

ASSOCIATIONS AMONG SEVERITY OF PARENTAL DEPRESSION, PARENTING
BEHAVIORS AND ATTRIBUTIONS, AND CHILDREN'S INTERNALIZING AND
EXTERNALIZING PROBLEMS

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Dissertation

Submitted to the Faculty of the
Graduate School of Vanderbilt University
in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in

Psychology

August 31st, 2022

Nashville, Tennessee

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CHAPTER 1

Introduction

Familial transmission of depression has been a major area of research for more than 30 years (Merikangas et al., 1985; Weissman et al., 2016). An extensive body of research consistently identifies a significant association between parental depression and negative outcomes in their children (for a review, see Gotlib & Colich, 2014). Leaders in the field also continue to emphasize the need to “design studies that target those vulnerabilities for intervention... and determine how we might disrupt the intergenerational transmission of risk” (Gotlib et al., 2020, p. 177). The primary aim of the current study was to examine the relations between specific features and correlates of parental depression, including symptom severity, parenting behaviors, parents’ attributions, and children’s internalizing and externalizing problems in a sample of parents with a history of depression and their children.

Depression

Adult depression is common, costly, and a leading cause of disability worldwide (Kessler et al., 2003; Murray & Lopez, 1997). Depression often first occurs during adolescence (Beardslee et al., 2013) and is associated with poor cognitive and physical functioning in adulthood (Carney & Freedland, 2017; Kizilbash et al., 2002; Roshanaei-Moghaddam et al., 2009). Lifetime incidence rates indicate that approximately one in five adults in the US will experience depression at some point (Hasin et al., 2018). Prevalence rates of depression particularly increase during the childbearing and child-raising years (Heneghan et al., 1998; Kessler, 2003). In addition, depression in parents consistently has been linked with cognitive, emotional, and behavioral problems in their offspring (e.g., Garber & Cole, 2010; Starr et al.,

2014). This association is one of the “best replicated findings in psychiatry” (Weissman et al., 2016, p. 1024).

Depressive episodes can vary widely in their intensity (i.e., severity). Severity of depression has been linked to treatment alliance (Zilcha-Mano & Errazuriz, 2015), quality of life (Lin et al., 2019), and transdiagnostic mechanisms such as sleep function (Kay et al., 2017), neurological function (Holmes et al., 2019), and inflammation levels (Köhler-Forsberg et al., 2017). The heterogenous severity of depression may partially explain inconsistent findings across studies of the relation between parental depression and offspring adjustment (Cents et al., 2013; Downey & Coyne, 1990). In addition to severity, depression also is heterogeneous in its course and correlates (Fried & Nesse, 2015; Rush, 2007). Such variability in characteristics of parental depression has been found to relate differently to children’s developmental outcomes (Guyon-Harris et al., 2016; Netsi et al., 2018).

Offspring of depressed parents

Impairment in offspring of depressed parents begins early in childhood and includes high levels of both internalizing and externalizing problems (Korhonen et al., 2012; Sutherland et al., 2020; Velders et al., 2011), academic achievement problems, autism spectrum disorders, and severe mental illness (Liu et al., 2017; Murray et al., 2010; Rai et al., 2013; Rasic et al., 2014; Silberg et al., 2010). In particular, offspring of depressed parents are three times more likely to develop a mood disorder by adulthood as compared to offspring of parents without depression (Weissman et al., 2016). These problems and associated impairment can continue into adolescence and adulthood, sometimes persisting after parental depression has remitted (e.g., Ensminger et al., 2003; Hammen & Brennan, 2003; Shen et al., 2016; Weissman et al., 2006). Not all offspring of depressed parents, however, develop psychopathology (Collishaw et al.,

2016). Recently, Goodman (2020) called for research that identifies what distinguishes at-risk children who do versus do not experience dysfunction; that is, what moderates the associations between parental depression and offspring functioning?

Parental factors

Severity of maternal depression has been associated with both cognitive deficits and behavioral problems in offspring (e.g., Rouse & Goodman, 2014; Stein et al., 2014). For example, in a large sample ($n = 9848$) of mother-child dyads, Netsi and colleagues (2018) found significantly greater odds (Odds Ratio = 4.84) of child behavioral problems at age 3.5 years in offspring of mothers who had experienced persistently severe maternal depression as compared to children of mothers whose depression was less persistently severe.

The importance of severity as a risk factor for offspring has been demonstrated repeatedly. In a recent meta-analysis, we identified a moderate effect size for the association of depression severity to child functioning (Fishers' $z = -.299$; Sutherland et al., 2020). This area of study is not without limitations, however. In much of the extant literature, parents have reported on both their own and their children's symptoms (e.g. Brennan et al., 2000), which may overestimate their true correlation due to shared method variance and reporter bias (De Los Reyes & Kazdin, 2005). Further, whereas there is now extensive literature on both severity and other parenting characteristics as risk factors for children's psychopathology, less is known about the potential interplay among these various factors and the processes that underly the intergenerational transmission (Goodman, 2020; Klein et al., 2005).

Several potential pathways of transmission from parental depression to offspring functioning have been suggested and include genetic heritability, innate neuroregulatory dysfunction, the stressful context of living with a depressed parent, and children's exposure to

parents' negative affect, cognitions, and behaviors (Goodman & Gotlib, 1999). These factors might directly explain children's adjustment, or they may interact with characteristics of parents' depression to predict children's functioning. Identifying variables that moderate the relation between severity of parental depression and offspring problems may highlight possible targets for intervention. The current study focused on two potential moderators of the relation between severity of parental depression and offspring outcomes: parenting behaviors and parents' negative attributions about child-focused events.

Parenting. Various parenting behaviors are related to both adaptive and maladaptive child development (Barnett et al., 2012; Johnson, Liu, & Cohen, 2011; Murray et al., 2010; Rilling & Young, 2014). Positive parenting is characterized by high levels of warmth, specific praise, consistent discipline, low levels of over-involvement or intrusiveness, and a balance between monitoring and autonomy-granting (Murray et al., 2010; Smetana et al., 2006; Tabak & Zawadzka, 2017). These parenting behaviors consistently have been linked to lower rates of problem behaviors in children (for reviews, see McKee et al., 2008; Yap et al., 2014). For example, parental warmth, praise, and shared time with offspring are negatively associated with adolescent substance misuse (Yap et al., 2017); parental support is negatively associated with adolescent internalizing disorders (Inguglia et al., 2016); and a balance of high parental monitoring and autonomy-granting is associated with positive adolescent adjustment (Rodriguez-Meirinhos et al., 2020).

Negative parenting behaviors include harsh criticism, psychological control, and emotional over-involvement. These negative parenting practices have been linked with poorer psychological well-being and greater levels of internalizing and externalizing behaviors in children (Chen et al., 2019; Gruhn et al., 2016; Kopala-Sibley et al., 2017; McKinney et al.,

2018; Shute et al., 2019). For example, a meta-analysis of 1,015 studies showed significant associations between harsh or controlling parenting with higher levels of offspring internalizing behaviors (Pinquart, 2016).

Parents' Attributions. Negative cognitions are a reliable correlate and predictor of depression (e.g., Mac Giollabhui et al., 2018; Yeo et al., 2020). Attributional (or cognitive) style refers to a pattern or tendency to make inferences about the causes, consequences, and implications of events, and it can be negative or positive (Haefffel et al., 2008). Individuals with a negative cognitive style tend to attribute adverse events to more global and stable negative causes, and they tend to personalize the causes of adverse events to themselves (Abramson et al., 1989). For example, following the dissolution of a romantic relationship, an individual with a negative cognitive style might think "I am unlovable. I will always drive romantic partners away." Such a negative cognitive style, in combination with stressors, has been shown to predict depression in adults (e.g., Alloy et al., 2017) and children (e.g., Abela & Hankin, 2008; Carter & Garber, 2011). When families experience stressful events, children's risk for maladjustment may be compounded by exposure to parental hopelessness in addition to the stressor itself. Other common features of depression include low self-worth or excessive guilt, which may permeate parents' interactions and conversations with their children, thereby teaching negative cognitive styles to offspring through modeling and direct instruction.

A more negative cognitive style in parents has been found to be associated with greater offspring psychopathology (Riskind et al., 2017). Interestingly, there is some evidence that children's cognitions may be linked more to their parents' cognitions about them than to parents' attributions about themselves. For example, Garber and Flynn (2001) found that mothers' attributions about their child's behaviors were significantly associated with their child's

attributions about these behaviors, whereas mothers' attributions about situations in their own life were not correlated with children's attributional style. Therefore, the current study examined parents' attributions about their child's behaviors rather than their attributions about events in their own lives as a potential moderator of the association between severity of parental depression and children's symptoms.

Moderation. Whereas the parental variables introduced above (depression severity, parenting behaviors, and parental negative attributions) have each been studied in relation to offspring adaptation, less is known about how they interact to best predict offspring functioning. The current study sought to explore the relations between these variables for possible interaction effects. It is unclear how these variables may compare in contributions to risk and how they may (or may not) interact to create different risk profiles.

The Current Study

The current study had three specific aims: Aim 1 was to examine the association between parents' current level of depressive symptoms (severity) and children's internalizing and externalizing problems in a sample of offspring of parents with a history of depression during their child's lifetime. We hypothesized that greater severity of parents' depression would be significantly associated with higher levels of internalizing and externalizing problems in their children. Aim 2 was to investigate the separate associations between other variables (parenting behaviors and parents' negative cognitions) and children's symptoms. We hypothesized that (a) more maladaptive parental behavior, and (b) more negative attributional style would be associated with more emotional and behavioral problems in offspring. Aim 3 was to explore potential moderators of the link between severity of parents' depression and children's

internalizing and externalizing problems. This aim was exploratory, as it has not been previously examined in a sample of offspring of depressed parents.

CHAPTER 2

Methods

Participants.

Participants were 188 parent-child dyads who were part of a larger, randomized controlled prevention trial. Eligibility criteria included (a) a parent with a history of a depressive disorder during the child's lifetime, and (b) a child ages 9- to 15-years-old. Only one child per family was included in the current analyses. In families with multiple children, the oldest child was selected to distribute the ages of the children more evenly in a sample that was skewed toward younger children.

Participant demographics are presented in Table 1a. Participating parents were between 28 and 60 years of age ($M = 42.10$, $SD = 6.75$); and identified as female caregivers ($n = 169$, 89.4%) or male ($n = 20$, 10.6%). Parents' level of education was as follows: high school graduates ($n = 8$, 4.2%), had attended some college ($n = 56$, 29.2%), had completed college ($n = 50$, 26.5%), had started or completed a graduate degree ($n = 71$, 37.6%). Parents self-identified as non-Hispanic ($n = 148$, 78.3%), or Hispanic or Latinx ($n = 28$, 14.8%), or did not report ($n = 8$, 4.2%). Participants self-identified as white ($n = 128$, 67.7%), Black or African American ($n = 21$, 11.1%), Asian ($n = 7$, 3.7%), American Indian, Alaskan Native, or Pacific Islander ($n = 3$, 1.6%), more than one race ($n = 15$, 7.9%), or other/chose not to report ($n = 8$, 4.3%). The participating parent was required to have legal guardianship (at least 50%) of the eligible child participant.

Child participants were between 9 and 15 years old ($M = 11.53$, $SD = 1.92$), and 98 (51.9%) were female. Children identified as non-Hispanic ($n = 148$, 78.3%), or Hispanic or

Latinx (n = 32, 16.9%), or did not report (n = 9, 4.8%). Participants self-identified as white (n = 121, 64.0%), Black or African American (n = 23, 12.2%), American Indian, Alaskan Native, or Pacific Islander (n = 6, 3.2%), Asian (n = 5, 2.6%), more than one race (n = 24, 12.2%), or other/chose not to report (n = 6, 3.2%). Exclusion criteria for the children were a current diagnosis of Major Depressive Disorder, pervasive developmental disorder or intellectual disability, conduct disorder, substance use disorder, current suicidality, or self-injuring behavior in the last year.

Procedure

Families were recruited as part of a larger study of parents with a history of depression and their children. Families were recruited from university list-servs, psychiatric clinics, university hospital waiting rooms, print and internet advertisements, and coordination with local schools in a city in southern California and in central Tennessee. Parents were initially screened over the telephone, and if eligible, families were scheduled for a full interview to further assess inclusion and exclusion criteria. Parents and children also completed questionnaires regarding psychopathology, parenting behaviors, and attributions. Families were compensated with cash and gift cards. All procedures were approved by the Institutional Review Boards for the Protection of Human Subjects in research. Parents completed informed consent forms and children completed assent forms prior to data collection.

Measures

Parental psychopathology. The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID, First et al., 1997) was administered to determine eligibility of parents. Parents were ineligible if they were currently acutely suicidal, psychotic, or substance abusing, or had ever had bipolar I disorder or schizophrenia. Parents were invited to participate if they had

experienced a depressive disorder during the eligible child's lifetime. The Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) was administered by clinical interviewers to determine presence and severity of current depressive symptoms over the past two weeks and was used as the index of severity of parents' current level of depression. In addition to use of the HRSD as a dimensional measure of psychopathology, high severity (sample mean + 1SD; "1") or not (sample - (sample mean + 1SD); "0") groups were calculated, as extant literature often has considered severity using categorical quantifications (Brennan et al., 2000; Netsi et al., 2018)

Parenting behaviors. The 30-item *Children's Report of Parental Behavior Inventory* (CRPBI; Schaefer, 1965; Schludermann & Schludermann, 1970) assessed children's perceptions about parents' behaviors. A copy of the measure is available in the Appendix. The CRPBI yields three subscales: (a) acceptance and warmth, which includes child-centeredness and positive involvement, (b) use of psychological control, intrusiveness, and manipulation, and (c) behavioral control, which includes parental monitoring of offspring behaviors, firm or lax control, and rule-setting. Children are presented with a description of parenting behaviors, such as "often praises me" (warmth), "tells me all of the things he/she has done for me" (psychological control), or "wants to control whatever I do" (behavioral control). Children then respond with "like," "somewhat like," or "not like" to indicate whether they believe the behavior accurately reflects their parent. Coefficients of consistency (Cronbach's alpha) were $\alpha = .988$ for the acceptance/warmth subscale, $\alpha = .877$ for psychological control, and $\alpha = .698$ for behavioral control.

Although the use of the CRPBI has been most widely used to assess parenting practices and is modestly correlated with reports by parents themselves, large parent-child report discrepancies may be clinically meaningful (e.g., Korelitz & Garber, 2016). Therefore, a

companion parenting behavior inventory was administered to parents in this sample to assess for congruency between parent and child reports (Parenting Behavior Inventory, Lovejoy et al., 1999). In this sample, correlations between parent- and child-reported subscales were significant ($r = .366, p < .001$ for parental warmth, $r = .214, p < .010$ for psychological control, and $r = .245, p < .010$ for behavioral control).

Parents' Attributions. The *Children's Attributional Style Questionnaire - Revised - Parent Version* (CASQ-R-P; Garber & Flynn, 2001) was used to measure parents' attributions about their children's behaviors. The CASQ-R-P is a parent-report companion measure to the Children's Attributional Style Questionnaire- Revised (CASQ-R; Thompson, Kaslow, Weiss, & Nolen-Hoeksema, 1998), which includes 24-items (12 positive and 12 negative events). The full measure is available in the Appendix. The 24 items on the CASQ-R-P correspond to the CASQ-R items, with wording that probes parents' attributions about their child. Parents select one of two possible causes for each event, either internal (blaming the child) or external (blaming the situation), stable (i.e. trait) or unstable (temporary or situational), or global (general, extending to other areas) or specific (not a reflection of general abilities). In this case, higher scores indicated a more negative attributional style for child-related events, such that negative events would be explained using internal, global, and stable reflections of their child, and positive events using an external, specific, and unstable cause. For example, for the item "My child gets an A on a test," parents select that this is because either (a) "My child is smart" or (b) "My child is good in the subject that the test was in" (Garber & Flynn, 2001). The two responses reflect an internal cause that varied on global – specific. A composite score was generated, such that a higher score indicated more negative attributions (stable, global, and internal attributions for negative events, and unstable, specific, and external for positive events) about offspring.

Children's psychopathology. *The Schedule for Affective Disorders and Schizophrenia for School-age Children* (K-SADS; Kaufman et al., 1997) was administered to both parents and youth to determine offspring eligibility. Modules regarding current Major Depressive Disorder, or lifetime Bipolar Disorder I, conduct disorder, substance use disorders, and psychosis were administered, and current suicidality was assessed within the Major Depressive Disorder queries. Presence of any of these diagnoses was an exclusion criterion.

Children's behavioral and emotional problems were measured with the *Youth Self-Report* scale – child report (YSR; Achenbach & Rescorla, 2001) and the *Child Behavior Checklist* – parent report (CBCL; Achenbach & Rescorla, 2001). These scales are reliable and valid 118-item checklists of problem behaviors that children may experience. Two empirically based syndrome scales were used to analyze internalizing and externalizing problems for each measure, and analyses used raw scores to maximize variance (Compas et al., 2015; Fear et al., 2009). Raw scores were converted to Z scores to provide standardization across parent and child reports. Parent-child composite scores were derived by averaging the standardized scores for parent and child reports for each subscale (e.g., Reising et al., 2013).

Data Analysis Plan

Analyses of these cross-sectional data were conducted using SPSS version 27. Using the SPSS missing data function, we examined data missingness, considering percentage of variables with missing data, percentages of cases with missing data, and random versus non-random distribution of missing values.

To test whether the severity of parental depression was positively associated with higher levels of internalizing and externalizing problems in the children, we conducted bivariate

correlations and *t* tests. Severity was conceptualized as both a dimensional variable (raw HRSD scores) and a categorical variable (*severe* = HRSD sample mean + 1SD).

To examine the associations of severity of parents' depressive problems with parenting behaviors, parents' attributions, and children's problems, we conducted bivariate correlations and multiple regression analyses. Finally, we conducted hierarchical linear regression analyses to test whether parenting behaviors or parents' attributions moderated the relation between severity of parents' depressive symptoms and children's internalizing and externalizing problems.

CHAPTER 3

Results

Descriptive Statistics

Descriptive statistics for demographic variables, severity of parents' depressive symptoms, parenting behaviors, parents' attributions about their child's behaviors, and children's internalizing and externalizing problems are reported in Tables 1a and 1b. Table 2 presents the correlations among parental depression severity, parenting behaviors, parents' attributions, and relevant study demographic variables including parents' and children's age, sex, and race/ethnicity. Pearson correlations were employed for continuous variables and Spearman correlations were used for ordinal variables. Parent gender was not significantly associated with any study variables in this sample.

Aim 1: Examine the relation between severity of parents' depressive symptoms and children's internalizing and externalizing problems.

The continuous measure of parental depression severity (HRSD) was not correlated significantly with children's internalizing or externalizing problems. When parental depressive symptoms were categorized into *high* severity of parental depression (mean + 1SD, 1) or not severe (0), a different pattern emerged. Internalizing problems were significantly elevated in offspring of severely depressed parents as compared to offspring of mothers with less severe depressive symptoms ($t(162) = 2.06, p = .041$); externalizing problems did not differ by severity of parents' current depressive symptoms ($t(162) = .203, p = .839$).

Aim 2a. Examine the relation between parenting behaviors and children's internalizing and externalizing problems.

Correlations were used to examine the relations between individual parenting constructs and offspring outcomes. As hypothesized, parental warmth was significantly related to children's internalizing ($r = -.200, p = .011$) and externalizing ($r = -.333, p = .001$), indicating greater levels of parental warmth were associated with fewer offspring psychological problems. Parental psychological control was positively related to externalizing behaviors in offspring ($r = .371, p = .001$), indicating that greater psychological control and intrusiveness was significantly associated with higher levels of behavioral problems. The correlation between parental psychological control and offspring internalizing behaviors was not significant, however. Parental behavioral control followed a similar pattern, such that greater rule-setting and rigid monitoring was positively correlated with children's externalizing behaviors ($r = .290, p = .001$) but not internalizing problems.

To examine the difference in magnitude of associations between parenting and internalizing versus externalizing symptoms, we used Lee and Preacher's (2013) interactive calculator to compare dependent correlations. Per equations described by Steiger (1980), correlation coefficients were standardized, and asymptotic covariance was estimated. Results indicated that the relation between parenting and children's symptoms was significantly greater for externalizing than internalizing problems for all three parenting constructs (warmth $z = 1.87, p = .03$; psychological control $z = 3.37, p < .01$; behavioral control $z = 4.46, p < .01$).

Next, multiple regression models were created to examine models of all three types of parenting behaviors in relation to children's internalizing and externalizing behaviors. Modeled parenting behaviors significantly predicted variance in internalizing (see Table 3; $F(3, 155) = 3.07, p = .03$, adjusted $R^2 = .04$) and externalizing problems (see Table 4; $F(3, 155) = 13.07, p < .01$, adjusted $R^2 = .196$). When considering the amount of variance that each type of parenting

behavior accounted for in offspring symptoms, analyses identified a significant contribution of parental warmth to offspring internalizing problems ($\beta = -.178, p = .037$) and to externalizing problems ($\beta = -.241, p = .002$). Parental psychological control also contributed significantly to externalizing behaviors ($\beta = .206, p = .018$). Neither psychological control nor behavioral control contributed significantly to the prediction of internalizing behaviors. Parental behavioral control had a nonsignificant trend toward an association with externalizing behaviors ($\beta = .154, p = .060$).

Aim 2b. Examine the relation between parents' attributions and children's internalizing and externalizing problems.

Parental negative attributions about their children's behaviors was positively related to both internalizing ($r = .218, p = .007$) and externalizing ($r = .426, p = .000$) problems. Greater parental negative attributions were associated with significantly higher levels of internalizing and externalizing problems in offspring.

Aim 3a: To test parenting as a moderator of the association between severity of parents' depressive problems and children's internalizing and externalizing problems.

Hierarchical linear regression analyses were conducted to test the hypothesis that the association between severity of parents' depression and children's problems would be stronger when parenting behaviors were more negative (e.g., less warm; more controlling). Main effects were entered in Step 1 and interaction effects were tested in Step 2. Results are presented in Tables 5 and 6.

Table 5 shows results for internalizing problems. When interaction terms were included in regression models, the overall model was significant ($F(5, 155) = 2.65, p = .025$, adjusted $R^2 = .081$), and the interaction between parental warmth and depression severity was significant in

predicting offspring internalizing problems ($b = .005$, $SE = .002$, $t = 2.050$, $p = .042$). To probe this effect, we used Hayes' (2013) PROCESS macro. Figure 1 shows that when severity of parental depression was high (1 SD above the mean), the relation to offspring internalizing problems did not vary by parental warmth ($b = -.007$, $SE = .01$, $t = -.527$, $p = .599$). In contrast, when parental depression was less severe (at the mean or 1 SD below the mean), its relation to child internalizing symptoms varied significantly ($b = .030$, $SE = .014$, $t = 2.24$, $p = .026$). That is, at low levels of severity of parental depression, low warmth was significantly associated with higher levels of offspring internalizing problems, whereas higher parental warmth was associated with lower internalizing symptoms.

Table 6 shows results for externalizing problems. When interaction terms were included in the regression models, the overall model was significant ($F(7, 148) = 6.242$, $p < .001$, adjusted $R^2 = .191$). None of the interaction terms was significant, although the interaction between parental depression severity and parental warmth showed a nonsignificant trend ($b = .004$, $SE = .002$, $t = 1.894$, $p = .060$).

Aim 3b. To test parents' attributions as a moderator of the association between severity of parents' depressive symptoms and offspring internalizing and externalizing problems.

Hierarchical regression modeling was used to examine whether parents' attributions moderated the relation between parental depression severity and offspring problems (see Tables 7 and 8); significant interactions were probed individually. Hierarchical linear regression analyses were conducted to test the hypothesis that the association between severity of parents' depression and children's problems would be stronger when parental attributions about offspring were more negative. Main effects were entered in Step 1 and interaction effects were tested in Step 2. Results are presented in Tables 7 and 8.

Table 7 shows results for internalizing problems. When interaction terms were included in regression models, the overall model was significant ($F(3, 145) = 3.33, p = .021$, adjusted $R^2 = .045$). A main effect for negative attributions remained; ($b = .181, SE = .075, t = 2.426, p = .016$); the interaction was not significant, however ($b = -.009, SE = .006, t = -1.425, p = .156$).

Table 8 shows results for externalizing problems. When the interaction term was included in regression model, the overall model was significant ($F(3,145) = 11.103, p < .001$, adjusted $R^2 = .170$), and the interaction between parent negative attributions and parent depression severity significantly predicted offspring externalizing problems ($b = -.012, SE = .005, t = -2.185, p = .031$). To probe this effect, we used Hayes' (2013) PROCESS macro. Figure 2 shows that at high levels of severity of parental depression (equal to or greater than 1 *SD* above the mean), offspring externalizing did not vary significantly as a function of parents' negative attributions ($b = -.002, SE = .009, t = -.229, p = .818$). In contrast, at less severe levels of parental depression (1 *SD* below the mean), higher levels of parents' negative attributions about their children's behaviors were associated with higher offspring externalizing problems ($b = -.0327, SE = .014, t = -1.72, p = .009$).

CHAPTER 4

Discussion

Severity of parental depression is a significant predictor of negative psychological outcomes in offspring, including lower cognitive and achievement scores, greater internalizing and externalizing symptoms, and higher rates of diagnosed psychopathology (Campbell et al., 2007; Hamman et al., 2003). Recent work has identified parenting behaviors and cognitive style as potential targets for interventions that aim to prevent the negative effects of parental depression on offspring internalizing or externalizing problems (Loechner et al., 2020; Marrini et al., 2018). The current study examined parents' behaviors and cognitions as potential predictors of offspring internalizing and externalizing behaviors and moderators of the association between severity of current parental depression and children's symptoms and behaviors in a sample of offspring of depressed parents.

The relation between severity of parents' current depressive symptoms and children's internalizing and externalizing problems

The current study used two variables to examine severity of parental depression: the total score of the HRSD and a categorical variable (low or moderate versus high severity of depression). Results indicated that the categorical variable of high severity of parental depression correlated significantly with offspring externalizing but not internalizing problems. The literature exploring severity of parental depression has defined and measured depression severity using a wide range of descriptors. There is heterogeneity across findings, but in general, a significant association between severity of parents' depression and offspring psychopathology has been found (Netsi et al., 2018; Oh et al., 2020). The current study tested whether the association between parental depression severity measured dimensionally or categorically was associated

with offspring emotional and behavioral problems. Significant correlations between severity of parent depression and children's symptoms emerged when severity of depression was measured categorically but not dimensionally.

Several factors might explain this finding. First, the entire parent sample had experienced a depressive episode at least once in their child's life. This might have limited the variability of depression severity in parents and reflect a somewhat narrower, possibly more severe level of depressive symptoms. This may have resulted in a restricted range of scores, thereby decreasing the size of the correlations.

Second, the current study focused on the measure of the severity of *current* depressive symptoms, not of prior episodes. Parents may have experienced severe depressive episodes that occurred during the child's life, but the severity of these prior episodes was not measured and might differ from their current symptom levels. That is, some parents may have had low HRSD current scores, when in fact, they might have had a severe episode at some earlier point in time. Still other parents with low current severity of depression scores might have had years of remission after an intense and persistent course of depression early in their child's lifetime. Future longitudinal studies should measure severity of prior depressive episodes when they occur. Although retrospective recall of the details of previous depressive episodes might be difficult to recollect, severe episodes are more likely to be remembered.

Third, several of the exclusion criteria in the current study likely limited the sample to children with only relatively low to moderate levels of problem behaviors. That is, children with conduct disorder, substance abuse, psychosis, or current suicidality were not included in the sample. The current study was part of a larger, longitudinal study investigating the efficacy of a preventive intervention, and the inclusion criteria for the current study were derived from this

larger study. The nature of prevention studies inherently excludes youth who were currently experiencing the problems that were the focus of the prevention trial (i.e., depression). Thus, perhaps our sample of high-risk offspring was not representative of the broader population of children of depressed parents. This likely limited the severity of both parents' depression and children's psychopathology, thereby decreasing power to detect true associations.

Finally, in contrast to our current findings, some studies have found that parental severity of depression is not a reliable predictor of child outcomes on its own. For example, O'Connor and colleagues (2017) reported that severity of depression did not significantly predict child outcomes, over and above current depression as measured with a self-report measure. As such, it may be important to consider severity alongside other facets of parental depression (e.g., timing, duration) to understand its potentially differential association with youth adjustment.

Longitudinal studies are needed to understand *when* and *for whom* severity of parental depression matters, and how other factors moderate the relation between severity of parental depression and offspring functioning.

Relations among severity of parents' depression, parenting behaviors (warmth, psychological control, and behavioral control), and children's internalizing and externalizing problems

Parental warmth. As hypothesized, greater parental warmth was significantly associated with fewer offspring problems. This is consistent with an extensive body of literature that underscores the importance of parental warmth for children's development. Parental warmth is associated with greater social competence, lower internalizing and externalizing problems, and greater psychological adjustment in children and adolescents (Khaleque, 2013; Rothenberg et al., 2020; Zhou et al., 2002). Warmth has been associated with better psychological functioning

following trauma in childhood (Paine et al., 2020), decrease risk for maladaptive health outcomes, and improved flourishing in offspring (Chen et al., 2019). Moreover, these associations appear across a variety of ethnicities and cultures (Khaleque, 2013). Thus, the current findings are consistent with existing research, showing that greater levels of parental warmth are linked with fewer offspring psychological problems.

Of note, the correlation between parental warmth and offspring externalizing was significantly greater than with internalizing. This is consistent with previous findings of greater effect sizes for the relation between parental warmth and child externalizing (Eckshtain et al., 2019). Further, there is an earlier onset of externalizing than internalizing problems, with a tendency for externalizing problems to decrease over childhood and adolescence, whereas internalizing problems tend to increase across development (Nivard et al., 2017). As such, given the young age of our sample, it is possible that the association between parental warmth and offspring internalizing symptoms may emerge later in adolescence.

Parental warmth did significantly moderate the association between parental depression severity and children's internalizing. Figure 1 shows that when severity of parental depression was high, its relation to offspring internalizing problems did not vary by parental warmth, whereas when parental depression severity was low, its relation to child internalizing symptoms varied significantly. Thus, parental warmth was particularly salient when severity of parental depression was low. In contrast, at high levels of severity of parental depression, parental warmth did not serve as a buffer against child internalizing symptoms. Parenting in the context of severe depression is likely complicated for many reasons, and many other factors (e.g., family stress) likely contribute to variance in offspring adaptation. High severity of depression has been associated with a variety of maladaptive outcomes, including productivity loss (Beck et al.,

2011), oxidative stress (Yanik et al., 2004), and marital quality and satisfaction (Robles et al., 2014), all of which could be related to exacerbated parenting problems or child symptoms.

The finding that parenting behaviors moderated the relation between parental depression severity and offspring internalizing problems underscores the need for longitudinal assessment of these variables. Without prospective data, directionality of these associations cannot be empirically determined. Moreover, possible bidirectionality between parent depression and child internalizing and externalizing problems should be explored. Although there is some evidence that child behavioral problems may predict parental depression (Bagner et al., 2013), models have shown greater effect sizes for parent-to-child effects (Nicholson et al., 2011; Sutherland et al., 2019).

Psychological control and behavioral control. Both parental psychological control and behavioral control were significantly associated with higher levels of offspring externalizing problems. This is congruent with the results of recent studies showing a significant positive relation between psychological control and children's externalizing (Rogers et al., 2020; Yan et al., 2020), and between behavioral control and externalizing problems (Barber et al., 2004; Bean et al., 2006). Parental control has been hypothesized to lead to perceived or actual attempts to curtail developmentally appropriate increases in offspring autonomy, which in turn may lead to youth engaging in externalizing behaviors (Inguglia et al., 2020).

In contrast, neither psychological nor behavioral control was significantly associated with internalizing problems in youth. Findings in this literature are mixed (e.g., Ha & Jue, 2018), although the pattern in the current study has been observed before (Bean et al., 2006). Possible explanations for inconsistencies regarding the link between these parenting behaviors and child internalizing could be due to other factors such as age and culture. Of note, the association of

parental behavioral control with internalizing and externalizing problems across cultures has been found to vary (Rothenberg et al., 2020).

Some parental depressive symptoms might be associated with certain types of negative parenting. For example, symptoms such as decreased motivation, psychomotor retardation, difficulty sustaining attention or concentration, and fatigue, which represent a withdrawn depression presentation, have been linked to more disengaged, uninvolved, unstructured, or inconsistent parenting (Jones et al., 2015). This combination of parental depressive symptoms also may be associated with flat affect or decreased displays of positive affect by parents around or toward their children, possibly exacerbating the effects of parental depression on youth behaviors or symptoms. A recent review (Ahun & Cote, 2019) identified parenting practices as a significant mediator of the association between maternal depression and child development. Although this review was limited to mothers and maternal caregiving practices and did not include measures of parental cognitions, findings suggest the importance of both parenting and parental depression for offspring outcomes.

In contrast to the moderating effect of parenting on the association between severity of parental depression and offspring internalizing, there was no such moderating effect of parenting on child externalizing problems. It is possible that the greater correlation of parenting behaviors with externalizing than with internalizing symptoms reduced the likelihood of finding moderation. Alternatively, perhaps the discrepant findings here are due to different risk processes for internalizing versus externalizing problems. For example, Mannarini et al. (2018) described certain characteristics of parental bonding as being differentially related to child internalizing but not externalizing problems.

Relations among severity of parents' depressive symptoms, parents' attributions, and children's internalizing and externalizing problems

Parental negative attributions about their children's behaviors were positively related to both internalizing and externalizing in offspring, such that more parental negative attributions significantly predicted more symptoms and problem behaviors in offspring. It is not possible to determine the direction of this association, however, based on these cross-sectional data. Perhaps depressed parents of children with high levels of emotional and behavioral symptoms are more likely to make negative attributions about their children.

Parents' attributions about children's life events significantly moderated the relation between parent depression severity and offspring externalizing behaviors, but not internalizing symptoms. At high levels of severity of parental depression (1 *SD* above the mean), offspring externalizing did not vary significantly as a function of parents' attributions, whereas at less severe levels of parental depression (1 *SD* below the mean), more negative parental attributions about their children were significantly associated with higher levels of children's externalizing behaviors (see Figure 2). It is possible that when parental depression severity is low, the way parents think and talk about their children relates more strongly to offspring problems, but when parental depression severity is high, parental depressive symptoms themselves (e.g. despair, self-worthlessness, suicidality) dilute the associations between negative attributional style about children and offspring symptoms.

Longitudinally, parental depression has been found to be associated with worsening of children's cognitive style, psychopathology, and cognitive development (Pearson et al., 2013; Sutherland et al., 2019). The precise mediational pathways by which parents' depression and cognitions contribute to their children's depression and cognitions are not yet known. Parental

negative cognitions have been identified as a potential target for treatment (Bugental & Johnston, 2020; Gotlib, Goodman, & Humphreys, 2020). The current findings underscore the possible importance of parents' cognitions for future intervention research.

Study Strengths and Limitations

Methodological strengths of the current study include its high-risk sample and rigorous measurement. First, the study examined relations among a large sample of high-risk parent-child dyads. All 188 parents had a history of at least one depressive episode during their participating child's lifetime. Depression is a highly prevalent psychological disorder and children of depressed parents are at a substantially increased risk for maladaptive outcomes as compared to children of never depressed parents (Beardslee et al., 2011; Kessler et al., 2003). The majority of these disorders do not begin to present until adolescence or early adulthood, and therefore, our sample represents a unique window of development when offspring might not yet be experiencing significant impairment but are old enough to provide information about themselves and their families.

Second, depression severity was conceptualized using a well-validated, interviewer-rated measure, the HRSD. Using an interviewer measure minimized scoring bias potentially present in self-report with depressed individuals. Moreover, the HRSD queries about the severity of specific symptoms in addition to capturing more global impairment. Further, rather than only describing depression as a categorical construct, this measure provided a dimensional index of severity well-suited to predictive modeling (Goodman, 2020).

Third, this study included comprehensive measurement of offspring's psychological functioning using the Achenbach measures of internalizing and externalizing symptoms. Data were collected from multiple informants of child psychopathology, thus mitigating the potential

problem of reporter bias, sometime found in parents experiencing depression (Briggs-Gowan et al., 1996; Youngstrum et al., 1999). Achenbach's empirically-based assessment tools are widely used in both research and clinical practice, provide standardized measures of emotional and behavioral problems and adaptive functioning, and are considered the gold standard for measurement of psychological functioning in children and adolescents (Achenbach et al., 2004; Renk, 2005).

Finally, our sample included fathers as well as mothers. One major area of concern in the extant literature is convenience sampling that favors mothers over fathers. Despite uncertain findings on whether paternal depression contributes significantly to offspring pathology, current work continues to focus on maternal psychopathology (Goodman, 2020; O'Connor et al., 2017; Swales et al., 2020). Although the number of paternal caregivers was still much fewer than that of maternal caregivers, the literature has emphasized the importance of including fathers as well as mothers, and publication of stratified scoring may support future meta-analytic efforts to examine any parental sex differences (Barker et al., 2012; Fredriksen et al., 2018; Riskind et al., 2017).

Limitations of the current study also should be noted. First, the cross-sectional design did not allow us to determine the direction of the observed relations between parent depression and children's problems. Child effects are possible, as parents of children with behavioral and emotional problems have been found to have higher rates of depression than parents of children without such problems (Bagner et al., 2013), suggesting that parents may experience depressive symptoms in response to certain behaviors in their children. It also is possible that some shared third variable (e.g., heritability of depression; stressful life events) accounts for the observed correlations between parents' depression and children's symptoms (Goodman & Gotlib, 1999).

Second, data were collected as a part of a prevention study, so the inclusion criteria of the intervention may have limited our sample in several ways. As a prevention trial, offspring with current threshold depressive disorders or suicidality were excluded from the sample, which may not represent the results of children with more severe depressive symptoms. It is possible that a less restrictive sample of offspring of depressed parents would exhibit greater levels of psychopathology, and the relation between parental depression and offspring psychopathology might be more detectable.

Similarly, parents with current substance use disorder impairment were excluded from the study. As depression is highly comorbid with substance abuse (Swendensen & Merikangas, 2000) and this combination of disorders is associated with significant impairment in offspring (Marmorstein et al., 2012), a high-risk group of children may have been excluded from the study. Additionally, data regarding other comorbid disorders in parents were not addressed in the current study (Augustyn et al., 2018; Mesman et al., 2017). We suggest that future work consider both severity of depression and additive or multiplicative effects of comorbidity in parents in relation to offspring symptoms.

Finally, although we examined two specific parental factors – parenting behaviors and parental negative cognitions about their children – other variables may be important for understanding the nuanced relation between severity of parental depression and offspring outcomes. For example, previous work has demonstrated the importance of measurement of chronicity of parents' depression (e.g., Netsi et al., 2018; Sutherland, 2020). Information regarding persistence or chronicity of parental depression was not available in the present study.

Clinical Implications and Future Directions

The current study has several clinical implications, suggesting the importance of assessing parental depression severity, parenting, and parental cognitions, and how these variables may relate differently in the risk processes for offspring internalizing and externalizing problems. Understanding the relations between parental severity and parenting behaviors is particularly important for future interventions, as researchers continue to improve models for predicting treatment outcomes (Delgado & Gonzalez Salas Duhne, 2020). Although likely worth the cost, psychotherapy for adult depression, along with parent-focused treatment for offspring, can be quite expensive and not always effective. Further clarity about for whom the relation between parental depression and parenting behaviors matters most for offspring functioning may allow for a more personalized identification of families in need of a parenting intervention. For example, measures of parental severity of depression, parental attributions about their children, and children's perceptions of their parents' behaviors, administered at an intake clinic, might help clinician prioritize possible treatment targets: parent depression, parenting behaviors, or parental attributions about their children. Further, identifying offspring who are at high risk for the negative consequences of parental depression will aid both screening and prevention efforts (Maciejewski et al., 2018; McDaid, Park, & Wahlbeck, 2019; Purtle, Nelson, Counts, & Yudell, 2020). This might be obtained with similar measures of parent depression, behaviors, and cognitions, but also might be guided by the child's presenting complaint: internalizing problems or externalizing problems.

The moderators (i.e., parenting behaviors and parents' attributions) examined here are modifiable and can be incorporated into parenting interventions (Compas et al., 2010). Further, previous work has demonstrated that parenting interventions can effectively change the way parents talk to and about their children (Cullum et al., 2020; Nestor et al., 2020).

Thus, although effective interventions for depression exist (e.g., Solantaus et al., 2010), prevention is likely to be more cost-effectiveness and accessible (Wainberg et al., 2017). To design and implement effective preventive interventions, a more thorough understanding of specific risk factors and pathways of psychopathology transmission are warranted (Barker et al., 2012; O’Connell, Boat, & Warner, 2009). Earls et al., (2019) asserted that detection of and interventions for high-risk offspring of depressed mothers is a critical area for more research attention. Weissman (2018) suggested that further study of the treatment of this high-risk population of “considerable public health importance.”

Identification of moderators and mediators of the intergenerational transmission of psychopathology can inform the tailoring of intervention efforts with parents to emphasize the most important modifications to parenting behaviors and parents’ attributions about events in their child’s life (Barker et al., 2012). Successfully implemented interventions that are clear cut and easily performed (National Research Council, 2009) should modify both parenting behaviors and symptom reduction in parents (Stein et al., 2014), which in turn may improve longer-term health outcomes (Patel, Flisher, Hetrick, & McGorry, 2007). The benefits of prevention or treatment of adolescent depression may extend throughout the family structure, taking a cumulative risk process and replacing it with one of adaptation and advancement (Howard et al., 2019).

Conclusions

The current study explored the associations among severity of parental depression, parenting behaviors, parents’ cognitions, and offspring internalizing and externalizing behaviors. Findings indicated that whereas a dimensional measure of parental depression severity was not

associated with children's symptoms, a categorical conceptualization of severity was significantly correlated with offspring externalizing problems.

Parental warmth and negative attributions were associated with both offspring internalizing and externalizing problems. In addition, parental psychological control was associated with offspring externalizing problems. Further, both parental warmth and negative attributions moderated the relation between parental depression severity and offspring behaviors, such that the association between severity of parents' depressive symptoms and children's internalizing symptoms were significant at higher levels of parental warmth, and the association between severity of parents' depressive symptoms and children's externalizing problems differed by parental negative attributions. Further investigation of the relations between these risk factors is warranted so that the intergenerational transmission of psychopathology may be reduced.

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TABLES AND FIGURES

Table 1a. *Demographic characteristics of the sample*

	<i>M (SD)</i>	<i>n (% of total sample)</i>
Dyads in sample		188 (100%)
Parent age	42.10 (6.75) years	
Child age	11.53 (1.92) years	
Reported gender of parent		
Female		169 (89.4%)
Male		20 (10.6%)
Reported gender of child		
Female		98 (51.9%)
Male		90 (48.1%)
Ethnicity of parents		
Hispanic or Latinx		28 (14.8%)
non-Hispanic		148 (78.3%)
Did not report		8 (4.2%)
Ethnicity of children		
Hispanic or Latinx		32 (16.9%)
non-Hispanic		148 (78.3%)
Did not report		9 (4.8%)
Race of parents		
Caucasian or white		128 (67.7%)
Black or African American		21 (11.1%)
Asian		7 (3.7%)
Am. Indian, Alaskan Native, or Pacific Islander		3 (1.6%)
More than one race		15 (7.9%)
Other or chose not to report		8 (4.3%)
Race of children		
Caucasian or white		121 (64%)
Black or African American		23 (12.2%)
Asian		6 (3.2%)
Am. Indian, Alaskan Native, or Pacific Islander		5 (2.6%)
More than one race		24 (12.2%)
Other or chose not to report		6 (3.2%)

Table 1b. *Study variables means and standard deviations.*

	<i>M (SD) or n (%)</i>
Depression severity (continuous)	10.52 (6.57)
Depression severity (categorical)	high severity. n = 41 (21%)
Parental Warmth	25.68 (4.36)
Parental Psychological Control	17.06 (3.55)
Parental Behavioral Control	20.18 (2.55)
Parents' Negative Attributions	.28 (.19)
Offspring YSR Internalizing <i>T</i> score	55.19 (11.46)
Offspring YSR Externalizing <i>T</i> score	49.48 (8.79)
Offspring CBCL Internalizing <i>T</i> score	57.01 (11.22)
Offspring CBCL Externalizing <i>T</i> score	52.25 (10.08)
Offspring Internalizing Comp. <i>z</i> score	.0011 (.82)
Offspring Externalizing Comp. <i>z</i> score	-.0040 (.80)

YSR = Youth Self-Report; CBCL = Child Behavior Checklist; Comp = Composite

Table 2. Bivariate correlations among study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Parent age	-												
2. Parent gender	0.08	-											
3. Parent race	.179*	0.037	-										
4. Child age	.300**	0.115	0.134	-									
5. Child gender	0.114	0.042	-0.005	-0.013	-								
6. Child race	0.071	0.045	0.402**	0.034	0.122	-							
7. Depression severity (dimensional)	-0.07	-0.004	0.067	-.169*	0.014	-0.029	-						
8. Depression severity (categorical)	-0.126	-0.049	0.076	-0.059	0.07	0.039	.781**	-					
9. CRPBI Warmth	0.119	0.108	0.033	-.223**	-0.034	-0.071	-0.028	-0.059	-				
10. CRPBI Psychological Control	0.082	0.109	-0.018	.156*	0.021	-0.013	-0.04	-0.08	-.357**	-			
11. CRPBI Behavioral Control	-0.137	0.019	-0.033	0.01	-0.06	0.007	-.235**	-.195**	-0.144	.457**	-		
12. Parents' Negative Attributions	-0.007	0.124	0.036	-0.05	-0.004	-0.055	.193*	0.082	-.227**	.174*	0.137	-	
13. Internalizing Comp. z score	0.05	-0.017	-0.149	-0.003	.195**	0.063	0.097	.162*	-.198*	.110	-0.064	.227**	-
14. Externalizing Comp. z score	-0.012	0.023	-0.037	0.056	0.032	0.135	0.048	0.02	-.341**	.368**	.285**	.411**	.495**

Correlation is significant at the 0.05 level (2-tailed)*

Correlation is significant at the 0.01 level (2-tailed)**

Table 3. Multiple regression examining parenting behaviors in predicting offspring internalizing problems

	b	SE	β	t	df	F	R ²
Model fit					155	3.065*	.038
Warmth	-0.033	0.105	-.178	-2.108*			
Psychological control	0.024	0.021	-.108	1.151			
Behavioral control	-0.043	0.027	-.141	-1.593			

Note: † $p < .10$. * $p < .05$. ** $p < .01$

Table 4. Multiple regression examining parenting behaviors in predicting offspring externalizing problems

	b	SE	β	t	df	F	R ²
Model fit					155	13.07**	.196
Warmth	-0.044	0.014	-.241	-3.112**			
Psychological control	0.046	0.019	.206	2.382*			
Behavioral control	0.047	0.025	.154	1.893†			

Note: † $p < .10$. * $p < .05$. ** $p < .01$

Table 5. Hierarchical regression examining interaction between parenting behaviors and severity of parental depression in predicting offspring internalizing problems

	b	SE	β	t	df	F	R ²	ΔR^2
Step 1					151	2.21	0.03	-
Depression severity	0.008	0.01	0.062	0.757				
Warmth	-0.031	0.016	-.169	-1.98*				
Psychological control	0.022	0.021	0.098	1.025				
Behavioral control	-0.037	0.029	-0.121	-1.301				
Step 2					150	2.65*	.081	.026
Depression severity	-0.107	0.057	-0.856	-1.88†				
Warmth	-0.072	0.025	-0.395**	-2.844**				
Psychological control	0.026	0.021	0.116	1.217				
Behavioral control	-0.036	0.028	-0.118	-1.283				
Severity X warmth	0.005	0.002	0.964*	2.05*				
Severity X psychological control	0.000	0.003	.065	.138				
Severity X behavioral control	0.000	0.005	-.030	-.041				

Note: † $p < .10$. * $p < .05$. ** $p < .01$

Table 6. Hierarchical regression examining interaction between parenting behaviors and severity of parental depression in predicting offspring externalizing problems

	b	SE	β	t	df	F	R ²	ΔR^2
Step 1					151	9.750**	.184	-
Depression severity	.013	.009	.104	1.379				
Warmth	-.042	.014	-.234	-2.994**				
Psychological control	.042	.019	.193	2.196*				
Behavioral control	.058	.026	.188	2.210*				
Step 2					148	6.242**	.191	.023
Depression severity	-.083	.092	-.663	-.898				
Warmth	-.079	.024	-.437	-3.305**				
Psychological control	-.001	.039	-.004	-.021				
Behavioral control	.100	.054	.328	1.847				
Severity X warmth	.004	.002	.862	1.894†				
Severity X psychological control	.004	.003	.594	1.382				
Severity X behavioral control	-.004	.004	-.587	-.881				

Note: † $p < .10$. * $p < .05$. ** $p < .01$

Table 7. Hierarchical regression examining the interaction between negative cognitions and severity of parental depression in predicting offspring internalizing problems

	b	SE	β	t	df	F	R ²	ΔR^2
Step 1					146	3.955*	.038	-
Depression severity	.010	.010	.080	.974				
Parents' negative attributions	.088	.037	.198	2.411*				
Step 2					145	3.332*	.045	.013
Depression severity	.134	.088	1.068	1.530				
Parents' Negative attributions	.181	.075	.406	2.426*				
Severity X attributions	-.009	.006	-1.053	-1.425				

Note: † $p < .10$. * $p < .05$. ** $p < .01$

Table 8. Hierarchical regression examining interaction between negative attributions and severity of parental depression in predicting offspring externalizing problems

	b	SE	β	t	df	F	R ²	ΔR^2
Step 1					146	13.909**	.149	-
Depression severity	-.001	.009	-.010	.126				
Parents' negative attributions	.172	.033	.402	5.204**				
Step 2					145	11.103**	.170	.027
Depression severity	.169	.078	1.403	2.155*				
Parents' Negative attributions	.299	.067	.699	4.482**				
Severity X Attributions	-.012	.005	-1.505	-2.185**				

Note: † $p < .10$. * $p < .05$. ** $p < .01$

Figure 1.

Plot of significant interaction of parent depression severity by parental warmth predicting offspring internalizing

Figure 1. Plot of significant interaction of parent depression severity by parental warmth predicting offspring internalizing

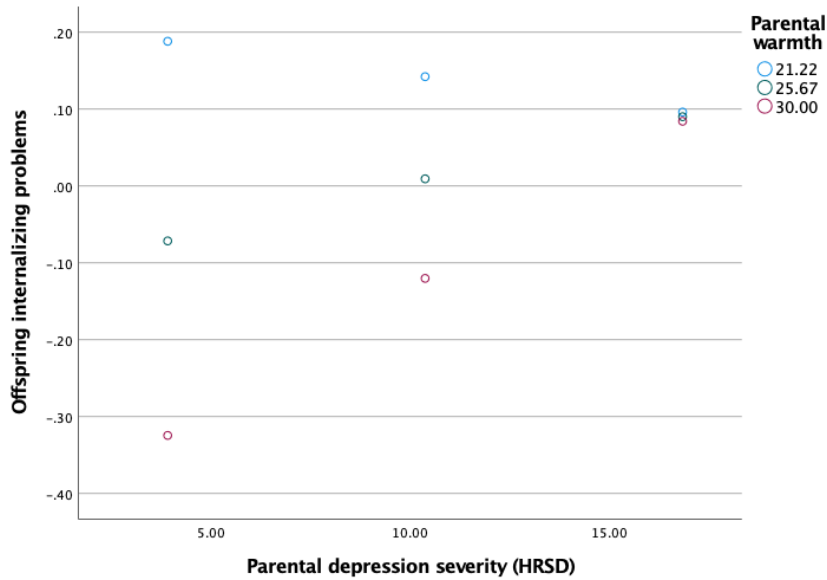
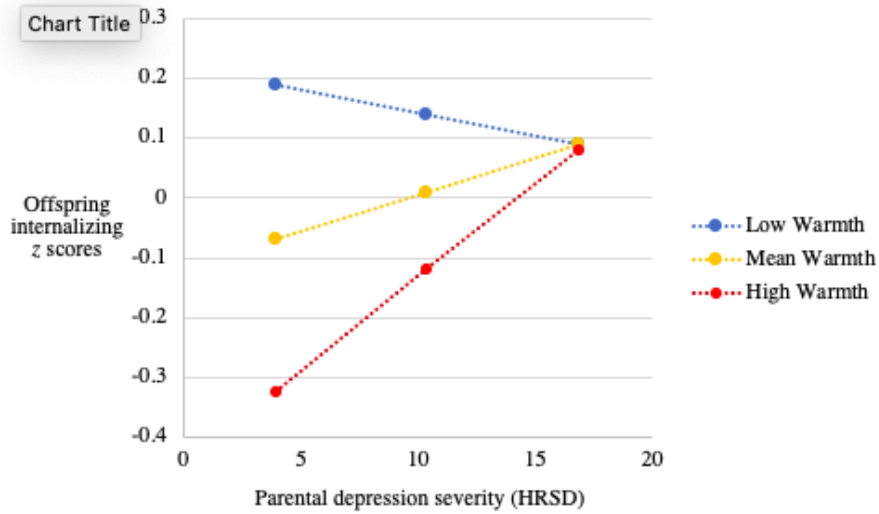
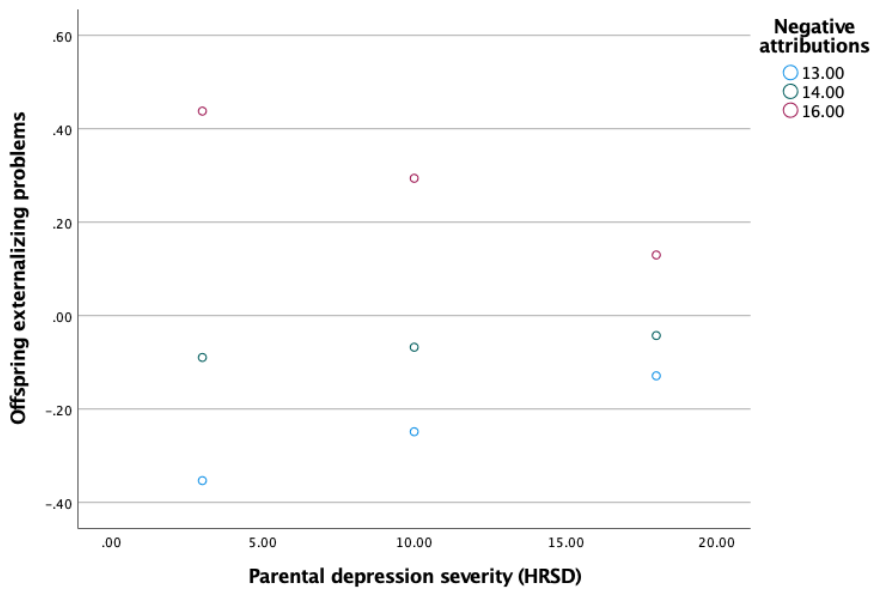
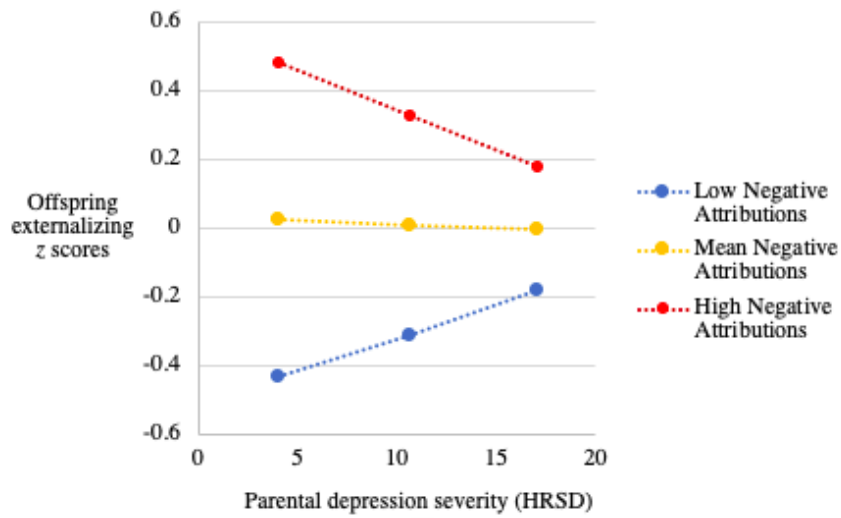


Figure 2. Plot of significant interaction of parent depression severity by negative attributions predicting offspring externalizing

Figure 2. Plot of significant interaction of parent depression severity by negative attributions predicting offspring externalizing



APPENDIX

- 26) ... will avoid looking at me when I have disappointed him/her
- 27) ... lets me go out any evening I want
- 28) ... is easy to talk to
- 29) ... if I have hurt his/her feelings, stops talking to me until I please him/her again
- 30) ... lets me do anything I like to do

Not Like	Somewhat Like	Like
Not Like	Somewhat Like	Like
Not Like	Somewhat Like	Like
Not Like	Somewhat Like	Like
Not Like	Somewhat Like	Like

Children's Attributional Style Questionnaire - Parent Report

Instructions: Here are some situations about things that happen to children. Try really hard to imagine that they have just happened to _____.

After each situation, there are two possible reasons for why the situation might have happened. Please choose the most likely reason to explain why the situation happened to your child.

Sometimes both reasons may sound true and sometimes both may sound false and, your child may never have been in some of these situations. But even so, please pick the reason that seems to explain why the situation happened to your child.

There are no right and no wrong answers; pick the reason that seems the most likely.

Choose either "A" or "B" for each question. Do not choose both answers, and do not leave any blanks.

1. Your child gets an "A" on a test.
 - A. My child is smart.
 - B. My child is good in the subject that the test was in.
2. Some kids that your child knows say that they do not like your child.
 - A. Once in a while kids are mean to my child.
 - B. Once in a while my child is mean to other kids.
3. Your child's friend tells your child that he/she hates your child.
 - A. My child's friend was in a bad mood that day.
 - B. My child wasn't nice to his/her friend that day.
4. A person steals money from your child.
 - A. That person is dishonest.
 - B. Many people are dishonest.
5. You praise something that your child makes.
 - A. My child is good at making some things.
 - B. Sometimes my child is not very careful.
6. Your child breaks a glass.
 - A. My child didn't work well with the people in that group.
 - B. My child never works well with a group.
7. Your child does a project with a group of kids and it turns out badly.
 - A. My child didn't work well with the people in that group.
 - B. My child never works well with a group.
8. Your child makes a new friend.
 - A. My child is a nice person.
 - B. The people that my child meets are nice.
9. Your child has been getting along well with the family.
 - A. My child is easy to get along with when with the family.
 - B. Once in a while my child is easy to get along with when with the family.
10. Your child has a substitute teacher and he/she likes your child.
 - A. My child was well-behaved during class that day.
 - B. My child is almost always well-behaved during class.

11. Your child walks into a door and gets a bloody nose.
 - A. My child wasn't looking where he/she was going.
 - B. My child has been careless lately.
12. Your child has a messy room.
 - A. My child did not clean his/her room that day.
 - B. My child usually does not clean his/her room.
13. You make your child's favorite dinner.
 - A. Sometimes I do things to please my child.
 - B. I usually do things to please my child.
14. A team that your child is on loses a game.
 - A. The team members usually don't play well together.
 - B. That day the team members didn't play well together.
15. Your child hits a home run in a ball game.
 - A. My child swung the bat just right.
 - B. The pitcher threw an easy pitch.
16. Your child goes to an amusement park and has a good time.
 - A. My child usually enjoys him/herself at amusement parks.
 - B. My child usually enjoys him/herself in most things.
17. Your child goes to a friend's party and has fun.
 - A. My child's friend usually gives good parties.
 - B. My child's friend gave a good party that day.
18. Your child gets a bad grade in school.
 - A. My child is not a good student.
 - B. Teachers give difficult tests.
19. Your child makes his/her friends happy.
 - A. My child usually is a fun person to be with.
 - B. Sometimes my child is a fun person to be with.
20. Your child puts a hard puzzle together.
 - A. My child is good at putting puzzles together.
 - B. My child is good at doing many things.
21. Your child tries out for a sports team and does not make it.
 - A. My child is not good at sports.
 - B. The other kids who tried out are very good at sports.
22. Your child fails a test.
 - A. Most tests are hard.
 - B. That test was hard.
23. Your child does not get his/her chores done at home.
 - A. My child was lazy that day.
 - B. Many days my child is lazy.
24. Your child does the best in his/her class on a paper.
 - A. The other kids in my child's class did not work hard on their papers.
 - B. My child worked hard on the paper.