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BIDIRECTIONAL RELATIONS BETWEEN MEXICAN AMERICAN  
PARENTING DIMENSIONS AND YOUTH MENTAL HEALTH

BY

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DISSERTATION

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## ABSTRACT

The bidirectional relations between parenting behaviors and youth mental health were examined in a Mexican American adolescent sample using a transactional model. Data were collected at two time points, approximately one year apart. The sample consisted of 216 participants at Time 1 (14-19 years old) and 88 participants at Time 2. Youth reported on internalizing and externalizing symptoms as well as six maternal parenting behaviors. Confirmatory factor analyses were conducted with T1 data to test a two-factor structure of parenting behaviors: Supportive Parenting and Harsh Parental Control. Strong evidence was found for higher T1 internalizing symptoms uniquely predicting lower T2 Supportive Parenting when accounting for the variance in T1 Supportive Parenting and externalizing symptoms and T2 Harsh Parental Control. Evidence was also found for higher T1 externalizing symptoms predicting higher T2 Harsh Parental Control when accounting for variance in T1 Harsh Parental Control and internalizing symptoms. Parenting behaviors, however, did not predict youth mental health symptoms as expected. An ecodevelopmental framework including culture, neighborhood context, and developmental stage were used to interpret findings.

*Dedicated to families with a loved one struggling with mental illness.*

*May you have the strength and dedication to cope with and overcome difficult times.*

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## CHAPTER 1

### INTRODUCTION

Youth mental health problems, such as depression and conduct problems, have been found to be a burden to society (Knapp, 1997) and families (Angold et al., 1998) as well as predictive of other problems such as school dropout (Kessler, Foster, Saunders, & Stang, 1995) and suicide (Fergusson, Woodward, & Horwood, 2000). Latino youth are more likely to develop delinquent behaviors, anxiety, and depression than Euro-American youth (Ramirez et al., 2004; U.S. Department of Health and Human Services, 2001). This is especially problematic since Latinos are the fastest growing ethnic group in the United States and are projected to be 24% of the population by 2050 (U.S. Census Bureau, 2000). The youth population (under 18 years old) is growing at an even faster rate and expected to comprise 29% of the US youth population by 2050 (U.S. Census Bureau). Given the high risk for mental health problems and population growth rate among Latino youth, it is crucial to empirically examine risk and protective factors that can inform intervention and prevention efforts.

Risk and protective factors such as acculturation (Coatsworth et al., 2000), neighborhood contexts (Roosa et al., 2005), peer influences (Barrera et al., 2002; Updegraff, McHale, Whiteman, Thayer, & Crouter, 2006), and family relationships (Loukas & Roalson, 2006) have been examined in studies on Latino youth mental health. Family relationships, particularly with parents, have received much attention. Empirical studies have shown that parenting was not only related to youth mental health but that it also mediated other ecological or cultural risk factors of youth mental health such as those mentioned above, emphasizing the centrality of the role of parents (Dinh, Roosa, Tien, & Lopez, 2002; Martinez, 2006; Roosa et al., 2005; Samaniego & Gonzales, 1999).

The purpose of the current study is to further examine the relation between parenting behaviors and youth mental health symptoms in a Mexican American sample. Establishing the nature of these relations will inform models of the development and/or maintenance of youth mental health symptoms as well as identifying targets of intervention. Two aspects of mental health, internalizing and externalizing symptoms, were examined in regards to parenting risk and protective factors. Internalizing symptoms referred to symptoms associated with depression (e.g., sadness, withdrawal) and anxiety (e.g., worry, restlessness). Externalizing symptoms referred to conduct problems such as aggression and delinquency.

### **Parenting Dimensions**

To understand the impact of parenting on youth mental health, it is important to consider different dimensions of parenting behavior. Parenting behaviors can be classified under “two fundamental components of parenting” (p. 2, Barber, Stolz, & Olsen, 2005), including behaviors considered *supportive* (e.g., affective, nurturant, or companionate) or *controlling* (e.g., regulating and/or disciplinary). Similar dimensions were supported in other studies on parenting behaviors (Rothbaum & Weisz, 1994; Schaefer, 1965), but few if any, include ethnic minority samples exclusively. One exception was based on a sample of Mexican American adolescents’ reports of maternal parenting behaviors (Manongdo & Ramírez García, 2007). Exploratory factor analyses (EFA) resulted in two parenting dimensions. The Supportive Parenting factor consisted of acceptance, involvement, and monitoring behaviors. The Harsh Parental Control factor consisted of firm control, inconsistent discipline, and harsh parenting behaviors. The current study contributes to the literature by empirically testing for the structure of parenting dimensions using confirmatory factor analysis, which is more stringent than EFA. The hypothesized factor structure is identical to the one found in the prior study on Mexican American adolescents.



## Parenting Dimensions and Youth Mental Health

**Bidirectional models.** In addition to testing the structure of parenting, the current study also examined youth mental health predictors and outcomes of parenting behaviors. Although there is a large and well-established literature on how parents impact youth, the literature on how youth impact parents is relatively small. Bidirectional models of parent and child behavior propose that parents impact children (i.e., *parent effects*) and children impact parents (i.e., *child effects*). For example, a bidirectional model of supportive parenting and internalizing symptoms tests not only the degree to which supportive parenting predicts internalizing problems but also the degree to which internalizing symptoms predict supportive parenting. Bidirectional models are based on the principle of reciprocal and mutual influences of human relationships and are espoused by influential theories of family relationships (e.g., systems theory; Szapocznik & Kurtines, 1989).

Longitudinal studies found parenting behaviors predicted youth mental health outcomes such as depression (Stolz, Barber, & Olsen, 2005) and conduct problems (Ary et al., 1999; Gorman-Smith & Loeber, 2005; Hoeve et al., 2008; Klein & Forehand, 1997). There is evidence that supportive and controlling dimensions of parenting are differentially and uniquely associated to youth mental health problems (Barber et al., 2005; Caron, Weiss, Harris, & Catron, 2006; Dallaire, et al., 2007; Galambos, Barker, & Almeida, 2003). For example, Caron and colleagues found that parental warmth had a similar pattern of negative relations with internalizing and externalizing symptoms. Behavior control, however, was positively associated with internalizing symptoms but negatively associated with externalizing symptoms. The findings demonstrated unique effects of behavior control but not of parental warmth. The current study examined how parenting dimensions were uniquely associated with youth mental health symptoms.

Although there has been an emphasis in the literature on how parents impact youth, it has been proposed that *youth* play an active role in influencing their environment, including family life. In his control system model, Bell (1971) proposed that parent behaviors are elicited by a combination of their own expectations of their child and the child's behavior. When a child does not meet their parents' expectations, parents respond with attempts to redirect, reduce, stimulate, or prime child behavior. In other words, parents' behaviors do not occur in a vacuum but rather they can be predicted in part by their child's behavior. Despite relatively few studies on bidirectional effects, there is increasing evidence that child effects are as strong as, if not stronger than, parent effects. (See Table 1 for a summary of findings from bidirectional studies on parent behaviors and youth mental health symptoms.) Evidence for child effects have been found in the absence of parent effects (Fite, Colder, Lochman, & Wells, 2006; Frye & Garber, 2005; Huh, Tristan, Wade, & Stice, 2006; Loukas, 2009; Roche, Ghazarian, Little, & Leventhal, *in press*; Stice & Barrera, 1995). In fact, some studies have found that even when evidence supported both parent and child effects, child effects were stronger than parent effects (Burke, Pardini, & Loeber, 2008; Hipwell et al., 2008; Pardini, Fite, & Burke, 2008). These findings emphasize the importance of considering both parent and child effects.

A limitation of the literature on bidirectional relations, as well as studies on parent or child effects only, is that *dimensions* of parenting behaviors are rarely used. Single indicators of parenting behaviors are often tested separately rather than combined. Even when parenting behaviors *are* combined, it is unclear if the behaviors are a part of the same dimension. Associations with youth mental health may be underestimated when a single indicator of parenting is used or behaviors that belong to separate dimensions are combined. The current study builds on prior research by including empirically based dimensions of parenting behaviors.

**Bidirectional models of parenting behaviors and youth mental health symptoms.** In the current study, two types of youth mental health symptoms (internalizing and externalizing) and two types of parenting behaviors (supportive and controlling) are examined using a bidirectional framework. Hypotheses for the nature of the bidirectional relations between parenting behaviors and youth mental health are guided by various theories.

*Controlling parenting and externalizing symptoms: Coercive model.* According to Patterson's (1982) coercive model, not only does controlling parenting predict externalizing behavior, but externalizing symptoms predict controlling behaviors from parents (Dishion, Patterson, & Kavanagh, 1992). Parents may attempt to reduce unwanted behavior with punitive, restrictive, intrusive, and/or demanding tactics (Bell, 1968). In other words youth externalizing problem behaviors are likely to elicit parental control practices. In studies that tested the coercive model bidirectionally, the majority have found evidence for child effects (Burke et al., 2008; Chen, Liu, & Li, 2000; Fite et al., 2006; Hipwell et al., 2008; Huh et al., 2006; Pardini et al., 2008; Frye & Garber, 2005; Roche et al., in press) but fewer have found evidence for parent effects (Chen et al.; Fite et al.; Frye & Garber; Huh et al.; Stice & Barrera, 1995; Reitz, Dekivic, & Meijer, 2006; Roche et al; for exceptions see Burke et al., Hipwell et al.; Pardini et al.).

*Controlling parenting and internalizing symptoms.* Controlling parenting behaviors may also be associated with internalizing symptoms, including depression and anxiety (McLeod, Weisz, & Wood, 2007; McLeod, Wood, & Weisz, 2007; van der Bruggen, Stams, & Bogels, 2008). Highly controlling parenting behaviors can lead to internalizing symptoms through youths' decreased sense of self-efficacy and personal control, as well as increases in perceived helplessness (see McLeod, Wood, & Weisz and van der Bruggen et al. for reviews).

Internalizing symptoms may also elicit controlling behaviors from parents. Parents may try to

compensate for youths' perceived helplessness by taking charge and/or trying to direct youth behaviors (Rubin, Nelson, Hastings, & Asendorph, 1999). Findings are mixed in the few studies that have examined the link between internalizing symptoms and controlling parenting with explicit bidirectional frameworks. Evidence has been found for both directions (Hipwell et al., 2008), for parent effects only (Reitz et al., 2006), for child effects only (e.g., Roche et al., in press), and for neither direction (Chen et al., 2000; Frye & Garber, 2005).

***Supportive parenting and youth internalizing symptoms: Social interaction theory.***

Bidirectional relation between parenting behaviors and youth depression has been addressed in various social interaction theories (e.g., Coyne, 1976; Moos, Cronkite, & Moos, 1998; Pineda, Cole & Bruce, 2007) which propose that depressive symptoms can both be provoked by and elicit poor interpersonal relationships. For example, individuals with depression are likely to be rejected (i.e., not supported) by those with whom they interact (Coyne; Pineda et al.). Although social interaction theories primarily focus on depression, similar processes may exist for other forms of internalizing symptoms (e.g., anxiety symptoms) given that they share similar cognitive distortions and are highly correlated with depressive symptoms (Lewinsohn, Rohde, & Seeley, 1998). Accordingly, youth depression and anxiety have both been found to elicit rejection from parents (e.g., Rubin et al., 1999). Most studies examining the bidirectional relations between internalizing symptoms and supportive parenting have found support for both directions (Buist, Dekovic, Meeus, & van Aken, 2004; Fanti, Henrich, Brookmeyer, & Kuperminc, 2008; Hipwell et al., 2008; Reitz et al., 2006; see Chen et al., 2000 for an exception with parent effects only).

***Supportive parenting and externalizing symptoms.*** Youth exhibiting externalizing behaviors may be rejected by their disapproving parents and hence be less supported (Brunk & Henegler, 1984). Findings on the bidirectional relation between supportive parenting and

externalizing behaviors are mixed, with some studies finding evidence for bidirectionality (Burke et al., 2008; Coley, Votruba-Drzal, & Schindler, 2008; Hipwell et al., 2008, Pardini et al., 2008; Jang & Smith, 1997; Reitz et al., 2006), some for parent effects only (e.g., Buist et al., 2004; Chen et al., 2000; Fanti et al., 2008), and some for externalizing predicting parental support (Huh et al., 2006; Stice & Barrera, 1995).

## **Gender**

Gender differences in the association between parent behavior and youth mental health were tested in some studies and results have been equivocal in nature. Some studies demonstrate support for parents impacting girls more than boys. For example, in a meta-analysis by Grant et al. (2003), negative parenting (e.g., hostility and reverse scores of support and involvement) was found to have a significantly stronger association with internalizing for girls than boys. In a study of adolescents, low parental warmth was more strongly associated with girls' internalizing symptoms than with boys' symptoms (Operario, Tschann, Flores, & Bridges, 2006). Other studies (e.g., Elizur, Spivak, Ofran, & Jacobs, 2007; Pettit, Laird, Dodge, Bates, & Criss, 2003) have also found that girls are more affected by parenting behaviors than boys. Although there is evidence for parents impacting girls more than boys, evidence also exists for parents having a stronger impact on boys. Parental control was more strongly related to boys' overt aggression (a type of externalizing symptoms) than girls' (Kuppens, Grietens, Onhena, & Michiels, 2009). Furthermore, results from a meta-analysis on parental caregiving and externalizing behaviors indicated that there is a stronger link for boys than for girls (Rothbaum & Weisz, 1994).

One potential interpretation of these gender differences is that girls and boys respond differently to parent behavior. Theorists argue that girls are socialized to value interpersonal relationships more than boys (Helgeson, 1994; Maccoby, 1990) and thus are more vulnerable to

distress when experiencing interpersonal stress (Rudolph, 2002). Boys, on the other hand, are socialized to value independence and autonomy (Cross & Madson, 1997; Helgeson). Therefore, parental behaviors that undermine youths' sense of control may impact boys more than girls.

Some studies on bidirectional relations between parenting behavior and youth mental health include samples of girls only (Hipwell et al., 2008; Huh et al., 2006) or boys only (Fite et al., 2006). In studies that include both boys and girls, few have tested for gender moderation of parent or child effects. Laird and colleagues (Laird, Pettit, Bates, & Dodge, 2003) found that over a 4-year period delinquency predicted parental monitoring and that this relation was significantly stronger for boys than for girls. For boys, the prediction of monitoring by delinquency was robust and significant across all three time points, while for girls it was only significant for one out of the three years examined. Gender moderation was supported for the child effect, but it was not supported for the parent effect. Parental monitoring predicted delinquency to the same degree for boys and girls. Although there was support for gender moderation in Laird and colleagues' study, such findings have been equivocal. In a sample of Chinese families, mothers' warmth predicted depression, fathers' warmth predicted aggression, youth aggression predicted fathers' control, and gender did not moderate any of these relations over a two-year period (Chen et al., 2000). A study on preschoolers and parents demonstrated that gender moderation was not present, even in the context of mean gender differences (Combs-Ronto, Olson, Lunkenheimer, & Sameroff, 2009).

Since there is evidence for gender differences for both parent and child effects, it is important to consider that the bidirectional effects may vary according to gender. One of the limitations of the literature on gender differences is that *dimensions* of parenting behaviors are rarely examined. Another limitation is that multiple dimensions of parenting behaviors and/or

youth mental health are rarely included in empirical studies. Thus, gender differences in unique relations between parenting behaviors and youth mental health symptoms cannot be determined. In the current study, gender will be tested as a potential moderator of parent and child effects. The current study will focus on mothers' parenting behaviors. Compared to fathers, mothers spend more time with their children and responsibility for their care (Craig, 2006), which makes it more likely that mothers are equally, if not more, influential than fathers.

### **Ecodevelopmental Framework**

The purpose of the study was to establish patterns of bidirectional relations between parenting behaviors and youth mental health in a group that is rarely empirically examined. Differences between ethnic groups, neighborhood context, and socioeconomic status (SES) were not examined, nor were within group differences of cultural factors (e.g., immigration status acculturation) or age. However, it is important to consider how culture, SES or neighborhood context, and age of youth may impact the bidirectional relations and to recognize that findings from studies that did not include Latinos adolescents may not generalize to the current study.

Cultural values can influence the association between parenting behaviors and youth mental health. Youth with high levels of *familismo* (i.e., valuing strong family attachment, loyalty, and reciprocity; Guilamo-Ramos et al., 2007) may be more likely to be affected by low supportive parenting behaviors because it contradict expectations of how family members relate. Youth with high levels of *respeto* (i.e., maintaining interpersonal relationships through the adherence to roles; Guilamo-Ramos et al., 2007) may be less likely to view controlling parenting behaviors as aversive and thus be less likely to be negatively affected by them. Conversely, parents with high levels of *respeto* may be more likely to respond to externalizing symptoms because youth with such symptoms may be viewed as disrespectful.

Although there is some agreement on overarching parenting dimensions as supportive and controlling, the composition of dimensions may differ as a function of culture and neighborhood. For example, monitoring is often perceived as a form of control (Barber et al., 2005). However, youth living in disadvantaged neighborhoods with high levels of violence may perceive monitoring as justified and thus as a supportive form of parenting. Accordingly, empirical studies with samples from disadvantaged neighborhoods have found that monitoring is highly related to supportive aspects of parenting (Barrera et al., 2002; Manongdo & Ramírez García, 2007; Swenson & Prelow, 2005). Thus, a particular type of parenting behavior may be a part of different parenting dimensions depending on the context.

Relations between parenting behaviors and youth mental health symptoms can vary depending on neighborhood context and/or family SES. Although supportive parenting is generally considered to be associated with positive outcomes, its impact may vary depending on context. Higher supportive parenting predicted lower externalizing symptoms in families with low-SES but not in families with high-SES (Pettit, Bates, & Dodge, 1997). Conversely, although controlling parenting behaviors have been associated with poorer outcomes, such parenting behaviors may be protective in high risk contexts (Dearing, 2004; Gonzales, Cause, Friedman, & Mason, 1996). In low-income neighborhoods, controlling parenting behaviors may protect youth from exposure to other risk factors such as exposure to violence or delinquent peers.

Although bidirectional relations can occur at any developmental stage, child effects may strengthen during adolescence. As youth gain more independence, their influence over their environment strengthens (Scarr & McCartney, 1983). Thus, child effects may be more evident during adolescence than during earlier stages of development. Examining adolescents as opposed to children increases the likelihood that child effects are detected.



## **Predictor and Outcome Specificity in Parenting and Youth Mental Health Research**

In the emerging literature examining both child and parent effects, multiple dimensions of youth mental health symptoms are rarely studied, with more studies focusing on externalizing symptoms only. Furthermore, few studies examine multiple parenting behaviors and/or dimensions. Assuming that empirical support for multiple dimensions of parenting, two parenting dimensions (supportive and controlling) and two types of youth mental health symptoms (internalizing and externalizing) will be examined. The inclusion of multiple mental health problems and multiple parenting behaviors allows a test of predictor-outcome specificity.

Specificity refers to a particular risk factor being uniquely related to a particular outcome. Specificity designs are valuable because they can inform causal models of mental health symptoms (Garber & Hollon, 1991). Predictor-outcome specificity is adapted from McMahon and colleagues (McMahon, Grant, Compas, Thurm, & Ey, 2003), referred to as stressor-outcome specificity. In the current study, the term “predictor” is used rather than “stressor” to acknowledge that predictors can be protective as well as risk factors. Predictor-specific models allow for the test of the unique contribution of multiple predictors on a given outcome. An example for parent effects would be multiple dimensions of parenting behaviors predicting internalizing symptoms. Outcome-specific models allow for the test of unique consequences of a single predictor on multiple outcomes. An example for parent effects would be one aspect of parenting (e.g., support) predicting multiple dimensions of youth mental health, such as internalizing and externalizing symptoms. Predictor-outcome specific models allow for both predictor and outcome specificity to be tested simultaneously. In other words, multiple dimensions of parenting behaviors (support and control) *and* multiple dimensions of youth mental health symptoms (internalizing and externalizing) will be examined simultaneously. The

examination of parent effects involves parent behaviors as a predictor and youth mental health symptoms as the outcomes. The examination of child effects involves youth mental health symptoms as the predictor and parent behaviors as the outcome.

Testing for predictor and outcome specificity identifies specific pathways of risk factors and consequents of parent behaviors and youth mental health symptoms, thus potentially informing causal models. Such tests address whether there is a unique effect or whether the association between a given parenting behavior and youth mental health symptom becomes non-significant when indirect relations through the other parenting behavior and/or symptom are taken into account.

### **Transactional Approach to Bidirectional Relations**

To test bidirectional relations, a transactional approach based on Sameroff and MacKenzie (2003) was used, which places equal emphasis on youth's impact on their context and on contexts' impact on youth. The transactional approach proposes that developmental outcomes do not depend alone on an individual or their context. An individual and their context constantly interact and influence each other. Thus, outcomes result from the interplay between an individual and their context. In other words, outcomes depend in part on an individual, their context, and the interaction between the two. This approach can be tested statistically in regression analyses by including moderators (i.e., statistical interactions). When testing for parent effects for the current study, parent behavior may predict youth mental health symptoms but the strength (or direction) of the relation may differ depending on youth's baseline levels of mental health symptoms. When testing for child effects, conversely, youth mental health symptoms may predict parent behaviors, but the strength (or direction) of relation may differ depending on initial parent behaviors.

## CHAPTER 2

### HYPOTHESES

A transactional approach was used to test the prospective bidirectional relations between Mexican American mothers' parenting behaviors and youth mental health symptoms. Specific hypotheses were:

1. Youth perceptions of maternal parenting behaviors will form two parenting dimensions: supportive (consisting of acceptance, involvement, and monitoring) and controlling (firm control, harsh parenting, and inconsistent discipline).
2. Following the *coercive model*: (a) higher levels of youth externalizing symptoms will predict higher levels of controlling parenting, and (b) higher levels of controlling parenting will predict higher levels of youth externalizing symptoms.
3. Following findings from studies on internalizing symptoms and controlling parenting: a) higher youth internalizing symptoms will predict higher controlling parenting, and b) higher controlling parenting will predict higher levels of youth internalizing symptoms.
4. Following *social interaction theory*: (a) higher levels of youth internalizing symptoms will predict lower levels of supportive parenting, and (b) lower levels of supportive parenting will predict higher levels of youth internalizing symptoms.
5. Following findings from studies on externalizing symptoms and supportive parenting: (a) higher externalizing symptoms will predict lower supportive parenting, and (b) lower supportive parenting will predict higher externalizing symptoms.

In addition to testing specific hypotheses on the nature of bidirectional relations between parenting behaviors and youth mental health, exploratory analyses of gender differences in bidirectional relations (i.e., gender moderation) will be tested.

## CHAPTER 3

### METHOD

#### Participants

Baseline data were collected between March and May 2008 at Benito Juarez Community Academy, a public high school located in Pilsen, IL, a predominantly Mexican American immigrant enclave in southwest Chicago. The residents of Pilsen are predominantly Latino (63%) and there is a marked presence of immigrants (37-48%) in the community. A quarter of families in the community live below poverty levels (25% vs. 9% in the U.S.; U.S. Census Bureau, 2000).

At Time 1 (T1), data were collected from 216 self-identified Mexican American adolescents. The sample included 52% girls and 48% boys. A majority of the sample (72%) reported that they were born in the US and 28% reported that they were born in Mexico. Participants were enrolled in the 9<sup>th</sup> (36%), 10<sup>th</sup> (24%), 11<sup>th</sup> (29%) and 12<sup>th</sup> (11%) grades (age range = 14.5-19.6 years,  $M = 16.5$ ,  $SD = 1.2$ ). Nearly all of the students (97%) were eligible for free or reduced school lunch. Participants completed questionnaires in their preferred language (83% English, 17% Spanish). Data from all T1 participants were used in analyses that tested for dimensions of parenting behaviors (Hypothesis 1).

Time 2 (T2) data were collected from 88 (41%) of the original 216 participants approximately one year after T1. This sample included 54% girls and 46% boys. Tests of group differences between T2 participants and T2 non-participants are presented in the Results section. For tests of bidirectional relations (Hypotheses 2-5), only data from participants who completed both waves of data collection were used.

## **Procedure**

*Baseline (Time 1).* Participants were recruited during the school's homeroom and lunch periods. Research team members made announcements in homeroom classrooms that were randomly selected by school administrators. Participants were also recruited during lunch periods. During lunch periods, research team members approached all tables in the lunch area to make announcements. For both of these recruitment strategies, research team members briefly described the study to the students and invited them to participate on designated dates after school. The majority of the research team members were bilingual (English and Spanish) and spoke in the students' preferred language.

Prior to completing study procedures, participants signed assent forms that informed them of their rights. Assent forms and questionnaires were available in English or Spanish. Although the majority of the participants were minors, signed parental consent was not required to participate in the study. It was preferable that participants who were unable to obtain signed parental consent not be excluded. Waiving signed parental consent allowed the inclusion of participants with parents who would not otherwise provide signed consent (e.g., uninvolved, unfamiliar with research studies, etc.) and who may not typically be represented in empirical studies. Including a broader sample potentially allowed better generalizability to the targeted population. The University of Illinois Institutional Review Board (IRB) approved a waiver that allowed minors to participate without signed parental consent due to the low-risk nature of the study as well procedures undertaken to protect study participants. Although parents were not asked to provide consent, letters to parents and in the parents' preferred language were given to potential participants. Letters described the purpose and procedures of the study and included contact information of the research team in case parents had questions about the study.

Questionnaires were completed after school in the lunch area. Bilingual research staff members were available to assist participants if they had any questions while completing the questionnaires. Participants were compensated \$10. Data were collected from 242 participants; for the proposed study, only the 216 participants who self-identified as Mexican or Mexican American were included in the data analysis.

***Follow-up (Time 2).*** Follow up data were collected between May and July 2009, approximately one year after the baseline data were collected (follow-up range, 12-16 months,  $M = 13.0$ ,  $SD = .82$ ). Due to a change in school district policy, recruitment and data collection procedures at T2 were not done in collaboration with the high school. Instead, research staff members contacted T1 participants directly using contact information provided during baseline data collection. Letters were mailed and phone calls made to participants and parents in their preferred language. Of the original participants, approximately 31% could not be contacted by either letters (returned to sender) and/or phone calls (disconnected phone numbers). Of the original participants who could be contacted, approximately 53% participated during T2, 24% scheduled to participate but did not attend, 21% were left messages and/or mailed letters, and 2% declined participation.

Because data collection procedures could not take place at the high school, data were collected at the local public library approximately three blocks from the high school, located within walking distance of several residential areas and within access to public transportation. Bilingual research staff members were available during data collection to assist participants if they had any questions. Research staff reviewed assent forms with participants prior to completion of questionnaires. Participants were compensated an additional \$10 during the second wave of data collection.

## Measures

**Youth mental health.** Participants completed the Youth Self-Report (YSR; Achenbach & Rescorla, 2001) which included two subscales: Externalizing and Internalizing. English and Spanish versions were obtained from the publisher. The Externalizing scale was comprised of 33 items measuring symptoms related to aggression and delinquency. The Internalizing scale was comprised of 31 items measuring anxiety, depression, withdrawn, and somatic symptoms. (See Appendix A). For each item, participants responded using a four point scale, from 0 (“never”) to 3 (“always”). For each subscale, the mean score was computed. Higher scores indicated higher levels of symptoms. Cross-ethnic equivalence across various ethnic groups, including Latinos, supports the use of the YSR with our sample (Inova et al., 2007; O’Keefe, Mennen, & Lane, 2006). Reliabilities for internalizing and externalizing problems at baseline were acceptable for both English ( $\alpha = .93$ ) and Spanish respondents ( $\alpha \geq .94$ ; see Table 2).

**Parenting behaviors.** Participants reported on six types of maternal parenting behaviors: acceptance, firm control, harsh parenting, inconsistent discipline, involvement, and monitoring (see Appendix B). English and Spanish versions of the scales were obtained from scale adapters or developers. Three dimensions (acceptance, inconsistent discipline, and firm control) were assessed with adapted versions of the Children’s Report of Parental Behavior Inventory (CRPBI; Schaefer, 1965; adapted by Dumka & Roosa, 1997). The monitoring subscale was Barrera et al.’s (2002) adapted version of the monitoring questionnaire developed by Small and colleagues (Small & Kerns, 1993; Small & Luster, 1994). The involvement and harsh parenting subscales were developed by Dumka and Roosa. Some items in the involvement subscale were derived from a scale measuring the promotion of children’s success in inner-city communities (Elder, Eccles, Ardel, & Lord, 1995).

The English and Spanish versions of the parenting behavior subscales were derived from other established measures based on face validity and adapted by a team of researchers with extensive experience working with Mexican American samples. Acceptance, harsh parenting, inconsistent discipline, and monitoring subscales have demonstrated adequate cross-language equivalency for English and Spanish (Nair, White, Knight, & Roosa, 2009). Convergent validity of the parenting subscales with measures of youth functioning (e.g., shy-anxious behavior, acting out) was examined across language groups and equivalency was supported.

For each item, adolescents responded using a five point scale, ranging from 1 (“almost never or never”) to 5 (“almost always or always”). For each subscale, the mean score was computed and higher scores indicated higher levels of the parenting behavior. Scale descriptions and internal consistency coefficients are as follows. The *Acceptance* subscale consisted of eight items that measure how much approval and support the adolescents felt by their mothers. The *Involvement* subscale consisted of nine items that measure the amount of time and energy mothers spent with their child on various activities. The *Hostile Parenting* subscale consisted of six items that measured punitive or demeaning parenting practices. The *Inconsistent Discipline* subscale consisted of eight items that measure rule-making, consequences for rule breaking, clear communication of parental rules to adolescents, and consistent enforcement on rule breaking. The *Firm Control* subscale consisted of seven items that measure how controlling mothers were with their child. The *Monitoring* subscale consisted of twelve items that measured adolescents’ perception of their mothers’ awareness of how they spent their time. As can be seen in Table 2, reliabilities (internal consistency as measured by Cronbach’s alpha;  $\alpha$ ) for parenting subscales at baseline were acceptable for both English ( $\alpha \geq .82$ ) and Spanish respondents ( $\alpha \geq .81$ ).



## CHAPTER 4

### RESULTS

#### Descriptives and Bivariate Statistics

Descriptives for all measures for T1 and T2 can be found in Table 3. Mean group differences were tested for participant who were retained and not retained from T1 to T2, as well as for participants of different genders and language preferences.

**Time 2 Participants vs. Non-Participants.** The 88 participants from T2 were compared with 128 participants from T1 who did *not* participate in T2. Comparisons were made on demographics and T1 scores on youth mental health and parenting behaviors. There were no significant differences in age, T1 parenting behaviors, and T1 youth mental health symptoms between T2 participants and non-participants in a set of t-tests (see Table 4). Furthermore, chi-square tests revealed no significant differences in gender ( $\chi^2 = .26, df = 1, ns$ ) or language preference ( $\chi^2 = .21, df = 1, ns$ ) between T2 participants and non-participants. In addition to mean group differences, parenting behaviors and mental health symptoms correlations were tested between participants and non-participants at T2 on T1 data using *z*-tests of *r* differences (Cohen, Cohen, West, & Aiken, 2003). The only significant difference was that the correlation between inconsistent discipline and firm control was significantly higher for non-participants at T2 than for participants at T2 (see Table 5). In general, these analyses suggest that the T2 participants did not differ systematically from T2 non-participants.

**Gender and language differences.** Group differences in parenting behaviors and youth mental health symptoms at T1 and T2 were tested for gender (boys vs. girls) and language preference (English vs. Spanish). T-tests results for gender differences at T1 and T2 can be found on Tables 6 and 7, respectively. T-test results for language preference differences at T1

and T2 can be found on Tables 8 and 9, respectively. The only group difference that was consistent across the two time points was that girls reported higher levels of maternal monitoring than boys.

**Correlations.** T1 correlations are presented on the lower half of Table 10. T2 correlations are presented in the upper half of Table 10. As expected, the correlations between behaviors that were hypothesized to be a part of Supportive Parenting (monitoring, acceptance, and involvement) and between behaviors that were hypothesized to be a part of Harsh Parental Control (inconsistent discipline, harsh parenting, and firm control) were high at both T1 and T2 ( $r_s \leq .37, p_s \leq .05$ ). Youth mental health symptoms were positively associated with inconsistent discipline, firm control, and harsh parenting and negatively associated with monitoring, acceptance, and involvement at both T1 and T2.

Correlations between T1 and T2 variables are presented in Table 11. Stability effects were moderate to strong ( $r = .30-.67, p \leq .05$ ) and are shown on the diagonal of the table. As shown in the last two rows of the table, T1 youth mental health symptoms were moderately associated with most T2 parent behaviors. As shown in the last two columns of the table, T1 parenting the association between T1 parenting behaviors and T2 youth mental health symptoms ranged from low to moderate,

### **Factor Analyses of Parenting Dimensions**

**Data analytic strategies.** Confirmatory factor analyses (CFA) were conducted to test for the hypothesized factor structure based on past research with a similar sample (Manongdo & Ramírez García, 2007). The hypothesized model (Model 1, shown in Figure 1) proposed a two-factor solution: a *Supportive Parenting* factor with monitoring, acceptance, and involvement and *Harsh Parental Control* factor with inconsistent discipline, harsh parenting, and firm control.

The second factor was labeled “Harsh” to differentiate it from other, more adaptive aspects of control (e.g., positive discipline). In addition, three alternative models were tested. The first alternative model (Model 2, shown in Figure 2) had all six parenting behaviors loading onto a single dimension. Model 2 is based on empirical studies and literature reviews that have conceptualized parenting as unidimensional (e.g., Grant et al.’s, 2003, “negative parenting, Repetti, Taylor, & Seeman’s, 2002, “risky families”). The second alternative model (Model 3, shown in Figure 3) had monitoring loading onto the hypothesized Harsh Parental Control factor instead of Supportive Parenting. Model 3 was based on conceptualizations of monitoring as representing parental control rather than parental support (see Barber et al., 2005 for a review). The third alternative model (Model 4, shown in Figure 4) had monitoring as cross-loading onto both parenting factors. Model 4 combined Models 1 and 3 by including monitoring as both supportive *and* controlling. To determine the best fit model, Models 1-3 were compared to Model 4. Although it would have been preferable to compare Models 2-4 directly to Model 1 (the hypothesized model) this was not possible. Model 4 had the fewest constraints and thus all other models were nested within. Thus, Model 4 is also referred to as the comparison model.

For all models, fit was considered acceptable if the CFI was greater than or equal to .90, the root mean square error of approximation (RMSEA) was less than or equal to .08, and the standardized root mean square residual (SRMR) was less than or equal to .08 (Hu & Bentler, 1999; Kline, 2005). A non-significant chi-square is preferable, because it indicates that the observed data does not significantly differ from the hypothesized model. However chi-squares are sensitive to large sample sizes, such as the sample in the current study, and may overestimate the differences between the models. Thus, a significant chi-square may not necessarily indicate a poor fitting model. Maximum-likelihood extraction was used in the CFAs which were

conducted with LISREL 8.8 (Jöreskog & Sörbom, 2006) using the correlation matrix. The fixed-factor method was used to set the scale. In this method, the variances of the latent variables are fixed to 1.0, so that the loadings of the indicators on the latent variables can be computed.

**Best-fitting model.** The comparison model (Model 4) was compared to the hypothesized model (Model 1) and the two additional alternative models (Model 2 and 3). Chi-square difference ( $\chi^2_{\text{diff}}$ ) tests were conducted to determine whether the models were significantly different and, if so, which model had a better fit (see Table 12). In the comparison model the chi-square was significant ( $\chi^2(8, n = 216) = 37.16, p \leq .05$ ), the CFI (.94) and SRMR (.07) indicated acceptable model fit, and the RMSEA (.14) indicated poor fit. Models 2 and 3 were each significantly different from Model 4 ( $\chi^2_{\text{diff}}(9, n = 216) = 160.12, p \leq .01$  for Model 2 and  $\chi^2_{\text{diff}}(8, n = 216) = 156.02, p \leq .01$  for Model 3). Since the Model 4 was significantly better than the alternative models on all fit indices (i.e.,  $\chi^2$ , RMSEA, CFI, and SRMR), it had an improved fit over Models 2 and 3. Notably, Models 2 and 3 were poor models in general, with RMSEAs, CFIs, and SRMRs all indicating poor fit ( $\chi^2(9, n = 216) = 198.28, p \leq .01$ , CFI = .59, RMSEA = .19, SRMR = .19 for Model 2 and  $\chi^2(8, n = 216) = 193.18, p \leq .01$ , CFI = .58, RMSEA = .19, SRMR = .19 for Model 3).

For the hypothesized model, the chi-square was significant ( $\chi^2(8, n = 216) = 37.55, p \leq .05$ ). Although the RMSEA (.13) indicated poor fit, the CFI (.94) and SRMR (.07) indicated acceptable model fit. The comparison model was not significantly different from the hypothesized model, indicating that the two models were equivalent ( $\chi^2_{\text{diff}}(1, n = 216) = .39, ns$ ). However, given that the hypothesized model is more parsimonious than the comparison model, it remains the preferable model and thus was used to test for gender differences in factor structure.

**Test of gender differences in factor structure.** Gender differences in the factor structure of parenting behaviors were examined to determine if it was appropriate to use the same structure across genders. Tests for two types of factorial invariance between boys and girls were conducted: configural invariance and metric (or weak) invariance. Configural invariance refers to two groups sharing the same factor structure (Knight, Roosa, & Umana-Taylor, 2009). In other words, each group demonstrates a good model fit for the same set of indicators forming a latent construct. Configural invariance was examined by testing the hypothesized two-factor solution in each of the genders (see Figure 5 for boys and Figure 6 for girls). The two-factor solution had an adequate fit for girls ( $\chi^2(8, n = 112) = 17.837, p \leq .05, CFI = .96, RMSEA = .11, SRMR = .05$ ) and boys ( $\chi^2(8, n = 104) = 30.132, p \leq .001, CFI = .91, RMSEA = .16, SRMR = .10$ ). A multi-group CFA was conducted to combine fit indices from boys and girls ( $\chi^2(16, n = 216) = 47.97, p \leq .01, CFI = .94, RMSEA = .13, SRMR = .06$ ). In general, evidence supported configural invariance across genders.

Metric invariance refers equivalent factor structure as well as equivalent factor loadings (Knight et al., 2009). A multigroup CFA was conducted to assess if the factor loadings onto the latent variables were invariant across gender (Little & Card, 2009). Two models were compared: a) a model in which factor loadings were constrained to be equal across the two groups; and b) a model in which factor loadings were free to vary (i.e., the multigroup CFA testing configural invariance described above). The constrained model demonstrated adequate fit ( $\chi^2(16, n = 216) = 47.97, p \leq .01, CFI = .94, RMSEA = .13, SRMR = .05$ ). A chi-square difference test was used to determine if the two models were significantly different from each other. The two models did not differ significantly ( $\chi^2_{diff}(4, n = 216) = 6.36, ns$ ), which indicated that the constrained and unconstrained models were equivalent. Thus, metric equivalence across gender was supported.

The path diagram in Figure 7 illustrates the factor loadings in the constrained model as well as variances, covariances, and residuals by gender. The factor structure of the hypothesized model was invariant across gender and the same factor structure was used for all remaining analyses.

### **Tests of Bidirectional Relations**

**Overview of Analyses.** Sameroff and MacKenzie's (2003) transactional approach was used as a framework to test for bidirectional relations. Statistically, transactions can be tested by using an individual's baseline characteristics as a moderator of the impact of their context. To apply the transactional model to the current study, interactions between T1 parent behaviors and T1 youth mental health symptoms were used as predictors of T2 youth mental health symptoms and parent behaviors in regression analyses. In other words, baseline levels of the criterion variable are tested as moderators of the relation between the predictors and the criterion variable. Tests of gender moderation, which would require the use of three-way interactions for a transactional approach, were not included in these analyses due to the limited sample size, as well as the lack of gender interactions in the above analyses.

Four sets regression analyses were conducted, one each to predict Supportive Parenting, Harsh Parental Control, internalizing symptoms, and externalizing symptoms. In the analyses predicting T2 parenting behaviors (Table 13 for Harsh Parental Control and Table 14 for Supportive Parenting), T1 scores of the criterion variable were entered in the first block and T1 youth mental health symptoms in the second block. Adding symptoms in the second block allowed a test of whether the symptoms together significantly contributed to the prediction of parenting behaviors beyond their baseline levels. Furthermore, the inclusion of two predictors allowed a test of predictor specificity. I also tested whether baseline levels of parenting behaviors moderated T1 youth symptoms prediction of parenting behaviors. Thus, interactions

between T1 parenting behaviors and T1 youth symptoms were entered as predictors in the third block. Finally, outcome specificity was examined by including the alternate parenting behaviors factor in the fourth block (e.g., adding T2 Supportive Parenting to analyses that predicts T2 Harsh Parental Control and vice versa). Parallel analyses were conducted to predict T2 youth mental health symptoms with T1 parenting behaviors (Table 15 for externalizing symptoms and Table 16 for internalizing symptoms).

**Controlling parenting and externalizing symptoms: Coercive model.** In analyses predicting T2 Harsh Parental Control (see Table 13), higher T1 externalizing symptoms significantly predicted higher T2 Harsh Parental Control in the second and third model ( $\beta_s \geq .30$ ,  $p \leq .05$ ). This provided evidence that externalizing (but not internalizing) symptoms were a unique predictor of Harsh Parental Control, thus supporting Hypothesis 2a. The coefficient of T1 externalizing symptoms on T2 Harsh Parental Control was no longer significant in the final model including T2 Supportive Parenting which suggested that the prediction of externalizing symptoms was not specific to Harsh Parental Control.

In analyses predicting T2 externalizing symptoms (see Table 15), the T1 Harsh Parental Control main effect did not significantly predict T2 externalizing symptoms in any model, nor did the T1 Harsh Parental Control by T1 externalizing symptoms interaction. Thus, Hypothesis 2b was not supported. In sum the bidirectional nature of the coercive model was *not* supported; evidence was found only for externalizing symptoms predicting parent controlling parenting.

**Controlling parenting and internalizing symptoms.** In analyses predicting T2 Harsh Parental Control (see Table 13), the T1 internalizing symptoms main effect did not significantly predict T2 Harsh Parental Control in any model, nor did the T1 internalizing symptoms by T1 Harsh Parental Control interaction. Thus, Hypothesis 3a was not supported.

In analyses predicting T2 internalizing symptoms (see Table 16), the T1 Harsh Parental Control main effect did not significantly predict T2 internalizing symptoms in any model. However, T1 internalizing symptoms moderated the prediction of T1 Harsh Parental Control on T2 internalizing symptoms in the third model (interaction term,  $\beta = -.21, p \leq .05$ ) and remained significant in the fourth model. This provided evidence for both predictor and outcome specificity of Harsh Parental Control on internalizing symptoms. Graphing procedures described by Holmbeck (2002) were used to interpret the interaction (see Figure 8). As T1 Harsh Parental Control increased, T2 internalizing symptoms decreased but *only* when T1 internalizing symptoms were high (i.e. one standard deviation above the sample mean;  $\beta = -.33, p \leq .01$ ). This finding contradicts Hypothesis 3b; higher controlling parenting predicted lower rather than higher internalizing symptoms. Notably, the relation between T1 Harsh Parental Control and T2 internalizing symptoms was not significant at mean or low (i.e., one standard deviation below the sample mean) levels of T1 internalizing symptoms. In sum, the bidirectional Parental Control and Internalizing symptoms hypotheses were not supported.

**Supportive Parenting and internalizing symptoms: Social interaction theory.** In analyses predicting T2 Supportive Parenting (see Table 14), higher T1 internalizing symptoms significantly predicted lower T2 Supportive Parenting in the third and fourth model, supporting Hypothesis 4a. Moreover, T1 Supportive Parenting moderated the prediction of T1 internalizing symptoms on T2 Supportive Parenting. The interaction term approached significance in Block 3 and was significant in the final model ( $\beta = .27, p \leq .05$ ). These results indicated that T1 internalizing symptoms and its interaction with baseline Supportive Parenting had predictor and outcome specificity. To interpret the interaction, procedures described by Holmbeck (2002) were used. As shown in Figure 9, when T1 Supportive Parenting was at the mean or lower,



higher T1 internalizing symptoms predicted lower T2 Supportive Parenting ( $\beta = -.18, p \leq .05$  and  $\beta = -.38, p \leq .01$ , respectively). However, T1 internalizing symptoms did not predict Supportive Parenting when baseline levels of Supportive Parenting were high (i.e., one standard deviation above the mean).

In analyses predicting T2 internalizing symptoms (see Table 16), T1 Supportive Parenting main effect did not significantly predict T2 internalizing symptoms in any model, nor did the T1 Supportive Parenting by T1 internalizing symptoms interaction. Thus, Hypothesis 4b was not supported. In sum the bidirectional nature of social interaction theory was *not* supported; evidence was found only for internalizing symptoms predicting supportive parenting.

**Supportive Parenting and externalizing symptoms.** In analyses predicting T2 Supportive Parenting (see Table 14), the T1 externalizing symptoms main effect did not significantly predict T2 Supportive Parenting in any model, nor did the T1 externalizing symptoms by T1 Supportive Parenting interaction. Thus, Hypothesis 5a was not supported.

In analyses predicting T2 externalizing symptoms (see Table 15), the T1 Supportive Parenting main effect did not significantly predict T2 externalizing symptoms in any model. The T1 externalizing symptoms moderated the prediction of T1 Supportive Parenting on T1 externalizing symptoms in the third model (interaction term,  $\beta = .22, p \leq .05$ ). However, the regression coefficient of the interaction became non-significant in the final model including T2 Harsh Parental Control, which suggested that the prediction was not specific to T2 Supportive Parenting. To interpret the interaction, procedures described by Holmbeck (2002) were used. As shown in Figure 10, when T1 externalizing symptoms were at the mean T1 Supportive Parenting did not predict T2 externalizing symptoms ( $\beta = .00, ns$ ). When T1 externalizing symptoms were high (i.e., one standard deviation above the mean), higher T1 Supportive

Parenting predicted higher T2 externalizing symptoms ( $\beta = .33, p \leq .05$ ). However, when T1 externalizing symptoms were low (i.e., one standard deviation below the mean), higher T1 Supportive Parenting predicted lower T2 externalizing symptoms ( $\beta = -.32, p \leq .05$ ).

### **Test of Gender Moderation of Bidirectional Relations**

To test if gender moderated the bidirectional relations between parenting behaviors and youth mental health, another four sets of regression analyses were conducted. The sample size of the current study ( $N = 88$ ) limited the ability to test for gender moderation using a transactional approach, which would have necessitated the addition of a main effect, two two-way interactions, and two three-way interactions to the analyses described above. Instead, separate set of regression analyses were conducted to test for gender moderation. To test for gender moderation in the prediction of parenting behaviors, baseline levels of the criterion variable and gender were entered in the first block, internalizing and externalizing symptoms were entered in the second block, gender by internalizing symptoms and gender by externalizing symptoms interactions were entered in the third block, and the alternate T1 parenting behavior was entered in the fourth block to test for outcome specificity. Similar analyses were conducted to test for gender moderation in the prediction of youth mental health symptoms. Regression coefficients for gender interactions were non-significant in all four analyses (see Tables 17-20). Thus, gender did not moderate the bidirectional relations in any of the four analyses.

## CHAPTER 5

### DISCUSSION

The current study addresses the bidirectional influences of youth mental health symptoms and parenting behaviors among Mexican American families. The use of empirically derived dimensions of parenting can be considered a strength of the study for two reasons: (a) it conceptualized maternal parenting behaviors as bidimensional; and (b) it did not rely on prior theories for composition of the dimensions, which may or may not be generalizable to a Mexican American population. The inclusion of multiple dimensions of parenting behaviors and youth mental health symptoms also allowed the examination of predictor and outcome specificity. Finally, the use of the transactional approach allowed for the identification of the conditions in which parents impact youth and vice versa.

Using CFA of youth-reported maternal parenting behaviors, we found that acceptance, involvement, and monitoring formed a *Supportive Parenting* factor and that firm control, harsh parenting, and inconsistent discipline formed a *Harsh Parental Control* factor as hypothesized. The results are consistent with the hypothesized two dimension model of parenting as supportive and controlling (Barber et al., 2005). Monitoring loading onto Supportive Parenting rather than Harsh Parental Control contradicted theories of monitoring as a form of control (Barber et al.) but was consistent with studies of urban ethnic minority youth samples that conceptualized monitoring as supportive (Barrera et al., 2002; Swenson & Prelow, 2005). Youth exposure to high-risk settings may lead to perceptions of monitoring as justified and a sign of concern, rather than as controlling. These findings highlight the importance of conducting parenting research across socio-culturally diverse settings.

The hypothesized factor structure was based on an EFA with a similar sample (Manongdo & Ramírez García, 2007). More than simply replicating results of another study, the current study demonstrated that the hypothesized Supportive Parenting and Harsh Parental Control factors had an improved fit to observed data compared to three alternative models that were based on various theoretical conceptualizations of parenting found in the literature (e.g., Barber et al., 2005; Grant et al., 2003). Although other studies have empirically tested for the structure of parenting behaviors, this study was the first that I could identify that used an exclusively Mexican Americans sample. Furthermore, findings contribute to the empirical literature by demonstrating that the factors were equivalent across genders.

### **Bidirectional Relations between Parenting Behaviors and Youth Mental Health**

Using the derived parenting factors, we tested four bidirectional models of maternal parenting behavior and youth mental health symptoms: controlling parenting and externalizing symptoms (based on the coercive model), controlling parenting and internalizing symptoms, supportive parenting and externalizing symptoms supportive parenting and internalizing symptoms (based on social interaction theory). Partial evidence was found for the coercive model and social interaction theory, with parent effects only. The hypothesized direction of the relations between Harsh Parental Control and internalizing symptoms were not supported. Internalizing symptoms did not predict Harsh Parental Control and Harsh Parental Control did not predict higher levels of internalizing symptoms as predicted. Externalizing symptoms did not predict Supportive Parenting and no main effects were found for Supportive Parenting predicting externalizing symptoms. Baseline externalizing symptoms moderated the prediction of Supportive Parenting on externalizing symptoms, but this was not outcome specific.

A common finding across bidirectional tests was a lack of or weak support for parenting behaviors predicting youth mental health symptoms. Notably, Harsh Parental Control did not predict externalizing symptoms and Supportive Parenting did not predict internalizing symptoms as was predicted by the coercive model and social interaction theory, respectively. No evidence of main effects of Supportive Parenting predicting externalizing symptoms were found and its interaction with baseline externalizing symptoms did not have outcome specificity.

No main effect of Harsh Parental Control was found in any model and no prediction was found when baseline internalizing symptoms were low or at the mean at baseline. However, when internalizing symptoms were high at baseline, higher Harsh Parental Control predicted *lower* levels of internalizing symptoms, opposite the hypothesized direction. Three possible interpretations may explain this unpredicted finding. First, when youth were high on internalizing symptoms, parents responded by modifying their parenting behaviors in effort to alleviate youth symptoms. This may have inadvertently resulted in higher levels of inconsistent parenting. Second, higher internalizing symptoms might have resulted in parents trying to encourage or motivate their child to be less withdrawn or isolated which youth may perceive as nagging. Third, the decrease of symptoms in youth who reported high levels of symptoms at baseline may be a reflection of the remission of symptoms over time and not be associated with parenting behaviors per se. Future studies should attempt to replicate the finding from the current study and begin to examine potential processes associated with this relation.

No main effect of Supportive Parenting was found in any model. However, baseline levels of externalizing symptoms moderated the prediction of Supportive Parenting on externalizing symptoms. Unexpectedly, higher Supportive Parenting predicted higher T2 externalizing symptoms when baseline externalizing symptoms were high but lower T2

externalizing symptoms when baseline externalizing symptoms were low. One potential interpretation for these findings is that mothers inadvertently reinforced youth behaviors through their Supportive Parenting. However, these are exploratory analyses and tentative conclusions.

Notably, evidence from other bidirectional studies for controlling parenting predicting externalizing or internalizing symptoms have been mixed (see Burke et al, 2008 and Hipwell et al., 2008 for examples of supporting evidence; see Chen et al. 2000, Huh et al. 2006, and Stice & Barrera, 1995 for lack of evidence). Our null findings of controlling parenting not predicting increases in externalizing or internalizing symptoms add to the set of studies with lack of evidence. However, our findings of Supportive Parenting not predicting internalizing symptoms counters robust findings in the bidirectional literature (e.g., Buist et al., 2004; Burke et al., 2008; Chen et al.; Fanti et al., 2008; Hipwell et al.; Reitz et al., 2006).

An eco-developmental framework (Szapocznik & Coatsworth, 1999) considering cultural background, neighborhood setting, and developmental stage can be used to interpret our null findings. Mexican cultural norms of parental behaviors may explain why Harsh Parental Control did not predict externalizing or why it did not predict internalizing symptoms in the expected direction. Youth from families with traditional Mexican values promoting strict parenting practices (e.g., unquestioned parental authority; Ramírez, 1998) might be less likely to perceive controlling parenting practices as threatening. A study of Mexican American adolescents provides support for this interpretation – strictness was attributed to concern (Crockett, Brown, Russell, & Shen, 2007) rather than seen as controlling. In terms of neighborhood setting, Pettit and Arsiwall (2008) have noted a trend of lower impact of parenting behaviors on youth mental health in low SES compared to high SES settings. It could be that other factors associated with living in disadvantaged communities (e.g., economic stress, exposure to violence) mask the

impact of parents on youth mental health. Regarding developmental stage, our sample was older (mid- to late-adolescence) compared to samples from other bidirectional studies (e.g., Burke et al., 2008; Chen et al., 2000; Huh et al., 2006; Stice & Barrera, 1995) that examined child, early-, and/or mid-adolescent samples. The predictive impact of parenting behaviors may be stronger in childhood than in adolescence. During later stages of adolescence such as that of our sample, mental health symptoms may be more influenced by peers or other contextual factors.

Although there was equivocal evidence for parenting behaviors predicting youth mental health symptoms, evidence was found for youth mental health symptoms predicting parenting behaviors. Higher levels of T1 externalizing symptoms predicted higher levels of T2 Harsh Parental Control providing partial support for the coercive model (Patterson, 1982). Parent response to externalizing symptoms can be interpreted using Bell's (1971) control systems model, which proposes that parents use techniques that can be perceived as punitive or restrictive when trying to reduce and redirect unwanted youth behavior. Parents' response may be particularly salient in Latino families with high levels of *respeto*, the value of adherence to authority (Guilamo-Ramos, 2007). Externalizing symptoms may be viewed as rebellion and disrespect towards parents' authority, which could incite a more negative reaction compared to families without strict hierarchies.

That externalizing symptoms predicted Harsh Parental Control was consistent with the robust empirical evidence in bidirectional studies (Burke et al., 2008; Chen et al., 2000; Fite et al., 2006; Hipwell et al., 2008; Huh et al., 2006; Pardini et al., 2008; Stice & Barrera, 1995; Frye & Garber, 2005; Roche et al., *in press*; see Reitz et al., 2006 for an exception.) The current study contributes to the literature by demonstrating that, in part, the coercive model generalizes to Mexican American adolescents. Our finding showed *predictor* specificity in that we statistically

adjusted for T1 internalizing symptoms (i.e., the prediction was unique to externalizing symptoms). However, *outcome* specificity of this finding was tenuous given that when T2 Supportive Parenting was introduced the prediction of externalizing symptoms became non-significant. This suggests that externalizing symptoms may elicit a subset of controlling parenting behaviors that co-occur with at least some supportive parenting behaviors (see Sher & Trull, 1996 for a discussion on co-occurring outcomes).

Evidence was found for youth internalizing symptoms predicting lower Supportive Parenting, providing partial evidence for social interaction theory. The strength of the relation with internalizing symptoms was even more pronounced at lower levels of Supportive Parenting at baseline. This finding is consistent with prior prospective research showing that youth internalizing symptoms predicted decreases in parental support (Buist et al., 2004; Fanti et al., 2008; Hipwell et al., 2008; Reitz et al., 2006). Findings can be interpreted with interactional theories of depression (Coyne, 1976) that propose that depression negatively impacts interpersonal interactions. Coyne et al. (1987) found that individuals living with someone who is depressed experience higher rates of distress. Higher levels of youth internalizing symptoms may impact mothers' distress and undermine emotional or cognitive resources available to enact Supportive Parenting behaviors. Particular symptoms of internalizing, such as withdrawal, may be especially salient in Latino families because it undermines *simpatia*, warm and mutually responsive relationships (Guilamo-Ramos et al., 2007).

Notably, the moderation analyses revealed that when baseline Supportive Parenting was high (e.g., one standard deviation above the mean), internalizing symptoms did *not* predict Supportive Parenting. One interpretation for this finding is that mothers who are high on Supportive Parenting also have other characteristics (e.g., adaptive coping skills, high social



support) that lead them to be particularly resilient to the impact of their child's internalizing symptoms. This interpretation is consistent with the diathesis-stress/incoherent present state of mind model (Phelps, Lichtenstein, Kelsy & Crnic, 1998). The model proposed that poor parenting will occur in high stress situations (for the current study, living with a child with high levels of internalizing symptoms), but only for parents with a predisposition for poor interpersonal relationships. However in low stress situations (for the current study, living with a child with low levels of internalizing symptoms), parents will not differ based on their predispositions. In the current study, a child with high levels of mental health symptoms can be conceptualized as a high stress situation. Differences in supportive parenting were most apparent when youth internalizing symptoms were high, that is when there was a high stress situation.

### **Limitations and Implications for Clinical Application and Future Research**

There are some limitations of the current study to consider. First, although, the prospective design allowed us to predict youth mental health and parenting behaviors, the non-experimental design precludes the ability to make causal inferences. Future research, especially intervention studies that attempt to manipulate parenting behaviors, would be beneficial to informing models of parenting behaviors and youth mental health.

The second limitation was the attrition rate and T2 sample size. The high attrition rate (56%) may have biased the results. However, it is notable that no significant group differences in demographics, parenting behaviors, and mental health symptoms were found between T2 participants and non-participants. Furthermore, there were no significant differences in correlations of parenting behaviors and youth mental health symptoms found between T2 participants and non-participants. However, it is possible that they differed on other unmeasured characteristics that may have impacted the findings of the study. The sample size also

compromised the ability to examine gender moderation using the transactional approach, because it would have required the use of three-way interactions. However, gender moderation was tested in the non-transactional analyses and no support was found. Finally, the sample size prohibited the ability to use structural equation modeling to simultaneously test all bidirectional relations in a single model.

A third limitation was the use of a design with a single reporter, thus increasing the likelihood that findings were influenced by method variance. It is possible that youths' reports of parenting behaviors were influenced by their affective state. Future research should address how parenting behaviors are interpreted by youth with high levels of mental health symptoms. Although this is a limitation, other studies (e.g., Hipwell et al., 2008; Stice & Barrera, 1995) that have relied on multiple reports have found similar results.

A fourth limitation was that the current study focused exclusively on mothers' parenting behaviors. Past research has shown that mothers and fathers have differential impact on youth (Coley et al., 2008; Fanti et al., 2008). The inclusion of both mothers and fathers would allow for the test of unique role of risk and protective factors of parents. Furthermore, it could test for potentially different responses of parents to youth.

A fifth limitation is the generalizability of the findings. Data was collected from a convenience sample of Mexican American youth living in an immigrant enclave in a low-income, urban setting. Findings may not apply to Latino groups of different origin and/or Mexican American youth living in different settings (e.g., middle to upper income suburbs). More research is needed that systematically examines key characteristics that contribute to the heterogeneity of immigrant populations. Future research should examine processes, both general and culturally specific, of why individuals' behaviors elicit specific responses from other family

members. Culturally based expectations for normative behaviors (e.g., based on gender roles or generational status) could provide a possible explanation for responses and could act as a moderator for bidirectional relations. Mechanisms through which parents impact youth and youth impact parents should also be examined such as self-efficacy (Swenson & Prelow, 2005), coping (Weiss, Goebel, Page, Wilson, & Warda, 1999), and parental distress and mental health symptoms (Coyne, 1987), to determine if they can explain the link between parenting behaviors and youth mental health.

Future research could benefit from studies incorporating a person-centered approach to examining parenting behaviors and their bidirectional relations with youth mental health. The current study utilized variable-centered analytical approaches. Variable-centered analyses were appropriate for the current study because such approaches are suitable for determining the relative contributions that predictors make to an outcome (Laursen & Hoff, 2006). Person-centered approaches would compliment such findings by identifying groups of individuals who share particular attributes. This would not identify *dimensions* of parenting, but rather *categories* of parents. Once categories are determined, different trajectories of youth mental health symptoms based on these categories can be tested. The current study contributes to the literature by identifying patterns of relations; future research could address for whom specific patterns of relations apply.

Acknowledging the impact of youth on family dynamics would be beneficial for several reasons. It recognizes that relationships between parents and youth are not unidirectional; parents and youth constantly interact and influence each other. This acknowledgement reduces blame of either individual by taking into account the negative and positive effects parents and

youth can have on each other. Recognizing bidirectional relations also identifies typical maladaptive responses that may lead to an escalation of problems.

With respect to implications for intervention, our findings support the use of parent interventions based on models that attend to parent behaviors as a function of youth mental health symptoms rather than exclusively focusing on parenting behaviors' prediction of symptoms (e.g., Szapocznik & Kurtines, 1989). Although further bidirectional research is called for, the findings raise caveats about parenting behaviors' prediction of youth mental health symptoms. Parenting interventions should be mindful of social and cultural contexts of family relationships (e.g., Boyd-Franklin, 2003; Falicov, 1998; Szapocznik & Kurtines). Given the possible limits of parental influence of adolescent mental health symptoms, interventionists should also consider youth cognitive, coping and peers as intervention foci as shown by empirically supported youth interventions (see Huey & Polo, 2008).

The current study was the first to empirically test for bidirectional relations between parenting behaviors and youth mental health in a sample of Mexican American youth. It was also one of few studies to test for the structure of parenting dimensions in an exclusively ethnic minority sample. Notably, findings from studies consisting of Euro American samples did not necessarily generalize to Mexican American youth. This highlights the need to consider cultural, neighborhood, and developmental factors to develop models of parenting behaviors and youth mental health.

**TABLES AND FIGURES**

Table 1  
*Summary of Results of Bidirectional Studies of Parenting Behavior and Youth Mental Health Symptoms*

	Externalizing Symptoms						Internalizing Symptoms					
	Supportive Parenting			Controlling Parenting			Supportive Parenting			Controlling Parenting		
	Child	Parent	Reciprocal	Child	Parent	Reciprocal	Child	Parent	Reciprocal	Child	Parent	Reciprocal
Buist		X					X	X	X			
Burke	X	X	X	X	X	X						
Chen		X		X				X				
Coley	X	X	X									
Fanti		X					X	X	X			
Fite	X			X								
Frye				X								
Hipwell	X	X	X	X	X	X	X	X	X	X	X	X
Huh	X			X								
Jang	X	X	X									
Laird	X	X	X									
Pardini	X	X	X	X	X	X						
Reitz	X	X	X				X	X	X		X	
Roche				X						X		
Stice	X			X								

*Note.* Shaded cells indicate relations between parent behavior-youth mental health symptom pair were not tested. Empty cells indicate no evidence of relation found.. An “X” cells indicate evidence of relation found.

Table 2  
*Cronbach's Alpha, Time 1*

Scale	Total Sample	English	Spanish
Parenting Behaviors			
Monitoring	.93	.92	.96
Acceptance	.96	.96	.95
Involvement	.92	.93	.89
Inconsistent Discipline	.85	.85	.81
Harsh Parenting	.85	.86	.83
Firm Control	.83	.82	.81
Mental Health Symptoms			
Externalizing	.93	.93	.94
Internalizing	.93	.93	.95

*Note.* N = 216

Table 3  
*Descriptives for Total Sample*

Subscale / Factor	Time 1				Time 2			
	<i>M</i>	<i>SD</i>	Obs Min	Obs Max	<i>M</i>	<i>SD</i>	Obs Min	Obs Max
Monitoring	3.91	.89	1.00	5.00	3.74	.96	1.00	5.00
Acceptance	3.67	1.13	1.00	5.00	3.58	1.14	1.00	5.00
Involvement	3.22	1.07	1.00	5.00	2.96	.98	1.00	5.00
Inconstant. Discipline	2.34	.87	1.00	5.00	2.03	.73	1.00	4.00
Harsh Parenting	2.16	.97	1.00	5.00	1.90	.72	1.00	3.67
Firm Control	2.69	.91	1.00	5.00	2.47	.87	1.00	4.43
Supportive Parenting	.00	.87	-2.57	1.36	.00	.87	-2.37	1.47
Harsh Parental Control	.00	.81	-1.53	2.84	.00	.83	-1.45	2.12
Externalizing Symptoms	.66	.44	.03	2.30	.55	.30	.03	1.66
Internalizing Symptoms	.69	.46	.00	2.27	.64	.39	.00	1.90

*Note.* For Time 1, N=216. For Time 2, N=88.

Table 4  
*Group Mean Differences between T2 Participants and T2 Non-participants in T1 Variables*

Subscale / Factor	T-Test			T2 Participation			
	<i>df</i>	<i>t</i>	Cohen's <i>d</i>	Participants		Non-Participants	
				<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Monitoring	205	-.47	-.07	3.94	.86	3.88	.91
Acceptance	207	.46	.06	3.63	1.12	3.70	1.14
Involvement	205	.60	.08	3.16	1.06	3.25	1.07
Inconstant. Discipline	207	-.05	-.01	2.34	.72	2.34	.95
Harsh Parenting	207	.06	.01	2.16	.92	2.17	1.01
Firm Control	207	-.16	-.02	2.71	.89	2.69	.93
Supportive Parenting	203	.31	.04	-.02	.84	.02	.89
Harsh Parental Control	207	-.06	-.01	.00	.71	.00	.88
Externalizing Symptoms	212	.74	.10	.63	.41	.68	.47
Internalizing Symptoms	211	-1.35	-.19	.74	.44	.65	.47

*Note.* No significant group differences were found between T2 participants and non-participants



Table 5  
*Group Differences between T2 Participants and Non-Participants in Correlations of T1 Variables*

Correlated Variables	<i>r</i> difference	<i>SE</i> difference	95% Confidence Interval
Monitoring / Acceptance	.20	.12	-.03 - .43
Monitoring / Involvement	.11	.12	-.12 - .33
Monitoring / Inconsistent Discipline	.04	.14	-.23 - .31
Monitoring / Harsh Parenting	-.02	.14	-.29 - .26
Monitoring / Firm Control	-.06	.14	-.33 - .22
Monitoring / Supportive Parenting	.08	.08	-.07 - .24
Monitoring / Harsh Parental Control	-.01	.14	-.29 - .26
Monitoring / Externalizing	.23	.13	-.03 - .49
Monitoring / Internalizing	.13	.15	-.14 - .41
Acceptance / Involvement	.03	.10	-.16 - .22
Acceptance / Inconsistent Discipline	.03	.14	-.24 - .31
Acceptance / Harsh Parenting	.09	.13	-.18 - .35
Acceptance / Firm Control	.09	.14	-.19 - .36
Acceptance / Supportive Parenting	.04	.07	-.09 - .16
Acceptance / Harsh Parental Control	.10	.14	-.17 - .37
Acceptance / Externalizing	.14	.13	-.12 - .40
Acceptance / Internalizing	.03	.14	-.24 - .30
Involvement / Inconsistent Discipline	.08	.14	-.20 - .36
Involvement / Harsh Parenting	.16	.14	-.12 - .43
Involvement / Firm Control	.11	.14	-.16 - .39
Involvement / Supportive Parenting	.00	.07	-.12 - .13
Involvement / Harsh Parental Control	.15	.14	-.13 - .43
Involvement / Externalizing	.17	.14	-.10 - .44

Table 5 (continued)

Correlated Variables	<i>r</i> difference	<i>SE</i> difference	95% Confidence Interval
Involvement / Internalizing	.13	.14	-.14 - .40
Inconsistent Discipline / Harsh Parenting	.20	.13	-.05 - .44
Inconsistent Discipline / Firm Control	.29	.13	.03-.55
Inconsistent Discipline / Supportive Parenting	.02	.14	-.26 - .30
Inconsistent Discipline / Harsh Parental Control	.19	.10	-.01 - .39
Inconsistent Discipline / Externalizing	.02	.13	-.25 - .28
Inconsistent Discipline / Internalizing	.08	.14	-.19 - .35
Harsh Parenting / Firm Control	-.02	.11	-.24 - .19
Harsh Parenting / Supportive Parenting	.07	.14	-.20 - .34
Harsh Parenting / Harsh Parental Control	-.01	.07	-.15 - .13
Harsh Parenting / Externalizing	.12	.13	-.13 - .37
Harsh Parenting / Internalizing	.01	.13	-.25 - .26
Firm Control / Supportive Parenting	.03	.14	-.25 - .31
Firm Control / Harsh Parental Control	.02	.08	-.14 - .17
Firm Control / Externalizing	.14	.13	-.12 - .39
Firm Control / Internalizing	.07	.14	-.20 - .33
Supportive Parenting / Harsh Parental Control	.06	.14	-.22 - .33
Supportive Parenting / Externalizing	.20	.13	-.06 - .46
Supportive Parenting / Internalizing	.10	.14	-.17 - .37
Harsh Parental Control / Externalizing	.09	.12	-.16 - .33
Harsh Parental Control / Internalizing	.04	.13	-.22 - .30
Externalizing / Internalizing	.02	.09	-.17 - .20

*Note.* Differences for *r* and *SE* were computed by subtracting values of T2 participants from T2 non-participants on T1 variables.

Table 6  
*Group Mean Differences in T1 Variables by Gender*

Subscale / Factor	Gender						
	T-Test			Girls		Boys	
	<i>df</i>	<i>t</i>	Cohen's <i>d</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Monitoring	205	-2.67**	-.37	4.06	.87	3.73	.88
Acceptance	207	-.07	-.01	3.68	1.18	3.67	1.08
Involvement	205	.95	.13	3.15	1.14	3.29	.98
Inconsistent Discipline	207	2.34*	.33	2.21	.76	2.49	.95
Harsh Parenting	207	3.27**	.45	1.96	.93	2.39	.98
Firm Control	207	2.95**	.41	2.52	.92	2.89	.86
Supportive Parenting	203	-.80	-.11	.05	.90	-.05	.84
Harsh Parental Control	207	3.55**	.49	-.18	.75	.20	.84
Externalizing Symptoms	212	1.42	.20	.62	.40	.70	.48
Internalizing Symptoms	211	-.74	-.10	.71	.43	.66	.50

*Note.* \*\*  $p \leq .01$  \*  $p \leq .05$

Table 7  
*Group Mean Differences in T2 Variables by Gender*

Subscale / Factor	Gender						
	T-Test			Girls		Boys	
	<i>df</i>	<i>t</i>	Cohen's <i>d</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Monitoring	87	-2.15*	-.46	3.93	.83	3.50	1.05
Acceptance	87	-.42	-.09	3.63	1.15	3.52	1.14
Involvement	87	.56	.12	2.91	1.00	3.02	.97
Inconsistent Discipline	87	.34	.07	2.01	.72	2.06	.75
Harsh Parenting	87	.08	.02	1.90	.75	1.91	.70
Firm Control	87	-.48	-.10	2.51	.87	2.43	.88
Supportive Parenting	87	-.75	-.16	.06	.85	-.08	.91
Harsh Parental Control	87	-.02	0.00	.00	.80	.00	.88
Externalizing Symptoms	87	.06	.01	.55	.33	.55	.27
Internalizing Symptoms	87	-1.10	-.24	.68	.44	.59	.33

*Note.* \*  $p \leq .05$

Table 8  
*Group Mean Difference in TI Variables by Language*

Subscale / Factor	Language						
	T-Test			English		Spanish	
	<i>df</i>	<i>t</i>	Cohen's <i>d</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Monitoring	205	-.38	-.05	3.90	.88	3.96	.95
Acceptance	207	-.15	-.02	3.67	1.14	3.70	1.09
Involvement	205	-1.70	-.24	3.16	1.09	3.50	.92
Inconsistent Discipline	207	-.85	-.12	2.32	.87	2.45	.82
Harsh Parenting	207	-2.57*	-.36	2.09	.98	2.54	.85
Firm Control	207	3.84**	.53	2.80	.90	2.17	.79
Supportive Parenting	203	-.82	-.12	-.02	.87	.11	.89
Harsh Parental Control	207	.14	.02	.00	.83	-.02	.75
Externalizing Symptoms	212	1.39	.19	.68	.44	.57	.46
Internalizing Symptoms	211	-.70	-.10	.68	.45	.74	.52

*Note.* \*\*  $p \leq .01$  \*  $p \leq .05$

Table 9  
*Group Mean Difference in T2 Variables by Language*

Subscale / Factor	Language						
	T-Test			English		Spanish	
	<i>df</i>	<i>t</i>	Cohen's <i>d</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Monitoring	87	-.67	-.14	3.72	.91	4.02	1.71
Acceptance	87	.97	.21	3.61	1.11	3.10	1.62
Involvement	87	-.45	-.10	2.95	.95	3.16	1.53
Inconsistent Discipline	87	1.78**	.38	2.07	.73	1.48	.32
Harsh Parenting	87	-.69	-.15	1.89	.71	2.12	1.00
Firm Control	87	1.33	.29	2.50	.87	1.97	.84
Supportive Parenting	87	-.06	-.01	.00	.84	.02	1.43
Harsh Parental Control	87	.96	.21	.02	.83	-.35	.86
Externalizing Symptoms	87	.72	.15	.56	.31	.46	.22
Internalizing Symptoms	87	-2.40*	-.51	.62	.36	1.04	.69

*Note.* \*\*  $p \leq .01$  \*  $p \leq .05$

Table 10

*Time 1 Intercorrelations and Time 2 Intercorrelations of Parenting Behaviors and Youth Mental Health Symptoms*

	Parenting Behaviors						Parenting Dimensions		Youth Mental Health	
	MON	ACC	INV	INCON	HAR	FIRM	SUP	HPC	EXT	INT
Monitoring	-	.62**	.61**	.01	.00	.14	.85**	.06	-.25*	-.19
Acceptance	.61**	-	.71**	-.14	-.28**	-.10	.89**	-.21	-.32**	-.29**
Involvement	.60**	.74**	-	-.17	-.12	.07	.89**	-.09	-.37**	-.35**
Inconst. Discp.	-.18**	-.05	.07	-	.45**	.46**	-.12	.76**	.37**	.12
Harsh Parent.	-.17*	-.26**	-.08	.47**	-	.73**	-.15	.87**	.44**	.35**
Firm Control	-.04	-.06	.06	.37**	.63**	-	.04	.87**	.28**	.09
Support. Parent.	.84**	.89**	.89**	-.09	-.22**	-.04	-	-.09	-.36**	-.31**
H. Parent. Cont.	-.17*	-.16*	.02	.76**	.86**	.82**	-.15*	-	.43**	.22*
Externalizing	-.25**	-.29**	-.22**	.33**	.46**	.38**	-.30**	.49**	-	.62**
Internalizing	-.07	-.19**	-.21**	.29**	.40**	.25**	-.20**	.39**	.73**	-

*Note.* Time 1 correlations are below the diagonal (N=216). Time 2 correlations are above the diagonal (N=88). \*\*  $p \leq .01$  \*  $p \leq .05$

Table 11  
*Correlations between Time 1 and Time 2 of Parenting Behaviors and Youth Mental Health Symptoms*

Time 1	Time 2 Parenting Behaviors						Time 2 Parent. Dimensions		Time 2 Youth Mental Health	
	MON	ACC	INV	INCON	HAR	FIRM	SUP	HPC	EXT	INT
Monitoring	.61**	.44**	.34**	-.16	.02	.10	.54**	-.02	-.17	-.06
Acceptance	.31**	.66**	.50**	-.21	-.21	-.18	.58**	-.24*	-.20	-.15
Involvement	.36**	.54**	.61**	-.22*	-.15	-.09	.59**	-.19	-.35**	-.35**
Inconst. Discp.	.01	-.07	-.01	.30**	.16	0.00	-.03	.19	.35**	.11
Harsh Parent.	-.02	-.16	.04	.12	.44**	.29**	-.05	.34**	.22*	.11
Firm Control	.03	-.04	.03	.10	.36**	.44**	.01	.36**	.09	-.02
Support. Parent.	.50**	.65**	.57**	-.23*	-.14	-.07	.67**	-.18	-.28*	-.22*
H. Parent. Cont.	.01	-.11	.03	.21	.43**	.33**	-.03	.39**	.28*	.08
Externalizing	-.37**	-.35**	-.30**	.27*	.24*	.13	-.39**	.26*	.61**	.32**
Internalizing	-.27*	-.31**	-.35**	.10	.25*	-.03	-.36**	.13	.52**	.59**

*Note.* Stability coefficients are shown on the diagonal. N = 88. \*\*  $p \leq .01$  \*  $p \leq .05$



Table 12  
*Confirmatory Factor Analyses – Model Comparison*

Model	<i>df</i>	$\chi^2$	CFI	RMSEA	SRMR	$\chi^2$ difference test		
						$\chi^2_{diff}$	<i>df</i> <sub>diff</sub>	<i>p</i>
Model 4	7	37.16*	.94	.14	.07	-	-	-
Model 1	8	37.55**	.94	.13	.07	.39	1	<i>ns</i>
Model 2	9	198.28*	.58	.32	.19		1	$\leq .01$
Model 3	8	193.18*	.59	.33	.19	156.02	1	$\leq .01$

*Note.* \* $p \leq .0$       \*\* $p \leq .000$

Fixed factor method was used, with covariances for each of the factors set to 1.0.

Fit Indices: CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized root mean square residual

Difference test compares Model 4 (monitoring cross-loading to both factors) with all other models (Models 1-3).

Model 1 was the hypothesized model with acceptance, involvement, and monitoring loading onto Supportive Parenting and firm control, harsh parenting, and inconsistent discipline loading onto Harsh Parental Control.

Model 2 had all six parenting behaviors loading onto a single factor.

Model 3 had monitoring loading onto Harsh Parental Control instead of Supportive Parenting.

Model 4 had monitoring cross-loading onto both factors. Model 4 is not significantly different from Model 1, but Model 1 is more parsimonious.

Table 13  
*Transactional Analyses for Youth Mental Health Symptoms Predicting Harsh Parental Control*

	Block 1	Block 2	Block 3	Block 4
<b>Beta</b>				
T1 Harsh Parental Control	.39**	.32**	.32**	.36**
T1 Internalizing Symptoms		-.18	-.18	-.21
T1 Externalizing Symptoms		.30*	.31*	.24
T1 Int * T1 Har Par Cont			-.01	-.01
T1 Ext * T1 Har Par Cont			-.05	.00
T2 Supportive Parenting				-.21 <sup>†</sup>
<b>Model Summary</b>				
$R^2$	.15**	.19**	.19**	.23**
$R^2$ Change	-	.04	.00	.04 <sup>†</sup>

*Note.* Criterion variable is T2 Harsh Parental Control. \*\*  $p \leq .01$  \*  $p \leq .05$  <sup>†</sup>  $p \leq .08$

Table 14  
*Transactional Analyses for Youth Mental Health Symptoms Predicting Supportive Parenting*

	Block 1	Block 2	Block 3	Block 4
<b>Beta</b>				
T1 Supportive Parenting	.67**	.65**	.65**	.65**
T1 Internalizing Symptoms		-.21 <sup>†</sup>	-.25*	-.30*
T1 Externalizing Symptoms		.08	.10	.20
T1 Int * T1 Sup Par			.21 <sup>†</sup>	.27*
T1 Ext * T1 Sup Par			-.07	-.03
T2 Harsh Parental Control				-.23*
<b>Model Summary</b>				
$R^2$	.45**	.48**	.50**	.54**
$R^2$ Change	-	.03	.03	.04*

*Note.* Criterion variable is T2 Supportive Parenting. \*\*  $p \leq .01$  \*  $p \leq .05$  <sup>†</sup>  $p \leq .08$

Table 15  
*Transactional Analyses for Parenting Behaviors Predicting Externalizing Symptoms*

	Block 1	Block 2	Block 3	Block 4
<b>Beta</b>				
T1 Externalizing Symptoms	.61**	.59**	.62**	.46**
T1 Supportive Parenting		-.02	.04	.07
T1 Harsh Parental Control		.03	-.04	.02
T1 Sup Par * T1 Ext			.22*	.12
T1 Har Par Cont * T1 Ext			-.11	-.08
T2 Internalizing Symptoms				.48**
<b>Model Summary</b>				
$R^2$	.37**	.37**	.43**	.62**
$R^2$ Change	-	.00	.06*	.19**

*Note.* Criterion variable is T2 externalizing symptoms. \*\*  $p \leq .01$  \*  $p \leq .05$

Table 16  
*Transactional Analyses for Parenting Behaviors Predicting Internalizing Symptoms*

	Block 1	Block 2	Block 3	Block 4
<b>Beta</b>				
T1 Internalizing Sx	.61**	.64**	.62**	.41**
T1 Supportive Parenting		-.09	-.05	.01
T1 Harsh Parental Control		-.16	-.10	-.15 <sup>†</sup>
T1 Sup Par * T1 Int			.09	.06
T1 Har Par Cont * T1 Int			-.21*	-.20*
T1 T2 Externalizing Symptoms				.47**
<b>Model Summary</b>				
$R^2$	.37**	.39**	.45**	.60**
$R^2$ Change	-	.03	.06*	.15**

*Note.* Criterion variable is T2 internalizing symptoms. \*\*  $p \leq .01$  \*  $p \leq .05$

Table 17  
*Gender Moderation of Youth Mental Health Symptoms Predicting Harsh Parental Control*

	Block 1	Block 2	Block 3	Block 4
<b>Beta</b>				
T1 Harsh Parental Control	.39**	.32**	.32**	.35**
Gender	.02	.07	-.21	-.20
T1 Internalizing Symptoms		-.19	-.28	-.36
T1 Externalizing Symptoms		.32*	.26	.24
Gender * T1 Internalizing			.14	.22
Gender * T1 Externalizing			.22	.12
T2 Supportive Parenting				-.20 <sup>†</sup>
<b>Model Summary</b>				
$R^2$	.15**	.20**	.22**	.25**
$R^2$ Change		.04	.03	.03 <sup>†</sup>

*Note.* Criterion variable is T2 Harsh Parental Control. \*\*  $p \leq .01$  \*  $p \leq .05$

Table 18  
*Gender Moderation of Youth Mental Health Symptoms Predicting Support. Parent*

	Block 1	Block 2	Block 3	Block 4
<b>Beta</b>				
T1 Supportive Parenting	.67**	.66**	.65**	.65**
Gender	.03	.04	-.00	-.03
T1 Internalizing Symptoms		-.22 <sup>†</sup>	-.38 <sup>†</sup>	-.40 <sup>†</sup>
T1 Externalizing Symptoms		.10	.22	.25
Gender * T1 Internalizing			.26	.25
Gender * T1 Externalizing			-.18	-.13
T2 Harsh Parental Control				-.13
<b>Model Summary</b>				
$R^2$	.45**	.48**	.48**	.50**
$R^2$ Change		.08	.01	.02

*Note.* Criterion variable is T2 Supportive Parenting. \*\*  $p \leq .01$  <sup>†</sup>  $p \leq .08$

Table 19  
*Gender Moderation of Parenting Behaviors Predicting Externalizing Symptoms*

	Block 1	Block 2	Block 3	Block 4
<b>Beta</b>				
T1 Externalizing Symptoms	.63**	.62**	.62**	.47**
Gender	.15 <sup>†</sup>	.15	.15	.07
T1 Supportive Parenting		.00	.07	.15
T1 Harsh Parental Control		.03	.08	.03
Gender * T1 Sup Par			-.09	-.13
Gender * T1 Har Par Cont			-.07	.01
T2 Internalizing Symptoms				.50**
<b>Model Summary</b>				
$R^2$	.39**	.39**	.40**	.61**
$R^2$ Change		.00	.00	.21**

*Note.* Criterion variable is T2 externalizing symptoms. \*\*  $p \leq .01$  <sup>†</sup>  $p \leq .08$

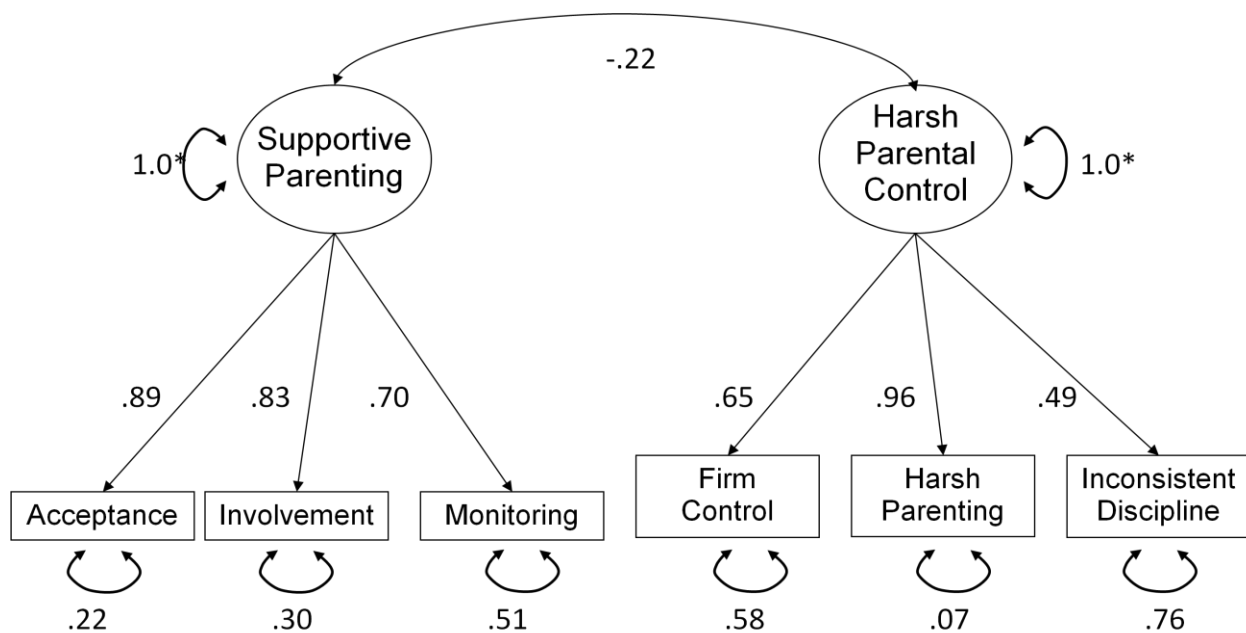


Table 20  
*Gender Moderation of Parenting Behaviors Predicting Internalizing Symptoms*

	Block 1	Block 2	Block 3	Block 4
<b>Beta</b>				
T1 Internalizing Symptoms	.61**	.64**	.64**	.44**
Gender	.14	.12	.12	.09
T1 Supportive Parenting		-.08	-.08	-.01
T1 Harsh Parental Control		-.15	-.15	-.25
Gender * T1 Support Parent			.00	.01
Gender * T1 Har Parent Cont			.01	.06
T2 Externalizing Symptoms				.48**
<b>Model Summary</b>				
$R^2$	.39**	.41**	.41**	.56**
$R^2$ Change		.02	.00	.16**

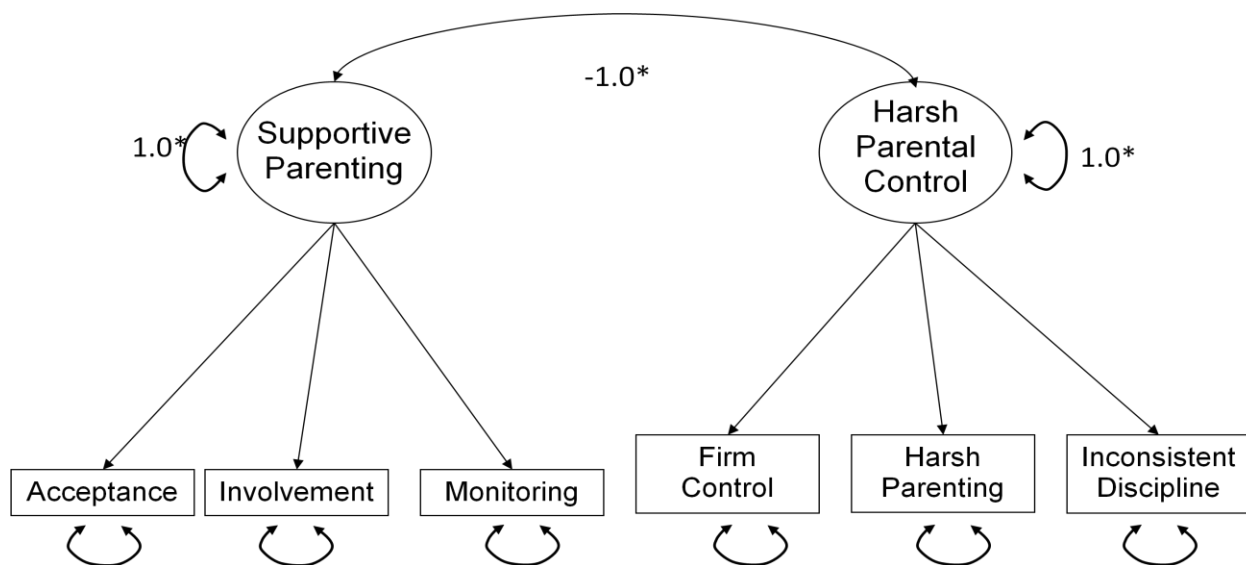
*Note.* Criterion variable is T2 internalizing symptoms. \*\*  $p \leq .01$

Figure 1  
Hypothesized Model (Model 1)



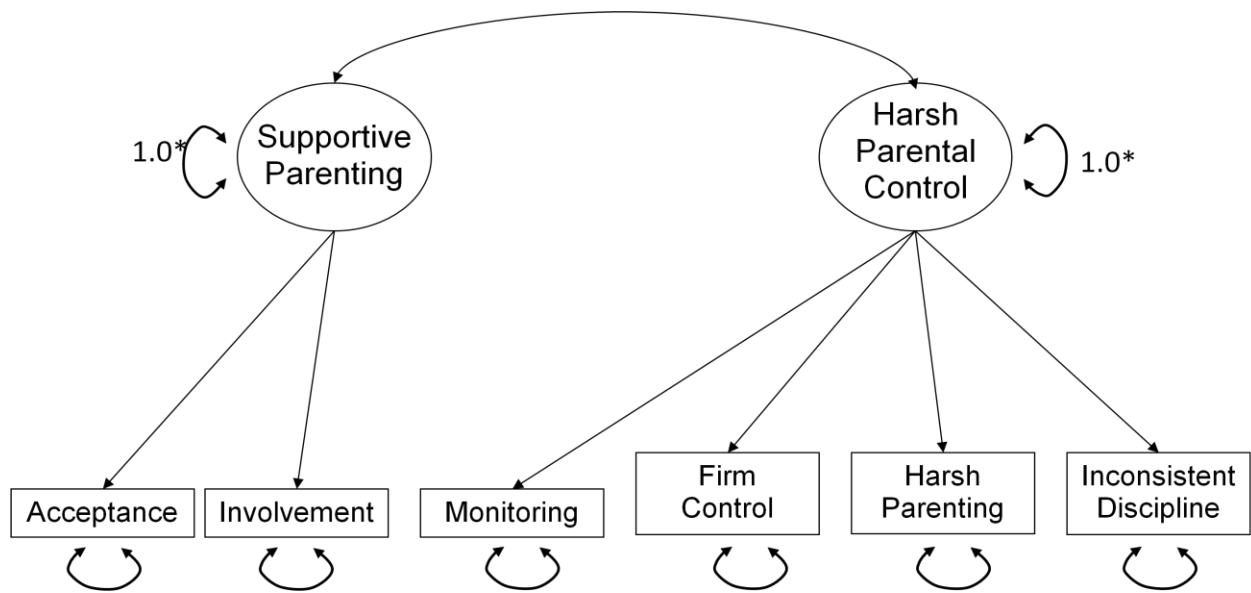
Note.  $\chi^2(8, n = 216) = 37.55, p \leq .05, CFI = .94, RMSEA = .13, SRMR = .07$

Figure 2  
*Alternate Model, One Dimension of Parenting Behaviors (Model 2)*



Note.  $\chi^2(9, n = 216) = 198.28, p \leq .01, CFI = .59, RMSEA = .19, SRMR = .19$

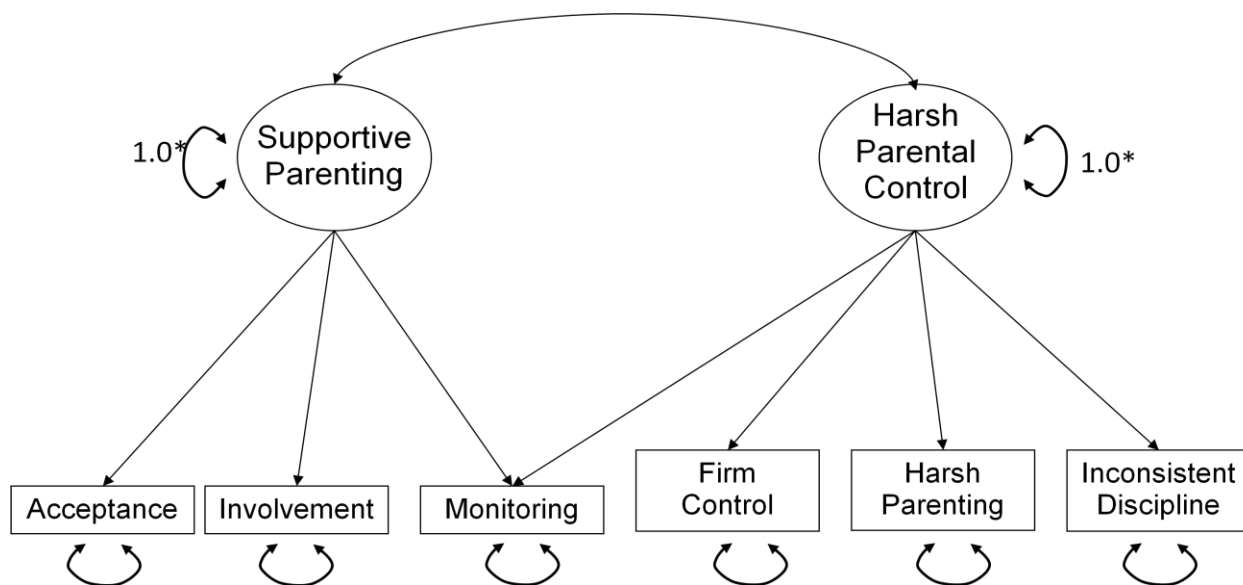
Figure 3  
*Alternate Model, Monitoring as Control (Model 3)*



Note.  $\chi^2(8, n = 216) = 193.18, p \leq .01, CFI = .58, RMSEA = .19, SRMR = .19$

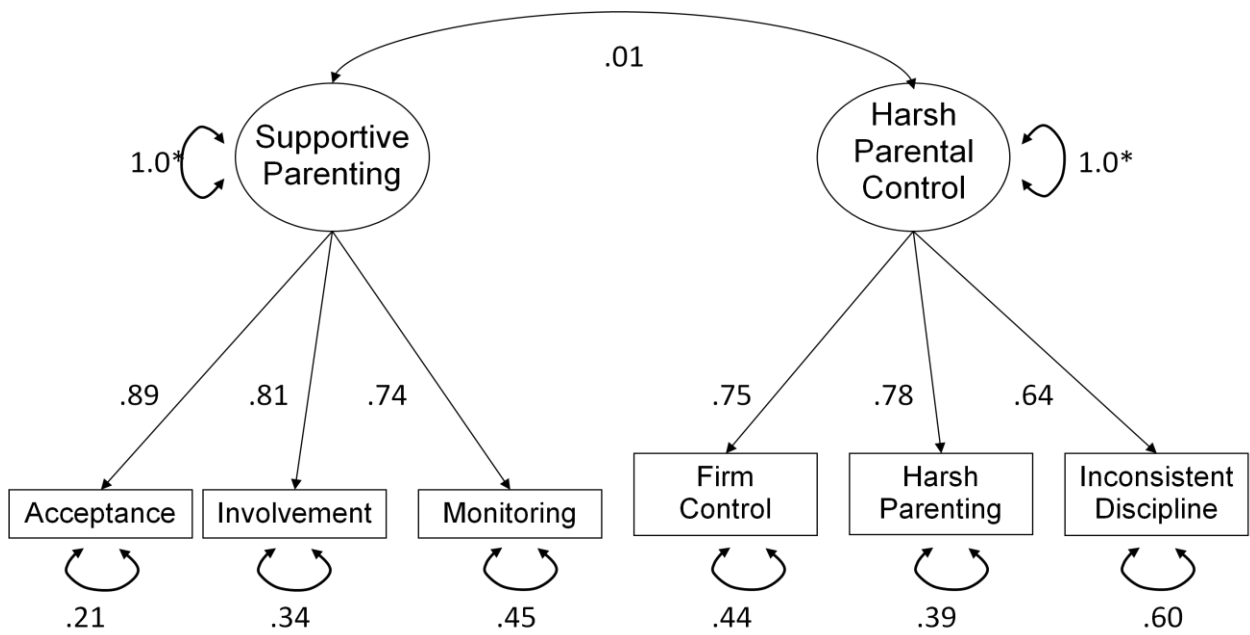
Figure 4

*Alternate and Comparison Model, Monitoring as Supportive and Controlling (Model 4)*



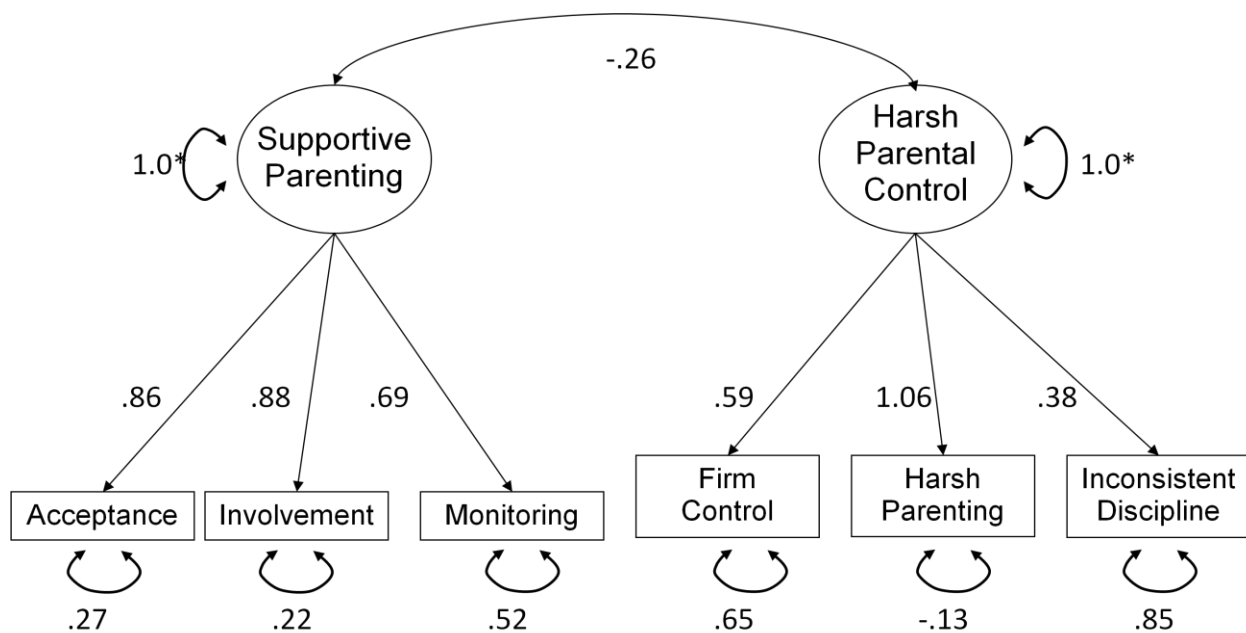
*Note.*  $\chi^2(8, n=216) = 37.16, p \leq .05, CFI = .94, RMSEA = .14, SRMR = .07$

Figure 5  
Hypothesized Model for Boys (Model 1)



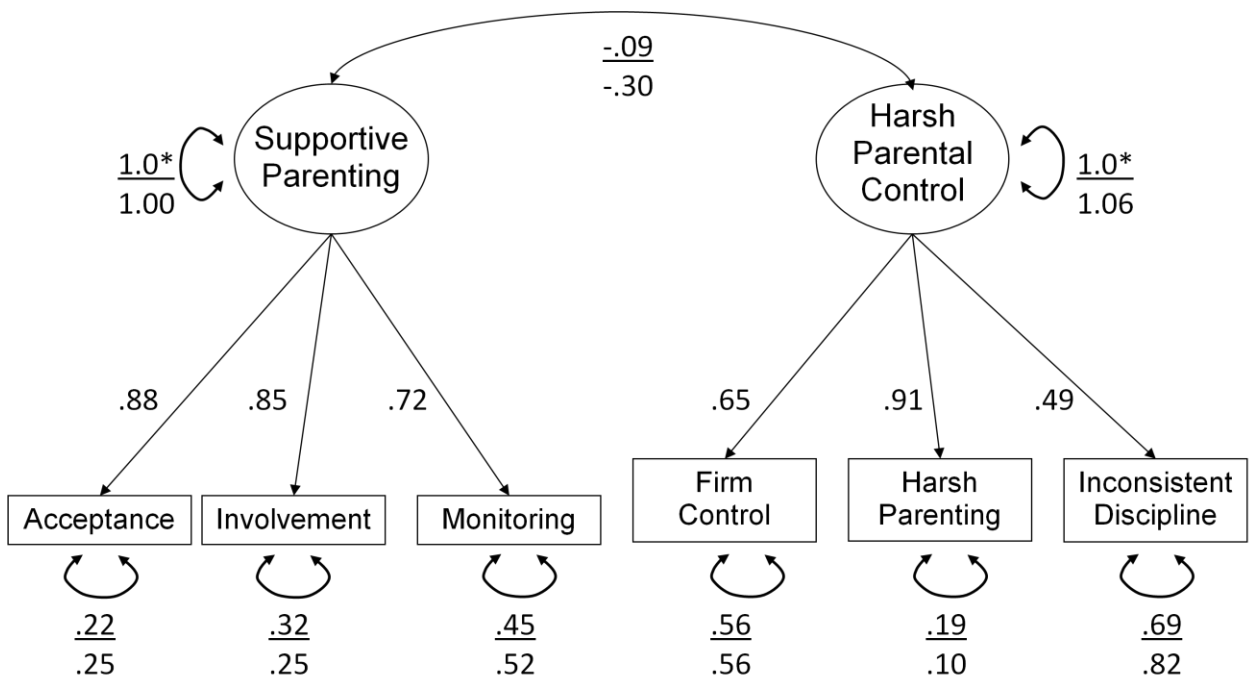
Note.  $\chi^2(8, n = 104) = 30.132, p \leq .001, CFI = .91, RMSEA = .16, SRMR = .10$

Figure 6  
Hypothesized Model for Girls (Model 1)



Note.  $\chi^2(8, n = 112) = 17.837, p \leq .05, CFI = .96, RMSEA = .11, SRMR = .05$

Figure 7  
*Test of Metric Invariance*

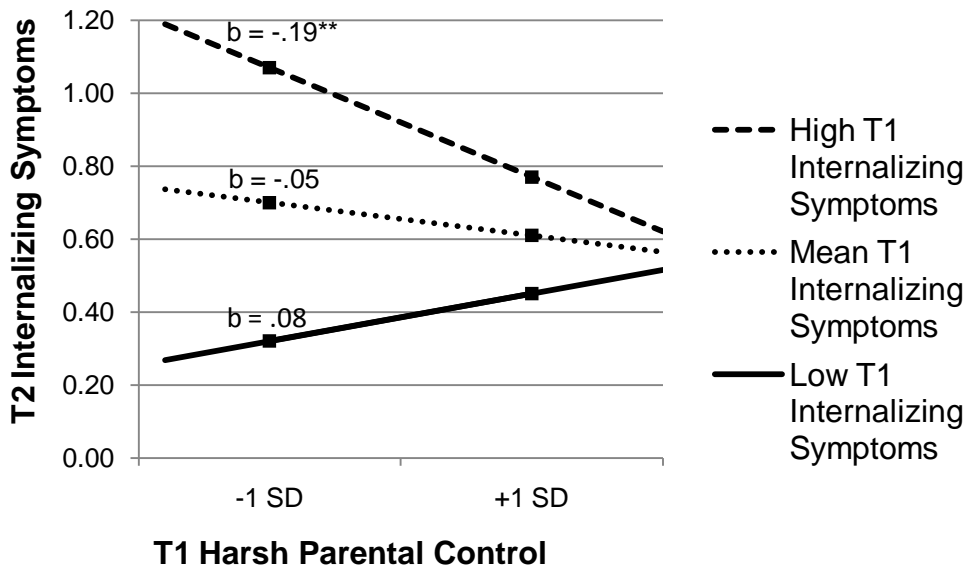


Note. Boys' values are above the line. Girls' values are below the line.  
 $\chi^2(16, n = 216) = 47.97, p \leq .01, CFI = .94, RMSEA = .13$



Figure 8

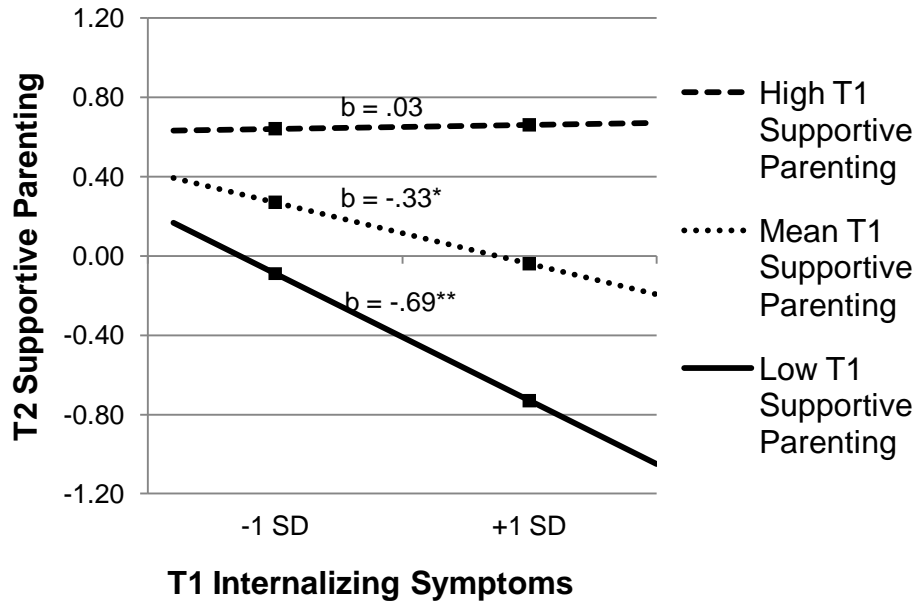
*Time 1 Harsh Parental Control as Predictor of Time 2 Internalizing Symptoms, with Time 1 Internalizing Symptoms as Moderator*



*Note.* High T1 internalizing symptoms indicate scores one standard deviation above the sample mean. Mean T1 internalizing symptoms indicate scores at the sample mean. Low T1 internalizing symptoms indicate scores one standard deviation below the sample mean.

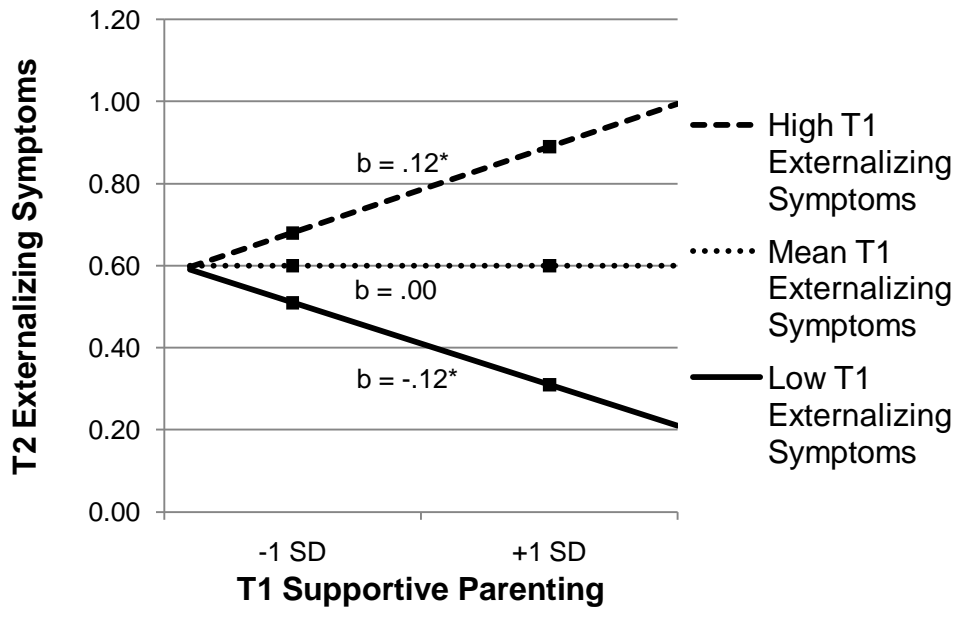
\*\*  $p \leq .01$  \*  $p \leq .05$

Figure 9  
*Time 1 Internalizing Symptoms as Predictor of Time 2 Supportive Parenting, with Time 1 Supportive Parenting as Moderator*



*Note.* High T1 Supportive Parenting indicate scores one standard deviation above the sample mean. Mean T1 Supportive Parenting indicate scores at the sample mean. Low T1 Supportive Parenting indicate scores one standard deviation below the sample mean.  $** p \leq .01$   $* p \leq .05$

Figure 10  
*Time 1 Supportive Parenting as a Predictor of Time 2 Externalizing Symptoms, with Time 1 Externalizing Symptoms as Moderator*



*Note.* High T1 externalizing symptoms indicate scores one standard deviation above the sample mean. Mean T1 externalizing symptoms indicate scores at the sample mean. Low T1 externalizing symptoms indicate scores one standard deviation below the sample mean.  
\*\*  $p \leq .01$  \*  $p \leq .05$

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**APPENDIX A**

## Youth Self-Report (YSR) Items

*Sample Items from Internalizing Problems Subscale*

I feel that no one loves me  
I feel guilty  
I am nervous or tense  
I am self-conscious or easily embarrassed  
I am afraid of certain animals, situations, or places other than school  
I feel worthless or inferior  
I cry a lot  
I don't have much energy  
I feel unhappy, sad, or depressed  
I am too shy or timid

*Sample Items from Externalizing Problems Subscale*

I cut classes or skip school  
I steal at home  
I lie or cheat  
I break rules at home, school, and everywhere  
I drink alcohol without my parents' approval  
I swear or use dirty language  
I disobey my parents  
I threaten to hurt people  
I get in many fights  
I destroy things belonging to other people

## APPENDIX B

### Parenting Behavior Items

#### *Acceptance*

My mother made me feel better after talking over my worries with (him/her).  
 My mother told or showed me that she liked me just the way I was.  
 My mother had a good time with me.  
 My mother saw my good points more than my faults.  
 My mother spoke with me in a warm and friendly voice.  
 My mother understood my problems and worries.  
 My mother was able to make me feel better when I was upset.  
 My mother cheered me up when I was sad.

#### *Firm Control*

My mother got angry when I was noisy around house.  
 My mother bothered me until I did what she wanted me to do.  
 My mother told me how I should behave.  
 My mother kept reminding me about things I was not allowed to do.  
 My mother reminded me about things I did wrong.  
 My mother demanded I do exactly what she told me to do.  
 My mother tried to control whatever I did.

#### *Harsh Parenting*

My mother spanked/slapped me when I did something wrong.  
 My mother got so mad at me she called me names.  
 My mother screamed at me when I did something wrong.  
 My mother lost temper with me when didn't help around house.  
 When I did something wrong, my mother punished me in front of friends.  
 When I did something wrong, my mother told me she was disgusted with me.

#### *Inconsistent Discipline*

My mother quickly forgot rules she made  
 My mother punished me one day/ignored it the next  
 My mother allowed me to do things she said were wrong  
 It depended upon my mother's mood whether rule was enforced  
 My mother only kept rules when it suited her  
 My mother changed the rules I was supposed to follow  
 My mother insisted I follow rule one day but forgot about it next  
 My mother changed her mind to make things easier for herself

*Involvement*

My mother went to my school/community events.  
My mother made sure I did my homework.  
My mother spent time with me or did things with me alone.  
My mother found out about programs that could help me.  
My mother worked with me on my homework/projects.  
My mother helped me get involved in programs/lessons.  
My mother talked with my teacher to find out how I was doing in school.  
My mother tried to find out from me how things were going.  
My mother helped out with school/community activities that I was involved in.

*Monitoring*

My mother knew what I was doing after school.  
My mother knew how I spent my money  
My mother knew who my friends were.  
My mother told me to call her/him if I was going to be late getting home.  
My mother asked me who I was going to be with before I went out.  
When I went out my mother knew where I was.  
In the past month, my mother knew of the plans I had with my friends.  
Before I went out, my mother asked me where I was going.  
My mother knew how I was spending my time.  
My mother knew what music I listened to.  
My mother knew what programs I watched on TV.  
My mother knew who I was hanging out with.

### **AUTHOR'S BIOGRAPHY**

Jennifer Manongdo received her BA in Psychology, Sociology, and Social Science with a specialization in Public and Community Service at the University of California, Irvine (UCI) in 1999. Prior to starting her doctoral degree, she was a Research Associate at the UCI Medical Center Child Development Center working on clinical trial studies on the treatment of ADHD in children and adults. She completed her graduate study in Clinical-Community Psychology at the University of Illinois at Urbana-Champaign where she received her MA in 2006 and PhD in 2010.