

The Father's Role in the Relation between
Maternal Depression and Youth Outcomes

by

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ABSTRACT

It is well-established that maternal depression is significantly related to internalizing and externalizing behavioral problems and psychopathology in general. However, research suggests maternal depression does not account for all the variance of these outcomes and that other family contextual factors should be investigated. The role of fathers beyond their simple presence or absence is one factor that needs to be further investigated in the context of maternal depression. The proposed study used prospective and cross-sectional analyses to examine father effects (i.e., paternal depression, alcohol use, involvement, and familism) on youth internalizing and externalizing symptoms within the context of maternal depression. The sample consisted of 405 Mexican-American families who had a student in middle school. Data were collected when the students were in 7th and 10th grade. Results from path analyses revealed that maternal depression significantly predicted concurrent youth internalizing symptoms in 7th and 10th grade and externalizing symptoms in 10th grade. In contrast, paternal depression was not related to adolescent symptomatology at either time point, nor was paternal alcoholism, and analyses failed to support moderating effects for any of the paternal variables. However, paternal involvement (father-report) uniquely predicted youth internalizing and externalizing symptoms over and above maternal depression in 7th grade. Youth report of paternal involvement uniquely predicted both internalizing and externalizing in 7th and 10th grade. Paternal familism uniquely predicted youth externalizing symptoms in 7th grade. The present findings support that maternal depression, but not paternal depression, is

associated with concurrent levels of youth symptomatology in adolescence. The study did not support that fathers adjustment moderated (exacerbate or buffer) maternal depression effects. However, paternal involvement and paternal familism showed compensatory effects on youth symptomatology in concurrent analyses.

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INTRODUCTION

Maternal depression

Maternal depression has been widely investigated and established as a risk factor for child depression and externalizing problems (Beck, 1999; Goodman, Rouse, Connell, Broth, Hall, & Heyward, 2011). Having a depressed mother increases risk across childhood and adolescence. A recent meta-analysis found that maternal depression is not only significantly related to internalizing and externalizing behavioral problems but also to general psychopathology and negative affect/ behavior (Goodman et al., 2011). Further, the meta-analysis found that maternal depression alone does not explain the majority of the variance in child outcomes and therefore, it is necessary to investigate other family contextual effects. A factor that needs to be further investigated in the context of maternal depression is the role of fathers beyond their simple presence or absence (Goodman et al., 2011). Although fathers were historically seen as breadwinners and not included in studies of parental influence over the past 35 years, more recent evidence suggests that father's involvement and influence is substantial and that it also influences child development and psychopathology (Lamb, 2010; Taylor & Behnke, 2005).

The proposed study will use a prospective design to examine father effects on adolescent internalizing and externalizing symptoms within the context of maternal depression, with a specific focus on Mexican-American families. Although the literature on fathers is growing overall, less is known about Latino fathers (Cabrera & Garcia-Coll, 2004; Campos, 2008). A study looking at

characteristics of fathers' depression found that in their sample, Hispanics fathers had the highest estimated prevalence of depression (Bronte-Tinkew, Moore, Matthews, & Carrano, 2007). This finding and the prediction that Hispanics will make up 29% of the United States population by 2050 (Passel & Cohn, 2008), with Mexican-Americans being the largest Hispanic group (U.S. Bureau of the Census, 2010), highlight the pressing need for more research in this area.

Theoretical Framework Guiding Study Hypotheses

The current study is informed by Goodman & Gotlib's (1999) developmental model for the mechanisms of transmission of risk for psychopathology in children of depressed mothers. The model proposes four main mechanisms that operate together to explain the link between maternal depression and child psychopathology: 1) genetic, 2) dysfunctional neuroregulatory mechanisms, 3) exposure to negative maternal cognitions, behaviors, and affect, and 4) stressful context. Genetic transmission may operate through an inherited disposition to depression or inherited vulnerabilities that may lead to the development of depression or other forms of psychopathology. Offspring of depressed mothers may also be exposed to neuroendocrine dysfunctions in the prenatal environment (e.g., increased cortisol levels) that may translate to behavioral traits or tendencies that may lead to psychopathology. Further, children of depressed mothers may adopt negative cognitions, behaviors, and affect through social learning and modeling of their depressed mothers. Lastly, children of depressed mothers may be exposed to a more stressful environment, influenced

by the mother's depression, such as increased marital discord, financial strain, and stressed mother-child relationships.

Within the Goodman & Gotlib model, fathers are viewed as playing a critical role as potential moderators: they may increase the risk if they are absent or if they also have psychopathology but they may serve as buffers if they are healthy, involved, and supportive. Accordingly, a test of father's role as moderator is a main focus of the proposed study. Additionally, the additive role of fathers will be examined because the same mechanisms that are proposed to account for maternal depression effects could apply equally well to fathers. For example, research has found that paternal depression is negatively associated with father-child engagement and positively associated with paternal aggression and stress (Bronte-Tinkew et al., 2007), supporting two of the mechanisms for transmission proposed by the model: exposure to negative cognitions, behaviors, and affect and stressful context. In support of the view that paternal depression is related to child psychopathology, a recent meta-analysis found that paternal depression was significantly associated with both externalizing and internalizing problems in children, with mean effect sizes of .19 and .24 respectively, which are comparable to those found for maternal depression and child outcomes (Kane & Garber, 2004; Brennan, Hammen, Katz, & Le Brocque, 2002). In another meta-analysis, Connell and Goodman (2002) also found that mother's and father's psychopathology were equally related to child's externalizing problems, however internalizing problems were more closely related to mother's depression than to father's.

Additive and Interactive Effects of Father Psychopathology

Before proceeding, it is important to define additive and interactive effects. Two variables may be considered to have additive effects on an outcome when one variable explains variance in the outcome after the variance explained by the first variable has been accounted for. In addition, the additive model is characterized by the presence of both the main effects and the absence of the interaction effect. On the other hand, two variables are said to have interactive effects if the effect of one variable on the outcome differs as a function of the other variable. The following studies reviewed have examined the additive and interactive effects of maternal and paternal psychopathology on children's mental health.

Rates of psychopathology in offspring have been found to be elevated when both parents display any form of psychopathology, relative to families with only one parent with psychopathology (Dierker, Merikangas, & Szatmari, 1999; Foley, Pickles, Simonoff, Maes, Silberg, Hewitt, & Eaves, 2001). This pattern has been supported in studies focused specifically on maternal and paternal depression (Mezulis, Hyde, & Clark, 2004), with the additive effects of having two depressed parents observed into adulthood at 20-year follow-up (Weissman, Wickramaratne, Nomura, Warner, Pilowsky, & Verdeli, 2006). Additive effects may be explained by heightened genetic vulnerability, which might predispose offspring to affective disorders in particular, or to an increase in family risk factors such as marital discord, parent-child discord, and affectionless control that

have been found to be more prevalent in households of two depressed parents (Fendrich, Warner, & Weissman, 1990).

Several recent studies have examined the effects of maternal and paternal psychopathology together to determine whether they have additive effects and also to test interactive effects on child symptomatology. Findings across studies are difficult to reconcile due to differences in the ages of the samples, because some studies have examined different disorders in addition to depression, and because some have focused on diagnosed mental health disorders whereas others have examined general symptoms of psychopathology. As summarized below, studies have supported both additive and interactive effects, but have not included Latino families. Nevertheless, these findings will be described because they are relevant to understanding the role of paternal psychopathology within the context of maternal depression.

In a cross-sectional study of 822 children between the ages of 3 and 12 years old, Kahn, Brandt, and Whitaker (2004) examined the effects of mother's and father's overall mental health on child's internalizing and externalizing symptoms. Parent's overall mental health was measured using a 10-item screener. They found that having both parents in poorer mental health was associated with a one standard deviation increase in child externalizing. This effect was weakened if only the mother was in poorer mental health, and it was not statistically significant if only the father was in poorer mental health. The same effects were found for internalizing symptoms. The authors concluded that mother's mental health was an important predictor of child psychopathology, but father's mental

health has additive effects with mother's poor mental health. This finding supports the Goodman & Gottlib's model in which father psychopathology may also contribute to child's mental health in addition to maternal psychopathology.

Dierker, Merikangas, and Szatmari (1999) recruited 123 families with children aged 7 to 17 years old, where at least one parent had a history of drug or alcohol dependence, or anxiety and/or affective disorder. Children with two parents diagnosed with anxiety and/ or affective disorder were more likely to have anxiety disorders compared to children who only had one or neither parent with a diagnosis. When both parents were diagnosed and at least one had a substance abuse problem, children were more likely to meet criteria for conduct disorder.

This study highlighted the role of parent substance use as an additional risk factor to consider because it also may exacerbate or amplify the effects of parental depression, and it may be especially relevant to externalizing outcomes.

Another study also examined the effect of having two parents with psychiatric disorders in a community sample of juvenile twins (Foley et al., 2001). The sample consisted of 850 families with pairs of twins aged 8-17 years. Generalized least squares regression showed that maternal depression alone (without comorbidity and no spousal disorder) was associated with increased depressive symptoms in children. However, when combined with a comorbid disorder or spousal disorder, it was associated with a larger increase in symptoms of depression, separation anxiety, conduct disorder, and oppositional defiant disorder. These findings suggest that maternal depression effects are increased when they are combined with another parent mental health diagnosis. Paternal

depression alone (not comorbid and no spousal disorder) was associated with an increase in symptoms of overanxious disorder and depression, and when it was comorbid or occurred with a spousal disorder it was associated with overanxious symptoms but was only marginally significantly associated with depression symptoms. When logistic regression was used to examine child diagnoses, not just symptomatology, similar findings were reported. When comorbid with other disorders or in conjunction with a spousal disorder, maternal depression was significantly related to increased odds of depression, overanxious disorder, and conduct disorder. Paternal depression, when comorbid or in conjunction with a spousal disorder, was associated with increased odds of overanxious disorder. It is evident that maternal depression is related to a wider range of disorders than paternal depression, and that its effects are increased in the presence of paternal psychopathology.

Finally, Brennan and colleagues (2002) examined the relation between paternal psychopathology and maternal depression during infancy on adolescent outcomes 15 years later in a sample of 522 Australian families. Paternal psychopathology was operationalized as having a lifetime diagnosis of major depression or dysthymia and/ or if they had a history of alcohol or drug abuse or dependence. This study found that a history of maternal depression alone was related to increased internalizing and externalizing problems in adolescence but a history of paternal depression alone was only associated with externalizing problems. Paternal substance abuse alone was not found to be significantly associated with any adolescent outcomes. Further, paternal depression had

additive effects on adolescent externalizing but not internalizing. Specifically, having a father who met criteria for depression, in addition to having a depressed mother significantly increased youth externalizing problems beyond the effects of having only one parent with a history of depression. They also found that paternal psychopathology (depression and substance use), interacted with or moderated the link between maternal and adolescent depression. In the absence of paternal depression, maternal depression was associated with youth depression as typically shown in the literature. However, in the presence of paternal depression, maternal depression was not uniquely related to youth depression. The nature of the interaction with paternal substance use was very different in that maternal depression was only related to adolescent depression in families with a history of father substance use. It is relevant to note that studies have often found maternal depression in conjunction with paternal substance use, so this may be a very common context in which maternal depression exerts its impact in community samples (Dierker et al., 1999; Foley et al., 2001; Maes et al., 1998).

Although there are inconsistencies in findings across studies regarding the specific ways in which maternal and paternal depression operate together to influence youth psychopathology, it is evident that having two parents with psychopathology increases the probability and range of negative mental health outcomes for youth. Taken together, these findings suggest that paternal depression may particularly increase risk for externalizing problems, but additive effects on internalizing are not as consistently found. Further, some studies have also found that paternal depression moderates the effects of maternal depression

on youth externalizing and internalizing problems albeit with some mixed findings. There is no question that maternal depression has serious implications for youth psychopathology but the role of paternal depression in the context of maternal depression still needs further exploration.

Moreover, as noted in the previous studies, paternal alcohol and drug abuse also moderate the relation between maternal depression and youth outcomes (Brennan et al., 2002; Dierker et al., 1999; Foley et al., 2001). Therefore, alcohol abuse is another important form of psychopathology to study in fathers and will be included in the current study (data on other forms of paternal drug use are not available). Paternal alcohol abuse has deleterious effects on child outcomes (Haughland, 2003; Phares & Compas, 1992). Children of alcoholic fathers have also been found to be at risk for emotional and behavioral problems (Phares & Compas, 1992) and have an increased likelihood of having adverse childhood experiences such as verbal abuse, emotional neglect, and physical neglect (Dube, Anda, Felitti, Croft, Edwards, & Giles, 2001). Thus, it is sensible to include alcohol abuse as a form of paternal psychopathology that may be important for understanding the link between maternal depression and child psychopathology.

Additive and Interactive Effects of Father Involvement and Familism

Whereas father psychopathology may exacerbate the negative effects of maternal depression, it is possible that having a positive father-child relationship may protect against such effects. Father involvement is an important factor in a child's development and well-being independent of the presence of maternal

psychopathology (Downer, Campos, McWayne, & Gartner, 2008). The National Child Development Study in England found that father involvement at age 7 was protective of child maladjustment in adolescence and father involvement at age 16 was protective of psychological distress in adult women (Flouri & Buchanan, 2003). It is also possible that in the face of maternal depression, involved fathers serve a compensatory role. A study looking at parent-child relationships with children 15-18 months found that the presence of maternal depression was related to more positive father-child interaction including more pleasure and more eye contact (Edhborg, Lundh, Seimyr, & Widström, 2003). Similarly, partners of depressed mothers were found to have more positive interactions with their 3-6 month old infants than the mothers (Field et al., 1999). A study looking at the effects of maternal depression during infancy on behavioral problems during kindergarten found that father involvement moderated the relation for internalizing problems (Mezulis, Hyde, & Clark, 2004). High paternal warmth and low to medium quantity of involvement were significantly associated with decreased child internalizing behaviors of children with depressed mothers. However, the same relation was not observed for children of non-depressed mothers. Moreover, father involvement did not moderate the relation between maternal depression during infancy and later child externalizing behaviors. Further, simply having a nondepressed father did not buffer the effects of maternal depression.

The father's protective role has also been observed in adolescence.

Tannenbaum and Forehand (1994) found the presence of a good father-adolescent

relationship buffered the negative effects of the mother's depressive mood on internalizing and externalizing problems. A longitudinal study of a U.S. National Sample, found that adverse effects of maternal depression on childhood to adolescent trajectories of behavioral problems were buffered by positive father involvement (Chang, Halpern, & Kaufman, 2007). However, these relations have mostly been studied with Caucasian samples. Therefore, it is yet to be determined if father involvement plays the same role in Latinos, specifically Mexican-origin fathers. The current study will examine the protective role of Mexican-American fathers' positive involvement in the context of maternal depression. Positive father involvement will be defined following Pleck's (2010) revised conceptualization of father involvement. This tripartite model includes 1) positive engagement activities, 2) warmth and responsiveness, and 3) control, specifically monitoring and decision-making. In addition, the protective role of paternal familism will be examined as a culture-specific aspect of father involvement that has been shown to be protective against other types of risk in Mexican-American families (Germán, Gonzales, & Dumka, 2009; Marsiglia, Parsai, & Kunis, 2009; Morcillo, Duarte, Shen, Blanco, Canino, & Bird, 2011).

Traditionally, the Mexican father has been portrayed as cold, distant, and authoritarian (Saracho, 2007; Saracho & Spodek, 2008). This misrepresentation of the Mexican father has caused researchers to ignore the role of the father in Mexican-origin families. In fact, Mexican-origin fathers have been found to be warm, affectionate, and involved with their children (Saracho, 2007; Saracho & Spodek, 2008). Latino fathers have been found to monitor their children and

interact with them more than their White counterparts (Toth & Xu, 1999). A review aiming to conceptualize father involvement highlighted the need for more research on minority fathers, including Mexican-Americans as different cultural traditions and values may shape the father role (Parke, 2000). Familism is a culture-specific value that is a very influential in Latino culture and that may play a protective role. Familism is characterized by emphasizing the centrality of the family unit and having strong identification and feelings of mutual obligation and solidarity with one's nuclear and extended family (Sabogal, Marín, Otero-Sabogal, Marín, & Perez-Stable, 1987). Paternal familism has been shown to buffer against the influence of deviant peers on adolescent externalizing problems (German, Gonzales, & Dumka, 2009). Therefore, it is possible that paternal familism buffers the deleterious effects of maternal depression on youth outcomes. It has been posited that in minority families, especially Latino families, familism may increase the father's responsibility of and involvement with their children (Coltrane, Parke, & Adams, 2004; Hofferth, 2003). Furthermore, fathers who endorse high familism have been found to engage in more "feminine-type" activities (e.g., shopping, cooking, reading), which, in turn, is related to increased father supervision of and interaction with their children (Coltrane et al., 2004). Familism moves fathers to actively care more for their children and interact with them in more intimate ways. Furthermore, familism may cause fathers to compensate for any needs maternal depression may create.

With the goal of expanding the literature on Mexican- origin paternal influence on child development, the present study will examine additive effects of

paternal psychopathology, meaning whether it contributes to the risk for negative outcomes above and beyond the effects of maternal depression. In addition, interactive effects will be examined. This is to say whether the presence of paternal psychopathology amplifies risks associated with maternal depression and conversely whether positive father involvement buffers against the effects of maternal depression.

The Role of Gender

Child gender may be a factor moderating these relations. Research shows that parent-child relationships may be moderated by the child's gender. For example, interactions between depressed and alcoholic fathers and their children have been found to differentiate based on the child's gender (Jacob et al., 1991). Further, effects of parental psychopathology may also vary as a function of the child's gender. One study found parental depression resulted in more internalizing problems and less externalizing problems for girls compared to boys (Elgar et al., 2007). In another study, parental depression was associated with higher risk for psychopathology for female than for male offspring (Foley et al., 2001). The same study, however, found that parental alcoholism did not affect females and males differently. Dierker and colleagues (1999) found having two parents diagnosed with anxiety and/ or affective disorder significantly increased rates of anxiety disorder for girls when compared to boys. On the other hand, the father's protective role in the presence of maternal depression in adolescent internalizing and externalizing problems has been observed for both female and male adolescents (Tannenbaum & Forehand, 1994). However, a study of the protective

role of familism found it was more protective for boys than for girls in Mexican American families (German, Gonzales, & Dumka, 2009). Given evidence that father effects on child psychopathology may vary by gender, it is important to account for potential variability due to gender in the current study. However, given the mixed findings reported in prior studies, gender differences will be examined as an exploratory aim without any specific hypotheses.

The present study

This study will use longitudinal data from a sample of 750 Mexican-American adolescents to examine the additive, stress-exacerbating or stress-buffering role that Mexican-American fathers may play in the context of maternal depression. Mothers' self-reported depressive symptoms and fathers' self-reported depressive symptoms and alcohol use, obtained when adolescents were initially in 7th grade (Wave 2; W2), will be used to predict adolescent externalizing and internalizing symptoms in 10th grade (Wave 3; W3), controlling for W2 levels of adolescent symptomatology. Fathers' positive involvement and familism values, obtained at W2, also will be used as predictors. During 7th grade, children are between 11 and 12 years old. These ages have been posited as particularly sensitive developmental periods as they represent the transition to adolescence (Jaffee & Poulton, 2006) and have been found in a few studies to be a period when maternal depression has significant effects on child outcomes (Gross, Shaw, & Moilanen, 2008; Jaffee & Poulton, 2006). Specifically, we will investigate whether father psychopathology has additive and/ or interactive effects when examined with maternal depression in the prospective prediction of child

depression, or, on the other hand, whether paternal positive involvement can compensate or act as a buffer to the deleterious effects of maternal depression. Additionally, we will examine whether the above effects vary as a function of gender.

Hypotheses

Based on our literature review, the current study seeks to test the following hypotheses:

1. Maternal depression at W2 will predict adolescent internalizing and externalizing symptoms three years later (W3; Figure 1).
2. Paternal psychopathology will moderate the effects of maternal depression (stress-exacerbating model; Figure 2).
 - 2a. Prospective effects of maternal depression on adolescent externalizing and internalizing will be stronger when fathers report higher levels of depressive symptoms.
 - 2b. Prospective effects of maternal depression on adolescent externalizing and internalizing will be stronger when fathers report higher levels of alcohol use.
3. When examined in a model with maternal depression, paternal psychopathology will have additive effects with maternal depression when predicting externalizing symptoms, and internalizing symptoms, three years later (additive model; Figure 3)
 - 3a. Paternal depression will predict externalizing and internalizing symptoms above and beyond maternal depression alone.

- 3b. Paternal alcohol use will not predict externalizing and internalizing symptoms above and beyond maternal depression alone.
4. Paternal involvement and father's endorsement of familism will moderate the effects of maternal depression (stress-buffering model; Figure 2).
- 4a. The effects of maternal depression will be diminished when paternal involvement is high.
- 4b. The effects of maternal depression will be diminished when paternal familism is high.
5. When examined in a model with maternal depression, paternal involvement and familism will have additive effects with maternal depression when predicting externalizing symptoms, and internalizing symptoms, three years later (additive model; Figure 3).
- 5a. Paternal involvement will predict externalizing and internalizing symptoms above and beyond maternal depression alone.
- 5b. Paternal familism will predict externalizing and internalizing symptoms above and beyond maternal depression alone.

METHODS

Data for this study come from the second and third waves, collected when adolescents were in the 7th and 10th grades respectively, of an ongoing longitudinal study investigating the role of culture and context in the lives of Mexican–American families in a large southwestern metropolitan area (Roosa et al. 2008).

Participants

Participants were recruited when they were students in 5th grade, selected from school rosters that served ethnically diverse communities. Eligible families met the following criteria at Wave 1: (a) they had a target fifth grader attending a sampled school; (b) the participating mother was the child's biological mother, lived with the child, and self-identified as Mexican or Mexican– American; (c) the child's biological father was of Mexican origin; (d) the target child was not learning disabled; and (e) no step-father or mother's boyfriend was living with the child. In total 749 mothers and 5th graders were interviewed at Wave 1. Although participation was optional for fathers, 467 (81.9%) fathers from the 570 two-parent families in the study also participated. Data describing the full sample (mothers and children) and the subsample (fathers and children) at Wave 1 can be found in Roosa, Liu, Torres, Gonzales, Knight, & Saenz (2008).

The current study includes 405 families in which both fathers and mother participated. Data describing this subsample are presented in Table 1. Family incomes ranged from less than \$5,000 to more than \$95,000, with the average family reporting an income of \$42, 654. In terms of language, 26.7% of mothers, 23.0% of fathers, and 85.9% of adolescents were interviewed in English. The mean age of mothers in the study was 38.16 (SD = 5.58) and the average years of education was 10.55 (SD = 3.91). The mean age of fathers was 40.29 (SD = 6.60) and fathers reported an average of 10.35 (SD = 3.91) years of education. The mean age of adolescents (51.4% male) was 12.77 (SD = .46) at Wave 2. A majority of mothers and fathers were born in Mexico (78.3%, 80.6% respectively), while a majority of adolescents were born in the U.S. (65.2%).

Families were interviewed in 7th grade (W2) and 10th grade (W3).

Procedures

Using a combination of random and purposive sampling, the research team identified communities served by 47 public, religious, and charter schools from throughout the metropolitan area chosen to represent the economic, cultural, and social diversity of the city (see Roosa et al., 2008 for full description of sampling methods). These schools were chosen from 237 potential schools in the metropolitan area with at least 20 Latino students in fifth grade, the target age group. Prior to selecting potential schools to include in the study, the cultural context of each of these communities was scored. Cultural context was operationalized using multiple indicators: (a) the Mexican–American population density; (b) the percentage of elected and appointed Latino office holders; (c) the number of churches providing services in Spanish; (d) the number of locally owned stores selling traditional Latino foods, medicines, and household items; and (e) the presence of traditional Mexican-style stores (e.g., *carnicerías*). The score from each indicator was standardized and summed to create a community cultural context score. Next, the 237 school communities were arranged from lowest score to highest (i.e., from low to high levels of support for Mexican culture). The five “outliers”, on the high end of the scale, were selected because they represented particularly interesting living contexts (Mexican ethnic enclaves). Next, 25 additional schools were systematically selected from the remainder of this list by choosing a random starting point within the 10 lowest scores and selecting every 9th score (school) thereafter to represent the complete

spectrum of community contexts. In total, 47 schools from 18 public school districts, the Catholic Diocese, and alternative schools were selected and organized into 42 distinct, noncontiguous communities. The communities sampled included semirural, suburban, urban, and inner city neighborhoods; 44.7% of schools were categorized as large urban schools, 6.4% midsize urban, 36.2% large suburb, 6.4% small suburb, 2.1 rural fringe, and 4.3% rural distant (National Center for Education Statistics 2006). The mean percent of students eligible for free/reduced lunch at these schools was 67.3% (SD = 27.1), with a low of 7.5% and a high of 100%. Proportion of Hispanics in these schools ranged from 15 to 98% with a mean of 70% (SD = .237). Recruitment materials (in English and Spanish) were sent home with all 5th grade children in selected schools that explained the research project and asked parents to indicate whether they were interested in participating. Interested families were screened if their ethnicity was Hispanic or they had Hispanic/Latino surnames. Over 85% of those who returned the recruitment materials were eligible for screening (e.g., Hispanic) and 1,028 met study eligibility criteria. In-home Computer Assisted Personal Interviews were then scheduled; 749 families (mothers and child required, fathers optional) completed interviews, 73% of those eligible. Cohabiting family members' interviews were conducted concurrently by professionally trained interviewers in different locations at their home. Interviewers read each survey question and possible response aloud in participants' preferred language to reduce problems related to variations in literacy levels.

Measures

All measures in the present study were obtained from a larger interview battery. Each measure is included in the appendix. In the current study, assessment of all covariates and predictors is based on interviews administered at W2 of the original study, corresponding to the 7th grade for most adolescents in the study, and outcomes are based on W3 interviews conducted 3 years later.

Income

The average of father- and mother- report of family income (W2) was used as indicators of family socioeconomic status and included as a covariate in all analyses. Parents were asked a series of demographic questions including annual family income (“estimate your total family income for the past year,” with response options ranging from 1 = \$0,000–\$5,000 to 20 = 95,001).

Maternal and Paternal Depression

The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item self-report scale designed to assess for depressive symptomatology. The items in the scale represent the major components of depressive symptomatology: depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. Fathers and mothers responded to items such as "You felt that everything you did was an effort". The specific response format is: 0 = rarely or none of the time (less than one day), 1 = some or a little of the time (1-2 days), 2 = occasionally or a moderate amount of time (3-4 days), or 3 = most or all of the time (5-7 days). In the present study the descriptors “days” were removed from the response format in order to maintain consistency with other

instruments in the battery. Further, the time frame was changed from “this past week” to “this past month” for the reason previously stated. Four items were reversed scored so that high scores indicated higher depressive symptomatology. This scale has demonstrated adequate validity and reliability with Spanish- and English- speaking Mexican Americans (Moscicki, Locke, Rae, & Boyd, 1989). Cronbach’s alphas for total depression score were .91 for mothers and .88 for fathers. Thirty-five percent of mothers and 25% of fathers scored above the clinical cut-off point on the CES-D.

Paternal Alcohol Use

The Short Michigan Alcoholism Screening Test (SMAST; Selzer, Vinokur, & Van Rooijen, 1975) is a 13-item self-report screening for alcoholism. Fathers were asked to respond using yes (2) or no (1) answers. If fathers responded "Yes" to drinking alcoholic drinks during the past year, they subsequently responded to items such as, "Have you ever gotten in trouble at work because of your drinking?" Higher scores indicate more alcohol and drug-related behaviors. Cronbach’s alpha for total score were .68 for fathers.

Paternal Involvement

Father's involvement was based on father's and youth's report. We developed a z-score composite score comprised of three scales for father-report: parent-child interactions, paternal monitoring, and paternal warmth, which reflect Pleck's (2010) tripartite model of paternal involvement. For youth-report we only used paternal monitoring and paternal warmth as parent-child interactions was not asked for youth. The frequency of parent-child interactions was obtained from the

Parent-Child Interactions measure, which is an 8-items self-report questionnaire. The stem for all the questions is "Tell me how often in the past three months" and items included details such as "Play a sport or participate in an outdoor activity"/ "Work on a project for school or the house." The response scale ranges from 1 to 4 with "1" indicating almost never or never and "4" indicating a lot of the time (frequently). Cronbach's alpha for Parent-Child Interactions measure for fathers was .77. Paternal monitoring was derived from a 10-item, self-report paternal and youth-report on fathers, monitoring scale that is an adaptation of one used by Small and Kerns (1993). The original 8-item measure has shown adequate validity. Fathers and youth responded to items such as, "You know what [your child] was doing after school/ "Your [father] knows what you were doing after school", using a response scale ranging from 1 to 5 with "1" indicating almost never or never and "5" indicating "almost always or always". Cronbach's alpha for the monitoring measure for fathers was .77 and for youth was .89. The third domain of the paternal involvement composite is warmth, which was assessed with the Children's Reports of Parent Behavior Inventory (CRPBI; Schaefer (1965a). The CRPBI is a child-report measure assessing child's perceptions of their father's behavior which was also adapted as a self-report measure for parents. Users of the CRPBI have reported that factor analyses consistently revealed three replicable factors: acceptance vs. rejection, firm vs. lax control and psychological control vs. autonomy (Renson, Schaefer, & Levy, 1986; Schaefer, 1965b; Schludermann & Schludermann, 1970; 1983). This scale has also been cross validated for language and ethnic equivalence with a Hispanic sample

(Knight, Viridin, & Roosa, 1994; Knight, Tein, & Shell, 1992). The present study used the Acceptance subscale to characterize warmth. Respondents were asked to rate the frequency of events such as " You spoke to [your child] in a warm and friendly voice/Your father spoke to you in a warm and friendly voice" Respondents used a scale from 1 to 5 with "1" indicating almost never or never and "5" indicating almost always or always. Cronbach's alpha for CRPBI for fathers was .93 and for youth was .93.

Familism

The 16-item Familism Values Scale was taken from three subscales of the Mexican American Cultural Values Scaled (MCVS; Knight et al., 2010), a larger measure of values associated with acculturation and enculturation for Mexican Americans that focuses on values and beliefs. The three subscales include support and emotional closeness (6 items; e.g., "Parents should teach their children that family always comes first"), obligations (5 items; e.g., "If a relative is having a hard time, one should help them out if possible"), and family as a referent (5 items; "It is important to work hard and do one's best because this work reflects on the family"). Participants rated how much they agreed or disagreed with each item with responses ranging from 1 (not at all) to 5 (completely). The father familism scale has demonstrated good psychometric properties (Knight et al., 2007). Cronbach's alpha for overall father's familism in the current study was .79.

Youth Internalizing and Externalizing Symptoms

Youth internalizing and externalizing symptoms were measured using the average of the youth- and mother- report of the computerized version of the

Diagnostic Interview Schedule for Children (C-DISC IV; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). This measure provides a symptom count for a number of mental health problems including anxiety disorders, eating disorders, mood disorders, disruptive behavior disorders, and alcohol/ substance abuse disorders. This scale has successfully been translated into Spanish (Bravo, Canino, Rubio-Stipec, & Woodbury-Fariña, 1991; Bravo, Woodbury-Fariña, Canino, & Rubio-Stipec, 1993) and has demonstrated validity and reliability with Mexican-Americans (Roberts & Roberts, 2006). Questions typically contain a time frame and a symptom (e.g., “Was there a time in the last year when you felt sad or depressed for a long time each day?”). Mother and youth were administered the C-DISC independently and their combined reports were used in the present study. Symptom counts for mood disorders and anxiety were summed to represent internalizing problems and symptom counts for conduct disorders, attention deficit/ hyperactivity disorders, and oppositional defiant disorders were summed to represent externalizing problems.

Analytic Plan

Only the families where both parents participated at W2 were included in the analyses. The proposed hypotheses were tested using a series of path analyses using maximum likelihood (ML) as the estimator with Mplus software version 6.1 (Muthén & Muthén, 2010). Full information maximum likelihood was used to handle missing data in all analyses (Arbuckle, 1996). Five sets of regressions (for the 5 hypotheses) each for youth internalizing and externalizing symptoms (10 total sets) were performed. All continuous predictors were mean centered at zero

before interaction terms were created, as recommended by Aiken and West (1991).

First, the present study examined whether maternal depression at W2 predicts youth externalizing and internalizing symptoms at W3, controlling for family income and the baseline (W2) measure of the outcome (internalizing or externalizing) (Figure 1). For this and all subsequent models, gender differences were examined using the multiple group structural equation modeling method. We were only interested in the equivalence of the regression coefficients between groups, not the variances, covariances, intercepts, or means. This was done by running the model with all the paths constrained for invariance between genders and then comparing the constrained model to the unconstrained model using a chi-square difference test. When models were equivalent across genders, the models were subsequently run with the full sample. If models were not equivalent by gender, model results were reported separately. The second set of analyses examined the paternal variables as moderators (i.e., as stress-exacerbating or stress-buffering variables) of maternal depression on youth outcomes by adding the corresponding moderator and the interaction of the moderator and maternal depression to the initial model testing maternal depression alone (Figure 2). The additive model can only exist when the interactive effects of maternal depression and paternal variable of interest is not significant. Therefore, the interactive model is examined first.

If the interaction was not significant, a third set of analyses examined whether maternal depression and the paternal variable of interest (paternal

depression, paternal alcohol use, paternal involvement, paternal familism) had additive effects on these youth outcomes by dropping the interaction term from the model (Figure 3). For the interactive and additive models, separate models were run for each of the four paternal variables. Two sets were run for paternal involvement, corresponding with father and youth report of this variable. The models were tested separately for father and youth report because we were interested in examining whether youth's perception of paternal involvement had a different effect on youth outcomes when compared to father's perception.

RESULTS

Preliminary Analysis

Descriptive statistic summary: The means, standard deviations, range, skewness, and kurtosis for each measure in the study are presented in Table 1. The skewness and kurtosis of all study variables fell within the acceptable range (skewness cut-off - 2.0 and and kurtosis cut-off - 7.0) (West, Finch, & Curran, 1995).

Correlations among all study variables are shown in Table 2. Maternal depression was positively related to adolescent internalizing, father-report of paternal involvement was negatively related to adolescent internalizing, and adolescent report of paternal involvement was negatively related to adolescent externalizing symptoms. Maternal and paternal depression were significantly related with each other. Father report of paternal involvement was correlated with all the parent predictors, with the exception of familism, in the expected directions. Youth report of paternal involvement was also significantly correlated

with youth externalizing symptoms. Additionally, internalizing and externalizing symptoms were significantly correlated with each other at each time point ($r = .545, p < .001$; $r = .562, p < .001$), and there is stability across waves in internalizing ($r = .488, p < .001$) and externalizing ($r = .375, p < .001$). Average income was negatively related to maternal and paternal depression, and familism and positively related to father report of paternal involvement.

Regression diagnostics: Path analyses using ML were used to examine the proposed hypotheses. Regression diagnostics were conducted using separate regression equations with parental depression, paternal involvement variables, and paternal familism as predictors and adolescent externalizing and internalizing as outcomes. Cook's Distance (Cook's D), a measure of the influence of individual cases on the regression coefficient was examined to identify potential outliers. Cases were considered influential if the absolute value of Cook's D exceeded 1 or if it was substantially different from the other cases (Cook & Weisberg, 1982). No cases appeared to significantly influence the regression of the predictors on externalizing and internalizing problems.

Primary Analyses

In order to examine gender differences all models were initially compared, using a chi-square difference test. No gender differences were found for any model, therefore the results presented are with the full sample.

In the first model, externalizing and internalizing symptoms at W3 were regressed on maternal depression at W2, controlling for average income (W2) and baseline externalizing and internalizing symptoms (Figure 1). Maternal

depression did not have any significant effects on adolescent outcomes at W3.

Internalizing and externalizing symptoms at W2 did significantly predict internalizing ($b = .485, p < .001$) and externalizing ($b = .407, p < .001$) at W3. The same patterns were found in the subsequent models where internalizing and externalizing symptoms at W2 were the significant predictors.

Next, externalizing and internalizing symptoms were then regressed on maternal depression, paternal variables, and their interaction while controlling for average income and baseline adolescent externalizing and internalizing symptoms (Figure 2). The interactions were not significant between maternal depression and any of the paternal variables therefore the additive models were subsequently examined. Lastly, externalizing and internalizing symptoms at W3 were then regressed on maternal depression and the paternal variable of interest, controlling for average income and externalizing and internalizing symptoms at W2 (Figure 3). Likewise, none of the paternal variables were related to adolescent symptomatology.

Given that there were no effects of maternal depression or any of the father predictors in the prospective analyses, potentially due to the high rates of stability over time in the youth outcomes variables, further analyses were conducted to determine whether the hypothesized patterns of findings would be supported with predictors and outcomes measured concurrently at W2 and at W3, respectively.

Follow-up Analyses

Only the families where both parents participated at the time point being analyzed were included. As in the preliminary analyses, regression diagnostics were conducted to identify potential outliers. No cases appeared to significantly influence the regression coefficients. Path analysis, using maximum likelihood (ML) as the estimator, was used to examine the effect of maternal depression and paternal variables on youth externalizing and internalizing symptoms.

Descriptive statistic summary: The means, standard deviations, range, skewness, and kurtosis for each measure used at W3 are presented in Table 3. The skewness and kurtosis of all study variables fell within the acceptable range (skewness cut-off - 2.0 and and kurtosis cut-off - 7.0) (West, Finch, & Curran, 1995).

Correlations among all study variables in W2 are shown in Table 4 and in W3 in Table 5. Results of the concurrent regression analyses are presented in tables 6-10. As in the prospective analyses, all models were initially stacked by gender. In order to examine gender differences all models were initially compared, using a chi-square difference test. No gender differences were found for any model, therefore the results presented are with the full sample.

Maternal Depression

In the first model, externalizing and internalizing symptoms at W2 were regressed on maternal depression at W2, controlling for average income (W2; Table 6; Model 1) and likewise for W3 variables. Maternal depression at W2, significantly predicted internalizing ($b= 0.175, p<.001$) symptoms but not externalizing symptoms at W2. The same model was run at W3. Average income

at W1 had significant effects on internalizing ($b = .228, p < .01$) and externalizing ($b = .134, p < .001$). In W3, maternal depression significantly predicted internalizing ($b = .145, p < .01$) and externalizing ($b = .049, p < .05$) symptoms.

Additive and Interactive Effects of Maternal and Paternal Depression.

Paternal depression and the interaction between maternal and paternal depression was then added to the first model (Table 6; Model 2). The interaction was not significant for either W2 or W3, therefore the additive model was examined. Externalizing and internalizing symptoms at W2 were then regressed on paternal and maternal depression, controlling for average income (W2) and again for W3 (Table 6; Model 3). For both W2 and W3, paternal depression did not have an additive effect on youth outcomes above and beyond maternal depression. Maternal depression alone, however, did significantly predict internalizing symptoms (W2: $b = .172, p < .001$; W3: $b = .137, p < .001$).

Additive and Interactive Effects of Maternal Depression and Paternal Alcohol

Use

Paternal alcohol use and the interaction between maternal depression and paternal alcohol use was then added to the model with maternal depression alone for W2 and W3 (Table 7; Model 2). The interaction was not significant for either W2 or W3, therefore the additive model was examined. Externalizing and internalizing symptoms at W2 were then regressed on paternal alcohol use and maternal depression, controlling for average income (W2) and again for W3 (Table 7; Model 3). For both W2 and W3, paternal alcohol use did not have an additive effect on youth outcomes above and beyond maternal depression. Similar

to the findings with paternal depression, maternal depression alone, however, did significantly predict internalizing symptoms (W2: $b = .178, p < .001$; W3: $b = .136, p < .01$).

Additive and Interactive Effects of Maternal Depression and Father Involvement

Father-report of paternal involvement and the interaction between maternal depression and father-report of paternal involvement was then added to the model with maternal depression alone for W2 and W3 (Table 8; Model 2). The interaction was not significant for either W2 or W3, therefore the additive model was examined. Externalizing and internalizing symptoms at W2 were regressed on father-report of paternal involvement and maternal depression, controlling for average income (W2) and again for W3 (Table 8; Model 3). In W2 paternal involvement (father-report) did have additive effects above and beyond maternal depression on internalizing symptoms ($b = -.382, p < .05$; $b = .166, p < .001$ respectively). Maternal involvement (father-report) did not have additive effects on externalizing symptoms in W2. However, paternal involvement (father-report) alone did significantly predict externalizing symptoms ($b = -.347, p < .001$). In the additive model for W3, paternal involvement (father-report) did not have additive effects above and beyond maternal depression on youth outcomes. Maternal depression alone, however, did significantly predict internalizing symptoms ($b = .142, p < .01$).

For the next model, youth-report of paternal involvement and the interaction between maternal depression and youth-report of paternal involvement was added to the first model of maternal depression alone for W2 and W3 (Table

9; Model 2). The interaction was not significant for either W2 or W3, therefore the additive model was examined. Externalizing and internalizing symptoms at W2 were regressed on father-report of paternal involvement and maternal depression, controlling for average income (W2) and again for W3 (Table 9; Model 3). In W2 paternal involvement (youth-report) did have additive effects above and beyond maternal depression on internalizing symptoms ($b = -.634$, $p < .01$; $b = .167$, $p < .001$ respectively). On the other hand, maternal depression and paternal involvement (youth-report) did not have additive effects on externalizing symptoms. Paternal involvement (youth-report) alone, however, did significantly predict externalizing symptoms ($b = -.737$, $p < .001$). Likewise, in W3 paternal involvement (youth-report) did have additive effects above and beyond maternal depression on internalizing symptoms ($b = -.827$, $p < .001$; $b = .125$, $p < .01$; , respectively). Maternal depression and paternal involvement (youth-report) did not have additive effects on externalizing symptoms in W3. Paternal involvement (youth-report) alone, did significantly predict externalizing symptoms ($b = -.764$, $p < .001$).

Additive and Interactive Effects of Maternal Depression and Paternal Familism.

In the last model, externalizing and internalizing symptoms were regressed on maternal depression, paternal familism, and their interaction, controlling for average income, at W2 and W3 (Table 10; Model 2). The interaction was not significant for either W2 or W3, therefore the additive model was examined. Externalizing and internalizing symptoms at W2 were regressed on maternal depression and paternal familism, controlling for average income (W2) and again

for W3 (Table 9; Model 3). In W2, paternal familism did not have additive effects above and beyond maternal depression on youth outcomes. However, maternal depression alone did significantly predict internalizing symptoms ($b = .177, p < .001$) and paternal familism alone did significantly predict externalizing symptoms ($b = -1.678, p < .01$). In W3, paternal familism did not have additive effects above and beyond maternal depression on either of the youth outcomes. Maternal depression alone, however, did significantly predict internalizing symptoms ($b = .145, p < .001$) and externalizing symptoms ($b = .049, p < .05$).

DISCUSSION

Building on prior findings that mothers' depression increases child vulnerability for subsequent depressive symptoms, the current study examined the additive and stress-exacerbating effects of fathers' depression and alcohol use may play in the context of maternal depression on youth outcomes. This study also examined the additive and stress-buffering effects of fathers' involvement and familism in the context of maternal depression on youth outcomes. Additionally, the present study assessed whether these relations differed by gender. This study is unique in that it investigated these relations in a Mexican-American sample.

Although maternal depression in 7th grade was related to 10th grade internalizing symptoms, it was not a significant predictor in prospective analyses that controlled for prior (7th grade) levels of youth internalizing symptoms. Maternal depression also failed to predict youth externalizing symptoms over time. Thus, these findings challenge the basic assumption guiding this study that

maternal depression is a strong, consistent predictor of youth mental health problems over time. Further, none of the paternal variables had additive or interactive effects with maternal depression when predicting youth outcomes three years later, and gender was not shown to be a moderator of maternal and paternal effects.

The lack of prospective findings was surprising as it contradicts previous research and may be related to several factors. First, while previous studies examined clinical levels of depression (e.g., Brennan et al., 2002; Foley et al., 2001) the present study looked at depressive symptom counts. Therefore, past studies may have found significant effects on child outcomes because maternal clinical depression may have more deleterious effects than depressive symptoms. Second, these same studies evaluated lifetime history of maternal depression diagnosis while the present study focused on mother's and fathers' depressive symptoms in the past month. It is possible that the effects of maternal depression are strongest when they are chronic and severe, as previous studies have found (Halligan, Murray, Martins, & Cooper, 2007; Hammen & Brennan, 2003), but not at lower and less chronic levels of symptoms typical of community samples.

It is also possible that maternal depression affected child outcomes before these relations were measured in the present study. In fact, internalizing and externalizing symptoms in 7th grade significantly predicted internalizing and externalizing symptoms in 10th grade respectively. Therefore, it is possible that the effects of maternal depression are already being accounted for by the 7th grade symptomatology. A recent study also assessed maternal depressive

symptoms but when the children were 12 months old, 8 years old, and 19 years old (Bureau, Easterbrooks, & Lyons-Ruth, 2009). Child depressive symptoms were measured at 8 years of age and 19 years of age. Maternal depressive symptomatology when the child was 12 months old was a significant predictor of child depressive symptoms at 8 years of age. The study also found that child depressive symptoms and maternal depressive symptoms when the child was 8 years old and concurrent maternal depressive symptoms significantly predicted child depressive symptoms at 19 years of age. However, when controlling for repeated exposure, only child depressive symptoms at 8 years old and maternal depressive symptoms during infancy remained significant predictors and concurrent maternal depression became marginally significant. Thus, the null findings in the prospective analyses may be due to the later timing of the measure, and failure to model how prior levels of youth internalizing and externalizing are potential mediators, and not just control variables, that account for the link between maternal depression and later youth outcomes. Future analyses with this sample would benefit from additional waves of data that would allow more complex models to examine the effects of timing and chronicity.

Related to the timing of maternal depression, it also is possible that during middle school and high school other factors become more salient for youth's mental health that are not being accounted for in the present study, such as biological and social changes associated with puberty and exposure to new and more intense stressors in the peer and school contexts (e.g., Barber & Olsen, 2004; Steinberg & Morris, 2001). These may be more important than earlier

parental psychopathology or they may interact with parental psychopathology to account for youth mental health symptoms.

Maternal depression and father effects on concurrent internalizing and externalizing symptoms

To further explore the pattern of linkages between maternal and paternal influence and youth outcome, follow-up analyses were conducted looking at these relations concurrently (within the same time-point). The concurrent analyses also failed to support the moderating role of fathers advanced in the research. None of the hypothesized interactions between maternal depression and the paternal variables were significant predictors of youth outcomes at any time point. However, there was support for a link between maternal depression and youth internalizing symptoms in the concurrent analyses, and evidence that fathers have a compensatory influence when they are positively involved in their children's lives.

As hypothesized, higher maternal depression in 7th grade was related to higher internalizing symptoms in 7th grade and likewise higher maternal depression in 10th grade was related to higher internalizing symptoms in 10th grade. Higher levels of maternal depression in 10th grade were also related to higher externalizing symptoms in 10th grade, but this relation was not found in 7th grade. Thus, when examined concurrently, these results are consistent with previous findings that maternal depression is more strongly related to internalizing symptoms than externalizing symptoms in offspring (e.g., Beck, 1999; Goodman et al., 2011). This supports several processes of transmission of

risk outlined by Goodman and Gotlib (1999) including genetic transmission through an inherited disposition to depression or social learning and modeling of negative cognitions and affect.

However, and contrary to hypothesized, paternal depression and paternal alcohol use were not related to any of the youth outcomes. The lack of findings for parental psychopathology are consistent with prior research that has found that mothers' depression is more predictive than fathers' depression, potentially due to the central role of mothers and their greater involvement in the daily lives and emotional experiences of their offspring. However, although a number of studies have found that father's depression and substance abuse moderate the effects of maternal depression (Brennan et al., 2002; Dierker et al., 1999; Foley et al., 2001), this central hypothesis was not supported in any of this study's analyses. As previously stated, this may be due to the fact that most of the prior research has focused on clinical diagnoses of paternal depression and substance abuse, and is often conducted with clinical samples.

On the other hand, additive compensatory effects did emerge for the positive paternal variables in the concurrent analyses. Although paternal involvement and familism did not predict youth outcomes three years later nor did they buffer the concurrent effect of maternal depression, higher paternal involvement was related to lower internalizing symptoms in 7th grade, and this effect was shown for both father self-report and youth report of paternal involvement. Higher paternal involvement, both father and youth report, was also related to lower externalizing symptoms in 7th grade. In 10th grade, youth report

of paternal involvement was related to lower internalizing and externalizing symptoms. Lastly, higher levels of paternal familism were related to lower levels of externalizing symptoms in 7th grade. These findings are similar to previous investigations that paternal involvement is related to lower negative youth outcomes (e.g., Chang, Halpern, & Kaufman, 2007), and also show that youth's perception of father involvement, in particular, is closely related to concurrent youth outcomes. The link between paternal familism and concurrent youth externalizing is also consistent with prior research that has shown father's traditional familism values are specifically related to fewer externalizing problems (German, Gonzales, & Dumka, 2009; Gil, Warheit, Zimmerman, & Apospori, 1993), which highlights the important role these cultural values play in Mexican-origin families.

There are several limitations to the present study. First, the current study only looked at symptoms of psychopathology and not clinical diagnoses of depression, which may account for the discrepancy between the findings of the present study and previous literature. Future studies should also include measures of clinical diagnoses of depression. Second, maternal depressive symptoms were measured when the children were in 7th and 10th grade. Given that past research has consistently found maternal depression during infancy to be related to future poor mental health (i.e., Bureau, Easterbrooks, Lyons-Ruth, 2009; Hammen & Brennan, 2003), it is possible that maternal depressive symptoms in 7th grade do not predict child outcomes above and beyond the effects of maternal depression during infancy or early childhood. Future studies should assess lifetime levels of

maternal depression in order to account for maternal depression at earlier stages and to examine chronicity as well as severity of maternal depression over time (Hammen & Brennan, 2003). Future investigations should also include multiple data collection time-points for both parent and child variables. This would enable researchers to not only look at trajectories of symptoms but also to explore transactional models between parent and child variables. Third, 7th and 10th grade are usually at different schools (middle school versus high school). As previously mentioned, it is likely that during this time other stressors in the adolescent's lives may be more related to their mental health than parental psychopathology. Future studies of this age could benefit from examining the effects of additional stressors beyond parental psychopathology. Fourth, all of the significant findings were based on the cross-sectional analyses therefore causal inferences cannot be made and other causal variables cannot be ruled out. For example, the effects of maternal depression may be due to environmental stressors that are affecting both mothers and children simultaneously. Examining additional stressors in the family's shared environment may be an important extension in future studies. Fifth, the current study did not include the managerial aspect of father involvement, which may be important to fully represent this construct (Parke, 2000), nor did it include other culturally-unique aspects for Mexican-American fathers beyond familism values, such as positive machismo (Cruz, King, Widaman, Leu, Cause, & Conger, 2011).

Despite these limitations, the current study extends the existing literature by examining the effects of parental psychopathology in Mexican-American

families. Maternal depression, but not paternal depression or alcohol use, was related to concurrent youth symptomatology. Although this study did not replicate previous findings regarding maternal depression it raises important questions as to why prior findings were not replicated with this sample that warrant further examination. Further, the present study investigated the positive roles that Mexican-American fathers play in their children's mental health. Although causal relations cannot be inferred, the findings suggest that when fathers are highly involved and endorse high familism values, their adolescents experience fewer internalizing and externalizing symptoms. Furthermore, these positive dimensions of father involvement were more highly related to youth mental health than fathers' depression and alcohol use, which highlights the important role fathers may play in their child's mental health and warrants further investigation of these potentially protective factors.

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APPENDIX A

CENTER FOR EMPIDEMIOLOGICAL STUDIES DEPRESSION SCALE
(CES-D)

Mother Report

Subject Instructions

Now I'm interested in learning more about you and how you have been. Please tell me how often the following statements were true for you over the past month.

1. You were bothered by things that usually don't bother you.
2. You did not feel like eating; your appetite was poor.
3. You felt that you couldn't shake off blues even w/ help from family/friends.
4. You felt that you were just as good as other people.
5. You had trouble keeping your mind on what you were doing.
6. You felt depressed.
7. You felt that everything you did was an effort.
8. You felt hopeful about the future.
9. You thought your life had been a failure.
10. You felt fearful.
11. Your sleep was restless.
12. You were happy.
13. You talked less than usual.
14. You felt lonely.
15. People were unfriendly.
16. You enjoyed life.
17. You had crying spells.
18. You felt sad.
19. You felt that people disliked you.
20. You could not get going.

<u>Text of answer choice</u>	<u>Numeric Value</u>
Rarely or none of the time	1
Some or a little of the time	2
Occasionally or a moderate amount of time	3
Most or all of the time	4

APPENDIX B

SHORT MICHIGAN ALCOHOLISM SCREENING TEST (SMAST)

Father Self-report

1. During the past YEAR, did you ever drink alcoholic beverages like beer, wine, liquor? This does not include the use of wine in religious services. [if no, skip to next scale; if yes, continue]

If yes, Please tell me whether or not these statements were true for you during the past YEAR

2. Did your partner, a parent, or other relative ever worry or complain about your drinking?
3. Did you try to stop drinking but were not able to?
4. Did you attend a meeting of Alcoholics Anonymous?
5. Did your drinking create problems between you and your partner, a parent, or other relative?
6. Did you get into trouble at work because of your drinking?
7. Did you neglect your obligations, your family, or your work for two or more days in a row because you were drinking?
8. Did you go to anyone for help about your drinking?
9. Did you spend time in a hospital because of your drinking?
10. Were you arrested for drunken driving?
11. Were you arrested, even for a few hours, because of drunken behavior?
12. Did you think you were an alcoholic?

APPENDIX C
PATERNAL INVOLVEMENT SCALES

Parent-Child Interactions

Subject Instructions

Tell me how often during the past 3 months since did you do the following things with [Child's name]

1. How often did you play a video game, board game, or any other indoor game?
2. How often did you go shopping?
3. How often did you play a sport or participate in an outdoor activity?
4. Bake a meal or cook.
5. Go to a fun event like movies or sporting events.
6. Work on a project for school or the house.
7. Do something relaxing like watch TV or listen to music.
8. Eat a meal with [Child's name].

<u>Text of answer choice</u>	<u>Numeric Value</u>
Almost never or never	1
Once in a while	2
Sometimes	3
A lot of the time (frequently)	4

Paternal Monitoring- Father Self-report

1. You knew what [Your child] was doing after school.
2. You knew how [Your child] spent his/her money.
3. You knew the parents of [Your child]'s friends.
4. You knew who [Your child]'s friends were.
5. If [Your child] was going to get home late, he/she was expected to call you.
6. When [Your child] went out at night, you knew where he/she was going to be.
7. You knew about plans [Your child] had with his/her friends.
8. When [Your child] went out, you asked him/her where he/she was going.
9. You knew how [Your child] was doing in his/her schoolwork.

<u>Text of answer choice</u>	<u>Numeric Value</u>
Almost never or never	1
Once in a while	2
Sometimes	3
A lot of the time (frequently)	4
Almost always or always	5

Paternal Warmth Subscale, Father Self-report

1. You made [Your child] feel better after talking over his/her worries with him/her.
2. You saw [Your child]'s good points more than his/her faults.
3. You spoke to [Your child] in a warm and friendly voice.
4. You understood [Your child]'s problems and worries.
5. You were able to make [Your child] feel better when s/he was upset.
6. You cheered [Your child] up when s/he was sad.
7. You had a good time with TC.
8. You told or showed [Your child] that you liked him/her just the way s/he was.

<u>Text of answer choice</u>	<u>Numeric Value</u>
Almost never or never	1
Once in a while	2
Sometimes	3
A lot of the time (frequently)	4
Almost always or always	5

APPENDIX D

MEXICAN AMERICAN VALUES SCALES

1. Parents should teach their children to pray.
2. Parents should teach their children that the family always comes first.
3. Children should be taught that it is their duty to care for their parents when their parents get old.
4. Children should always do things to make their parents happy.
5. No matter what, children should always treat their parents with respect.
6. Children should be taught that it is important to have a lot of money.
7. People should learn how to take care of themselves and not depend on others.
8. God is first; family is second.
9. Family provides a sense of security because they will always be there for you.
10. Children should respect adult relatives as if they were parents.
11. If a relative is having a hard time financially, one should help them out if possible.
12. When it comes to important decisions, the family should ask for advice from close relatives.
13. Men should earn most of the money for the family so women can stay home and take care of the children and the home.
14. One must be ready to compete with others to get ahead.
15. Children should never question their parents' decisions.
16. Money is the key to happiness.
17. The most important thing parents can teach their children is to be independent from others.
18. One's belief in God gives inner strength and meaning to life.
19. Families need to watch over and protect teenage girls more than teenage boys.
20. It is always important to be united as a family.
21. A person should share their home with relatives if they need a place to stay.
22. Children should be on their best behavior when visiting the homes of friends or relatives.
23. Parents should encourage children to do everything better than others.
24. Owning a lot of nice things makes one very happy.
25. Children should always honor their parents and never say bad things about them.
26. As children get older their parents should allow them to make their own decisions.
27. If everything is taken away, one still has their faith in God.
28. It is important to have close relationships with aunts/uncles, grandparents and cousins.
29. Older kids should take care of and be role models for their younger brothers and sisters.

30. Children should be taught to always be good because they represent the family.
31. Children should follow their parents' rules, even if they think the rules are unfair.
32. It is important for the man to have more power in the family than the woman.
33. Personal achievements are the most important things in life.
34. The more money one has, the more respect they should get from others.
35. When there are problems in life, a person can only count on him/herself.
36. It is important to thank God every day for all one has.
37. Holidays and celebrations are important because the whole family comes together.
38. Parents should be willing to make great sacrifices to make sure their children have a better life.
39. A person should always think about their family when making important decisions.
40. It is important for children to understand that their parents should have the final say when decisions are made in the family.
41. Parents should teach their children to compete to win.
42. Mothers are the main people responsible for raising children.
43. The best way for a person to feel good about himself/herself is to have a lot of money.
44. Parents should encourage children to solve their own problems.
45. It is important to follow the Word of God.
46. It is important for family members to show their love and affection to one another.
47. It is important to work hard and do one's best because this work reflects on the family.
48. Religion should be an important part of one's life.
49. Children should always be polite when speaking to any adult.
50. A wife should always support her husband's decisions, even if she does not agree with him.

<u>Text of answer choice</u>	<u>Numeric Value</u>
Not at all	1
A little	2
Somewhat	3
Very much	4
Completely	5

Table 1

Descriptive Information of Study Variables

Full Sample (n= 405)	N	Min.	Max.	Mean	Std. Dev.	Skewness	Kurtosis	Alpha
Family Variables								
Family Income _a	405	1	20	8.5309	4.5742	.943	.165	
Mother Variables								
Maternal Depression	405	0.00	49	13.3802	9.9379	0.833	0.406	.910
Father Variables								
Paternal Depression	404	0.00	40.00	11.1287	8.2989	.877	.432	.875
Paternal Alcohol Use	405	0.00	8.00	1.1259	1.3201	1.898	4.661	.679
Parent Involvement (Father report)								
Paternal Monitoring	404	1.88	5.00	4.0795	.6632	-.745	.233	.768
Paternal Warmth	404	2.50	5.00	4.2042	.5522	-.374	-.569	.927
Parent-Child Interactions	404	1.25	4.00	2.9539	.5523	-.309	.335	.773
Paternal Familism	405	2.94	5.00	4.3526	0.3766	-.647	.421	.792
Youth Variables								
Gender	405	208	males	(51.4%)				
Paternal Involvement (W2)								
Paternal Monitoring (W2)	399	1.00	5.00	4.0620	.8671	-1.091	-.953	.892
Paternal Warmth (W2)	400	1.00	5.00	4.0161	.9044	.867	.319	.927
Internalizing (W2) _b	404	0.00	41.50	12.6658	7.454	.858	.862	.711
Externalizing (W2) _b	404	0.00	26.00	5.2079	4.274	1.229	2.000	.622
Internalizing (W3) _b	364	0.00	40.50	11.4135	7.8222	0.385	0.658	.719
Externalizing (W3) _b	364	0.00	21.50	5.1538	4.5208	1.703	3.504	.627

a. Income is reported in multiples of 5,000; average of mother and father report

b. Combined mother and youth report

W2= Wave 2; W3= Wave 3

Table 2

Correlations among Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	--											
2. Family Income	.076	--										
3. M Depression (W2)	-.080	-.306***	--									
4. P Depression (W2)	.000	-.335***	.314***	--								
5. P Alcohol Use (W2)	-.045	-.090	.108*	.208***	--							
6. P Involvement (father-report) (W2)	.039	.236***	-.163**	-.274***	-.129**	--						
7. P Involvement (child-report) (W2)	-.014	.002	-.068	-.095	-.018	.190***	--					
8. P Familism(W2)	-.003	-.176***	.112*	.070	-.027	.314***	.012	--				
9. Y Internalizing (Combined-report; W2)	-.130**	-.072	.234***	.088	-.020	-.155**	-.171**	-.005	--			
10. Y Externalizing (Combined-report; W2)	.089	-.014	.075	.053	-.039	-.195***	-.321***	-.136***	.545***	--		
11. Y Internalizing (Combined-report; W3) ^a	-.238***	.013	.146**	.098	.021	-.109*	-.058	-.044	.488***	.233***	--	
12. Y Externalizing (Combined-report; W3) ^a	.034	.021	-.035	-.007	-.037	-.044	-.181**	-.060	.239***	.372***	.562***	--

Mf = Maternal; P = Paternal; Y= Youth

W2= Wave 2; W3= Wave 3

N= 405; ***p<.001; **p<.01, *p<.05

a N= 364

Table 3

Descriptive Information of Study Variables at Wave 3

Full Sample (n= 329)	N	Min.	Max.	Mean	Std. Dev.	Skewness	Kurtosis	Alpha
Family Variables								
Family Income _a	329	1.00	20.00	7.9058	4.92832	.955	.057	
Mother Variables								
Maternal Depression	329	0.00	51.00	14.5106	10.3603	.665	.040	.919
Father Variables								
Paternal Depression	328	0.00	38.00	11.3354	8.1794	.681	-.109	.885
Paternal Alcohol Use	329	0.00	8.00	1.1581	1.3040	1.746	4.003	.652
Parent Involvement (Father report)								
Paternal Monitoring	329	1.00	5.00	4.0004	.7227	-1.077	1.802	.835
Paternal Warmth	329	1.50	5.00	4.1026	.6245	-.655	.247	.946
Parent-Child Interactions	318	1.00	4.00	2.7618	.6131	-.186	-.454	.809
Paternal Familism	329	3.00	5.00	4.3224	.3876	-.595	.163	.808
Youth Variables								
Gender	329	171	males	(52%)				
Paternal Involvement (W3)								
Paternal Monitoring (W3)	328	1.13	5.00	3.8251	.9242	-.789	.016	.900
Paternal Warmth (W3)	328	1.00	5.00	3.6165	.9939	-.517	-.422	.946
Internalizing (W3) _b	329	0.00	40.50	11.0821	7.8222	1.065	1.187	.710
Externalizing (W3) _b	329	0.00	21.50	5.0152	4.5208	1.182	1.139	.614

a. Income is reported in multiples of 5,000; average of mother and father report

b. combined mother and youth report

W2= Wave 2; W3= Wave 3

Table 4

Correlations Among Wave 2 Variables

	1	2	3	4	5	6	7	8	9	10
1. Gender	--									
2. Family Income	.076	--								
3. M Depression (W2)	-.080	-.306***	--							
4. P Depression (W2)	.000	-.335***	.314***	--						
5. P Alcohol Use (W2)	-.045	-.090	.108 [†]	.208***	--					
6. P Involvement (father-report) (W2)	.039	.236***	-.163**	-.274***	-.129**	--				
7. P Involvement (Youth-report) (W2)	-.014	.002	-.068	-.095	-.018	.190***	--			
8. P Familism(W2)	-.003	-.176***	.112 [†]	.070	-.027	.314***	.012	--		
9. Y Internalizing (Combined-report; W2) _a	-.130**	-.072	.234***	.088	-.020	-.155**	-.171**	-.005	--	
10. Y Externalizing (Combined-report; W2) _a	.089	-.014	.075	.053	-.039	-.195***	-.321***	-.136**	.545***	--

M = Maternal; P = Paternal; Y= Youth

N= 405

***p<.001; **p<.01, *p<.05

Table 5

Correlations Between Wave 3 Variables

	1	2	3	4	5	6	7	8	9	10
1. Gender	--									
2. Family Income	.038	--								
3. M Depression (W3)	-.078	-.337***	--							
4. P Depression (W3)	.027	-.259***	.195***	--						
5. P Alcohol Use (W3)	-.038	-.107	.196***	.156**	--					
6. P Involvement (father-report) (W3)	.045	.150**	-.126*	-.296***	-.207***	--				
7. P Involvement (Youth-report) (W3)	.042	-.019	-.111*	-.038	-.110	.166**	--			
8. P Familism(W3)	.022	-.042	.031	-.082	.005	.282***	.023	--		
9. Y Internalizing (Combined-report; W3) _a	-.243***	.082	.149**	.085	.087	-.046	-.218***	-.046	--	
10. Y Externalizing (Combined-report; W3) _a	-.039	.113*	.066	-.006	.062	-.057	-.330***	.005	.529***	--

M = Maternal; P = Paternal; Y= Youth

N= 329

***p<.001; **p<.01, *p<.05

Table 6

Summary of Results for Maternal and Paternal Depression

	W2 Internalizing Symptoms		W2 Externalizing Symptoms		W3 Internalizing Symptoms		W3 Externalizing Symptoms	
	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE
Model 1:								
Income	-0.002	0.083	0.009	0.049	0.228**	0.088	0.134**	0.051
Maternal depression	0.175***	0.038	0.034	0.022	0.145**	0.042	0.049*	0.024
Model 2: Interactive Effects								
Income	0.010	0.087	0.023	0.051	0.264**	0.090	0.138**	0.052
Maternal depression (MD)	0.173***	0.040	0.031	0.023	0.140**	0.042	0.050*	0.024
Paternal depression (PD)	0.024	0.049	0.025	0.029	0.088	0.052	0.008	0.030
MD X PD	-0.002	0.004	-0.002	0.002	-0.003	0.005	-0.001	0.003
Model 3: Additive Effects								
Income	0.006	0.086	0.019	0.050	0.259**	0.089	0.136**	0.052
MD	0.172***	0.039	0.030	0.023	0.137**	0.042	0.048	0.024
PD	0.016	0.048	0.020	0.028	0.085	0.052	0.006	0.030

Note. = * $p < .05$; ** $p < .01$; *** $p < .001$

Table 7

Summary of Results for Maternal Depression and Paternal Alcohol Use

	W2 Internalizing Symptoms		W2 Externalizing Symptoms		W3 Internalizing Symptoms		W3 Externalizing Symptoms	
	B	SE	B	SE	B	SE	B	SE
Model 1:								
Income	-0.002	0.083	0.009	0.049	0.228**	0.088	0.134**	0.051
Maternal depression	0.175***	0.038	0.034	0.022	0.145**	0.042	0.049*	0.024
Model 2: Interactive Effects								
Income	-0.010	0.083	0.004	0.049	0.232**	0.087	0.135**	0.051
Maternal depression (MD)	0.179***	0.038	0.036	0.022	0.134**	0.042	0.043	0.025
Paternal alcohol use (PA)	-0.225	0.275	-0.125	0.162	0.351	0.340	0.146	0.197
MD X PA	-0.030	0.029	-0.024	0.017	0.008	0.027	0.010	0.016
Model 3: Additive Effects								
Income	-0.006	0.083	0.007	0.049	0.233**	0.087	0.136**	0.051
MD	0.178***	0.038	0.035	0.022	0.136**	0.042	0.044	0.024
PA	-0.260	0.273	-0.153	0.161	0.388	0.317	0.192	0.184

Note. = * $p < .05$; ** $p < .01$; *** $p < .001$

Table 8

Summary of Results for Maternal Depression and Paternal Involvement (Father-Report)

	W2 Internalizing Symptoms		W2 Externalizing Symptoms		W3 Internalizing Symptoms		W3 Externalizing Symptoms	
	B	SE	B	SE	B	SE	B	SE
Model 1:								
Income	-0.002	0.083	0.009	0.049	0.228**	0.088	0.134**	0.051
Maternal depression	0.175***	0.038	0.034	0.022	0.145**	0.042	0.049*	0.024
Model 2: Interactive Effects								
Income	0.037	0.084	0.040	0.049	0.230**	0.088	0.131*	0.051
Maternal depression (MD)	0.163***	0.038	0.024	0.022	0.143**	0.041	0.045	0.024
Paternal involvement (PI)	-0.381*	0.152	-0.339***	0.089	-0.150	0.172	-0.119	0.100
MD X PI	-0.001	0.016	-0.011	0.009	0.021	0.016	0.001	0.010
Model 3: Additive Effects								
Income	0.040	0.084	0.047	0.049	0.236**	0.088	0.141**	0.051
MD	0.166***	0.038	0.025	0.022	0.142**	0.042	0.046	0.024
PI	-0.382*	0.152	-0.347***	0.088	-0.139	0.179	-0.121	0.102

Note. = * $p < .05$; ** $p < .01$; *** $p < .001$

Table 9

Summary of Results for Maternal Depression and Paternal Involvement (Youth-report)

	W2 Internalizing Symptoms		W2 Externalizing Symptoms		W3 Internalizing Symptoms		W3 Externalizing Symptoms	
	B	SE	B	SE	B	SE	B	SE
Model 1:								
Income	-0.002	0.083	0.009	0.049	0.228**	0.088	0.134**	0.051
Maternal depression	0.175***	0.038	0.034	0.022	0.145**	0.042	0.049*	0.024
Model 2: Interactive Effects								
Income	-0.003	0.082	0.001	0.047	0.220*	0.086	0.122*	0.048
Maternal depression (MD)	0.169***	0.038	0.025	0.022	0.128**	0.041	0.034	0.023
Paternal involvement (PI)	-0.644**	0.196	-0.751***	0.112	-0.842***	0.222	-0.776***	0.124
MD X PI	0.016	0.019	0.010	0.011	0.031	0.021	0.017	0.012
Model 3: Additive Effects								
Income	-0.007	0.082	0.003	0.046	0.209*	0.086	0.116*	0.048
MD	0.167***	0.038	0.023	0.021	0.125**	0.041	0.031	0.023
PI	-0.634**	0.197	-0.737***	0.111	-0.827***	0.224	-0.764***	0.125

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

Table 10

Summary of Results for Maternal Depression and Paternal Familism

	W2 Internalizing Symptoms		W2 Externalizing Symptoms		W3 Internalizing Symptoms		W3 Externalizing Symptoms	
	B	SE	B	SE	B	SE	B	SE
Model 1:								
Income	-0.002	0.083	0.009	0.049	0.228**	0.088	0.134**	0.051
Maternal depression	0.175***	0.038	0.034	0.022	0.145**	0.042	0.049*	0.024
Model 2: Interactive Effects								
Income	-0.010	0.084	-0.012	0.049	0.224*	0.087	0.133**	0.051
Maternal depression (MD)	0.174***	0.038	0.035	0.022	0.149***	0.042	0.049*	0.024
Paternal familism (PF)	-0.633	0.972	-1.671**	0.565	-0.870	1.047	0.096	0.607
MD X PF	0.075	0.101	0.080	0.059	0.105	0.107	0.022	0.062
Model 3: Additive Effects								
Income	-0.010	0.084	-0.012	0.049	0.226*	0.088	0.134*	0.051
MD	0.177***	0.038	0.038	0.022	0.145***	0.042	0.049*	0.024
PF	-0.641	0.973	-1.678**	0.566	-0.902	1.048	0.090	0.606

Note. = * $p < .05$; ** $p < .01$; *** $p < .001$

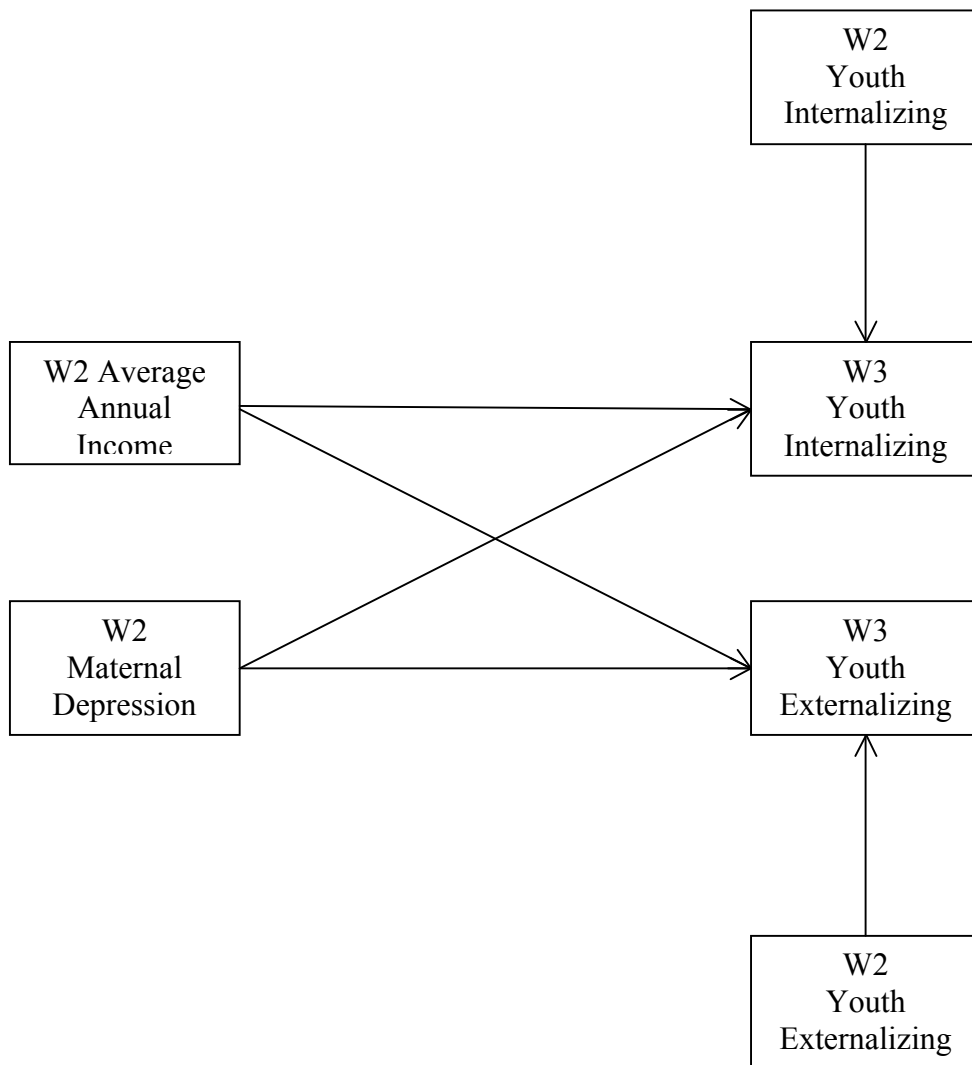


Figure 1. Path Model with Maternal Depression only

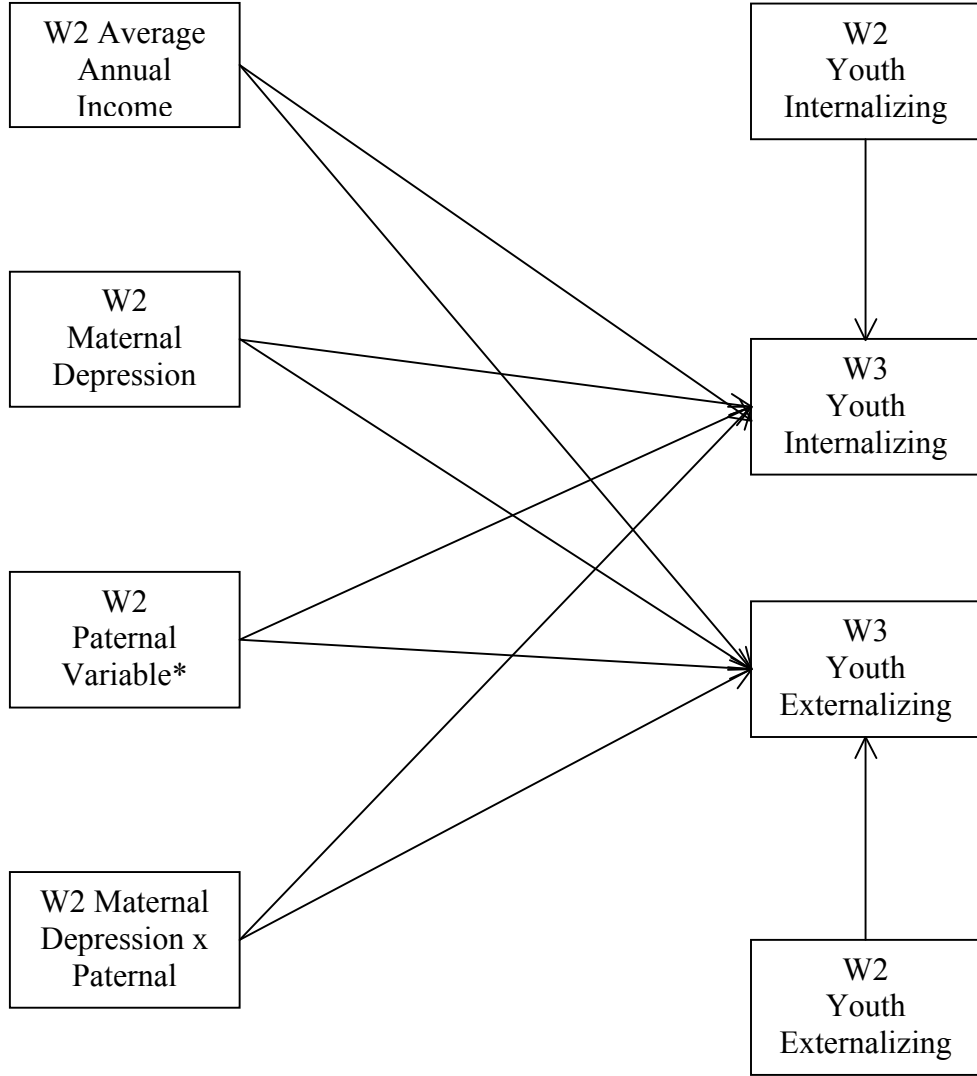


Figure 2. Path Model with Maternal Depression, Paternal Variable, and their Interaction

Note: * Paternal depression, alcohol use, involvement, and familism

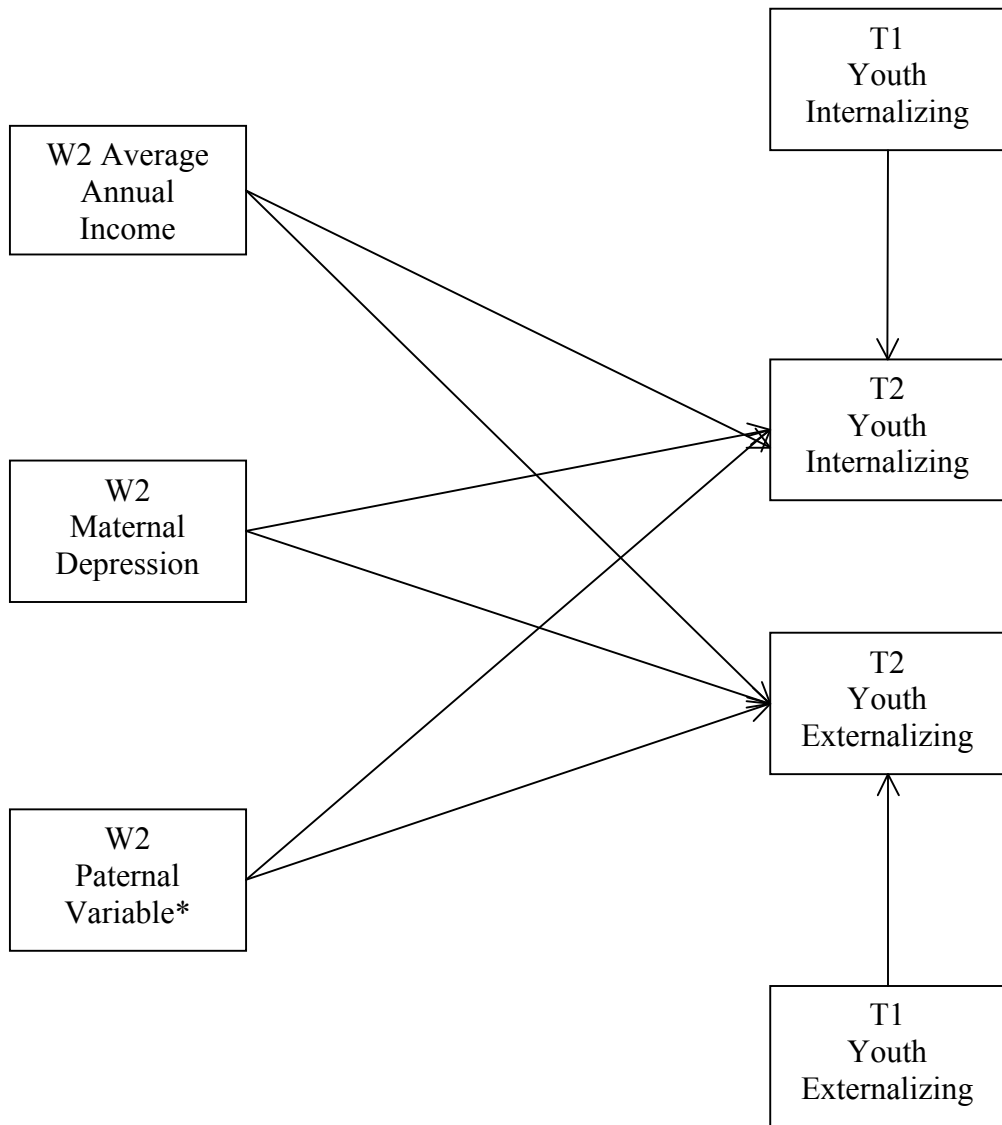


Figure 3. Path Model with Maternal Depression and Paternal Variable

Note: * Paternal depression, alcohol use, involvement, and familism