ABSTRACT

Title of Dissertation: PARENTING STRESS AND ASSOCIATED PATHWAYS TO HEALTH OUTCOMES IN LATINO PARENTS: AN INVESTIGATION OF LONGITUDINAL LATENT CHANGE

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Prior parenting stress studies have been limited due to a primary focus on how parenting stress is associated with the well-being of children, use of samples consisting of predominately White parents, and reliance on cross-sectional data. Using longitudinal data collected from a randomized control trial of a parenting intervention for Latino parents with early adolescents, the present study investigated how changes in relational variables (parent-child conflict and parenting stress) were associated with changes in the parents' psychological well-being across four months and ten months. Confirmatory and exploratory factor analyses were conducted on the study measures, and measurement invariance was subsequently tested for all of the study variables across the two time periods. Latent change models were imposed for the time periods of four months and ten months while controlling for treatment group membership (intervention vs. control), income, parent's enculturation, and number of children in the family. The results from latent change analysis showed that across a period of four months, change in parent-child conflict was positively associated with changes in parenting stress and parent's psychological distress, whereas across ten months, change in parent-child conflict was only associated with change in psychological distress. Examination of the control variable regarding group membership (intervention vs. control) showed that being assigned to the parenting intervention had protective indirect effects on change in

parenting stress through its association with change in parent-child conflict across four months, and on change in psychological distress through change in parent-child conflict across ten months. The present findings showed that changes in parent-child relationships are related to changes in parenting stress and psychological distress of Latino parents with early adolescents. It seems that change in parent-child conflict may affect change in parenting stress in the shorter term but affect the parent's individual psychological well-being in the longer term, and that community-based parenting interventions have the potential to protect and increase the well-being of Latino parents of early adolescents.

PARENTING STRESS AND ASSOCIATED PATHWAYS TO HEALTH OUTCOMES IN LATINO PARENTS: AN INVESTIGATION OF LONGITUDINAL LATENT CHANGE

by

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CHAPTER I. INTRODUCTION

Statement of the Problem

Parenting is stressful. Regardless of pleasures that having children can bring, experiencing stress in the role of a parent is not an exception but the norm. In addition to relatively non-normative events such as sudden serious illness or injury to a child that typically are quite stressful, the individual daily hassles and demands that arise from parenting a child may not always be significant events in and of themselves, but the repetitive nature of these demands and the accumulation of stress over time can eventually have a significant impact on a parent's mental and physical well-being (Crnic & Low, 2002; Peterson, Hennon, & Knox, 2010).

There is an extensive body of literature regarding parenting stress that consists of studies that have been conducted with parents from a wide variety of nations, illustrating its universality. However, the literature has been focused primarily on parents whose children are young and/or have a developmental disorder/chronic physical health condition. In contrast, stress experienced by parents of relatively normally developing adolescent children has been greatly understudied, in spite of the fact that adolescence can be one of the more challenging developmental periods for the parents (Peterson, 2017; Steinberg, 2001), and substantial empirical and clinical literature has been devoted to interventions for parent-adolescent conflict (e.g., Diamond, Russon, & Levy, 2016; Epstein, Schlesinger, & Kim, 2018; Salari, Ralph, & Sanders, 2014).

In the U.S., studies that have investigated the association between parenting stress and other variables have been conducted with samples that, more often than not, consist of majority White parents (e.g., Almogbel, Goyal, & Sansgiry, 2017; Hutchison, Feder, Abar, & Winsler, 2016; Mackler et al., 2015). In these studies, it is not uncommon to see

the variable of race controlled in the main analyses, or at times be disregarded completely. This is problematic, in that findings from the few studies that have directly examined racial/ethnic differences in parenting stress suggest that there is significant racial/ethnic group variation regarding its determinants (Cardoso, Padilla, & Sampson, 2010; Nam, Wikoff, & Sherraden, 2015; Nomaguchi & House, 2013). Assuming universality of the parenting experience and failing to examine the unique experiences of parents of different ethnic and racial groups can lead to a missed opportunity to understand and identify the unique strengths and resiliency factors of these groups.

In addition, the vast majority of studies regarding parenting stress have relied on cross-sectional data, attempting to examine the dynamic interaction of systemic factors within the family unit (e.g., reciprocal influences between children and parents) with single-point-in-time measurement. Given the systemic nature of the family in which parenting primarily occurs, more studies with longitudinal data and analytic methods that best capture the dynamic interrelation of variables are needed.

Purpose of the Study

The present study addressed the issues described above by analyzing secondary longitudinal data collected from a sample of Latino[1] parents of early adolescents[2]. More

[1] In the U.S., there is still ambiguity regarding the terms Hispanic and Latino. The U.S. Census Bureau currently does not differentiate between the two terms and typically uses them together as "Hispanic or Latino" when reporting data. By definition, Hispanic and Latino are considered pan-ethnic labels, and people in these categories can be of any race. However, a survey by the Pew Research Center showed that the majority of those who identify as Hispanic or Latino consider these labels as part of their racial identity (Gonzalez-Barrera & Lopez, 2015). Also, in an experiment conducted by the U.S. Census Bureau, when the Hispanic origin option was integrated with the race question (as opposed to being a separate question), 81% of Latinos only marked the Hispanic origin box and did not choose any of the other race categories (Gonzalez-Barrera & Lopez, 2015). Thus, it is questionable whether the term Hispanic/Latino can be considered purely an ethnic term. In the present study, the term Latino was used except when reviewing prior studies that have chosen to use Hispanic, in which case the authors' chosen label was preserved. Also, when prior studies that have conducted racial/ethnic group comparisons are reviewed, the racial labels of White, Black, or Asian American refer to Non-Hispanic/Latino White, Non-Hispanic/Latino Black, and Non-Hispanic/Latino Asian American; the prefix "Non-Hispanic/Latino" has been omitted for brevity.

specifically, the study used these data to test a conceptual model that hypothesizes changes in negative parent-child interactions leading to changes in parenting stress, which in turn influence changes in parents' mental and physical wellbeing. Investigating both mental and physical health outcomes can provide valuable insight into the holistic impact of parenting stress on Latino parents with early adolescents. For the present study, these outcome variables were limited to the mental and physical health outcomes available in the data — overall psychological distress and health behaviors related to alcohol consumption[3]. Using data collected from parents at three different time points, the study tested the conceptual model in regard to both short-term change (4 months) and longer-term change (10 months), in order to provide a better understanding of the hypothesized pathways among the variables over varying time periods. Gaining a better understanding of pathways through which changes in family relational variables (e.g., parent-child conflict and parenting stress) affect the individual well-being of Latino parents is important in terms of augmenting the body of knowledge regarding family dynamics in Latino families, which then can be examined in other racial/ethnic groups as well. Furthermore, understanding these pathways can be instrumental in developing and refining interventions (both at the clinical level with individual families and at the broader community level) to increase the well-being of parents and their families.

Lastly, while there have been social efforts made to use the more gender inclusive term Latinx in recent years, I have chosen the term Latino for the present study as it is the term used by the researchers for the original community intervention study from which the data were collected.

[2] While the World Health Organization defines adolescents as people aged 10 to 19, scholars have proposed several stages within the period of adolescence where adolescents roughly between 10 to 13 years of age being categorized as early adolescents (Steinberg, 2017).

[3] Alcohol consumption variables were eventually removed from the analysis. See Results section for details.

Review of Literature

Parenting Stress

Becoming a parent is an immense transition for any individual adult as they become responsible for the well-being and survival of another human being. Although parenthood can bring positive experiences and a sense of reward to the parent, it can also bring constant demands and responsibilities. *Parenting stress* is the internally experienced psychological distress that arises from the demanding conditions and events that occur within the parenting role. Parenting stress has been theorized to occur when the parent perceives that he or she does not have sufficient resources to meet the demands of that role (Deater-Deckard, 2004; Peterson et al., 2010). Demands can involve meeting the basic physical needs of the child, such as food, clothing, shelter, and a safe environment, but they can also include the child's psychological needs such as affection, attention, and attachment. Rather than being intermittent, these demands tend to be persistent, consuming a great deal of the parent's time and energy.

The resources that the parent needs to meet these demands are equally diverse as the demands themselves, such as external resources (e.g., financial income, neighborhood environment, transportation, healthcare access), relational resources (e.g., personal skills for providing a positive parent-child relationship, proximity of supportive extended family members, access to community support programs), and internal resources (e.g., parental mental health and resilience). Berry and Jones (1995) also proposed that parenting stress arises when the demands of parenting are relatively greater than the rewards (positive emotional experiences such as love, joy, and a sense of accomplishment).

In addition, general stress and coping models postulate that the degree of stress that an individual experiences depends on the individual's cognitive appraisal of the stressor—the evaluative process regarding the degree to which a stressor is viewed as posing a threat to the individual and the degree to which the individual holds an expectancy that he or she is capable of coping with it (Lazarus & Folkman, 1984). This means that due to individual differences among parents' cognitive appraisals, different parents may experience markedly different degrees of stress from the same parenting related stressor. For instance, whereas one parent may perceive a child's tantrum behavior as the child's deliberate attempt to challenge and undermine the parent's authority, and thus will experience a high degree of parenting stress, another parent may perceive the same tantrum behavior as a normal process of the child's emotional development and will experience relatively less parenting stress.

Prior studies that have investigated parenting stress have linked it with a variety of variables, which can be categorized into three distinct domains from which parenting stress may arise, namely, the *parent domain*, *child domain*, and *parent-child relationship domain* (Deater-Deckard, 2004). Before proceeding to describe the specific variables in each domain that have been found to be associated with parenting stress, it is important to note that while these three domains may be distinguishable from each other, they are not independent. They are inevitably interrelated, and their influences on parenting stress are often bidirectional or cyclical because the family system involves a complex network of interactions among individual family members, subsystems consisting of certain members (e.g., parental subsystem, sibling subsystem), and the social/physical environment in which the family exists (e.g., cultural community, education system,

parents' jobs outside the home) (Whitchurch & Constantince, 1993). As described in more detail in the following sections, many of the variables found to be associated with parenting stress in prior studies can easily be both the cause and the consequence of parenting stress, with the exception of more exogenous variables such as poverty, military deployment, and loss of social support due to moving; these conditions can certainly be stressors that can potentially cause parenting stress, but it is highly unlikely that the direction of causality can be reversed.

Parent domain. There is slight variation in the body of literature in regard to what variables should be included in the parent domain. Although there is agreement that internal factors such as a parent's mental health should be included in this domain, some scholars have also included variables that are more external and contextual, such as the parent's social support network and marital relationship (Abidin, 1995; Deater-Deckard, 2004), whereas others have classified these more external variables as a separate domain (Belsky, 1984; Crnic & Low, 2002). The following literature review regarding the parent domain applies the broader approach and includes the more external and contextual factors in the parent domain as well. The variables chosen here for detailed review are presented in order from those that are more internal to those that are more external/contextual.

Mental health. By far the most studied area in the parent domain of parenting stress is the parent's mental health. In particular, the association between postnatal depression in postpartum mothers and their parenting stress has been the primary focus of prior studies. These studies show that mothers who are experiencing postpartum depression report higher levels of parenting stress compared to those who are not

experiencing postpartum depression (e.g., Cornish et al., 2006; Jeannette Milgrom, Ericksen, McCarthy, & Gemmill, 2006; J. Milgrom & McCloud, 1996; Pritchard et al., 2012; Reck, Zietlow, Müller, & Dubber, 2016). This association is expected due to the fact that mothers with postpartum depression are likely to show increases in irritability and negative thoughts, while having low tolerance for frustration (Cornish et al., 2006; Milgrom & McCloud, 1996). Cornish et al. (2006) specifically investigated whether different durations of depression would be associated with different degrees of parenting stress. Using a sample of 112 postpartum mothers in Australia, the researchers measured the mothers' depressive symptoms through diagnostic interviews at 4 months and 12 months postpartum. Subsequently, the mothers were categorized into three groups depending on their duration of depression: never depressed, briefly depressed (clinically significant depressive symptoms at 4 months but not at 12 months), and chronically depressed (clinically significant depressive symptoms at both 4 months and 12 months). Parenting stress was measured at 15 months postpartum, and the results showed that the three groups had significantly different levels of parenting stress from each other, with never depressed mothers reporting the lowest levels of parenting stress and chronically depressed mothers reporting the highest levels (Cornish et al., 2006).

In an attempt to investigate whether the association between depressive symptoms in mothers and their parenting stress is bidirectional or unidirectional, Thomason et al. (2014) compared different structural models using data collected from 105 mothers in the U.S. at three time points (3, 7, and 14 months after birth). In this study, the data-model fit was compared among three competing models—a crosslagged bidirectional model that hypothesized depressive symptoms predicting parenting stress in the subsequent time

point and visa versa (i.e., mutual influence across time), a crosslagged unidirectional model in which parenting stress predicted depressive symptoms across time, and another unidirectional model where depressive symptoms predicted parenting stress across time. The results showed that the model with unidirectional paths in which parenting stress predicts depressive symptoms showed the best fit, although the overall fit for that model was only acceptable and not good (RMSEA = .08 [.00, .14], CFI = .97; Thomason et al., 2014). Unfortunately, data-model fit statistics for the competing models were not reported, making it unclear whether the bidirectional model was rejected because it did not show good fit or simply because the unidirectional model was more parsimonious.

In comparison to studies examining the relationship between mothers' postpartum depression and parenting stress, relatively few studies have looked at how fathers' parenting stress is associated with their postpartum mental health (e.g., Rolle et al., 2017; Vismara et al., 2016). In a cross-sectional study of 134 heterosexual couples in Italy who were 12 months postpartum, Rolle et al. (2017) tested a latent variable path model that hypothesized that mental health (a latent variable created from measures of depression and anxiety) would fully mediate the path from parenting stress to dyadic adjustment (couple relationship quality). The results showed that the model had good data-model fit for both mothers and fathers, thus illustrating how parenting stress can influence the mental health of both mothers and fathers and in turn the relational adjustment of the couple.

An additional area that has been relatively understudied is the mental health-parenting stress association in parents with older children, including adolescents. The findings from the limited studies that do exist are consistent with findings from studies

regarding parents of young children; i.e., the degree of parenting stress experienced by parents of older children is significantly associated with the parents' poorer mental health (Brown et al., 2018; Chouhan, Singh, & Kumar, 2016; Kwok & Wong, 2000; Shapiro & Stewart, 2011).

Alcohol consumption. Alcohol is by far the most easily accessible and socially acceptable substance and thus can have a broad impact on families (Deater-Deckard, 2004). Adults who enter parenthood with preexisting alcohol or other substance use disorders are considered to be at risk for experiencing higher degrees of parenting stress because alcohol use and other substance use disorders are often found to be associated with variables such as depression, childhood trauma, and experiencing dysfunctional parenting as a child (Bailey, Webster, Baker, & Kavanagh, 2012; Deater-Deckard, 2004; Mandavia, Robinson, Bradley, Ressler, & Powers, 2016). Although prior research regarding parenting stress and alcohol use of parents who are not struggling with or recovering from addiction has been limited, Pelham and Lang (1999) proposed a cyclical theoretical framework in which child behavior problems lead to parenting stress, parenting stress to parental drinking, and drinking to maladaptive parenting, which then feeds back into child behavior problems. Even though according to this framework alcohol consumption can be both a cause (indirectly) and a consequence of parenting stress, prior studies that investigated the association between parenting stress and alcohol consumption in the general population of parents have focused primarily on whether parenting stress could lead to alcohol consumption. Most noteworthy are the series of laboratory experiment studies conducted by Pelham and colleagues (Pelham, Johnston, Gelernter, & Lang, 1989; Pelham et al., 1997; Pelham et al., 1998). In the 1997 study, 60

parents (20 married couples and 20 single mothers) residing in Florida who had typically developing school aged children with no prior psychological disorders were asked to interact individually for 20 minutes with one of four children (ages 10-12) who had been trained by the researchers. The children were taught to be either a “normal child” or a “deviant child (exhibiting hyperactive, noncompliant, and oppositional behaviors).” After the initial interaction with a trained child, each parent was falsely told that he or she would be interacting with the same child a second time after a break during which alcoholic beverages were provided. The results showed that parents who interacted with a deviant child had significantly elevated levels of distress and consumed greater amounts of alcohol compared to parents who interacted with a non-deviant child (Pelham et al., 1997). The same team of researchers attempted to replicate that study with a sample of parents who had children with ADHD, but in this latter study parents who interacted with a deviant child consumed more alcohol only when they also reported having grown up in a family with alcohol problems (Pelham et al., 1998).

As demonstrated in the Pelham et al. (1998) study, there may be other variables that influence the link between parenting stress and alcohol consumption. Whereas family of origin drinking history was identified by Pelham et al. (1998), other studies have found other variables that influence the association between externalizing child behavior and parent alcohol consumption, such as parents’ available social support (Handley & Chassin, 2008) and their trait anxiety and depression symptoms (Kashdan, Adams, Kleiman, Pelham, & Lang, 2013).

In constrast to the studies by Pelham and colleagues that examined overall alcohol consumption, Pagani and Fitzpatrick (2018) investigated the link between negative child

behavior and parents' episodes of consuming five or more drinks on one occasion, through a longitudinal study. Within a sample of 628 Canadian mothers, the findings showed that child's externalizing behavior at 41 months significantly predicted the mothers' annual frequency of consuming five or more drinks in a single occasion when the child was 60 months old, while controlling for the mothers' previous drinking behavior (Pagani & Fitzpatrick, 2018). Although parenting stress was not explicitly measured and included as a variable in the study, the authors implied that it was a motivating factor for drinking, in accordance with Pelham and Lang's (1999) framework. Studies conducted by Pelham et al. (1997, 1998) and Pagani and Fitzpatrick (2018) suggest the need to examine different patterns of alcohol use when investigating its connection with parenting stress. Also, these studies suggest that alcohol use should be included as an outcome variable rather than a predictor of parenting stress, as it was in the present study.

Race/Ethnicity. While a person's race is typically considered a characteristic of the individual, it undeniably has a societal aspect to it as well and is best understood as a social construct than a biological one (Jones, 2000; Jones et al., 2008). In the U.S. in particular, there may be differences in parenting stress depending on the parent's race, not because parents of a certain race are more capable parents than those of another race, but rather because race is associated with the presence or absence of various resources that can assist parents in coping with demands of parenting. Findings from Cardoso, Padilla, and Sampson's (2010) secondary data analysis of the Fragile Families and Child Wellbeing Study (Reichman, Teitler, Garfinkel, & McLanahan, 2001) showed that there were significant group differences in parenting stress when comparing mothers who are

Mexican American, White, and Black. Specifically, although there was no significant difference between Mexican American mothers and White mothers, Black mothers experienced significantly greater parenting stress than the other two groups. The study also found that variables that significantly predicted parenting stress for White and Black mothers, such as the mother's depressive symptoms, lower partner support, and lower education (less than high school diploma or GED), were not significant for Mexican American mothers. Only lower social support and more difficult child temperament (cries often, gets easily upset, reacts intensely when upset) were significant predictors of parenting stress for Mexican American mothers.

Another study looking at racial/ethnic differences in parenting stress analyzed a sample of 11,324 mothers from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K). Nomaguchi and House (2013) found that compared to U.S.-born White mothers, U.S.-born Black, foreign-born Hispanic, and foreign-born Asian American mothers experienced more parenting stress. However, this study also showed that the degrees of parenting stress experienced by U.S.-born Hispanic and Asian American mothers were not significantly different from that of U.S.-born White mothers, indicating that nativity status may potentially confound the association between the parent's race/ethnicity and parenting stress. Nativity status can influence the degree of parenting stress due to foreign-born parents' lower proficiency in English, which leads to less access to resources and better employment, while simultaneously acculturation gaps between foreign-born parents and their child may become an additional source of parenting stress (Nomaguchi & House, 2013). Another recent study (Nam, Wikoff, & Sherraden, 2015) that analyzed data from 2,626 mothers of infants in Oklahoma found

that Black and Hispanic mothers experienced more parenting stress than White mothers, whereas there was no signficant difference between White and Native American mothers. Detailed decomposition analyses showed that differences in social support explained a signficant proportion of the overall parenting stress differences between both White-Black and White-Hispanic mothers. Also, depression symptoms were significant for explaining the White-Black parenting stress difference only, whereas nativity status was signficant only for the White-Hispanic difference (Nam et al., 2015). The three studies regarding racial/ethnic differences in parenting stress in mothers show that while there are common factors such as lower social support that may lead to greater parenting stress for racial/ethnic minorities in U.S., there are other factors that affect some racial/ethnic groups but not others. Also, foreign-born Hispanic and Asian American mothers seem to be at a greater risk for experiencing elevated degrees of parenting stress.

Family structure. Other variables in the parent domain include those regarding the structure or the change in structure of the family. For instance, stepparents have been found to report significantly greater parenting stress than biological parents (Shapiro, 2014; Shapiro & Stewart, 2011) and the process of military deployment (pre-deployment, deployment, and post-deployment readjustment) can also influence parenting stress (Kelley, Herzog-Simmer, & Harris, 1994; Louie & Cromer, 2014; Lowe, Adams, Browne, & Hinkle, 2012; Yablonsky, Guofen, Bullock, & Yan, 2016). Additionally, when considering that parents who are married or cohabiting with a partner have a source of social support in their partner and can pool resources to meet the demands of parenting, it is not surprising that studies have found that parents who are married/cohabiting experience less parenting stress than those who are single parents (Anderson, 2008;

Copeland & Harbaugh, 2005; Mullins et al., 2011; Parkes, Sweeting, & Wight, 2015). A study by Cooper, McLanahan, Meadows, and Brooks-Gunn (2009) investigated how maternal parenting stress varied among mothers who experienced different transition paths in terms of family structure during a five year period. Secondary data analysis was conducted with a sample of 4,176 U.S. mothers (collected from 20 major U.S. cities) from the Fragile Families and Child Wellbeing Study (Reichman et al., 2001). The findings showed that mothers who cohabited with the biological father throughout the five year period showed the lowest degrees of parenting stress compared to those who exited the cohabiting relationship, exited cohabitation with the biological father and formed a stepfamily, or remained single mothers throughout the five year period (Cooper et al., 2009).

Poverty/SES. Parents who are experiencing poverty are likely to encounter an imbalance between demands regarding parenting and available resources to meet those demands, leading to an increase in parenting stress (Cassells & Evans, 2017). Whereas some studies have been focused specifically on differences in parenting stress associated with poverty status and other SES related variables such as family income and parent's level of education (e.g., Foucault & Schneider, 2009; Parkes, Sweeting, & Wight, 2015; Popp, Delgado, & Wheeler, 2018; Spijkers, Jansen, & Reijneveld, 2012), a far greater number of studies have only controlled for such variables in their analyses. In studies that did control for SES related variables, given that the results are provided (which is not always the case), it is common that these variables have a significant negative association with degree of parenting stress (e.g., Anderson, 2008; Nomaguchi & House, 2013; McKay, Pickens, & Stewart, 1996). Poverty and other SES related variables are also

complex, due to the fact that they are closely associated with other demographic characteristics, such as race, marital status, and age. For example, according to the most recent 5-year estimates (2012 – 2016) from the American Community Survey[4] (U.S. Census, 2016), among married-couple families with children under 18 years of age, 7.9% live below the federal poverty level, whereas 39.7% of families with children headed by single mothers live in poverty. Also in the U.S., 22.3% and 20.9% of families in which the head of the household is Black or Latino, repectively, live below the poverty level, in contrast to 6.9% of familes headed by a person who is White.

Child domain. The vast majority of prior research regarding parenting stress has investigated the association between parenting stress and variables in the child domain[5]. The variables within the child domain that have been the primary foci of prior studies are those regarding the child's physical/mental health conditions and externalizing behaviors (often times in connection with mental health conditions such as attention deficit hyperactivity disorder). Numerous studies have found that parents who have a child with a physical or mental health condition tend to experience higher degrees of parenting stress compared to parents whose children do not have these conditions such as attention deficit hyperactivity disorder (ADHD; Wiener, Biondic, Grimbos, & Herbert, 2016), autism spectrum disorder (Hutchison, Feder, Abar, & Winsler, 2016), heart defects (Sarajuuri, Lönnqvist, Schmitt, Almqvist, & Jokinen, 2012), brain tumors (An, Song, Sung, & Joung, 2011), asthma (Carson & Schauer, 1992), and allergic rhinitis (Kim et al., 2017). In regard to child externalizing behaviors and parenting stress, findings from

[4] Unlike the decennial U.S. Census, the American Community Survey utilizes multistage cluster sampling methods to generate nationally representative estimates of various social aspects (e.g., education, housing, and jobs) annually, using a sample of approximately 3 million people.

[5] However, due to the child domain not being the main area of focus in the present study, review of prior studies in the child domain has been kept concise.

recent studies suggest that the influence between these two variables is bi-directional over time rather than one variable simply being a cause and the other a consequence (Mackler et al., 2015; Neece, Green, & Baker, 2012).

Transitional periods during normative child development can also be a potential source of parenting stress, particularly during adolescence. Adolescence is distinct in terms of the child's individual development because of significant changes that occur biologically, cognitively, and socially (Steinberg, 2017). These changes in the child may lead to challenges for parents as they need to adapt their method of parenting accordingly. For example, as children develop cognitively during adolescence they can begin to question their parents' values and rules, considering them to be relative rather than something absolute. Ideally, parents need to acknowledge the cognitive development occuring in their child's brain and be willing to discuss matters more openly with the child and include them in some decision making processes regarding the family. Failure to do so can lead to elevated levels of parent-child conflict and parenting stress. Given that adolescents are considered the more vulnerable population compared to their parents, it is not surprising that the research regarding the adolescent period has almost been exclusively focused on various outcomes and wellbeing of adolescents. As mentioned earlier, even studies regarding parenting stress have not focused on stress experienced by parents as a function of interacting with normatively developing adolescent children, even though adolescence is an important transition period for parents as well as the children themselves (Peterson, 2017).

Parent-child relationship domain. Among the three domains of parenting stress, the parent-child relationship domain has been the most understudied. In one of the first

studies to investigate the association between parent-child relationships and parenting stress, McKay, Pickens, and Stewart (1996) utilized an observational coding system to code structured interactions of 46 U.S. parent-child dyads (child's age ranging from 3 to 14 years old) in order to investigate the association between parent-child interaction quality and parenting stress. Findings showed that degree of parenting stress was significantly associated with behavioral indices of relationship quality, in that parents who reported greater parenting stress had lower quality parent-child interactions (e.g., greater use of harsh words, criticizing rather than encouraging, less eye contact with the child, more negative facial expressions) with their child (McKay et al., 1996). Another study using 369 Dutch parent-adolescent dyads (Seginer, Vermulst, & Gerris, 2002) found that parents' reported parenting stress was negatively associated with adolescents' reports of postive parent-child relationship quality (a latent variable created from three indicator variables: postive parent-child communication, parent-child attachment, and negative feelings in parent-child communication).

In a more recent study, Ponnet et al. (2013) investigated how parenting stress is associated with open parent-child communication for both fathers and mothers, with degree of openness in parent-child communication defined by criteria such as how easy it is for the child to express feelings to the parent (Barnes & Olson, 1985). Using a sample of 196 Belgian families that consisted of a married heterosexual couple and one child aged 10 to 18 years old, the study investigated how mother's/father's parenting stress was associated with mother-child/father-child open communication (a latent variable created from the child's report and the relevant parent's report regarding open parent-child communication) and how one parent's parenting stress may be associated with the other

parent's open communication with the child. While an individual parent's parenting stress was not associated with the other partner's open communication with the child, both mother's and father's parenting stress were negatively associated with their own open communication with their child, and there were no significant gender differences in terms of path coefficients for these pathways (Ponnet et al., 2013).

Most recently, a study by Garcia, Ren, Esteraich, and Raikes (2017) that used a sample of 236 U.S. parents of toddlers from low income families found that parenting stress significantly predicted parent-child conflict, both for those who were foreign-born and U.S. born. It should be noted that although all of the above studies regarding parenting stress in the parent-child relationship domain were conducted with cross sectional data, and thus the direction of the associations suggested by these studies are purely hypothetical, all of the researchers for the aforementioned studies conceptualized parenting stress as an antecedent to parent-child conflict. However, given the systemic nature of parent-child interactions, it is reasonable to assume that parent-child conflict can also be an important source of parenting stress, and it was examined as such in the present study.

Experiences of Latino Parents

Although the early body of research regarding parenting stress and its correlates was limited to samples of parents in the U.S., the samples used in this area of study have begun to be more diverse in terms of nationalities; for example, Italy (Rollè et al., 2017), Australia (Cornish et al., 2006), India (Chouhan, Singh, & Kumar, 2016), Dominican Republic (Foucault & Schneider, 2009), South Korea (Kim et al., 2017), and Singapore (Lai, Goh, Oei, & Sung, 2015). However, among parenting stress studies conducted in

the U.S., a high percentage of study samples consist of majority White parents. Although it is reasonable to assume that there are common experiences and challenges of being a parent regardless of race and ethnicity (Crnic & Low, 2002), several studies have demonstrated that there may be unique aspects regarding parenting stress among racial/ethnic groups (e.g., Nam, Wikoff, & Sherraden, 2015; Nomaguchi & House, 2013). Thus, further study regarding the potentially unique resources, strengths, and challenges of parents who are members of racial/ethnic minority groups is indeed warranted.

Among the racial/ethnic minority groups in the U.S., the largest group is Latinos. Latinos consists of more than 19 different ethnicities (or country of origin groups), among which Mexican Americans (63.2%; 11.2% of the total U.S. population), Puerto Ricans (9.5%), and Cuban Americans (3.9%) are the three largest groups. In the U.S. overall, Latinos make up 17.8% of the population and 15% of all U.S. families[6] (U.S. Census, 2016). The proportion of Latinos is larger among children (17 years old or younger), where one in four U.S. children are now Latino (Annie Casey Foundation, 2016).

Resources of Latino parents. Although the overall population of Latinos consists of a diverse group of people whose countries of origin each have a unique culture and history, there are common cultural values that can be potential resources for Latino parents (Garcia-Preto, 2005). For instance, the emphasis on family interdependence (also known as familismo) extends beyond the typical nuclear family and blood-related relatives to those who share close relationships with family members, and this family interdependence continues after the children become young adults and

[6] The U.S. Census Bureau defines family as, "… a group of two people or more (one of whom is the householder) related by birth, marriage, or adoption and residing together; all such people (including related subfamily members) are considered as members of one family." (https://www.census.gov)

form their own families (Lopez-Baez, 2006). This form of broad and continuous interdependent family network can be a significant source of support for Latino parents. In a study of 737 Mexican American parents (59% female) who were either married or cohabiting with an intimate partner, there was a significant indirect effect from degree of emotional support that parents reported receiving from their mothers to their level of parenting stress, mediated by their level of parenting satisfaction. Specifically, more emotional support from the parent's mother was associated with greater parenting satisfaction, which in turn was associated with less parenting stress (Popp et al., 2018). Although this mediation effect was supported for both female and male parents, other forms of support such as emotional support from one's intimate partner were not significant, illustrating that sources of family support that help reduce parenting stress in Latino parents can come from extended family.

Another factor contributing to family support is that the majority of U.S. Latino families (62.8%) consist of married-couple families (U.S. Census, 2016), and divorce rates are low, particularly among Latinos who are foreign-born (Raley, Sweeney, & Wondra, 2015). This can be a potential resilience factor for Latino parents due to the fact that, as previously mentioned, numerous studies have found family structure to be associated with the degree of parenting stress, in that single parents and stepparents experience greater parenting stress than married/cohabiting biological parents.

The lower levels of alcohol consumption found in samples of Latino adults can also be a resource, because, as discussed earlier, alcohol consumption has been shown to be positively associated with parenting stress (while possible moderating variables exist). According to the results from the most recent National Survey on Drug Use and Health

(NSDUH; Substance Abuse and Mental Health Services Administration, 2017), Latino adults consume less alcohol than non-Hispanic Whites. More specifically, among adults aged 21 and older, 60.8% of those who are Non-Hispanic White report consuming at least one drink of alcohol in the past month compared to 48.8% of Latino adults. The differences are more marked when comparing across gender and race, where 56.7% of non-Hispanic White females and 39.6% of Latino females reported consuming alcohol in the past month, compared to 65.2% of non-Hispanic White males and 58.3% of Latino males. Findings from Pearson, Dube, Nelson, and Caetano's (2009) secondary data analysis of the Centers for Disease Control and Prevention's 2005 Behavioral Risk Factor Surveillance System (BRFSS) telephone survey data have suggested that acculturation may be a factor that creates within-group differences regarding alcohol consumption among Latino adults. In that study, Pearson et al. (2009) compared Latino males and females who chose to take the survey in Spanish with those who chose to take it in English. The results showed that among both females and males, a significantly greater proportion of those who chose to be interviewed in English had consumed at least one drink of alcohol in the past month in comparison to those who chose Spanish, with the differences being more striking among females (46.2% vs. 18.3%) than males (62.6% vs. 53.6%). Also, females who chose English were more likely than females who chose Spanish to report drinking more than 4/5 drinks (4 drinks for females and 5 for males) in a single occasion at least once in the past month, but this relationship was not found among Latino males. These findings suggest that being less acculturated to mainstream U.S. culture may be associated with lower alcohol consumption for Latino adults, and the effect may be greater for females in particular (Pearson et al., 2009). Also, the study by

Pearson and colleagues (2009) reiterates the need to measure alcohol use in various ways (e.g., had at least one drink of alcohol in the past month or not, had 4/5 drinks in single occasion or not) when including it as a study variable.

Additionally, having good mental health is an important resource for parenting. According to nationally representative data regarding mental disorder prevalence in the U.S. (the National Comorbidity Survey Replication and National Latino and Asian American Study), Latino adults had a lower lifetime prevalence of mental disorders (e.g., depressive disorders, anxiety disorders, substance use disorders) compared to non-Latino White adults (Alegría et al., 2008). Among Latinos, the so called "immigrant paradox" (i.e., foreign-born Latinos having better health than their U.S.-born counterparts) was also evident; for all categories of mental disorders (i.e., depression, anxiety, substance use, and any mental disorders), Latino adults who were born outside the U.S. had significantly lower prevalence rates when compared to those who were U.S.-born (Alegría et al., 2008).

Potential challenges to parenting. As discussed previously, poverty disproportionately affects racial/ethnic minorities in the U.S. Therefore, particularly among Latino parents who are under financial strain, the poverty and lack of various resources that typically accompany it may place these parents at greater risk for elevated levels of parenting stress. White, Roosa, Weaver, and Nair (2009) conducted a study with 570 two-parent Mexican American families with a fifth grade child that illustrates this possible dynamic. The study tested a latent variable model that hypothesized that parents' greater sense of neighborhood danger, economic hardship, and pressure due to limited English competency would lead to more depression symptoms, which in turn would be negatively associated with aspects of parenting, namely parental warmth expressed to the

child and consistent discipline. The results showed that economic hardship had a significant indirect effect in the hypothesized direction on both aspects of parenting, via the parent's depression symptoms, for both mothers and fathers alike, whereas the indirect effect of sense of neighborhood danger to the two aspects of parenting via depressive symptoms was only significant for fathers (White et al., 2009). This study did not include a separate variable of parenting stress within the model, as the hypothesized model was based on the family stress model of economic pressure (Conger et al., 2002). Although the family stress model posits that economic pressure that stems from low income and negative financial events leads to greater depressed mood in the parents and eventually has a negative impact on parenting behavior and child adjustment, it can be assumed that parenting stress is an implied factor in this process (Cassells & Evans, 2017).

Immigration status may also be a potential challenge affecting Latino parents, as unauthorized immigration status has been found to be closely related with other socioeconomic disadvantages such as lower levels of education and higher rates of poverty (Passel & Cohn, 2009). Among the estimated 11.2 million unauthorized immigrants in the U.S., 78.8% are from Latin American countries, especially Mexico (52.4%), albeit the share from Mexico has been on a steady decline while numbers of unauthorized immigrants from other regions such as Central American and Asia are increasing (Passel & Cohn, 2017; Passel & Cohn, 2014). Although a conceptual framework regarding the impact of unauthorized immigrant status on the various aspects of family functioning (including parenting stress) has been proposed (Yoshikawa & Kalil, 2011), most studies in this area to date have been focused on child outcomes (e.g.,

Brabeck, Sibley, Taubin, & Murcia, 2016; Rojas-Flores, Clements, Hwang Koo, & London, 2017). Regarding parenting stress, Brabeck, Sibley, and Lykes (2016) found that in a sample of 178 immigrant parents from Mexico, the Dominican Republic, or Central America who had a U.S. born child aged 7-10 years old, parents who were more legally vulnerable (due to unauthorized immigration related matters) reported greater work-related stress and discrimination than parents who had lower legal vulnerability, but there were no significant differences in terms of marital stress or parenting stress.

In sum, although Latino parents may face potential challenges, they also have resources stemming from a support system that extends beyond the nuclear family and lower divorce rates compared to White couples. However, research on parenting stress in Latino families has been limited, and more studies are needed.

Latino Parents of Early Adolescents

In the past, based on clinical samples and observations, adolescence commonly was once assumed to be a turbulent period of "storm and stress" for most families, but this misconception has since been disconfirmed (Steinberg, 2001). However, although it may not be the "storm and stress" period that it was once thought to be, adolescence is still a distinct phase of child development that brings significant changes to the adolescent as an individual and also can be challenging for the parents as they need to adjust their parenting beliefs and behavior to accommodate the adolescent's developmental changes (Peterson, 2017; Steinberg, 2017). In general, parent-child conflict has been found to be higher during early adolescence and then gradually subside through late adolescence (De Goede, Branje, & Meeus, 2009; Laursen, Coy, & Collins, 1998; Van Lissa et al., 2015). Furthermore, a study by Fuligni (1998) investigated

whether there were differences in parent-early adolescent conflict among ethnic groups (Mexican American, Chinese American, and White) and found that there were no differences in the degree of parent-child conflict and family cohesion across ethnic groups and child nativity status (U.S. born vs. non-U.S. born). This suggests that despite the fact that ethnic minority families have additional challenges such as acculturation gaps between parents and children, parent-child conflict during early adolescence is not particularly higher in ethnic minority families compared to White families.

Numerous studies have investigated how parent-child conflict may influence various mental and physical health outcomes in Latino adolescents. For example, greater parent-child conflict has been found to be associated with greater substance use (Buchanan & Smokowski, 2009), more depressive symptoms (Huq, Stein, & Gonzalez, 2016), lower self-esteem (Li & Warner, 2015), and greater probability of attempting suicide (Kuhlberg, Peña, & Zayas, 2010) in Latino adolescents. However, studies regarding parent-adolescent relationships, regardless of race and ethnicity, have solely focused on how these relationships affect adolescent well-being, and minimal attention has been given to parent outcomes. This trend is also evident in the existing research on Latino parent-adolescent relationships. Given that early adolescence is the beginning of the transition from childhood to adolescence and the period when parent-child conflict is most likely to increase, increasing knowledge about how parent-child conflict may influence the well-being of Latino parents in this period is an important gap to address.

Summary of Literature Review

This review of literature regarding parenting stress illustrated the numerous variables that can potentially affect and/or be affected by parenting stress, while also

focusing on the potential resources of Latino parents and the challenges that they may experience. In sum, greater degrees of parenting stress have been found to be associated with more negative mental health functioning, more alcohol consumption, family structures that do not consist of two biological parents, family poverty, the existence of children's physical/mental disorders, and lower quality of the parent-child relationship. Whereas variables such as non-two-parent family structure and poverty can only be seen as risk factors for elevated parenting stress, other variables such as negative mental health functioning, more alcohol consumption, and parent-child conflict can theoretically be both a risk factor and a consequence of parenting stress. The present study focused on parent-adolescent conflict as a risk factor for parenting stress, and on negative mental health functioning and alcohol use as potential consequences of parenting stress.

In addition, this review revealed several areas that have been relatively less studied. First, relatively fewer studies have focused on the potential influence of parenting stress on the parent's well-being among parents with older children (e.g., adolescents). Second, little is known regarding how parent-child conflict, a source of parenting stress, affects the parents' individual well-being. Third, few studies regarding parenting stress have focused on Latino parents and potential resources they can draw on to cope with parenting stress. Lastly, the vast majority of parenting stress studies has been conducted with cross-sectional data, thus providing limited understanding regarding changes across time in parenting stress and related variables. The present study addressed those limitations of prior studies.

Theoretical Framework: Family Systems Theory

The fundamental principles of family systems theory were derived from the study of general systems theory. General systems theory defines a system as "sets of elements standing in interrelations" (Bertalanffy, 1968, p. 38). Systems pertaining to living organisms are further described as open systems as they do not exist in isolation from the environment but are in constant interaction with the environment, all the while maintaining the interrelation of elements within the system itself. General systems theory also draws on the study of cybernetics (the study of the communication of information within self-regulating machines) in order to explain the exchange of information within open systems and the use of feedback loops to create and maintain a steady state (Bertalanffy, 1968). This exchange of information is a natural result of the interactions among a system's elements, and it is this interaction process that becomes a unique characteristic of the system itself, a characteristic that would otherwise not be observable if the elements were to be studied separately (often described as "the whole is more than the sum of parts"). Hence, in order to truly understand a system, one must not only study the individual elements that make up the system but also the relations among the elements (Bertalanffy, 1968).

Family systems theory applies general systems theory to the context of families where the "elements in interrelation" are the individual family members. Individual family members form distinct sets of interactions with other members, forming various subsystems within the larger family system based on particular functions, roles, or characteristics; for example, the couple subsystem, sibling subsystem, and parent/child subsystem (Whitchurch & Constantince, 1993). Because the family is a dynamic web of

interactions among individual family members and the subsystems they create, any change that occurs within an individual or a subsystem of the family is likely to affect other family members and the family system as a whole. The origin of change can come from various levels, such as the individual level (e.g., one parent develops a severe health condition), subsystem level (e.g., marital conflict also affects the partners' parenting), system level (e.g., the family moves to another part of the country, away from their extended family support), and suprasystem level (e.g., national and local policy changes that affect family life, changes in community relations between racial/ethnic groups, natural disasters).

Regardless of its origin, change can disrupt the family system's steady state or homeostasis and bring a temporary state of disturbance to the system. In the face of this disturbance, members of a family may attempt to restore the system to the previous state of homeostasis, or in other words return to "the way things were" (e.g., parents attempt to reign in an adolescent's recent rebellious behavior by using coercive discipline), or they may attempt to amplify the deviation from the prior state of homoeostasis and thus move the system to a new steady state (e.g., family members take on more household chores in order to accommodate the change induced by a parent recently going back to work after years of focusing on raising the children).

Needless to say, in reality, the whole process from conditions exerting change, the resulting disturbance of homeostasis, and family members' attempts to either attenuate or amplify the disturbance does not occur in a neat linear fashion, although describing it as such definitely has heuristic value. This is because family members and the subsystems they form are constantly engaging in the process of communicating with

other members of the family system (whether verbally or non-verbally) while receiving and processing information coming from other members and then using this new information to adjust their subsequent attempts at communication.

Given the continuous interaction and exchange of information that occurs within the family system, it is important to consider how best to capture this dynamic in terms of research design and statistical analysis. It was pointed out in the prior section that the fact that the vast majority of studies in the area of parenting stress were conducted with cross-sectional data was a limitation. However, this does not necessarily mean that simply using longitudinal data will more clearly capture the systemic nature of the family; a more important issue is *how* longitudinal data are used in terms of statistical analysis. Cross-lagged analysis, which typically has been used in parenting stress studies utilizing longitudinal data, may not sufficiently capture the dynamic interrelations among the family variables (Almeida, Wethington, & Chandler, 1999) and how the actual changes in these variables are interrelated, because those studies commonly rely on measurement of variables that are at least one year apart, and cross-lagged analysis does not use the information regarding actual change in variables across time but rather the covariation of variables between distinct time points.

Thus, guided by the family systems framework, the present study investigated how *change* at the subsystem or relational level (the degrees of parent-child conflict and parenting stress) influences *change* at the individual level (psychological distress and alcohol consumption) in a sample of Latino parents. In order to best capture the systemic nature of the family, it was necessary to utilize a statistical method that used information regarding *change* in variables across time.

Research Hypotheses

The primary objective of this study was to test a conceptual model (see Figure 1) that depicted change across time (i.e., over 4 months and 10 months) in systemic/relational variables (parent-child conflict and parenting stress) influencing individual level variables (parent's psychological distress and alcohol use) in the context of Latino families. Informed by previously reviewed studies investigating alcohol use, alcohol use was measured in two different ways— number of days in which the parent had at least one drink during the past 30 days (alcohol use type 1) and number of times the parent had at least five/four drinks (five for males, four for females) on a single occasion during the past 30 days (alcohol use type 2). The conceptual model of the present study is a full mediation model in which the effect of change in parent-child conflict on the outcome variables goes through change in parenting stress. This model can be decomposed into the research hypotheses listed below. In addition to the research hypotheses, for each time period, the full mediation model shown in Figure 1 was compared with a partial mediation model, a model in which direct effects from change in parent-child conflict to the three outcome variables (psychological distress, alcohol use 1 and alcohol use 2) are included (see Figure 2) in order to assess which model explains the data more effectively.

Hypothesis 1: Over a period of 4 months, change in degree of parent-child conflict will be significantly associated with change in parenting stress in a positive direction.

Hypothesis 2: Over a period of 4 months, change in degree of parenting stress will be significantly associated with change in the parent's

psychological distress in a positive direction.

Hypothesis 3: Over a period of 4 months, change in degree of parenting stress will be significantly associated with change in the number of days in which the parent had at least one drink during the past 30 days (alcohol use type 1), in a positive direction.

Hypothesis 4: Over a period of 4 months, change in degree of parenting stress will be significantly associated with change in the number of times the parent had at least five/four drinks (five for males, four for females) on a single occasion during the past 30 days (alcohol use type 2), in a positive direction.

Hypothesis 5: Over a period of 4 months, change in parenting stress will fully mediate the associations between change in parent-child conflict and the three outcome variables (change in psychological distress, change in alcohol use 1, and change in alcohol use 2).

Hypothesis 6: Over a period of 10 months, change in degree of parent-child conflict will be significantly associated with change in parenting stress in a positive direction.

Hypothesis 7: Over a period of 10 months, change in degree of parenting stress will be significantly associated with change in the parent's psychological distress in a positive direction.

Hypothesis 8: Over a period of 10 months, change in degree of parenting stress will be significantly associated with change in the number of days in which the parent had at least one drink during the past 30 days

(alcohol use type 1), in a positive direction.

Hypothesis 9: Over a period of 10 months, change in degree of parenting stress will be significantly associated with change in the number of times the parent had at least five/four drinks (five for males, four for females) on a single occasion during the past 30 days (alcohol use type 2), in a positive direction.

Hypothesis 10: Over a period of 10 months, change in parenting stress will fully mediate the associations between change in parent-child conflict and the three outcome variables (change in psychological distress, change in alcohol use 1, and change in alcohol use 2).

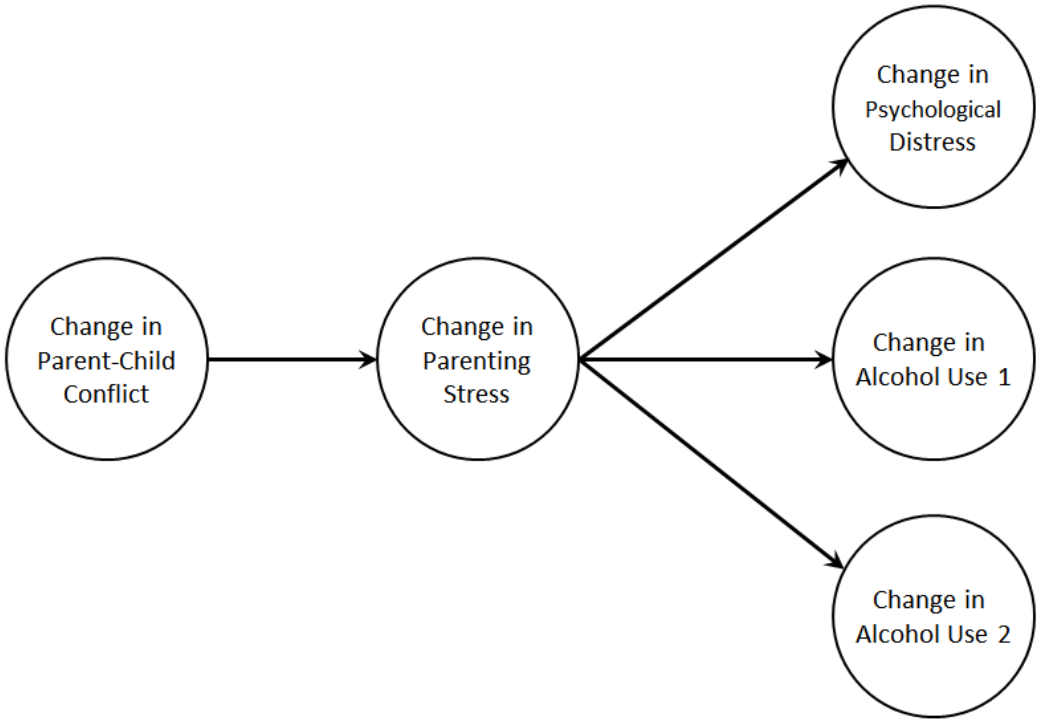

Figure 1. Conceptual model of the present study (full mediation model). Alcohol use 1 is the number of days the parent had at least one drink during the past 30 days and alcohol use 2 is the number of times the parent had at least five (males) or four (female) drinks on a single occasion during the past 30 days.

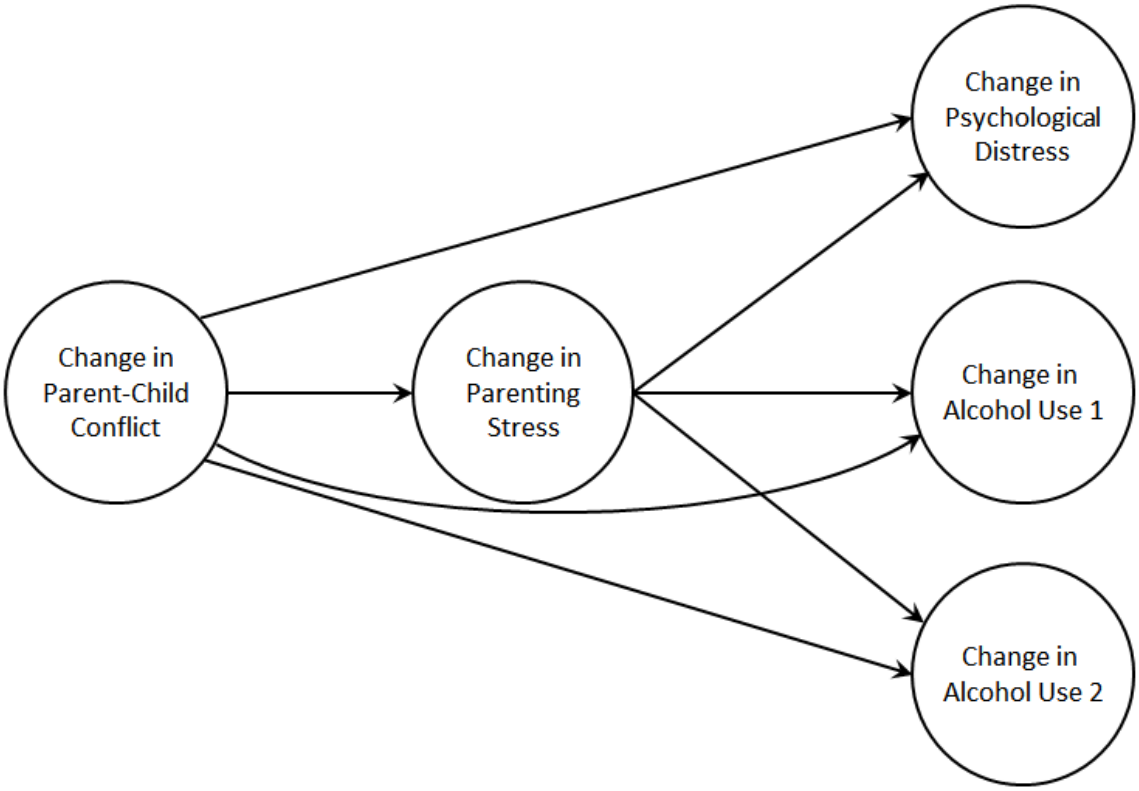

Figure 2. Partial mediation model that was compared with the full mediation model shown in Figure 1. Alcohol use 1 is the number of days the parent had at least one drink during the past 30 days and alcohol use 2 is the number of times the parent had at least five (males) or four (female) drinks on a single occasion during the past 30 days.

CHAPTER II. METHOD

Procedure

The secondary data used in the present study were collected through a community based participatory research (CBPR) family intervention study conducted in Minnesota between 2011 and 2015. The CBPR study, titled Padres Informados, Jóvenes Preparados (translation: Informed Parents, Prepared Young People; PIJP), initially began in 2008 with the development of an intervention curriculum for parents. The primary objective of the PIJP intervention was to prevent Latino youth substance use through strengthening parenting skills of the parents and communication skills of both parent and youth. As per CBPR principles, the intervention was designed through collaboration among university faculty, Latino community agencies, and an advisory board consisting of Latino parents of adolescents. The eight-session curriculum (each session was three hours, and four of the eight sessions included sessions for the child along with parent-child joint skill building at the end of these sessions) was developed over the course of two years and was then pilot tested in 2010. Seven community agencies (five in urban areas and two in more rural areas) that serve the local Latino community took part in the PIJP study. In order to be eligible for the study, the parent had to be born in a Latin American country, speak Spanish, and had not participated in the previous PIJP pilot study, and the child had to be between ages 10 to 14, speak English or Spanish, and identify as Latino/a. Additionally, all parents and children were required to not have any mental disorders that would hinder their participation in the study (Allen et al., 2012).

At each of the seven locations where PIJP was implemented, the recruited participants were randomly assigned to either an intervention group or a 6-month delayed

intervention group (control group). Prior to the control group receiving the intervention, data were collected for both groups at baseline (T1), post-intervention (T2; four months after T1), and a 6-month follow-up after intervention (T3; ten months after T1), using self-report surveys that were worded in both Spanish and English. The parents in the control group participated in the intervention after completing data collection at T3. Although the original goal of the PIJP was to prevent substance abuse among the adolescents in the sample's families, the repeated assessments of both the parents and the adolescents at the three time points resulted in substantial data regarding the parent-adolescent relationship and parental functioning as well. Those longitudinal data regarding various components of the family system made the present study possible.

Sample

Initially, at baseline, 392 parents were recruited for the PIJP study, and among these parents, 92 participated with their partner (46 couples). One person from each of these couples was randomly selected to be included in the sample of analysis for the present study. Additionally, two participants were excluded from the sample because they were born in the U.S. This resulted in a baseline sample of n = 344 (control group n = 171; intervention group n = 173). The baseline sample was 91.9% female, with a mean age of 38.1 years (SD = 6.2). All participants were either parents or those performing the role of a parent to the child (mean child age = 12.3 years old; SD = 1.4; range 9 – 15 years old) who also participated in the PIJP study. Specifically, 89.8% of those in the parenting role were mothers, 7.8% were fathers, and 2.3% had other relationships with the child (3 grandmothers, 3 aunts, 1 female guardian, and 1 male guardian). In terms of country of birth, 86.0% were born in Mexico, 6.4% were from Ecuador, 1.7% from El

Salvador, and 5.9% from other countries. A majority of the sample (68.3%) reported their highest level of education as high school/GED or higher, and a mean number of 2.78 children (SD = 1.16; range 1 to 7) were in the families. Regarding monthly family income, 34.6% reported earning less than $1,000, 41.6% reported $1,001–$2,000, 11.9% reported $2,001–$3,000, and 4.9% reported earning more than $3,000 per month. A comparison of the demographic characteristics of the control and intervention groups can be seen in Table 1.

Table 1. *Comparison of Demographic Characteristics between Control and Intervention Groups at Baseline (T1)*

	Control (*n* = 171)	Intervention (*n* = 173)
Gender (%)		
Female	91.2	92.5
Male	8.8	7.5
Age (SD)	37.9 (5.8)	38.2 (6.6)
Relationship to Child (%)		
Mother	88.3	91.3
Father	8.8	6.9
Other	2.9	1.8
Country of Birth (%)		
Mexico	88.3	83.8
Ecuador	5.3	7.5
El Salvador	2.3	1.2
Other	4.1	7.5
Highest Level of Education (%)		
Middle school or lower	32.1	25.4
High school/GED	45.6	52.6
Technical School	11.7	12.1
University	8.2	6.4
Number of Children in Family (SD)	2.8 (1.1)	2.8 (1.2)
Monthly Family Income (%)		
Less than $1,000	32.7	36.4
$1000–$2,000	45.0	38.2
$2,001–$3,000	11.1	12.7
More than $3,000	4.1	5.7

The overall sample attrition rate from T1 to T2 was 6.4% (93.6% of the original sample retained) and that from T1 to T3 was 17.2% (82.8% of the original sample retained). The differential attrition rate between control and intervention group was 0% from T1 to T2 and 2.7% from T1 to T3.

Measures

Parent-Child Conflict

Parent child conflict indicators were measured by the 10-item frequency assessment subscale from the Parent Adolescent Conflict Scale (PACS; Ruiz & Gonzales, 1998). The PACS was developed through qualitative interviews with families with children from diverse racial/ethnic backgrounds, namely, White, Black, Mexican American English speaking, and Mexican American Spanish speaking. The frequency assessment subscale, which assesses the frequency of general disagreements and conflicts between parent and child and is applicable to a wide range of ages, has been used in multiple studies with Mexican American families and has repeatedly shown good internal consistency (e.g., Deng et al., 2006; Roosa et al., 2005; Vargas, Roosa, Knight, & O'Donnell, 2013; Zeiders, Roosa, & Tein, 2011). Participants in the PIJP were instructed to answer how often the situation described in each item occurred in the past month with the child participating in the program. The items (e.g., “You and your child became very frustrated with each other”) were answered on a 5-point scale ranging from 1 (*Almost never or never*) to 5 (*Almost always or always*).

Parenting Stress

Parenting stress indicators were measured with the 18-item Parental Stress Scale (PSS; Berry & Jones, 1995). Eight items in the PSS reflect positive aspects of parenting

(e.g., “My child(ren) is an important source of affection for me”) and are reverse coded, whereas the remaining 10 items reflect negative aspects (e.g., “Having a child(ren) leaves little time and flexibility in my life”). All items are answered on a 5-point Likert-type scale ranging from 1 (Strongly disagree) to 5 (Strongly agree). Although there is very limited information regarding the internal consistency of the PSS specifically with Latino parents, Baker, Perilla, and Norris (2001) found a Spanish translated version of the PSS (with one item dropped) to have good internal consistency in a sample of 43 Latino couples (n = 86; α = .72). In addition, a few larger scale longitudinal studies (e.g., the National Longitudinal Study of Adolescent to Adult Health [Add Health]) have selected a subset of items from the original PSS to measure parenting stress, and these selected items have been shown to have good internal consistency with subsamples of Latino parents (Nam et al., 2015; Popp et al., 2018).

Psychological Distress

Psychological distress indicators were measured by the widely used 10-item Kessler Psychological Distress Scale (K10; Kessler et al., 2002). The PIJP study originally used the K10 as a measure of psychological well-being by reverse coding the K10 items. However, this raises questions of construct validity, as this is assuming that psychological distress and psychological well-being are simply opposite ends of a single construct. Using confirmatory factor analysis, studies have repeatedly found that although psychological distress and psychological well-being are negatively correlated they are two distinct factors (latent constructs) that are part of a higher-order construct of mental health (Massé et al., 1998; Renshaw & Bolognino, 2017; Veit & Ware, 1983). Thus, the decision was made to use the K10 to measure its intended construct of psychological

distress in the present study. The K10 asks respondents to report how often they felt the way each item describes (e.g., tired out for no good reason, nervous, hopeless) during the past 30 days, with response options ranging from 1 (*Never*) to 5 (*Always*). The K10 has been used in the National Latino and Asian American Study (NLAAS; Alegria et al., 2004) that consisted of a representative sample of Asian Americans and Latinos and has been shown to have good internal consistency within the Latino subsample ($\alpha = .92$; Rivera et al., 2008).

Alcohol Use

Alcohol use was measured by two distinct questions. The first question asked, "During the past 30 days, on how many days did you have at least one drink of alcohol?" (alcohol use 1) and participants were given seven response options: "0 days," "1 or 2 days," "between 3–5 days," "between 6–9 days," "between 10–19 days," "between 20–29 days," "every day." Because the intervals of the seven categories varied, the participants' responses were recoded into the median value of each category (i.e., 0, 1.5, 4, 7.5, 14.5, 24.5, and 30) in order to reflect the distance between the categories. The second question asked, "Considering all types of alcoholic beverages, how many times during the past 30 days did you have {5/4}(5 for men, 4 for women) or more drinks on a single occasion?" (alcohol use 2) and participants answered the question by directly reporting the number of times this occurred in the past 30 days.

Enculturation

Enculturation (adherence to aspects of one's heritage culture) was used as one of the control variables in the study and was measured by a subscale from the Mexican American Cultural Values Scale (MACVS; Knight et al., 2010). The MACVS consists of

50 items measuring mainstream cultural values and Mexican American cultural values. The PIJP study used 29 items from the Mexican American cultural values scale to measure the degree of adherence to Mexican American cultural values in the participants at baseline (T1). The items measure a wide range of topics such as traditional gender roles ("*A wife should always support her husband's decisions, even if she doesn't agree with him*"), respect ("*Children should never question their parents' decisions*"), religion ("*If everything is taken away, I still have my faith in God*"), and familism support ("*It is important to have close relationships with aunts/uncles, grandparents and cousins*"). The participants were asked to respond on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*). The sum of the item scores was used as the enculturation score for each participant, and the Cronbach's alpha for the 29 items in this study was .88.[7]

Overview of Analyses

Descriptive data analysis and exploratory factor analysis (EFA) were conducted using SPSS (ver. 20), intra-class correlation analysis was conducted with R (ver. 3.5.1), and all confirmatory factor analyses (CFA) and latent change analyses were conducted with Mplus (ver. 8.1). In all analyses conducted with Mplus, in order to adjust for possible multivariate non-normality in the data, maximum likelihood estimation with robust standard errors (MLR) was used[8]. Missing data were accounted for by using all available data to estimate the model parameters through the full-information maximum likelihood approach.

[7] Cronbach's alpha is only relevant for measures when the items in the measure are used as aggregate scores. Therefore the alpha value has been provided for the MACVS but not for any of the other measures in which the items were used as indicators for latent variables. The quality of the other measures was examined through factor analysis during the process of the main analysis.

[8] In MLR estimation, Satorra-Bentler corrections (Satorra & Bentler, 1994) are applied to model fit indices and parameter standard errors.

Due to the fact that the data were collected from seven different sites, a preliminary analysis was needed in order to assess how similar participants from the same sites were regarding the study variables. Intra-class correlation coefficients (ICC) were computed and, as detailed in the following section, necessary statistical adjustments were made prior to proceeding to the next step of analyses.

The main data analysis for the present study was conducted in five steps. In the first step, factor analyses were conducted for the measures of parent-child conflict, parenting stress, and psychological distress, using data at baseline (T1). This was to ensure that the items of each measure load onto the latent construct, thus justifying the use of the items to create the latent construct variable in the following steps of analysis. There was no existing information regarding the factor structure of the Parent Adolescent Conflict Scale (PACS; Ruiz & Gonzales, 1998), as there were no peer-reviewed papers published testing the psychometric properties of the measure. Also, the prior studies that have used the PACS have all used the measure to create a simple summed score variable, using it for regression analyses or measured variable path analyses. Therefore, a confirmatory factor analysis (CFA) for the PACS was warranted in order to confirm that all ten items in the measure load onto a single construct.

The 18-item Parental Stress Scale (PSS; Berry & Jones, 1995) was constructed to measure a single latent construct of parenting stress through a combination of items that either measure the positive aspects of parenting (and reverse coded) or negative aspects of parenting. However, the original article regarding the PSS did not present a clear subscale structure among the scale items. Results of the exploratory factor analysis (principal axis factor analysis with varimax rotation) presented by Berry and Jones (1995)

suggested a four-factor structure, in which two items loaded on two different factors simultaneously and two other items did not load on any of the factors. The decision to use varimax rotation (which is based on an assumption that underlying factors are orthogonal or uncorrelated with each other) is questionable, and although Berry and Jones (1995) did not discuss their results in detail, the results suggest that the PSS does not measure a single latent construct of parenting stress but rather four uncorrelated latent constructs. Also, a Chinese (Cheung, 2000) and a Spanish (Baker et al., 2001) translation of the PSS dropped the same item, "There is little or nothing I wouldn't do for my child(ren) if it was necessary" (which was one of the items that did not load on any factors in the Berry and Jones study) due to issues with the item-total correlation (a small correlation in the Cheung study and a negative correlation in the Baker et al. study). In addition, Cheung (2000) conducted a principal component analysis with varimax rotation and found that a two-component structure with negative aspect items on one component and positive aspect items on the second component was optimal. Given this information and the fact that the factor analysis conducted by Berry and Jones (1995) used a sample that was 89% White parents, it was necessary to closely examine the items of the PSS prior to the primary analysis of the present study. An exploratory factor analysis (principal axis factor analysis with *oblique* rotation) was conducted in order to examine the factor structure of the PSS in the present study sample of Latino parents, and the need to extract a subset of variables for the purpose of this study was evaluated.

A single-factor CFA was conducted for the 10-item Kessler Psychological Distress Scale (K10; Kessler et al., 2002) in order to confirm that all items load onto a single latent construct. A CFA was not possible for the two measures of alcohol use

because they only consisted of one item each.

In the second step of this study's analyses, longitudinal measurement invariance was tested using separate CFAs for each latent variable in the study (excluding the two alcohol use variables for which measurement invariance testing would be meaningless due to the variables being measured with single items). Measurement invariance testing is a necessary step prior to comparing latent means because it needs to be confirmed that each construct is in fact the same construct across time before change in the constructs can be assessed (comparing two different constructs would be nonsensical). The analyses were conducted for the control group and intervention groups separately in this step in order to be able to detect any differences that may have occurred due to only one group receiving an intervention between the two time points. Measurement invariance was tested by establishing a baseline model using a CFA in which the latent variable at T1 and T2 was allowed to co-vary and the latent variable at both time points had the same indicators and residual error covariance structure. This baseline model is also called the configural invariance model and provides the basis of comparison (Vandenberg & Lance, 2000). This baseline model was then compared with a model in which the respective factor loadings across time were constrained equal (metric invariance model). Because the more restricted model is nested within the less restricted model, if the chi-square difference test was non-significant then the more restricted model was deemed acceptable.[9] If the chi-square difference was significant, it indicated that the loadings of some items were non-invariant across time points. In this case, equality constraints on the loadings of an item at two time points suggested in the modification indices were released

[9] Metric invariance indicates that the way in which the latent construct manifests in the indicator items remains equal across time. In other words, it shows that the participants attribute the same meaning to the construct across time.

and then another chi-square difference test was conducted with the baseline model. This process was repeated until the chi-square difference was no longer significant. This metric invariance model (whether the model demonstrated full metric invariance or only partial invariance) was then compared with the scalar invariance model where the respective intercepts[10] across time were constrained equal in addition to the factor loadings (released loadings in the prior steps remained released)[11]. It was imperative that all latent variables have at least partial scalar invariance because scalar invariance is the prerequisite for comparing latent variable means or the change in those means (Cheung & Rensvold, 2002). In general, at least two indicator items of each latent variable are required to have full scalar invariance in order for meaningful comparison of latent means to be possible (Baumgartner & Steenkamp, 1998; Byrne, Shavelson, & Muthén, 1989). The whole process of testing measurement invariance was repeated twice for each measure—once for T1 and T2 and then for T1 and T3 (for control group and intervention group separately).

The third step of this study's analyses was conducted, for control and intervention group separately, by imposing a latent means model with all the latent variables across T1 and T2 included in the model and with all equality constraints from the prior step in place. The latent mean for each latent variable at T1 was fixed to 0 in order to get the

[10] Intercepts in structural equation modeling (SEM) are part of the mean structure. While SEM typically utilizes the covariance structure in data to estimate model parameters, the mean structure can also be incorporated to compare latent mean differences in groups. The term mean structure comes from the fact that the observed mean of an indicator item, x_1, can be decomposed into an intercept, regression coefficient (factor loading), and latent mean (mean of the latent variable that manifests in the item):
Mean of x_1 = (intercept) + (factor loading)(latent mean)

[11] Scalar invariance is also known as strong invariance (Meredith, 1993). Scalar invariance indicates that people with similar levels on the latent construct have the same scores on an item across time points.

estimate of the latent mean differences of each latent variable at T2.[12] This process was repeated for T1 to T3 as well.

In the fourth step, latent change variables were created for each study variable in the model. The latent change variable was created by imposing a path from the latent variable at T1 to the latent variable at T2 while fixing the path coefficient at 1, and then defining a second-order latent variable from the latent variable at T2 with the loading fixed to 1 and the residual variance of the latent variable fixed at 0. The latent change model[13] was fit for control group and intervention group separately, first without any control variables and then once more while controlling for number of children in the family, monthly income, and degree of enculturation (the degree to which an individual adheres to one's heritage culture). These three control variables were chosen because they have been shown in prior studies to be associated with the study variables. The data-model fit[14] for these latent change measurement models (a model where all latent variables are allowed to co-vary freely without any structural pathways imposed) was assessed. If the model fit was acceptable for the control and intervention groups, the latent change measurement model was then imposed using the whole sample while controlling for group membership (control/intervention), number of children, income, and enculturation. This step was then repeated using T1 to T3 data.

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[12] Due to issues in model identification, latent means in SEM can only be estimated as relative differences to a reference group in which the reference group's latent mean is fixed to 0.

[13] Latent change models have an advantage over simply using the raw difference scores of measured variables at different time points, because utilizing information about change at the latent level (i.e., change in the true score of the measured variable at different time points) can effectively avoid problems with measurement error that is present in the raw scores of the variable at different time points (Hertzog & Nesselroade, 2003).

[14] Data-model fit was assessed using three distinct fit indices; namely, the standardized root mean squared residual (SRMR), root mean squared error of approximation (RMSEA), and comparative fit index (CFI). Acceptable model fit index values are ≤ 0.08 for SRMR, ≤ 0.06 for RMSEA, and ≥ 0.95 for CFI (Hu & Bentler, 1999). In addition, RMSEA can be accompanied by a 90% CI where good fit would show a 90% CI that includes .05.

Sequentially building up the model from the first step to the fourth step ensured that there were no issues in the measurement and configuration of latent variables in any of the two sub-groups of the study sample. By establishing an acceptable measurement model, one can then proceed to test whether the hypothesized structural paths between the latent variables of interest (in this case, the latent change variables) are acceptable by comparing the model with hypothesized paths (structural model) with the measurement model. In the fifth and final step, the latent change structural model was imposed using the whole sample while controlling for group membership (control/intervention), number of children, income, and enculturation. If the model fit for the latent change structural model was acceptable and the chi-square difference test with the latent change measurement model was statistically non-significant, the latent change structural model was deemed acceptable. The structural model, which showed a full mediation from parent-child conflict to psychological distress via parenting stress (alcohol variables were removed from the model; see Results section for detailed explanation), was also compared with a partial mediation model (a model including a direct effect from parent-child conflict to psychological distress). If the model chi-square difference test was statistically significant, this meant that the partial mediation model was the better model, while a non-significant test result indicated that neither model was better than the other, in which case the more parsimonious model (full mediation model) was chosen.

Once a model was chosen and given that the model fit was acceptable, then the path coefficients of the structural paths were examined to determine if they were statistically significant and in the hypothesized direction. The significance of the indirect effect of change in parent-child conflict on psychological distress through parenting

stress was tested by constructing 95% CIs using 2,000 bootstrap samples (Preacher & Hayes, 2004). The fifth step was conducted with T1 to T2 data and then repeated with T1 to T3 data.

CHAPTER III. RESULTS

Preliminary Analyses

Intraclass correlation analyses were conducted on the five study variables in order to assess the similarity among participants from the same sites regarding these variables. The intraclass correlation coefficients (ICC) for parent-child conflict and alcohol use 2 (number of times the parent had at least five [males] or four [female] drinks on a single occasion during the past 30 days) were less than .001, indicating that there was minimal variance among the sites regarding these variables. However, the ICCs for parenting stress, psychological distress, and alcohol use 1 (number of days the parent had at least one drink during the past 30 days) were larger, being .07, .03, and .02, respectively. Given the mean group size of the sites (n = 49.14), if the clustered nature of the data is not taken into account, an ICC of this degree will lead to underestimated standard errors of the parameters, which increases the risk of a Type I error (McCoach, 2010). An additional ANOVA result confirmed that there were significant differences among the seven sites in parenting stress, psychological distress, and alcohol use 1. Due to the fact that the focus of the present study was not on site-level differences and its impact on individual-level variables, the decision was made to center each variable item score by its respective site's item mean prior to proceeding to latent variable modeling in order to eliminate the variation in item scores that existed among the seven different sites (Enders & Tofighi, 2007).

Step 1: Factor Analyses of Study Measures

The data-model fit was poor for the initial confirmatory factor analysis (CFA) of the Parent Adolescent Conflict Scale (PACS; Ruiz & Gonzales, 1998) as a single factor

model with no residual errors co-varying. Upon reviewing the suggested modifications from Mplus regarding the residual errors, a univariate modification strategy[15] was used to apply theoretically justifiable modifications to allow certain residual errors to co-vary. Covariation of residuals occurs when certain indicators co-vary with one another above and beyond the connection they share through the latent construct, which in this case is parent-child conflict. This covariation can be due to overlapping content above and beyond the latent construct or similarity in item format (Byrne, 2012; Byrne et al., 1989). The residual errors of PACS item 2 (*Your child let you know that he/she was angry or didn't like something you said or did*) and item 3 (*You let your child know that you were angry or didn't like something he/she said or did*) were allowed to co-vary with each other because they were related to communication of emotions, and items 4 (*You and your child gave each other the silent treatment*), 6 (*You and your child gave each other dirty looks or rolled your eyes at each other*), and 7 (*You and your child ignored each other*) were allowed to co-vary with each other because they were related to non-verbal communication. However, even after applying these modifications, the data-model fit was poor (RMSEA = 0.08 [0.06, 0.10]; CFI = 0.94; SRMR = 0.05). An exploratory factor analysis (EFA) was conducted to investigate the underlying factor structure and its relationship with the PACS items. EFA (principal axis factor analysis with oblique rotation) results showed that there were two underlying factors that were correlated with each other (r = 0.23). Among the ten PACS items, item 1 did not integrate well with either of the two factors (i.e., item 1 was equally related to both factors, meaning that item 1 could also be related to other residual factors that the rest of the PACS items were

[15] Modification indices in Mplus are generated under the assumption that they will be applied one at a time, or univariately (Byrne, 2012).

not related to). The content of item 1, "*You and your child disagreed with each other*," makes it clear why this item would be different from the rest of the items—disagreement with others is a natural part of family relationships and human interactions in general and does not necessarily indicate conflict. Therefore, item 1 was removed and the CFA was conducted with 9 items, and the resulting model fit was good (RMSEA = 0.06 [0.04, 0.08]; CFI = 0.97; SRMR = 0.04).

An EFA with principal axis factoring and oblique rotation for the 18 items of the Parental Stress Scale (PSS; Berry & Jones, 1995) suggested two underlying factors. With the exception of item 3 (*Caring for my child(ren) sometimes takes more time and energy than I have to give*) and item 4 (*I sometimes ask myself whether what I am doing is sufficient for my kid(s)*), all items loaded onto one of the two factors; specifically, the items about the negative aspects of parenting loaded on one factor and the reverse-coded items regarding the positive aspects of parenting loaded on to the other factor. Despite using oblique rotation, the correlation between the factors was close to zero (r = 0.04), indicating that the two underlying factors were unrelated, and therefore the 18 items of the PSS should not be used together to measure the single construct of parenting stress.

Eight items (items 9 to 16) regarding the negative aspects of parenting (e.g., *The major source of stress in my life is my child(ren)*; *Having a chil(ren) leaves little time and flexibility in my life*) that loaded onto one factor were selected to be used in the present study as the measure for parenting stress, because these items seemed to tap the construct of parenting stress more directly than the reverse-coded items about the positive aspects of parenting. A single factor CFA was conducted with the eight selected PSS items, and four theoretically justifiable residual error modifications were applied. Residual errors of

item 15 (*I feel overwhelmed by the responsibility of being a parent*) and 16 (*Having a child(ren) has meant having too few choices and too little control over my life*) were allowed to co-vary because they were related to having a sense of low agency in life, and residuals of item 14 (*If I had it to do over again, I might decide not to have a child(ren)*) was allowed to co-vary with items 10 (*Having a chil(ren) leaves little time and flexibility in my life*) to 12 (*It is difficult to balance different responsibilities because of my child(ren)*) because they were related to a feeling of regret about having children. The resulting CFA model showed good fit (RMSEA = 0.06 [0.04, 0.09]; CFI = 0.97; SRMR = 0.05).

A single factor CFA for the Kessler Psychological Distress Scale (K10; Kessler et al., 2002) was conducted, and 13 theoretically justifiable residual error modifications were applied. Given that the K10 primarily consists of items that either describe symptoms of anxiety or depression along with one item that describes a physiological effect that can be associated with both disorders (*During the past 30 days, how often did you feel tired out for no good reason?*), it was not surprising that the number of justifiable co-varying residual errors was large, because while depression and anxiety may share a common component of psychological distress they also have unique aspects that make them distinct from each other (American Psychiatric Association, 2013). Thus, among the suggested residual error modifications from the software, those that were related in terms of depression or anxiety were applied using the univariate method. Three residual covariations related to anxiety, seven related to depression, two related to the physiological aspect of anxiety, and one related to the physiological aspect of depression were added. The final CFA model for the K10 showed good fit (RMSEA = 0.06 [0.04,

0.08]; CFI = 0.98; SRMR = 0.03).

Step 2: Testing of Measurement Invariance

Measurement Invariance Testing for Control Group at T1–T2

A CFA model was imposed for the control group with the latent construct parent-child conflict at T1 and T2 allowed to co-vary and no equality constraints placed on the factor loadings. The indicator residual error covariation pattern from T1 was also applied to the T2 indicators of parent-child conflict. Additionally, because the indicators at both time points consisted of identical items, each item was allowed to co-vary with its identical pair across time. The initial model showed poor fit (RMSEA = .07 [.05, .08]; CFI = .92; SRMR = .07). Justifiable modification indices were applied one at a time. In order to maintain configural consistency between the two time points, any residual errors allowed to co-vary at T1 were also allowed to co-vary at T2. Five residual errors were allowed to co-vary in this step: item 2 with 5, and 3 with 5, and 8 with 9 because these item pairs were related to communication of negative emotions, and item 9 with 10, 8 with 10, and 8 with 9 because they were related to communication of strong negative emotions (see Appendix for item content). The model fit was good upon application of these modifications (RMSEA = .05 [.03, .07]; CFI = .96; SRMR = .06), and this model served as the baseline model for measurement invariance testing.

In order to test metric invariance, a more restrictive model was imposed where all respective factor loadings across time in the baseline model were constrained to be equal. The model fit for this metric invariance model was good (RMSEA = .05 [.03, .06]; CFI

= .96; SRMR = .06) and the chi-square difference test[16] showed that this restrictive model was not significantly worse than the baseline model ($\Delta\chi^2_{MLR}$ (8) = 7.40, p = .49), providing support for full metric invariance (all respective factor loadings remain equal across time). Scalar invariance was tested by constraining all respective intercepts equal in addition to factor loadings and then comparing this model to the full metric invariance model. The chi-square difference test was non-significant ($\Delta\chi^2_{MLR}$ (9) = 6.10, p = .73) and the scalar invariance model for parent-child conflict for the control group showed good fit (RMSEA = .04 [.02, .06]; CFI = .97; SRMR = .07).

This process was repeated for parenting stress and psychological distress using the control group sample and is summarized in Table 2. Both parent-child conflict and parenting stress showed full scalar invariance across T1 and T2, and psychological distress showed partial scalar invariance with one of the factor loading equality constraints being released in the process (see Table 2). This indicated that between T1 and T2 there was overall no change in terms of the meaning of the constructs (i.e., the way the construct manifests in the indicators) and the way that participants in the control group with certain levels of each construct responded to the items.

[16] Chi-square values generated through MLR estimation must be corrected using a formula provided by Satorra and Bentler (2010) before being used in a chi-square difference test for nested models. Corrections were applied to all chi-square difference tests in this study.

Table 2.
Measurement Invariance Testing for Control Group across T1 and T2 (4 months)

Latent Construct	Model	$\Delta\chi^2_{MLR}$ (*df*)	RMSEA	CFI	SRMR	Error covariation/ Released constraints
PCC	Baseline		0.05	0.96	0.06	pcc2–pcc5; Comm. of negative emotions pcc3–pcc5; Comm. of negative emotions pcc9–pcc10; Comm. of strong negative emotions pcc8–pcc10; Comm. of strong negative emotions pcc8–pcc9; Comm. of strong negative emotions
	Metric	7.40 (8)	0.05	0.96	0.06	
	Scalar	6.10 (9)	0.04	0.97	0.07	
PSS	Baseline		0.04	0.98	0.06	pss9– pss12; Sense of agency in life pss12–pss16; Sense of agency in life
	Metric	12.61 (7)	0.04	0.97	0.07	
	Scalar	2.10 (8)	0.03	0.98	0.07	
KPD	Baseline		0.05	0.96	0.05	kpd1– kpd3;Physiological aspect of anxiety kpd1–kpd7; Physiological aspect of depression kpd2–kpd6; Anxiety
	Metric	11.17 (8)	0.05	0.96	0.05	Released kpd4
	Scalar	4.48 (10)	0.05	0.97	0.05	

Note. PCC: Parent-child conflict; PSS: Parenting stress; KPD: Psychological distress; Comm.: Communication. All chi-square differences are non-significant ($p \geq .05$). See Appendix to view specific item contents.

Measurement Invariance Testing for Intervention Group at T1–T2

The same process of measurement invariance testing was conducted for the intervention group at T1 to T2: a baseline model was established for each latent construct and increasingly restrictive invariance models were compared sequentially. The results are summarized in Table 3. Parent-child conflict and parenting stress showed full scalar invariance across T1 to T2 while psychological distress showed partial scalar invariance as two factor loadings were allowed to be freely estimated. Overall, between T1 and T2, receiving the intervention did not alter the way participants in the intervention group

understood each construct (i.e., the way in which the construct manifested in the indicators did not change), as well as the way that participants with certain levels of each construct responded to the items.

Table 3.
Measurement Invariance Testing for Intervention Group across T1 and T2 (4 months)

Latent Construct	Model	$\Delta\chi^2_{MLR}$ (*df*)	RMSEA	CFI	SRMR	Error covariation/ Released constraints
PCC	Baseline		0.04	0.97	0.07	pcc4–pcc5; Comm. of negative emotions
	Metric	13.80 (8)	0.04	0.96	0.08	
	Scalar	5.86 (9)	0.04	0.96	0.08	
PSS	Baseline		0.04	0.97	0.06	pss9–pss14; Feeling regret for having children pss10–pss11; Sense of agency in life pss9–pss10; Sense of agency in life pss10–pss12; Sense of agency in life pss11–pss12; Sense of agency in life pss14–pss15; Feeling regret for having children
	Metric	4.90 (7)	0.04	0.97	0.06	
	Scalar	1.90 (8)	0.03	0.98	0.06	
KPD	Baseline		0.05	0.96	0.05	
	Metric	10.69 (7)	0.05	0.96	0.05	Released kpd9 Released kpd7
	Scalar	3.86 (10)	0.04	0.96	0.05	

Note. PCC: Parent-child conflict; PSS: Parenting stress; KPD: Psychological distress; Comm.: Communication. All chi-square differences are non-significant ($p \geq .05$). See Appendix to view specific item contents.

Measurement Invariance Testing for Control Group at T1–T3

The factor loading equality constraints for one item were released for parenting stress for the control group at T1 to T3 (see Table 4). Parent-child conflict and psychological distress showed full scalar invariance while parenting stress showed partial

scalar invariance. Overall, the meaning of each construct and the way in which participants responded to the items did not change for those in the control group across T1 to T3.

Table 4.
Measurement Invariance Testing for Control Group across T1 and T3 (10 months)

Latent Construct	Model	$\Delta\chi^2_{MLR}$ (*df*)	RMSEA	CFI	SRMR	Error covariation/ Released constraints
PCC	Baseline		0.05	0.97	0.06	pcc2–pcc5; Comm. of negative emotions pcc6–pcc10; Comm. of negative emotions pcc8–pcc9; Comm. of strong negative emotions
	Metric	9.72 (8)	0.05	0.96	0.06	
	Scalar	6.90 (9)	0.04	0.97	0.07	
PSS	Baseline		0.05	0.96	0.06	pss12–pss16; Sense of agency in life
	Metric	10.82 (6)	0.05	0.96	0.07	Released pss13
	Scalar	7.86 (8)	0.05	0.96	0.07	
KPD	Baseline		0.01	1.00	0.03	kpd1–kpd7; Physiological aspect of depression kpd1–kpd3; Physiological aspect of anxiety kpd2–kpd6; Anxiety
	Metric	7.57 (9)	0.01	1.00	0.04	
	Scalar	6.03 (10)	0.00	1.00	0.04	

Note. PCC: Parent-child conflict; PSS: Parenting stress; KPD: Psychological distress; Comm.: Communication. All chi-square differences are non-significant ($p \geq .05$). See Appendix to view specific item contents.

Measurement Invariance Testing for Intervention Group at T1–T3

For the intervention group, all three latent constructs showed full scalar invariance from T1 to T3 (see Table 5). The SRMR model fit index for parent-child conflict (.09)

was slightly higher than the criterion for good fit (SRMR ≤ .08) but the overall model fit was still acceptable considering the other two fit indices.

Table 5.
Measurement Invariance Testing for Intervention Group across T1 and T3 (10 months)

Latent Construct	Model	$\Delta\chi^2_{MLR}$ (*df*)	RMSEA	CFI	SRMR	Error covariation/ Released constraints
PCC	Baseline		0.06	0.95	0.09	pcc4–pcc5; Comm. of negative emotions pcc5–pcc7; Comm. of negative emotions pcc7–pcc9; Comm. of negative emotions pcc5–pcc10; Comm. of negative emotions pcc5–pcc8; Comm. of negative emotions
	Metric	9.26 (8)	0.05	0.95	0.09	
	Scalar	3.15 (9)	0.05	0.95	0.09	
PSS	Baseline		0.04	0.98	0.06	pss11–pss12; Sense of agency in life pss9–pss10; Sense of agency in life pss11–pss10; Sense of agency in life pss10–pss12; Sense of agency in life
	Metric	3.26 (7)	0.03	0.98	0.06	
	Scalar	7.13 (8)	0.03	0.98	0.06	
KPD	Baseline		0.05	0.97	0.05	kpd1–kpd8; Physiological aspect of depression kpd3–kpd5; Anxiety kpd4–kpd10; Depression
	Metric	3.35 (9)	0.04	0.97	0.05	
	Scalar	7.18 (10)	0.04	0.98	0.06	

Note. PCC: Parent-child conflict; PSS: Parenting stress; KPD: Psychological distress; Comm.: Communication. All chi-square differences are non-significant (p ≥ .05). See Appendix to view specific item contents.

Overall, measurement invariance testing in the second step of the analysis showed that the meaning of the constructs and item response patterns were consistent for both control group and intervention across both time periods. This ensured that any latent mean differences examined in the following steps were due to actual change in the latent construct and not due to other systemic changes.

Step 3: Latent Means Model with All Latent Variables

Latent Means Model for Control Group and Intervention Group at T1–T2

A CFA model was imposed using the control group sample with all latent variables, including alcohol use 1 and alcohol use 2, at T1 and T2 included in the model. Each latent variable's mean at T1 was fixed to 0 in order to get an estimate of how different the latent mean was for each latent variable at T2. However, the model did not run properly and an error message from Mplus indicated that the model was not identified. Examination of the correlations between the alcohol use items and other indicator items showed that correlations with these alcohol use items were all close to zero. This likely led the alcohol use latent variable to not co-vary with any of the other latent variables in the model, thus resulting in the alcohol use latent variables to be locally under-identified.[17] Descriptive analysis of the alcohol use data for T1, T2, and T3 showed that *over 75% of participants who replied indicated that they did not consume any alcohol in the past 30 days*. Due to these circumstances, the decision was made to drop the two alcohol use variables from the study and to proceed with the analyses with only parent-child conflict, parenting stress, and psychological distress. This decision represented a notable change from the intended holistic focus on parents' physical health as well as psychological wellbeing as outcomes in this study, but it was unavoidable.

A latent means model excluding the alcohol use variables for the control group at

[17] Alcohol use 1, for example, has one indicator for T1 and one for T2. Two indicators provide three pieces of information through their covariance matrix (each indicator's variance and their covariance). The part of the model estimating the latent variable alcohol use 1 at T1 and T2 requires estimation of three parameters, the variance of each latent variable and the correlation between the latent variables. Just estimating these three parameters uses all the degrees of freedom available (3). When attempting to additionally estimate the latent mean difference of alcohol use 1 at T2 an additional degree of freedom is needed and can be drawn from the "leftover" degree of freedom from the rest of the model. However, if this part of the model has no connections with other latent variables in the model it becomes locally under-identified (lacks degree of freedom even though the model as a whole has sufficient degrees of freedom).

T1 to T2 showed acceptable fit (RMSEA = .05 [.04, .06]; CFI = .89; SRMR = .08). All equality constraints from the prior step were maintained. The latent mean differences of parent-child conflict, parenting stress, and psychological distress at T2 compared to T1 were not statistically different from 0 (see Table 6). The latent means model for the intervention group also showed acceptable fit (RMSEA = .04 [.04, .05]; CFI = .90; SRMR = .07) and the latent mean differences across time were not significant (see Table 6). This indicated that the groups as a whole did not show any shifts in terms of the means of the latent variables. In other words, although there were likely changes in these latent variables at the individual parent level, some going up and some down, the means of these changes at the group level were 0.

Table 6.
Unstandardized Latent Mean Estimates for Control and Intervention Group at T2

Group	Latent Variable	Latent Mean	*SE*	*p* - value
Control	PCC	0.02	0.02	0.18
	PSS	0.03	0.07	0.68
	KPD	0.04	0.05	0.39
Intervention	PCC	-0.03	0.03	0.27
	PSS	-0.02	0.08	0.82
	KPD	-0.03	0.04	0.41

Note. PCC: Parent-child conflict; PSS: Parenting stress; KPD: Psychological distress. Latent mean estimates are the difference in latent means at T2 compared to T1.

Table 7.
Unstandardized Latent Mean Estimates for Control and Intervention Group at T3

Group	Latent Variable	Latent Mean	*SE*	*p* - value
Control	PCC	0.04	0.02	0.06
	PSS	0.03	0.07	0.67
	KPD	-0.001	0.06	0.98
Intervention	PCC	-0.03	0.03	0.32
	PSS	-0.002	0.07	0.98
	KPD	0.03	0.05	0.55

Note. PCC: Parent-child conflict; PSS: Parenting stress; KPD: Psychological distress. Latent mean estimates are the difference in latent means at T3 compared to T1.

Latent Means Model for Control Group and Intervention Group at T1–T3

A latent means model for T1 to T3 was imposed on the control group and intervention group separately while maintaining respective equality constraints from step 2. The model fit for the control group (RMSEA = .05 [.05, .06]; CFI = .88; SRMR = .08) and intervention group (RMSEA = .05 [.04, .05]; CFI = .89; SRMR = .08) were both acceptable. The latent mean differences at T3 compared to T1 were all non-significant (see Table 7).

The results from the third step of the analysis showed that, for both control group and intervention group, the three constructs remained consistent across both time periods even after bringing all the constructs into the same model. Thus, investigating the associations among the latent changes in the three constructs in the following steps was justified.

Step 4: Latent Change Measurement Model

Latent Change Measurement Model at T1–T2

Second-order latent change variables were added to the latent means model from the prior step. The model fit for the latent change measurement model was identical with the latent means model for the control group and the intervention group. This is expected because the latent means model and the latent change measurement model are essentially the same except for the fact that the latent change measurement model has a second-order latent variable that embodies the latent mean difference (i.e., latent change) across two time points that were estimated in the latent means model.

Three control variables (number of children in family, monthly income, and enculturation) were added to the latent change measurement model for the control group and intervention group separately. This was done by adding a path from each control variable to the three latent change variables and to the three latent variables at T1. The addition of control variables to the model had very little impact on the model fit for the control group (RMSEA = .05 [.045, .05]; CFI = .88; SRMR = .08) and intervention group (RMSEA = .04 [0.4, .05]; CFI = .88; SRMR = .07), and the fit remained acceptable. Given that there were no issues in all prior steps regarding the measurement and configuration of the latent variables for both groups, the latent change measurement model was imposed using the whole sample's data while controlling for group membership (control/intervention), number of children, income, and enculturation. Any modifications made for each group in the prior steps regarding residual error covariation and released equality constraints were combined in the analysis with the whole sample. The resulting model showed good fit (RMSEA = .03 [.027, .03]; CFI = .94; SRMR = .06).

This good fit was also an indication that the consistency of the constructs (meaning and response pattern) across time was also consistent between the control and intervention group.

Latent Change Measurement Model at T1–T3

The latent change measurement model for control and intervention groups at T1–T3 was imposed while controlling for number of children, income, and enculturation. The addition of the control variables had little impact on the model fit, and the fit remained acceptable for the control (RMSEA = .05 [.05, .06]; CFI = .87; SRMR = .08) and the intervention group (RMSEA = .05 [.04, .05]; CFI = .89; SRMR = .08). Given that both groups did not exhibit any issues in the model building process in the prior steps, the latent change measurement model was imposed using the whole sample while retaining prior modifications and controlling for group membership, number of children, income, and enculturation. This model showed good fit (RMSEA = .03 [.026, .03]; CFI = .95; SRMR = .06), and again indicated that the consistency of the constructs (meaning and response pattern) across time T1 to T3 was also consistent between control group and intervention group.

Step 5: Latent Change Structural Model

Latent Change Structural Model at T1–T2

Structural paths hypothesizing a full mediation from parent-child conflict to psychological distress through parenting stress was added to the prior latent change measurement model using the whole sample and including the same control variables, which resulted in the latent change structural model for T1–T2. The model showed good fit (RMSEA = .04 [.027, .03]; CFI = .94; SRMR = .06). A Chi-square difference test was

conducted comparing the latent change measurement model with the latent change structural model (full mediation model). The results showed that the measurement model was the significantly better model by a very slim margin ($\Delta\chi^2_{MLR}$ (1) = 3.91, p = .048). Given that the partial mediation model (see Figure 3), which includes a direct path from parent-child conflict to psychological distress in addition to the indirect path, has identical model fit as the measurement model, the partial mediation model was selected over the full mediation model.

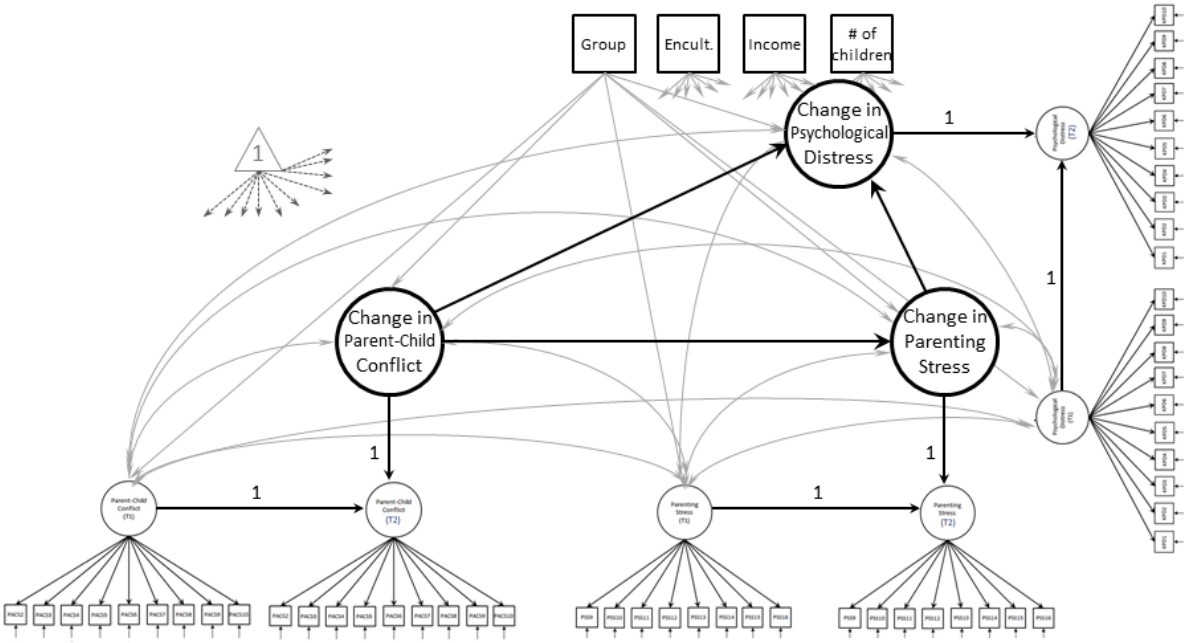

Figure 3. Latent change structural model with partial mediation. The mean structure, intercept constraints, factor loading constraints, residual error covariance paths, and the paths from three control variables (enculturation, income, number of children in the family) to latent variables have been omitted for brevity. Paths depicting the covariance between latent variables (two-headed arrows) are shown in gray.
Note: Encult.: Enculturation

The path coefficients from the partial mediation model showed that individual change in parent-child conflict was positively associated with individual change in parenting stress across T1 to T2 (p = .018), and individual change in parent-child conflict was also

positively associated with change in the parent's psychological distress during the same time period (p = .047) (see Figure 4).

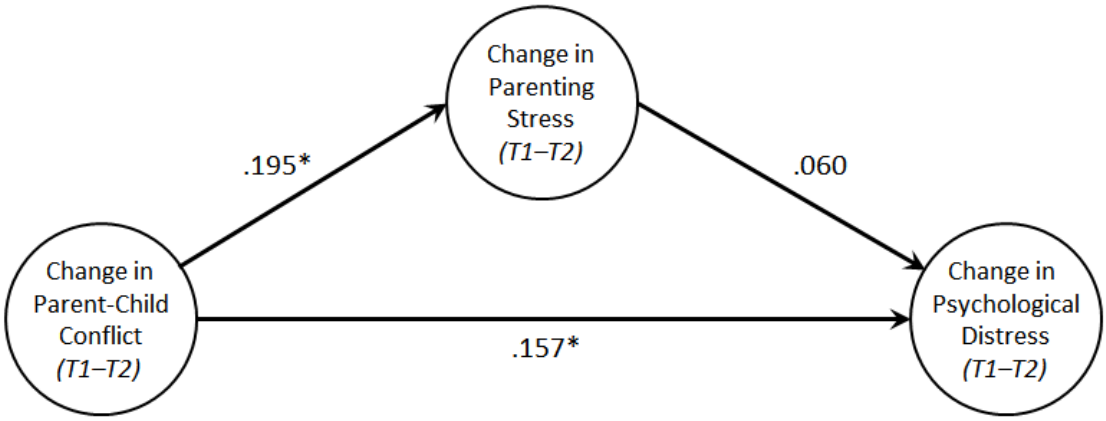

Figure 4. Partial mediation model results showing the associations among change in variables from T1 to T2. All path coefficients are standardized.
*p <.05

Paths from the control variables to the latent change variables (T1–T2) and the latent variables at T1 showed that enculturation was negatively associated with change in parenting stress (β = –.14, p = .03) and positively associated with parenting stress at T1 (β = .23, p < .001). Monthly income was negatively associated with psychological distress at T1 (β = –.11, p = .03) but not associated with change in psychological distress. The group membership variable was not significantly associated with any of the latent change variables at the p < .05 level although the association with change in parent-conflict (β = –.12, p = .06) was close to significant.

A partial mediation model was imposed for the control and intervention group separately while controlling for number of children, income, and enculturation in order to examine whether there were significant group differences in the path coefficients. Using the unstandardized parameter estimates (b) and the standard errors (SE) for each path, the group difference for each parameter was tested by computing a z-value with 342 degrees

of freedom:

$$\frac{b_{control} - b_{intervention}}{\sqrt{SE_{control}^2 + SE_{intervention}^2}} = z_{342}$$

All of the *z*-values for the three path coefficients fell within the range of the critical values given the degrees of freedom (–1.97, 1.97), meaning that there were no significant differences in the path coefficients of the partial mediation model between control and intervention group. This indicated that the path coefficients in the model using the whole sample represent the association between latent change variables for both groups.

The indirect effect in the partial mediation model was tested using 2,000 bootstrap samples. The 95% CI generated from the bootstrap sample showed that the indirect effect of change in parent child conflict on change in psychological distress via change in parenting stress was not significant (–.03, .14). The indirect effect of group membership on change in psychological distress through change in parent-child conflict was also not significant (–.063, .001). In contrast, the indirect effect of group membership on change in parenting stress through change in parent-child conflict was significant (–.126, –.001)[18] while the direct effect from group membership to parenting stress was not significant (–.24, .22), suggesting a full mediation (see Figure 5). The R^2 value for the latent change of psychological distress from T1 to T2 was 0.052, indicating that the model explained 5.2% of the variability in change in psychological distress across this time.

[18] The indirect effect (group→ΔPCC→ΔPSS) was significant using the bootstrapping method even though the path from group membership to change in parent-child conflict (ΔPCC) was previously stated as not significant at T1-T2. This was due to the fact that when using the bootstrapping method, the unstandardized coefficient for the path, group→ΔPCC, was either significant or very close to significant ([–.128, .000]; Mplus only provides estimates to the third decimal point). This possible change in significance is simply due to the path coefficient estimate (group→ΔPCC) being very close to the border of significance and applying two different methods (bootstrapping & maximum likelihood with robust standard errors) that resulted in placing the estimate on either side of significance.

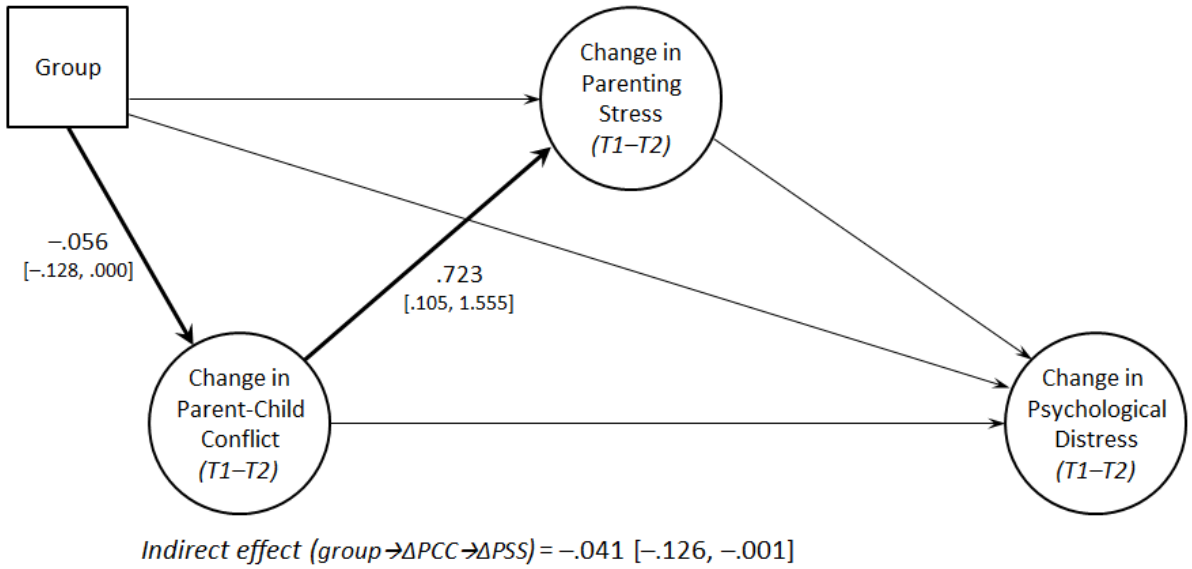

Figure 5. Direct and indirect effect of group membership on latent change variables across T1-T2. The paths for the statistically significant indirect effect are shown in bold arrows along with the estimate of the two unstandardized path coefficients and the 95% confidence intervals generated through 2,000 bootstrap samples in square brackets. The indirect effect is the product of these two path coefficients.
Note: PCC: Parent-child conflict; PSS: Parenting stress; Group: Group membership (intervention group = 1; control group = 0)

Latent Change Structural Model at T1–T3

The latent change structural model for the whole sample at T1 to T3 with full mediation and the same control variables showed good fit (RMSEA = .03 [.026, .034]; CFI = .95; SRMR = .06). Model comparison with the latent change measurement model showed that the measurement model was significantly better ($\Delta\chi^2_{MLR}$ (1) = 5.50, p = .02). Given that the partial mediation model has identical fit with the measurement model, the partial mediation model was chosen over the full mediation model again in T1 to T3. The partial mediation model showed that only change in parent-child conflict was significantly associated with change in parents' psychological distress at T1 to T3 (p = .029; see Figure 6).

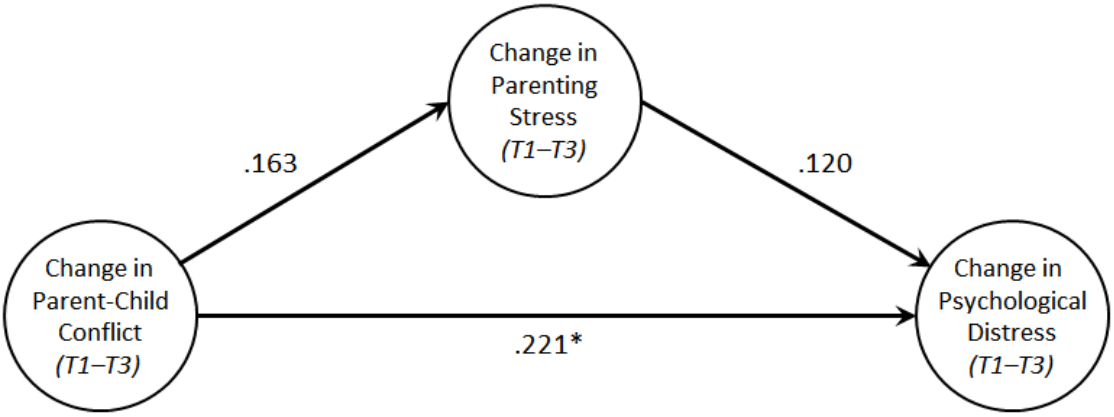

Figure 6. Partial mediation model results showing the associations among change in variables from T1 to T3. All path coefficients are standardized.
*p <.05

Paths from the control variables showed the same pattern seen at T1 to T2. Enculturation was negatively associated with change in parenting stress from T1 to T3 (β = –.20, p = .002) while also being positively associated with parenting stress at T1 (β = .20, p = .002) and monthly income was negatively associated with psychological distress at T1 (β = –.11, p = .03). Group membership was not significantly associated with any of the change from T1 to T3 but again was close to significant regarding change in parent-child conflict (β = –.12, p = .06).

Path coefficients in the partial mediation model were compared between the control group and the intervention group to check whether there were significant differences in the groups regarding these parameters. None of the z-values were outside the range of the critical values given 342 degrees of freedom (-1.97, 1.97) showing that there were no group differences in the path coefficients. This indicated that the path coefficients in the model using the whole sample at T1 and T3 represent the association between latent change variables for both groups.

The 95% CI generated from 2,000 bootstrap samples showed that the indirect

effect in the partial mediation model was not significant (-.02, .21). The indirect effect of group membership on change in parenting stress through change in change in parent-child conflict, which was significant at T1 to T2, was not significant at T1 to T3 (–.094, .002). However, the indirect effect of group membership on change in psychological distress through change in parent-child conflict was statistically significant (–.090, –.002)[19] while the direct effect from group membership on psychological distress was not significant (–.10, .20), suggesting a full mediation (see Figure 7). The R^2 value for the change in psychological distress latent variable was 0.077, indicating that overall the model explained 7.7% of the variability in the latent change of psychological distress from T1 to T3.

[19] The indirect effect (group→ΔPCC→ΔKPD) was significant using the bootstrapping method even though the path from group membership to change in parent-child conflict (ΔPCC) was previously stated as not significant at T1-T3. This was due to the fact that when using the bootstrapping method, the unstandardized coefficient for the path, group→ΔPCC, was significant (–.148, –.002). This change in significance is simply due to the path coefficient estimate (group→ΔPCC) being very close to the border of significance and applying two different methods (bootstrapping & maximum likelihood with robust standard errors) which resulted in placing the estimate on either side of significance.

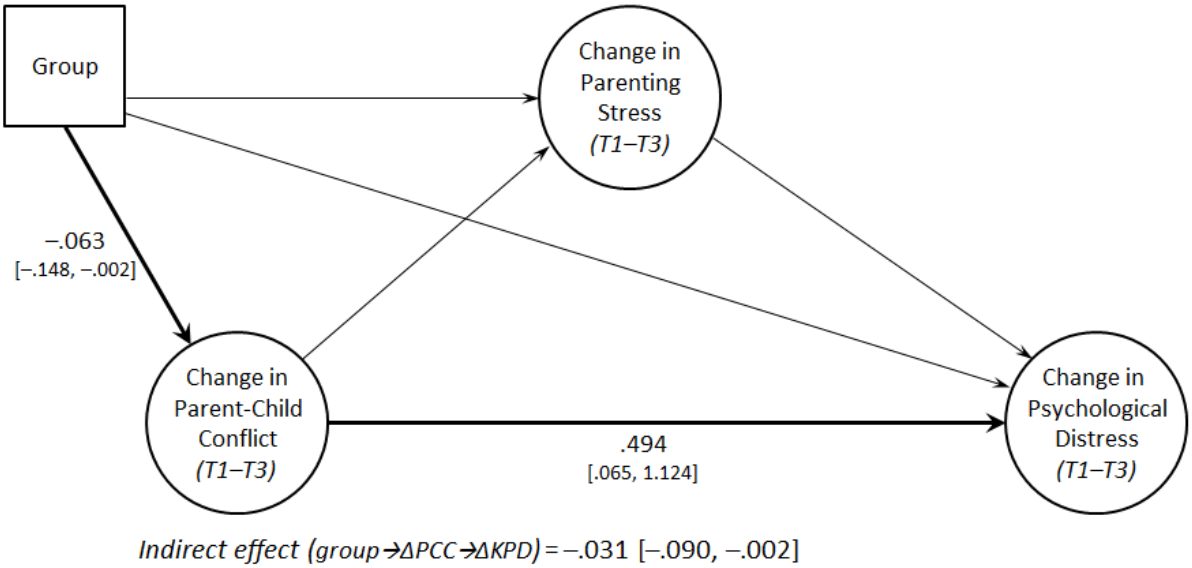

Figure 7. Direct and indirect effect of group membership on latent change variables across T1-T3. The paths for the statistically significant indirect effect are shown in bold arrows along with the estimate of the two unstandardized path coefficients and the 95% confidence intervals generated through 2,000 bootstrap samples in square brackets. The indirect effect is the product of these two path coefficients.
Note: PCC: Parent-child conflict; KPD: Psychological distress; Group: Group membership (intervention group = 1; control group = 0)

CHAPTER IV: DISCUSSION

The present study investigated how changes in relational variables in the family context (parent-child conflict and parenting stress) were associated with changes in the individual well-being (psychological distress) of Latino parents of early adolescents across four months and ten months. Across a period of four months, change in parent-child conflict was positively associated with change in parenting stress (β = .195, p = .018) and change in psychological distress (β = .157, p = .047). However, in the longer term (at ten months), the association between change in parent-child conflict and change in parenting stress was no longer statistically significant, whereas change in parent-child conflict was positively associated with change in psychological distress (β = .221, p = .029)[20]. It is unclear from the present study analyses if the association between changes in parent-child conflict and parenting stress at T1 to T2 is significantly greater than that at T1 to T3 or if the association between changes in parent-child conflict and psychological distress at T1 to T2 is significantly smaller than compared to T1 to T3, because the statistical significance of the differences between path coefficients across varying time points were not tested directly. In order to test these differences, a far more complex model would be required in which data from T1, T2, and T3 are incorporated into a single model. However, the present findings suggest the possibility that change in parent-child conflict is positively associated with parenting stress in the shorter term but that this relationship dissipates in the longer term, whereas the association between changes in

[20] It should be noted that a positive association among latent change variables can manifest as various situations at the individual parent level. For example, change in parent-child conflict is positively associated with change in parenting stress at T1–T2. This can mean that individuals who increase in parent-child conflict across four months also tend to increase in parenting stress in the same time period or that individuals who decrease in parent-child conflict also tend to decrease in parenting stress. It can also mean that if there are two individuals, A and B, who both experienced increases in parent-child conflict and parenting stress across T1–T2 and individual A increases more in parent-child conflict compared to individual B, then individual A is likely to increase more in parenting stress than individual B.

parent-child conflict and parent's psychological distress becomes more pronounced in the longer term. The increase in explained variance of change in psychological distress at T1 to T3 (7.7%) compared to T1 to T2 (5.2%) also suggests this possibility. However, it cannot be determined from the analyses whether the change in the amount of explained variance is statistically significant.

Although the explained variance in change in psychological distress in this study can be considered small (5.2% at T1-T2 and 7.7% at T1-T3), it is not surprising when considering what the construct being assessed is. Change in an individual's psychological distress can be influenced by many different aspects of his or her life, and the variables that were used to explain it in this study's model are only a select few. For example, a parent's overall psychological distress can be affected by relationships with an intimate partner, other family members, friends, and co-workers. It also can be influenced by physical health conditions of oneself or of other family members, and even broader events that occur in society.

The findings of the present study contribute to the parenting stress literature, specifically by increasing knowledge about aspects of the parent-child relationship domain. As mentioned in the literature review, the parent-child relationship domain is the most understudied of the three domains of parenting stress, and prior studies of this domain have primarily been limited to cross-sectional data (e.g., Garcia et al., 2017; McKay et al. 1996; Ponnet et al., 2013). By utilizing longitudinal data, the present study's findings contribute to knowledge in this area by showing that change in parent-child conflict is positively associated with change in parenting stress in the shorter term of four months, but also that this relationship is no longer present in the longer term of

ten months. This suggests that there may be a more complex relationship between characteristics of parent-child relationships and parenting stress that is not detectable using cross-sectional data. For example, an increase in parent-child conflict (in this case, with early adolescents) may lead to an increase in parenting stress in a period of four months (or higher parent-child conflict may be correlated with higher parenting stress at one time point), but across a longer period of time some parents (but not all) may become accustomed to increased conflict with their adolescent child and not feel even more stressed about it than they previously had (i.e., a habituation process), resulting in the association between changes in the variables dissipating.

This study's findings also contribute to filling the gap in knowledge regarding how parent-adolescent conflicts may affect the *parents'* well-being, especially among Latino parents of early adolescents. The findings showed that change in parent-child conflict during early adolescence is positively associated with change in the parent's psychological distress. In other words, increase in parent-child conflict can have a negative effect on the parents' psychological functioning during early adolescence whereas a decrease in parent-child conflict can have a protective effect on parents' psychological functioning. It is possible that this association between the two variables may have differed if the sample had consisted of parents of older adolescents. Because parent-child conflict typically peaks during early adolescence and then gradually declines toward late adolescence (De Goede et al., 2009; Laursen et al., 1998; Van Lissa et al., 2015), if the sample were parents of older adolescents, parent-child conflict may have become a less prominent source of distress for these parents and therefore change in parent-child conflict could have a weaker association with the parents' individual

psychological distress. Also, the association between change in parent-child conflict and change in psychological distress may have differed if the sample consisted of U.S.-born Latino parents. Given that U.S.-born Latino adults generally have poorer mental health than non-U.S.-born Latino adults (Alegría et al., 2008), a sample of U.S.-born Latino parents would have had greater psychological distress than the present sample and this possibly could make a U.S.-born sample more vulnerable to changes in life stressors such as parent-child conflict.

The findings showing how changes in relational/systemic variables such as parent-child conflict are associated with changes in parents' individual mental health over time, contribute broadly to the family systems literature. This also provides new support for the systemic approach to treating families in therapy. Compared to individual therapy/counseling approaches, family therapy is unique in "its attention to interpersonal factors that influence the development of problems in family members' individual functioning" (Epstein et al., 2018, p. 301). The findings of the present study illustrate the importance for mental health professionals to explore the relational aspects of the family system even when the presenting problem seems limited to an individual family member's functioning. The use of latent change modeling in this study made it possible to investigate how actual latent change in variables from different systemic levels in the family (the parent-child and individual subsystems) are associated with each other across time as opposed to making mere assumptions about change based solely on correlations between variables at single time points.

The hypothesized full mediation shown in Figure 1 and hypothesized association between change in parenting stress and change in parents' psychological distress was not

supported for both time periods. Instead, the direct effect from change in parent-child conflict to change in psychological distress was significant for both time periods. According to these results, it seems that change in parent-child conflict may affect an individual parent's mental well-being through a different mechanism than the hypothesized path through change in parenting stress. It could be that change in parent-child conflict (whether it is an increase or decrease) influences change in a parent's psychological distress via changes in self-esteem, satisfaction in life, physiological reactions, or ways in which parent-child conflict has negative effects on the couple relationship.

The varying indirect effects stemming from group membership (intervention vs. control group) between the two time periods are particularly noteworthy. Across a period of four months, there was an indirect effect of group membership on change in parenting stress through change in parent-child conflict (see Figure 5), and across a period of ten months, there was an indirect effect of group membership on change in parents' psychological distress through change in parent-child conflict (see Figure 7). Given that the participants in the study had been randomly assigned to the control or intervention group, these indirect effects can be seen as causal effects of group membership. Considering that 1) the intervention group was coded as 1 and the control group as 0, 2) the estimate of the indirect effect is negative and, 3) the coefficient for the path from change in parent-child conflict to psychological distress is positive, it can be concluded that across a period of four months, being assigned to the intervention group caused members of the intervention group to either have a decrease or less of an increase in parenting stress compared those in the control group, through a decrease or less increase

in parent-child conflict. Likewise, across ten months, being assigned to the intervention group caused members of the intervention group to either have a decrease or less of an increase in psychological distress compared those in the control group, through a decrease or less increase in parent-child conflict. These findings suggest that being assigned to the PIJP parenting intervention had a protective indirect effect on parenting stress in the shorter term and a protective effect on the parent's individual mental health in the longer term, via improvement in parent-child relationship (which was the focus of the intervention). It should be noted that a causal claim can only be made in regard to the assignment to the intervention and not the intervention itself, because group membership was coded solely based on the random assignment and not on how much a parent assigned to the intervention actually participated in it. In other words, the causal inferences that can be made through the findings of the present study are based on an intention-to-treat analysis (Gupta, 2011).

Enculturation was negatively associated with change in parenting stress for both time periods. This means that compared to someone who adheres to traditional Mexican American values less, a person who adheres to these values more experienced a decrease, or less of an increase, in parenting stress. These results may reflect a protective effect of adhering to traditional Mexican American values in terms of changes in parenting stress. In contrast, adhering to Mexican American values was positively associated with the degree of parenting stress at time 1, which could be due to acculturation gaps with U.S. born children as suggested by Nomaguchi and House (2013) or because parents who adhere strongly to traditional Mexican American values place more responsibility on themselves as parents and thus initially experience more parenting stress. When

considering this positive association between enculturation and parenting stress at time 1, it is possible that the negative association regarding *change* in parenting stress over time may be due, to some extent, to a ceiling effect (once one already experiences high parenting stress, it is difficult to reach even higher stress) followed by regression toward the mean.

Limitations of the Study

The use of latent change modeling provides a way to investigate how changes in variables are interrelated with each other. However, a limitation of this method is that it assumes linear change for all variables. The latent change models in this study showed good fit for both time periods of four months and ten months, but there is a possibility that these models did not capture the full extent of the change that could have occurred in those time periods (e.g., changes with a curvilinear trajectory).

The present study was limited to investigating only a mental health outcome (i.e., psychological distress) and was not able to include a health behavior (alcohol use) because of the very low base rate of drinking reported by members of the sample. Inclusion of the alcohol use variables would have provided a broader and more holistic perspective regarding how changes in family relational variables are associated with changes in Latino parents' individual well-being.

While the sample predominantly consisted of mothers, this was not a substantive limitation because prior studies that have included both mothers and fathers in their samples, in general, have not found gender differences in parenting stress, parents' mental health, and relationship quality with children (e.g., McKay et al., 1996; Ponnet et al. 2013; Popp et al., 2018; Rolle et al., 2017). However, Latino parents who participated

in this study were from a limited area of a single state and although the participants were randomly assigned to the intervention or control group, they were not randomly selected from the population of Latino parents in the area. In other words, the participants in the study sample were motivated parents who voluntarily registered to participate in a parent-child communication intervention. Thus, the results of this study cannot be generalized to all Latino parents in the U.S. It should also be noted that because the participants were most likely already motivated parents who cared enough to participate in a parent-child communication program, this may have led to the direct and indirect effects of the intervention (the assignment to the intervention, to be exact) being small. Additionally, the direct and indirect effects of the intervention may have been further diluted because the effects were based on an intention-to-treat analysis in which those in the intervention group who did not attended the sessions were all included in the analysis (Gupta, 2011).

The sample was limited to non-U.S.-born Latino parents so it remains unclear whether the findings of this study would be replicated in U.S.-born Latino parents and parents from other racial groups. Although studies comparing parent-adolescent relationship dynamics across different racial/ethnic groups are rare, Fuligni's (1998) study comparing Mexican American, Chinese American, and White parent-adolescent dyads suggests that the present study findings may be applicable to parents of other racial/ethnic groups.

The measures of the study variables were all self-report measures and therefore may have been limited due to recall bias and social desirability bias. Also, the data used in the study were all from the parent's self-report. Latent variables such as parent-child conflict could alternatively use indicators that represent various perspectives regarding

conflict such as perspectives of the parent, other parent, and the child in order to resolve the matter of being limited to just one parent's perspective.

The use of an enculturation scale that was developed exclusively with Mexican American samples to measure the degree of enculturation in the study sample was also a limitation. Although the majority of the sample was Mexican American and all participants identified as Latino, 14% were born in countries other than Mexico. It was uncertain whether the construct of enculturation was effectively measured for those in the sample who were not Mexican American.

Future Directions

More research is needed to understand how changes in various aspects of family life influence the individual well-being of its members, particularly parents. The use of latent change modeling can be beneficial in such future research as this method allows the researcher to utilize actual change across time as variables in the investigation. This present study shows that simply making assumptions about change through cross-sectional associations can potentially be misleading. For example, enculturation (at T1) was positively associated with parenting stress at T1, but then enculturation was negatively associated with *change* in parenting stress from T1 to T2 and T1 to T3. Change in enculturation over time (which was not included in the study) may yet have a different association with change in parenting stress. Therefore, simply because enculturation was positively associated with parenting stress at T1, one cannot say that decreasing a Latino parent's adherence to his or her traditional values will lead to a decrease in the parent's level of parenting stress or vice versa. Hypotheses regarding how changes in variables are related with one another warrants a direct investigation of the

actual changes that are of interest.

Additionally, more investigation is needed to further understand the underlying mechanism of how change in parent-child conflict affects change in the parent's individual psychological distress. The mediation of change in parenting stress in the association between change in parent-child conflict and change in psychological distress was not detected in this study. Future research should explore other possible mediating variables such as changes in self-esteem, satisfaction in life, physiological reactions, or couple relationship quality. This knowledge can be valuable in developing interventions for distressed parents at the clinical and community level.

Further research with the PIJP study's data can expand on the findings of this present study, particularly regarding the causal effect of the intervention program. As discussed earlier, the causal inference of the indirect effects found in this study is limited to the *assignment* to the intervention group. The possible causal effects of degree of intervention *attendance* on changes in parent-child conflict and psychological distress need to be investigated further.

The use of latent change modeling methods that were utilized in the present study can be extremely useful in clinical research investigating outcomes of various psychotherapy methods. Utilization of this method can provide researchers with the opportunity to actually examine how changes in variables of interest are related to one another across time and provide support for a specific therapy method over another in particular clinical situations. For example, latent change methods can be used to examine whether there are statistically significant group differences in the change of couple relationship quality before and after therapy for couples showing aggression by

comparing those who received cognitive behavioral therapy, narrative therapy, and were waitlisted.

In addition, use of latent change methods can contribute to further testing of family systems theory. General systems theory, the foundation of family systems theory, posits that living organisms are open systems, meaning that they interact with their ecological environment (Bertalanffy, 1968) and this is true for family systems as well. Latent change methods can be used to investigate how changes in variables outside the family systems (e.g., changes in extended family social support, changes in friend social support, implementation of policies affecting families) are associated with variables within the family system (e.g., couple relationship, parent-child relationship) and how changes at these multiple levels may eventually affect the well-being of individual family members.

Lastly, the present study showed that changes in parent-child conflict are positively associated with changes in parenting stress and the parent's psychological distress, and that assignment to a parent-child intervention program can have a protective effect on the degree of parenting stress and mental well-being of Latino parents of early adolescents. Lastly, it is important to note that parenting interventions, whether they are intended for Latino families or families of other ethnic and racial groups, not only have the potential to bring positive change to parent-child relationships but also the potential to improve the parents' individual well-being as well.

Appendix

Survey Items for Main Study Variables

Items enclosed in the box with bold lines are the items that were used in the main analyses.

Parent-Child Conflict (PCC)		Almost never or never	Once in a while	Sometimes	A lot of the time (frequently)	Almost always or always
PCC01	You and your child disagreed with each other.	1	2	3	4	5
PCC02	Your child let you know that he/she was angry or didn't like something you said or did.	1	2	3	4	5
PCC03	You let your child know that you were angry or didn't like something he/she said or did.	1	2	3	4	5
PCC04	You and your child gave each other the silent treatment (purposely did not talk to each other).	1	2	3	4	5
PCC05	You and your child had a small argument or misunderstanding.	1	2	3	4	5
PCC06	You and your child gave each other dirty looks or rolled your eyes at each other.	1	2	3	4	5
PCC07	You and your child ignored each other.	1	2	3	4	5
PCC08	You and your child had a serious argument or fight.	1	2	3	4	5
PCC09	You and your child became very frustrated with each other.	1	2	3	4	5
PCC10	You and your child yelled or raised your voices at each other.	1	2	3	4	5

Parenting Stress (PSS)		Strongly disagree	Disagree	Undecided	Agree	Strongly agree
PSS01	I am happy in my role as a parent	1	2	3	4	5
PSS02	There is Little or nothing I wouldn't do for my child(ren) if it was necessary	1	2	3	4	5
PSS03	Caring for my child(ren) sometimes takes more time and energy than I have to give	1	2	3	4	5
PSS04			2	3	4	5
PSS05	I feel close to my child(ren)	1	2	3	4	5
PSS06	I enjoy spending time with my child(ren)	1	2	3	4	5
PSS07	My child(ren) is an important source of affection for me.	1	2	3	4	5
PSS08	Having a child(ren) gives me a more certain and optimistic view for the future	1	2	3	4	5
PSS09	The major source of stress in my life is my child(ren)	1	2	3	4	5
PSS10	Having a chil(ren) leaves little time and flexibility in my life.	1	2	3	4	5
PSS11	Having a child(ren) has been a financial burden	1	2	3	4	5
PSS12	It is difficult to balance different responsibilities because of my child(ren)	1	2	3	4	5
PSS13	The behavior of my child(ren) is often embarrassing or stressful to me	1	2	3	4	5
PSS14	If I had it to do over again, I might decide not to have a child(ren)	1	2	3	4	5
PSS15	I feel overwhelmed by the responsibility of being a parent	1	2	3	4	5
PSS16	Having a child(ren) has meant having too few choices and too little control over my life	1	2	3	4	5
PSS17	I am satisfied as a parent	1	2	3	4	5
PSS18	I find my child(ren) enjoyable	1	2	3	4	5

Psychological Distress (KPD)

During the past 30 days, how often did you feel….		Always	Almost always	Sometime	Almost never	Never
KPD01	…tired out for no good reason?	1	2	3	4	5
KPD02	…nervous?	1	2	3	4	5
KPD03	…so nervous that nothing could calm you down?	1	2	3	4	5
KPD04	…hopeless?	1	2	3	4	5
KPD05	…restless or fidgety?	1	2	3	4	5
KPD06	…so restless that you could not sit still?	1	2	3	4	5
KPD07	…depressed?	1	2	3	4	5
KPD08	… so depressed that nothing could cheer you up?	1	2	3	4	5
KPD09	… that everything was an effort?	1	2	3	4	5
KPD10	… worthless?	1	2	3	4	5

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