving the indigent and diverse community of a large metropolitan city in the United States. Parent consent was obtained on the day of admission and adolescents were subsequently approached for assent. Of these, 58 discharged prior to the completion of the research protocol due to the acute nature of this inpatient unit, 32 declined participation, 4 revoked consent following the start of assessments (and were not asked to explain why), and 36 were excluded according to the criteria below. Of 148 adolescents

who completed assessments, 9 were missing all items on the Kerns Security Scale and 6 were missing all items on the Interpersonal Needs Questionnaire, resulting in a sample of 133 adolescents. The mean age in this sample was 14.69 ( $SD = 1.478$ ), and 64.7% were female. The self-identified ethnic breakdown was as follows: Black = 24.1% ( $n = 32$ ), White = 30.1% ( $n = 40$ ), Hispanic = 40.6% ( $n = 54$ ), Multiracial = 3.0% ( $n = 4$ ), and Other = 0.8% ( $n = 1$ ). Due to missing data on measures of depression, analyses using the Youth Self Report relied on  $N = 124$  adolescents and analyses using the Beck Depression Inventory II made use of  $N = 114$ .

## PROCEDURES

At admission, parents were given the opportunity to consent in English or Spanish and, following parent consent, adolescents were approached for assent. Because the study procedures required English fluency, adolescents could only consent in English. The inclusion criteria adopted were English fluency, voluntary admission to the hospital, age between 12 and 17 years, and capacity to participate in research. Capacity to participate was determined by the attending psychiatrist and adolescents with severe psychosis, Intellectual and Developmental Disabilities, and those who posed a physical danger to research assistants were not determined to have adequate capacity. Adolescents were excluded if they failed to meet all inclusion criteria. Assessments were administered in a quiet private room with a graduate research assistant in clinical psychology present.

## MEASURES

*Attachment-Related Schemas.* In the current study, the best proxy for Dykas and Cassidy's (2011) notion of attachment-related schemas was level of maternal attachment security, assessed using the Security Scale (KSS; Kerns, Klepac, & Cole; 1996). Indeed, in their review, Dykas and Cassidy include self-report measures of attachment security as valid indices of attachment-related schemas. The KSS in particular is regarded as implicit (therefore tapping schemas perhaps more accurately) due to its format of "some kids" vs. "other kids" (see below). The KSS is a 15-item self-report measure assessing maternal responsiveness and availability and the child's

perceived ability to depend upon the parent. The measure is rated on a 4-point scale in which responses are selected based upon Harter's (1982) format (i.e. "some kids..." versus "other kids..."). An example item is "Some kids find it easy to trust their mom but other kids are not sure if they can trust their mom." After deciding which statement applies most to them, they select "really true for me" or "sort of true for me." This measure produces an index of total security. Internal consistency in this study, as measured by Cronbach's alpha, was 0.898. Adequate validity has been demonstrated previously (see Kerns, Schlegelmilch, Morgan, & Abraham, 2005).

*Thwarted Belongingness and Perceived Burdensomeness.* Thoughts of thwarted belongingness and perceived burdensomeness were assessed with the Interpersonal Needs Questionnaire (INQ; Van Orden, Witte, Gordon, Bender, & Joiner, 2008). The INQ consists of 25 items measured on a 7-point Likert scale, with higher numbers indicating greater endorsement. Ten items pertain to belongingness (i.e., "These days, I feel like I belong."), while the other fifteen items pertain to perceived burdensomeness (i.e., "These days the people in my life would be better off if I were gone."). In this study, internal consistency, as measured by Cronbach's alpha, was 0.932. Note that in this study, the perceived burdensomeness subscale was completed only by 52 adolescents whereas the thwarted belongingness subscale was completed by all 133 adolescents.

*Depression.* Two self-report measures of depression were used in order to replicate study findings across two measures, one with a more specific focus on depression (The Beck Depression Inventory) and one in which items addressing affective problems are imbedded within a broad symptom checklist (Youth Self Report). The Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item self-report inventory to assess the severity of depressive symptoms. Each item is rated on a 0–3 scale; total scores range from 1–63. The internal consistency, factor structure, and validity of BDI-II have received support previously (Beck et al., 1996) and the measure has been used in adolescents (e.g., Grover et al., 2009) with a Cronbach's alpha value around .92. In this study, internal consistency, as measured by Cronbach's alpha, was 0.917.

Depressive symptoms were also assessed using the Youth Self Report (YSR; Achenbach & Rescorla, 2001). The YSR is a questionnaire for use with adolescents between the ages of 12 and 18. The measure contains 112 problem items, each scored on a 3-point scale (0 =



not true, 1 = somewhat or sometimes true, or 2 = very or often true) and yields a number of subscales. In this study, the DSM-Oriented Affective Problems scale was used as a second continuous measure of depression. Adolescents completed this measure on a computer and it was electronically scored. Therefore, item-level data was not available for internal consistency analyses.

*Suicide-Related Thoughts.* One item (number 9) from the Beck Depression Inventory II (Beck et al., 1996) was used to assess self-reported Suicidal Thoughts or Wishes. This item provides the following response options: 0 ("I don't have any thoughts of killing myself"), 1 ("I have thoughts of killing myself, but I would not carry them out"), 2 ("I would like to kill myself," and 3 ("I would kill myself if I had the chance"). Previous studies support the reliability and validity of this item as a measure of suicide-related thoughts. Specifically, this item has shown adequate test-retest reliability (Joiner, Gencoz, Gencoz, Metalsky, & Rudd, 2001) as well as significant correlations with other measures of suicide-related thoughts and behaviors (e.g., Suicide subscale of Hopelessness Depression Symptom Questionnaire, Metalsky & Joiner, 1997; and Suicide Probability Scale, Cull & Gill, 1989) and depression (Joiner et al., 2005).

## RESULTS

### PRELIMINARY ANALYSES

In this sample, the mean total score for depression on the YSR was 68.690 ( $SD = 10.801$ ) and the mean total score on the BDI-II was 24.500 ( $SD = 12.963$ ). The mean level of maternal attachment security was 2.496 ( $SD = 0.750$ ). The mean levels of thwarted belongingness and perceived burdensomeness were 37.15 ( $SD = 12.489$ ) and 64.25 ( $SD = 22.833$ ), respectively. With regard to suicide-related thoughts (BDI-II item 9), 34.4% endorsed no thoughts of suicide, 33.6% endorsed thoughts of suicide that they would not act on, 19.8% endorsed wanting to kill themselves, and 12.2% endorsed that they would kill themselves if given the chance. Age at time of interview was significantly, albeit weakly, correlated with YSR depression ( $r = 0.188, p = 0.036$ ), and was therefore controlled for in subsequent analyses that included the YSR. Age was not correlated with the BDI-II ( $r < .001, p = 0.998$ ) nor suicide-related thoughts ( $r = 0.071, p = 0.420$ ). There was a significant gender difference with

regard to maternal attachment security with males ( $M = 2.740$ ,  $SD = 0.580$ ) reporting higher maternal attachment security than females ( $M = 2.363$ ,  $SD = .800$ ;  $t = -3.126$ ,  $df = 120.774$ ,  $p = .002$ ), and therefore gender was controlled for in subsequent analyses.

At the bivariate level, self-reported depression on the YSR was significantly correlated with maternal attachment security ( $r = -0.236$ ,  $p = 0.008$ ), thwarted belongingness ( $r = 0.490$ ,  $p < .001$ ), and perceived burdensomeness ( $r = 0.709$ ,  $p < .001$ ), such that greater depression was associated with less maternal attachment security but greater thwarted belongingness and perceived burdensomeness. This pattern was replicated with self-reported depression as measured by the BDI-II, which was significantly correlated with maternal attachment security ( $r = -0.392$ ,  $p < 0.001$ ), thwarted belongingness ( $r = 0.597$ ,  $p < .001$ ), and perceived burdensomeness ( $r = 0.696$ ,  $p < .001$ ). Significant relations were noted between suicide-related thoughts (BDI-II item 9) and maternal attachment security ( $r = -0.351$ ,  $p < .001$ ), thwarted belongingness ( $r = 0.370$ ,  $p < 0.001$ ), and perceived burdensomeness ( $r = 0.621$ ,  $p < 0.001$ ). Maternal attachment security was significantly and negatively correlated with thwarted belongingness ( $r = -0.325$ ,  $p < .001$ ), but not perceived burdensomeness ( $r = -0.246$ ,  $p = .079$ ), indicating that higher attachment security corresponded to lower thwarted belongingness only.

## MEDIATIONAL ANALYSES WITH DEPRESSION

The first aim of this study was to determine whether perceived burdensomeness or thwarted belongingness explains the relation between level of maternal attachment security and depression in adolescents. Since only the relations between maternal attachment security, thwarted belongingness (i.e., perceived burdensomeness did not correlate with maternal attachment security), and depression were significant at the bivariate level, these were the only relations explored in multivariate analyses. In order to evaluate mediation across both measures of depression, two mediational models were conducted. First, maternal attachment security served as the independent variable, thwarted belongingness as the mediator, and YSR depression as the dependent variable. Sex and age were entered as covariates. Before testing for mediation, formal detection-tolerance and the variance inflation factor (VIF) were used to assess multicollinearity. Multicollinearity was not a problem, with tolerance greater than .2 and a VIF less than 4, so centering the predictor

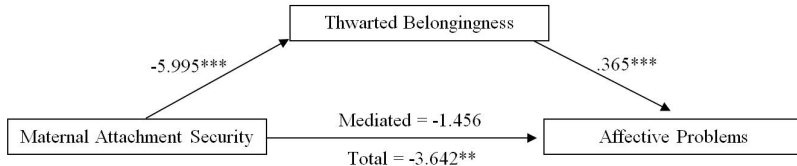


FIGURE 1. Mediation model of the effect of maternal attachment on YSR affective problems through thwarted belongingness.

*Note.* Values are unstandardized path coefficients from a model including sex and age as covariates. Attachment = Total score from The Kerns Security Scale; Thwarted Belongingness = subscale from Interpersonal Needs Questionnaire; Affective Problems = t-score from Youth Self-Report. \*\* $p < .01$ ; \*\*\* $p < .001$ .

variables was not necessary (Aiken & West, 1991; Holmbeck, 2002). This model is presented visually in Figure 1. This mediational model was tested with the Preacher and Hayes (2008) test of the indirect effect because it, unlike a traditional Sobel test, adjusts for covariates such as gender and age, identified as potential confounds at the bivariate level. This method provides a bootstrap test of the indirect effect of maternal attachment security on depression through the proposed mediator of thwarted belongingness, while taking into account the aforementioned covariates. In our model, this test confirmed the role of thwarted belongingness as a mediator in the relation between YSR depression and level of attachment security, with the mean of the indirect effect across all bootstrap samples estimated at -2.186 and a resulting confidence interval that did not include 0 (Bias Corrected  $CI = -3.866$  to  $-0.934$ ; Preacher & Hayes, 2008). Unstandardized path coefficients are presented in Figure 1.

In the second model, maternal attachment security served as the independent variable, thwarted belongingness as the mediator, and, this time, BDI-II depression as the dependent variable. This model is presented visually in Figure 2. Only gender was entered as a covariate since age did not relate to the BDI-II at the bivariate level. Again, multicollinearity was assessed and centering the predictor variables was deemed unnecessary. Results of the test of the indirect effect for this model were similar to the first model, confirming the role of thwarted belongingness as a mediator in the relation between BDI-II depression and level of attachment security, with the mean of the indirect effect across all bootstrap samples estimated at -2.434 and a resulting confidence interval that did not include 0 (Bias Corrected

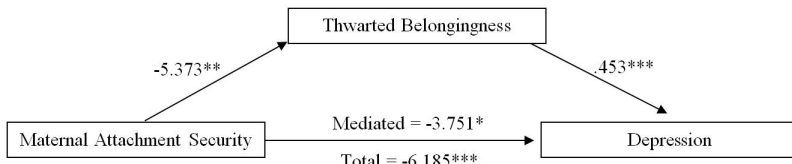


FIGURE 2. Mediation model of the effect of maternal attachment on Beck Depression Inventory II depression through thwarted belongingness.

*Note.* Values are unstandardized path coefficients from a model including sex as a covariate. Attachment = Total score from The Kerns Security Scale; Thwarted Belongingness = subscale from Interpersonal Needs Questionnaire; Depression = Total score from Beck Depression Inventory II. \*  $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

$CI = -4.560$  to  $-0.851$ ; Preacher & Hayes, 2008). Unstandardized path coefficients are presented in Figure 2.

## MEDIATIONAL ANALYSES WITH SUICIDE-RELATED THOUGHTS

The second aim of this study was to determine whether perceived burdensomeness or thwarted belongingness explains the relation between level of maternal attachment security and suicide-related thoughts in adolescents. The aforementioned mediational models were modified to include BDI-II item 9 as the outcome variable. Maternal attachment security served as the independent variable, thwarted belongingness as the mediator, and BDI-II item 9 as the dependent variable. Sex was entered as a covariate. Preacher and Hayes's (2008) test of the indirect effect confirmed the role of thwarted belongingness as a mediator in the relation between self-reported suicide-related thoughts and level of attachment security, with the mean of the indirect effect across all bootstrap samples estimated at  $-0.132$  and a resulting confidence interval that did not include 0 (Bias Corrected  $CI = -0.248$  to  $-0.042$ ; Preacher & Hayes, 2008). Unstandardized path coefficients are presented in Figure 3.

## DISCUSSION

The aims of the present study were to (1) test the hypothesis that thwarted belongingness and/or perceived burdensomeness me-

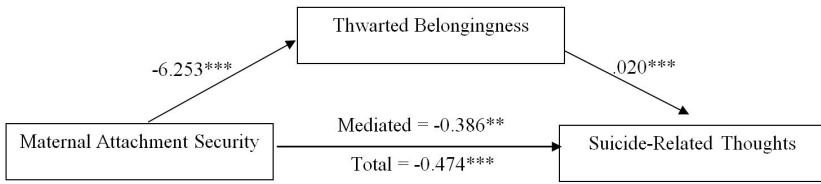


FIGURE 3. Mediation model of the effect of maternal attachment on Beck Depression Inventory II suicide-related thoughts through thwarted belongingness.

*Note.* Values are unstandardized path coefficients from a model including sex as a covariate. Attachment = Total score from The Kerns Security Scale; Thwarted Belongingness = subscale from Interpersonal Needs Questionnaire; Suicide-Related Thoughts = Item 9 from Beck Depression Inventory II. \*\* $p < .01$ ; \*\*\* $p < .001$ .

diate the relation between level of attachment insecurity and depression in inpatient adolescents and (2) test the same hypothesis with suicide-related thoughts as the outcome variable. This study is therefore a preliminary step towards the broader theoretical hypothesis that attachment-related schemas produce cognitions associated with perceived burdensomeness and failed belongingness, which, in turn, increase vulnerability for depression and suicide-related thoughts. In the present study, bivariate analyses did not suggest significant interrelations between attachment security and perceived burdensomeness and, therefore, only mediational analyses regarding the role of thwarted belongingness were conducted. With regard to the first aim, analyses revealed that thwarted belongingness did indeed mediate the relation between maternal attachment security and depression such that strength of the relation between level of attachment security and depression/affective problems was decreased in the presence of the mediator, thwarted belongingness. Results were similar with regard to the second aim, indicating that the relation between level of attachment security and suicide-related thoughts was decreased in the presence of the mediator, thwarted belongingness.

At the bivariate level, this study replicated a well-documented relation between depression and level of attachment insecurity (Cassidy & Kobak, 1988; Kobak & Duemmler, 1994) by demonstrating that greater symptoms of depression were associated with less maternal attachment security. Bivariate relations also indicated that greater suicide-related thoughts (BDI-II item 9) were associated with less maternal attachment security, contributing to a growing

body of research indicating that attachment security is an important variable to include in future research on suicide-related thoughts and behaviors (see Venta & Sharp, 2014). Moreover, a significant relation between thwarted belongingness and maternal attachment security was detected, as hypothesized, with greater belongingness associated with greater attachment security. Since no study has previously explored thwarted belongingness in the context of attachment theory, this finding provides empirical evidence for the theoretical connection hypothesized between these two constructs. Finally, findings that thwarted belongingness and perceived burdensomeness were associated with self-reported depression and suicide-related thoughts extend prior work on these constructs to adolescents.

At the multivariate level, mediational analyses revealed that the relations between level of maternal attachment security and depression and suicide-related thoughts are partially accounted for by thwarted belongingness. Given that this is the first study to explore these constructs together, it is impossible to place this finding within the context of directly related empirical work. However, this finding is consistent with the wide variety of interpersonal risk factors known to correlate with depression (e.g., Allen et al., 2007; Cawthorpe et al., 2004; Grunebaum et al., 2010; Woodhouse, Ramos-Marcuse, Ehrlich, Warner, & Cassidy, 2010) and suicide-related thoughts and behaviors (e.g., Bearman & Moody, 2004; Prinstein et al., 2000), particularly in conjunction with existing empirical support for the notion that interpersonal functioning is a consequence of early attachment experiences (Berlin et al., 2008). The impact of these findings is that, in identifying thwarted belongingness as a mediator of the relation between attachment security, depression, and suicide-related thoughts, we suggest that perhaps the effects of attachment insecurity on mental health may be mitigated by interventions aimed at intermediate interpersonal processes (in this instance, cognitions associated with thwarted belongingness). Therefore, the interpersonal risk factors for depression and suicide can potentially be targeted by addressing beliefs of thwarted belongingness, rather than treating attachment-related risk for depression or suicide as static. This possibility, though, must be evaluated in future research, particularly with an experimental design suited to determining whether thwarted belongingness, when targeted clinically, will decrease depression and suicide-related thoughts regardless of remaining attachment insecurity. Although multivariate (i.e.,

mediational) analyses were not conducted with perceived burdensomeness due to lack of significant relations with maternal attachment security, bivariate findings nonetheless suggest that both perceived burdensomeness and thwarted belongingness are important correlates of depression and suicide-related thoughts and future research is therefore warranted.

The absence of a significant relation between level of maternal attachment security and perceived burdensomeness was surprising given that thwarted belongingness and perceived burdensomeness appear to fit together theoretically, and both were hypothesized to have relations to attachment-related schemas. As the first study to explore these constructs within the context of attachment insecurity, the absence of this relation cannot be interpreted in a conclusive manner. Moreover, the limited sample size that completed questions about perceived burdensomeness ( $n = 52$ ) suggests that low statistical power could explain null findings. Still, theoretically, the construct of perceived burdensomeness appears to implicitly endorse the idea that loved ones take care of the respondent and that therefore the respondent believes he or she is a burden to those around him or her. Attachment insecurity may then be unrelated to perceived burdensomeness because it is unrelated to this underlying implication—that is, individuals high in attachment insecurity may not believe that others take care of them and may therefore not endorse beliefs of burdensomeness associated with that care. It is also important to note that attachment insecurity may be reflective of many different interpersonal styles, some of which include parental enmeshment, anxious preoccupation, and dependency. Therefore, individuals high in attachment insecurity may deny thoughts associated with perceived burdensomeness because they recognize their importance to people around them, although that importance can still be characteristic of attachment insecurity.

The results of this study are tempered by several important limitations. Most importantly, the cross-sectional design of this study limits the interpretation of these findings by excluding causal interpretations. While this study makes a valuable first step towards understanding the interrelations between the level of attachment insecurity, thwarted belongingness, and depression and suicide-related thoughts, the broad casual hypotheses cannot be tested with this study design and remain a consideration for future research. Indeed, Davidson et al. (2011) explored relations between depression, thwarted belongingness, and suicidal ideation in a cross-sectional

design with depression as the independent variable—highlighting how cross-sectional designs are naturally unsuited to causal interpretations. Given that the overarching hypotheses guiding the present study were that attachment schemas produce vulnerability for depression and suicide-related thoughts via automatic cognitions of thwarted belongingness, the temporal relation between thwarted belongingness and depression was hypothesized in the opposite direction from Davidson et al. (2011). Because neither study used a longitudinal design the unknown temporal relations among these variables represent a highly important limitation of this study and area of future research.

Another notable limitation of this study is that all measures were self-report questionnaires and therefore subject to shared method variance. Further, the use of self-report measures means that this study design was not ideal for evaluating variables hypothesized to be at different levels of awareness like schemas, automatic thoughts, and symptoms of depression. Future research could improve upon this limitation by using representational, interview based measures of attachment security in order to better approximate the notion of an attachment-related schema. Similarly, an experimental task may be better suited to identifying automatic thoughts, leaving symptoms of depression as the only self-reported variable. Finally, only one item (BDI-II item 9) was used to evaluate suicide-related thoughts in this study. While the BDI-II is a psychometrically strong measure and is commonly used in clinical settings, a more general measure of suicide-related thoughts like the Modified Scale for Suicide Ideation (Miller, Norman, Bishop, & Dow, 1986) would strengthen future research.

There are also several less significant limitations that would nonetheless benefit from future research. For example, only level of maternal attachment security was explored in order to operationalize attachment-related schemas, when it is more likely that attachment relevant information from a variety of caregivers converges into an organized schema. This limitation also means that the importance of fathers and other caregivers as attachment figures was undermined. Additionally, using only youth self-reported symptoms of depression and suicide-related thoughts, while established as a reliable source of information (Becker et al, 2004; Kovacs & Staff, 2003), limits the measurement of outcome variables to one reporting source. Future work would benefit from the inclusion of parent-report and interview-based measures. Finally, using an inpatient sample lim-



its the generalizability of these findings, given that inpatients differ from outpatient and community adolescents with regard to incidence of depression and suicide-related thoughts and prevalence of attachment insecurity, but sheds light on an important issue with substantive implications for this population.

Notwithstanding these limitations, the present study is strengthened by a large, diverse sample, empirically-validated measures, and two different depression measures. Additionally, this is the first study to apply constructs from the Interpersonal Psychological Theory (Joiner, 2005) to the study of adolescent depression and therefore represents an extension to the utility of that theory and perhaps a valuable addition to existing work on the interpersonal correlates of depression. Moreover, exploring these constructs within the context of attachment theory represents the merging of two formerly separate lines of research—one line tying attachment insecurity to depression and suicide-related thoughts and behaviors and another tying depression and suicide to interpersonal constructs like thwarted belongingness.

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