Emotional trust is conceptualized as an individual’s belief that others are not critical of personal disclosures and will maintain their confidentiality. Accordingly, adolescents who hold high emotional trust in their parents are inclined to disclose troubling thoughts (e.g., those related to depression or suicide), and in turn receive emotional support as well as practical assistance in managing these thoughts, thereby mitigating the risk of suicide attempts. To date, emotional trust has not been examined in the context of depression and suicide attempts; the broad aim of the present study was to examine this relationship. Three hundred and twenty-one adolescents were administered measures of emotional trust in mothers, depressive symptoms, and suicide attempts. Negative Binomial regression analyses indicated that adolescents’ emotional trust in mothers moderated the relation between depressive symptoms and suicide attempts. When emotional trust in mothers was low or medium, depressive symptoms were positively associated with suicide attempts, but, when emotional trust in mothers was high, there was not a significant relation between depressive symptoms and suicide attempts. Conversely adolescents experiencing elevated depressive symptoms who had low emotional trust in mothers reported the highest number of suicide attempts, pre-
sumably because their low trust has precluded self-disclosure and, thus, suicidal and depressive thoughts could not be resolved by maternal discussion and support. Results suggest that interventions promoting adolescents’ emotional trust in their mothers may be effective in reducing the risk of suicide attempts for adolescents with psychiatric disorders, particularly depression.

Keywords: depression, suicide, trust, mother, adolescent

Depression and suicide are major public health concerns among adolescents, for whom suicide is the 3rd leading cause of death (Centers for Disease Control and Prevention [CDC], 2013). Among adolescents, relations between depressive symptoms and suicide attempts have been clearly established and depression has been highlighted as one of the strongest predictors of suicide attempts (e.g., Fordwood, Asarnow, Huizar, & Reise, 2007; Spirito, Valeri, Boergers, & Donaldson, 2003). However, it should certainly be noted that not all adolescents experiencing depressive symptoms will make a suicide attempt—highlighting the importance of examining moderating factors in this relation. A number of studies (Bostik & Everall, 2006; Bearman & Moody, 2004; Prinstein, Boergers, Spirito, Little, & Grapentine, 2000; Venta, Mellick, Schatte, & Sharp, 2014) and theoretical models (e.g., Joiner, 2005) have pointed to the importance of examining inter-personal variables when considering links between depressive symptoms and suicide attempts. The broad aim of the present study was to add to this literature base by examining the role of trust in mothers as a moderating variable in the relation between depressive symptoms and suicide attempts in a sample of adolescents in an inpatient psychiatric hospital.

In the present study, we were particularly interested in examining the role of emotional trust in mothers in relation to depression and suicide attempts. Emotional trust beliefs are defined as believing that another will refrain from causing emotional harm and will maintain one’s confidentiality (Rotenberg, 2010; Rotenberg et al., 2010). According to the emotional trust belief hypothesis, children’s emotional trust beliefs in others are associated with their disclosure of personal information, based on the belief that self-disclosure will be both nonharmful and potentially helpful (Rotenberg, Petrocchi, Lecciso, & Marchetti, 2015). In turn, self-disclosure promotes reciprocal exchanges between the
child and the trusted individual, which can serve to scaffold the development of theory of mind abilities (Rotenberg et al., 2015) as well as provide emotional support and practical assistance in times of need. For adolescents, it may be that being able to place emotional trust in a caregiver plays an important role in mitigating the effect of depressive symptoms on suicide attempts; that is, adolescents who hold high emotional trust in their parents are inclined to disclose depressive and suicidal thoughts to them, and in turn these thoughts are resolved through discussion and support, thereby mitigating the risk of suicide attempts.

No prior research has examined emotional trust in relation to depression and suicide attempts among adolescents. However, research on adolescent-caregiver relationships, more generally, suggests that relational variables are critical in understanding adolescent depression and suicide attempts. For instance, Lester and Gatto (1990) demonstrated that considering interpersonal trust improves the degree to which depressive symptoms predicted suicide ideation in a small sample of community adolescents. Further support for the importance of caregiver relationships in adolescent depression and suicide can be found in the broader literature bases on interpersonal trust and attachment security. For example, higher interpersonal trust has been associated with reduced internalizing symptoms in adolescents (Rotenberg, Sharp, & Venta, under review), and secure attachment relationships with caregivers have been linked with reduced depression (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990) and suicidality (de Jong, 1992) among adolescents. Moreover, adolescents with psychiatric symptoms who perceive their caregivers as unavailable engage in more suicidal behaviors (West, Spreng, Rose, & Adam, 1999). Lack of emotional connectedness to caregivers is also commonly reported among individuals experiencing suicidality in adolescence (Bostik & Everall, 2006). Together, these studies indicate that interpersonal factors are important variables in uncovering relations between adolescent depression and suicide.

Despite this foundational work, focused research on interpersonal trust, depressive symptoms, and adolescent suicidality remains scarce. To our knowledge, only one direct empirical investigation of this relation exists (Lester & Gatto, 1990). Over-
all, this study found that generalized interpersonal trust and depressive symptoms interact to predict suicidal ideation in a sample of adolescents. While pointing to an important area of future investigation, Lester and Gatto’s (1990) study is limited in that their conceptualization of interpersonal trust was generalized, and therefore cannot describe how depression and suicide relate to trust in specific relational domains (e.g., parental, peer, and romantic). Moreover, the study sample was recruited from a high school course and their outcome variable was limited to thoughts about suicide as captured on the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). To our knowledge, no empirical work has yet considered the relation of interpersonal trust to depressive symptoms and adolescent suicide attempts and, moreover, nothing is currently known about how these variables relate in a clinical sample of adolescents. Further, no prior research has specifically examined links between emotional trust in caregivers and depression or suicide attempts among adolescents. These represent especially notable limitations, given that diminished trust may well be an interpersonal factor that places adolescents experiencing depressive symptoms at greater risk of making a suicide attempt.

Against this background, the aim of the current study was to examine relations between trust, depression, and suicide attempts in an ethnically diverse sample of psychiatric inpatient adolescents. The present study chose to specifically examine the role of emotional trust (i.e., believing that the other will refrain from causing emotional harm and will maintain confidentiality, Rotenberg, 2010) in mothers in relation to suicide attempts among inpatient adolescents. Adolescents in an inpatient unit were administered standardized measures of emotional trust in mothers; depression and suicide attempts were assessed. We hypothesized that emotional trust in mothers would serve as a moderator in the relation between depression and suicide attempts, expecting that adolescents with high levels of emotional trust in mothers would not demonstrate a significant relation between depression and suicide attempts whereas adolescents with low trust in mothers would demonstrate a positive relation between depression and suicide attempts. Evidence of a significant moderation would suggest that emotionally trust beliefs are
an important consideration in assessment and treatment of suicidality among adolescents with depressive symptoms.

METHOD

PARTICIPANTS

Consecutive admissions to the 16-bed adolescent unit of a county psychiatric hospital were approached for parental consent on the day of admission. Recruitment was from an acute psychiatric unit that serves the local community including the impoverished population of a large metropolitan area in the United States. Of those with parental consent, 68 declined, 178 were discharged prior to completion of the assessments (given the acute, brief-stay nature of most admissions to the unit), 8 revoked consent, 64 were erroneously consented, and 41 were excluded from the study (see Procedures). Therefore, the original sample was reduced to 321 adolescents with proper consent/assent, inclusion, and completion of main study measures. Approximately 62.3% of the sample \( n = 200 \) was female and the average age was 14.75 years \( (SD = 1.49) \). The sample was ethnically diverse and the breakdown was as follows: 40.8% Hispanic, 26.5% African-American, 26.2% Caucasian, 4.4% Multiracial, 1.2% Southeast Asian, and 0.9% who identified as “Other” or chose not to respond.

PROCEDURES

This study was approved by the appropriate institutional review boards. 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. Training on all study measures included observing the protocol being administered by senior doctoral psychology students and then being observed by the principle investigator (CS). Periodic site visits by the principle investigator were conducted in order to curtail deviations from protocol. In all instances, interviewers were blind to the diagnostic status of the adolescent being assessed.

Data for this study were collected from an ongoing data collection project examining suicide-related thoughts and behaviors among inpatient adolescents. Data utilizing other measures included in that project have been previously published (Buitron, Hill, Pettit, Green, Hatkevich, & Sharp, 2016; Hill, Rey, Marin, Sharp, Green, & Pettit, 2015; Noblin, Venta, & Sharp, 2014; Venta et al., 2014; Venta & Sharp, 2013; Venta, Ross, Schatte, & Sharp, 2012), though no previously published study has used the Children’s Generalized Trust Belief Scale (CGTB) nor examined suicide attempts or the Beck Depression Inventory in the context of trust beliefs. A study currently under review (Rotenberg, Sharp, & Venta, under review) makes use of the CGTB in the relation to life stress, without examining relations between trust and suicide—the broad aim of the present study. This ongoing data collection project does not utilize experimental methods or data conditions; data exclusions were based on the aforementioned exclusionary criteria only (i.e., all participant data available until June 2016 was included in the present analyses).

MEASURES

Depression. The Beck Depression Inventory was used as an indicator of depression. 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 and, thus, total scores range from 0–63. The internal consistency, factor structure, and validity of BDI-II have been previously evaluated (Beck et al., 1996) and the measure
has been used with adequate validity among inpatient adoles-
cents (e.g., Cronbach’s alpha = .92 in Grover et al., 2009). In the
present study, Cronbach’s alpha for the BDI-II was .92.

Emotional Trust in Mothers. Participants completed the 12-item
Children’s Generalized Trust Belief scale (CGTB; Rotenberg et
al., 2005) which is designed to assess the extent to which they be-
lieve that significant others (e.g., mothers) have emotional trust-
worthiness. Though this scale can be used to assess trust in other
significant others by including the target individual in each item,
the present study used the CGTB exclusively to probe trust in
mothers. Items assessing emotional trust are as follows: “Chris-
tina tells her mother that she held hands with a boy . . . but asks
her mother not to tell anyone. How likely is it that Christina’s
mother will not tell others[?]” and “Angela’s mother acciden-
tally rips Angela’s favorite blouse. . . How likely is it that Angela’s
mother will tell Angela about what happened?” (Rotenberg et
al., 2005). The CGTB has been found to show construct validity
by factor analyses and correlations with other comparable mea-
sures of trust beliefs (Rotenberg et al., 2005). In this study, trust
in mothers was examined continuously (and entered as a con-
tinuous variable for bivariate and regression analyses), such that
higher scores denoted greater trust beliefs.

Suicide Attempts. Lifetime and past number of suicide attempts
were assessed with a sociodemographic questionnaire includ-
ing items pertinent to hospital admission and history of suicidal
thoughts and behaviors. The approach of utilizing a brief, pre-
determined set of questions was considered an appropriate fit for
the short, time-limited nature of this acute-stay protocol, as well
as characteristics inherent to the sample. Suicide attempt history
was assessed with predetermined questions asked about the fre-
quency, dates, and a narrative description of attempts elicited by
the assessor (e.g., Have you ever made a suicide attempt?; How
many suicide attempts have been made in the past?; Could you
provide specific dates, if possible, for each of those attempts?).
Appropriate probing and follow-up questions were used to
gather relevant information; for example, assessors were trained
to ask about the behavioral method, intent, duration, and sever-
ity of each attempt. For the current study, an untransformed,
continuous frequency count of lifetime suicide attempts was used for each participant; suicide attempts were operationalized by the current study as specific acts of self-injurious behavior with at least some lethal intent to die. Interrupted and aborted attempts were not specified within the current study protocol. In this study, 149 adolescents (46.4%) reported never having made a suicide attempt, 93 adolescents (29%) reported having made one prior attempt, and 79 adolescents (24.6%) reported having made more than one prior attempt.

DATA ANALYTIC STRATEGY

Descriptive and bivariate analyses were conducted to examine relations between emotional trust in mothers, depression, and suicide attempts. Negative binomial and Poisson generalized linear models were examined for goodness-of-fit for the distribution of the suicide attempt dependent variable. Negative binomial analysis was selected to test whether emotional trust with mothers (continuous) moderated the relation between adolescent depression (continuous) and number of suicide attempts (count). This framework is appropriate for use with count data that is not normally distributed. Analyses examined a main effect of depression, a main effect of emotional trust in mothers, and the interaction effect of these two predictors. The dependent variable was suicide attempts.

RESULTS

Depression and emotional trust beliefs were mean centered prior to conducting moderation analyses. Descriptive statistics for all key study variables are presented in Table 1. At the bivariate lev-
el, depression was significantly, negatively correlated with trust beliefs in mother ($r = -0.114, p = 0.041$). Correlations with suicide attempts were not computed, given evidence of non-normal distribution in the suicide attempt count dependent variable ($Shapiro-Wilk = 0.70, df = 321, p < 0.001$).

In order to test main and interaction effects, both Poisson and Negative Binomial generalized linear models were examined for model fit. The Poisson probability distribution demonstrated poor model fit (Goodness of Fit: Deviance = 503.83, $df = 317, p < .001$), whereas the Negative Binomial probability distribution demonstrated adequate model fit (Goodness of Fit: Deviance = 273.41, $df = 317, p = .963$). Thus, generalized linear model analyses utilizing a Negative Binomial probability distribution were selected to test the main effect of depression (continuous), the main effect of adolescents’ emotional trust beliefs in mothers (continuous), and the interaction effect of depression and trust beliefs in mothers on suicide attempts (count). Overall, the inclusion of these predictors was a significant improvement upon the intercept-only model (Likelihood Ratio Chi-Square = 38.66, $df = 3, p < .001$). Model results are reported in Table 2 and demonstrate a significant main effect of depression and a significant interaction effect in relation to suicide attempts.

In order to graphically illustrate the significant moderation effect identified (Figure 1), the conditional effect of depression on suicide attempts was estimated at three levels of emotional trust in mothers: one standard deviation below the mean, at the mean, and one standard deviation above the mean. Note that the categorization of emotional trust beliefs was conducted solely for illustrative purposes and all moderation analyses were conducted with continuous data. Figure 1 illustrates that, when emotional trust in mothers was low or medium, depression was positively

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>$B$</th>
<th>$SE$</th>
<th>Wald Chi-Square</th>
<th>$df$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>0.034</td>
<td>0.006</td>
<td>29.195</td>
<td>1</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Emotional Trust</td>
<td>-0.011</td>
<td>0.039</td>
<td>0.082</td>
<td>1</td>
<td>.775</td>
</tr>
<tr>
<td>Interaction</td>
<td>-0.006</td>
<td>0.003</td>
<td>4.707</td>
<td>1</td>
<td>.030</td>
</tr>
</tbody>
</table>

Note. Depression was assessed continuously using the Beck Depression Inventory and Emotional Trust was assessed continuously using the Children’s Generalized Trust Belief Scale.
associated with suicide attempts (low: \( n = 41, \beta = 1.086 \), Wald Chi-Square = 12.564, \( p < .001 \); medium: \( n = 237, \beta = 1.030 \), Wald Chi-Square = 17.103, \( p < .001 \)), but when emotional trust in mothers was high, no statistically significant relation between depression and suicide attempts was noted (\( n = 43, \beta = 1.026 \), Wald Chi-Square = 2.296, \( p = .114 \)). Figure 1 indicates a particularly sharp increase in suicide attempts for adolescents with both elevated symptoms of depression and low emotional trust beliefs in mothers, suggesting that high depression symptoms and low emotion trust beliefs are a particularly risky combination of factors.
DISCUSSION

The aim of the current study was to examine relations between emotional trust, depressive symptoms, and suicide attempts in an ethnically diverse sample of psychiatric inpatient adolescents. Findings of the present study indicated that low emotional trust in mothers, in combination with elevated symptoms of depression was associated with retrospective report of increased suicide attempts. Though Figure 1 indicates that increased depressive symptoms were associated with more lifetime suicide attempts across the board, the dramatic increase in suicide attempts reports by adolescents with the low-trust, high-depression combination suggests that this group warrants further investigation as a high-risk group. Although self-disclosure was not directly assessed in the present study, the emotional trust belief hypothesis suggests that these adolescents likely did not disclose their depressive and suicidal thoughts to mothers, due to low emotional trust beliefs, and, thus, suicidal and depressive thoughts could not be resolved by maternal discussion and support, leading to suicide attempts. This explanation remains an important area for future research, as several other possible mechanisms (described below) may also have driven the protective effects of high emotional trust noted in this study.

Conversely, there was no statistically significant link between depressive symptoms and suicide attempts among adolescents who were high in emotional trust beliefs with mothers. It should be noted that even adolescents with high emotional trust in mothers reported prior suicide attempts and, thus, high trust did not emerge as a universal protective factor. Rather, interpersonal trust seems to reduce the strong relation between elevated depressive symptoms and suicide noted in the low-trust group. This interpretation is consistent with several models of suicide risk. Joiner’s (2005) interpersonal-psychological theory of suicidal behavior, a widely influential conceptualization of suicide risk, suggests that the desire for death is driven by negative interpersonal beliefs (i.e., perceived burdensomeness and thwarted belongingness). Venta and colleagues (Venta et al., 2014) built upon Joiner’s (2005) theory, by demonstrating that, in inpatient ado-
lescents, these negative interpersonal beliefs are associated with depression, suicide-related thoughts, and maternal attachment insecurity—providing tentative evidence that insecure attachments produce interpersonal beliefs that, in turn, increase vulnerability for depression and suicide-related thoughts in teens. In the context of these models, the findings of the present study suggest that perhaps emotional trust beliefs in mothers serve as an antidote to the interpersonal beliefs implicated in both models (i.e., perceived burdensomeness and thwarted belongingness). In Cognitive Behavioral terms, perhaps emotional trust beliefs are adaptive cognitions that protect adolescents from developing maladaptive interpersonal cognitions that would place them at greater risk of suicide attempts.

The findings of the present study are also consistent with models suggesting that social support acts reduces the deleterious effects of stress (e.g., suicide attempts). Support for this stress-buffering model of social support has been found among adolescents (e.g., Cohen & Wills, 1985) and, moreover, trust beliefs have recently been identified as serving a stress-buffering role among inpatient adolescents. Indeed, Rotenberg, Sharp, and Venta (under review) reported that inpatient adolescents high in trust beliefs displayed lower internalizing maladjustment in the context of interpersonal stress. Adolescents with lower levels of trust beliefs did not evidence the same buffering effect. It may well be that, in this study, adolescents with high emotional trust beliefs experienced this stress-buffering effect and that therefore their experience of depressive symptoms (or other stressors) was less intense, rendering the link between depression and suicide attempts nonsignificant. Research on Interpersonal Psychotherapy for adolescent depression (Mufson, Dorta, Moreau, & Weissman, 2004) provides support for this hypothesis by demonstrating the effective reduction of adolescent depressive symptoms when the interpersonal domain is targeted in psychotherapy. This evidence-based treatment for depression is built upon the theory that mental health is contingent upon positive interpersonal relationships (Jacobson & Mufson, 2010)—a proposition that is supported by the current study’s results.

The findings of this study should be interpreted tentatively at this time, given that analyses were based on a cross-sectional
design that precludes causal interpretations and conclusions regarding the true relation of emotional trust beliefs to suicide risk prospectively. Indeed, depression was assessed at only one time point, whereas the suicide attempt variable represented retrospective report over the adolescent’s whole lifetime. Thus, temporal/causal relations cannot be determined in this study. Moreover, retrospective recall is subject to numerous biases (e.g., Werbeloff et al., 2015) that require replication of this study with a prospective design. Several other limitations should be noted. First, the measure of emotional trust in mothers used in this study may not reflect an individual adolescent’s actual emotional trust in his or her caregiver. Indeed, the measure used in this study assesses emotional trust in mothers through vignettes, with no questions specific to the adolescent’s own mother. To our knowledge, no data currently exist regarding the level of agreement between emotional trust beliefs as measured by the Children’s Generalized Trust Belief Scale and an individual trust in one’s own mother—an important area of future research. Additionally, inpatients in the current study may have other important interpersonal relationships (e.g., biological father, grandparents, older siblings) in whom they place emotional trust. Future research should explore trust beliefs with regard to these other individuals in relation to suicide and depression. Second, our study cannot speak to the mechanism by which emotional trust beliefs buffer against the effects of depressive symptoms on suicide attempt risk. A likely mechanism for exploration in future research is the aforementioned emotional trust belief hypothesis related to self-disclosure; that is, adolescents with higher levels of emotional trust may disclose more personal information to their mothers, which may have acted as a third variable buffering the effects of depression on suicide attempts. Future research should explore the effect of adolescent self-disclosure as it may be critically important in enabling the adolescent’s mother to seek immediate mental health support for their adolescent or assist in resolving troubling thoughts associated with depression and/or suicide, preventing a subsequent attempt. Understanding both the emotional and instrumental benefits of emotional trust beliefs requires further exploration of these variables in relation to adolescent self-disclosure and parental reactions to that
disclosure. Third, the present study was the first to evaluate suicide attempts, depression, and emotional trust beliefs in mothers together and, thus is in need of replication. In illustrating the significant moderation effect of trust beliefs, the present study identified what appear to be curves of different shapes representing the relation between depression and suicide attempts at low, medium, and high levels of trust. This categorical assignment, however, was based entirely on the statistical properties of this study’s sample (e.g., + 1 standard deviation = high) and the absence of prior research precluded use of theoretically meaningful categories. Moreover, these categories may not adequately reflect the population in question, inpatient adolescents. Future research should build upon this preliminary evidence that different statistical functions may be needed to adequately reflect the relation between depression and suicide at different levels of trust by explicitly hypothesizing and testing the shape of these curves in a different sample. Finally, the current study did not model suicidal ideation and, thus, we examined relations between depression and suicide attempts in participants with and without suicidal ideation. Recent research has suggested that the link between mental disorder and suicide attempts may be accounted for by the increased risk of suicidal ideation conferred by psychopathology (e.g., Nock, Hwang, Sampson, & Kessler, 2010). Because the current study did not include suicidal ideation and utilized only concurrent data, it is unknown whether trust in mothers and depression increases the risk of suicidal ideation, which then increases risk of attempts, or whether these factors increase the risk of suicide attempts directly. This is an important area of future research.

Despite these limitations, the study is strengthened by a focused investigation of the buffering effects of maternal emotional trust on the relation between depression and suicide attempts in inpatient adolescents. Revealing that adolescents’ emotional trust with mothers mitigates the effect of depression on suicide attempt risk, the current study sheds light on an important possible protective factor to be examined in prospective studies. Findings likewise hold important implications for the interpersonal theory of suicide (Joiner, 2005), suggesting that emotional trust may lessen the impact of maladaptive interpersonal beliefs
(i.e., thwarted belongingness, perceived burdensomeness) underlying depression on subsequent suicide risk. Moreover, the present study suggests that emotional trust beliefs may be an important, malleable treatment target, which may be helpful to target in existing clinical interventions for depression and suicidality. Support has indeed accumulated for family focused interventions for youth self-injurious thoughts and behaviors (Glenn, Franklin, & Nock, 2015); for instance, attachment-focused treatments (e.g., Attachment-Based Family Therapy; Diamond, Reis, Diamond, Siqueland, & Isaacs, 2002; Diamond et al., 2010) focus on strengthening rapport between adolescent and caregiver, and fostering disclosure in the context of a supportive, empathic environment in order to decrease depression and suicidality. Acute care interventions may further benefit from bolstering emotional trust between adolescent and caregiver, and identifying active barriers to self-disclosure and the belief that confidentiality will be maintained.

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