EXPLORING CHANGES AMONG PARENTAL ACCULTURATION, IMMIGRATION-RELATED STRESS, PARENTAL DEPRESSION, AND PARENTAL ALLIANCE: A LONGITUDINAL STUDY WITH A SAMPLE OF LATINO/A IMMIGRANT PARENTS

By

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ABSTRACT

EXPLORING CHANGES AMONG PARENTAL ACCULTURATION, IMMIGRATION-RELATED STRESS, PARENTAL DEPRESSION, AND PARENTAL ALLIANCE: A LONGITUDINAL STUDY WITH A SAMPLE OF LATINO/A IMMIGRANT PARENTS

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Foreign born Latino/a immigrants currently make up 12.9% of the total US population. Despite this considerable representation of the total US population, Latino/a immigrants continue to be exposed to widespread health and mental health care disparities. Scholarship focused on the needs of Latino/a immigrants continues to be characterized by multiple gaps. For example, new conceptualizations of acculturation according to multi-dimensional frameworks need to be validated in various Latino/a immigrant sub-populations. Further, Latino/a immigrants and their families, particularly those with low family annual incomes, are exposed to multiple types of immigration-related stress. However, little is known about how immigration-related stress impacts couples. The major objective of this investigation was to examine the interrelationship among acculturation, immigration-related stress, depression, and parental alliance as reported by a group of Latino/a immigrant parents who participated in a cultural adaptation parenting study. Data were provided by 78 two-parent families. The statistical approach consisted of latent growth curve analyses to examine rates of change over time. Findings indicated a potential protective role of biculturalism among Latino/a immigrant couples, as well as the need to refine statistical models for future research with this population. Research, clinical, and policy implications are discussed.

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CHAPTER 1: INTRODUCTION

Statement of the Problem[1]

Immigration has been essential to the growth of the United States (US). In previous centuries, the largest influx of immigrants traced their origins back to European countries (Kennedy, Cohen, Bailey, & Piehl, 2003). Currently, the majority of immigrants relocating to the US are from Latin America and Asian countries (US Census Bureau, 2013). Foreign-born residents currently account for 12.9% of the total US population (US Census Bureau, 2014).

As low-income immigrants settle into the US, they are faced with multiple immigration-related stressors such as post-immigration loss (e.g., leaving loved ones behind), poverty, potential difficulties in obtaining documented status, language difficulties, barriers to access medical and mental health services, risk of discrimination, anti-immigration climate and policies, and potential family conflicts resulting from the immigration experience (Dow, 2011; Kirmayer et al., 2011). Immigration-related stress refers to increased levels of anxiety that have at their source the immigration experience and resulting processes. For example, within-family cultural differences, perceived discrimination, and challenges associated with pressures to adapt as an immigrant in a new and potentially hostile environment (John W. Berry, 2006; Adriana J. Umana-Taylor & Alfaro, 2009). When immigration-related stress becomes too difficult for individuals to manage, immigrants are at an increased risk for experiencing various physical and mental health problems (Chavez-Korell, Benson-Flórez, Rendón, & Farías, 2014; Flores et al., 2008; Hunt, Schneider, & Comer, 2004; Rogler, Cortes, & Malgady, 1991; Sirin, Ryce, Gupta, & Rogers-Sirin, 2013; Snyder, 1987). For example, first-generation immigrants unable to define

[1] "Latino/a" is the appropriate term to refer to populations integrated by Latina females and Latino males. However, to facilitate clarity of presentation and reading fluidity, I will alternate the use of the terms Latino/a, Latino, and Latina.

their new cultural identity as a result of the immigration experience, are at an increased risk for somatic complaints and other health problems (Driscoll & Torres, 2013; Flores et al., 2008; Hovey & Magana, 2000; Sirin, Ryce, Gupta, & Rogers-Sirin, 2013b; Umaña-Taylor & Alfaro, 2009). Researchers have also found significant associations between acculturation challenges and internalizing problems such as depression and anxiety (Chavez-Korell et al., 2014; Cuéllar, Nyberg, Maldonado, & Roberts, 1997; Gamst et al., 2002; Schwartz, Des Rosiers, et al., 2013; Torres, 2010).

Immigration-related conflicts can have a particularly deleterious effect on the quality of interpersonal relationships resulting from increased risk for couple and family conflict, and reduced family cohesion (Archuleta & Teasley, 2013; Dillon, De La Rosa, & Ibanez, 2013; Formoso, Gonzales, Barrera, & Dumka, 2007; Rueschenberg & Buriel, 1989; Schwartz et al., 2012; Schwartz, Des Rosiers, et al., 2013). Specifically, the "acculturation gap distress hypothesis" refers to conflicts at the family level resulting from contrasting cultural identities and preferences among family members. This gap has been confirmed in research with Latino/a families in which young adolescents report a preference for US cultural values and practices, contrasting with their parents' preferences for Latino-oriented cultural values and traditions (Paul R. Smokowski, Rose, & Bacallao, 2008; Szapocznik, Santisteban, Kurtines, Perez-Vidal, & Hervis, 1984). The acculturation gap has been identified as a risk factor for adolescent drug use (Prado, Szapocznik, Maldonado-Molina, Schwartz, & Pantin, 2008).

Additional studies with immigrant families have found that parent-child communication problems are more frequent if foreign-born Latino/a parents perceive their children as unwilling to embrace cultural definitions of family nor ethnic self-identifications that are highly valued in Latin American cultures (Umana-Taylor & Alfaro, 2009; Umana-Taylor, 2006). These conflicts

can also negatively impact the parental alliance as parents may disagree about expectations for their children's adherence to specific cultural values, practices, and identities (Dumka, Prost, & Barrera, 2002). Further, the accelerated rate of immigration from Latin American countries has not been matched adequately with corresponding increases in culturally-appropriate mental health services for these populations (e.g., Gonzalez, Alegría, Prihoda, Copeland, & Zeber, 2011; López, Barrio, Kopelowicz, & Vega, 2012; Vega, Rodriguez, & Gruskin, 2009).

In contrast to the aforementioned risk factors, positive effects have been found when immigrant parents and their children can mutually validate their contrasting cultural values and identities (Schwartz, Mason, Pantin, & Szapocznik, 2008; Umana-Taylor, 2006; Umaña-Taylor, Alfaro, Bámaca, & Guimond, 2009). In fact, culturally-focused interventions for Latino/a immigrant families aimed at promoting biculturalism, rather than assimilation, have the primary goal of facilitating a family climate in which parents and youth can freely express and mutually validate their preferred cultural values and experiences. These interventions have been found to be highly effective in preventing externalizing and internalizing behaviors in youth in immigrant families (Carpentier et al., 2007; Coatsworth, Pantin, & Szapocznik, 2002; Cordova, Huang, Pantin, & Prado, 2012; Frauenglass, Routh, Pantin, & Mason, 1997; Gonzales et al., 2012).

In summary, although immigration constitutes a key opportunity for families to achieve life goals that are not attainable in their countries of origin, several challenges can result from the immigration experience. Relevant culturally-informed interventions have been found to be efficacious in addressing family conflicts resulting from immigration (John W. Berry, 2006; Cabrera, Shannon, & Jolley-Mitchell, 2013). However, there continues to be a limited understanding about how parent-level variables and within-family cultural processes are associated with successful adaptation among immigrant families. For example, there is a need to

investigate the extent to which changes in parents' level of acculturation are associated with perceived changes in immigration-related stress, parental mental health, and parental alliance (John W. Berry, 2006; Cabrera, Shannon, & La Taillade, 2009; Formoso et al., 2007; Padilla & Borrero, 2006; Quintana & Scull, 2009). The current study seeks to offer a contribution to address such gaps in the literature.

Purpose of the Study

The purpose of this investigation was to examine the association between changes in immigrant parents' level of acculturation and changes in their reported levels of: (a) immigration-related stress, (b) parental depression, and (c) parental alliance. Data for this study were provided by first generation Latino/a immigrant parents residing in the Midwestern US. All parents in this study participated in a randomized clinical trial of a culturally-adapted parenting intervention aimed at supporting their parenting efforts. The efficacious intervention is known as Parent Management Training—The Oregon Model (PMTO) (Forgatch & DeGarmo, 1999). A series of studies focused on the cultural adaptation of PMTO for Latino populations have been implemented by Dr. Parra-Cardona and colleagues (Parra-Cardona et al., 2016). This study constitutes an extension of this program of research.

Parents in this investigation were allocated to one of three conditions: (a) a culturally adapted version of PMTO, (b) a culturally adapted and culturally-enhanced version of PMTO, and (c) a wait-list control condition. Whereas findings from this investigation were biased based on this sampling approach, which included culturally-focused interventions for parents who participated in the adapted parenting program, this investigation provides relevant empirical data highlighting the need to complement adapted parenting interventions with increased attention to the outcomes under study.

Research Aims

There is a gap in knowledge with regards to understanding how changes in Latino immigrant parents' level of acculturation are associated with perceived changes in immigration-related stress, mental health, and parental alliance (J. W. Berry, 2006; Padilla & Borrero, 2006; Schwartz, Montgomery, & Briones, 2006; Schwartz, Zamboanga, & Jarvis, 2007). Addressing this gap in research is important as family-based interventions can be informed according to this knowledge to more precisely target risk factors in the lives of parents, as well as to enhance protective factors (Coatsworth et al., 2002; Cordova et al., 2012; Frauenglass et al., 1997). In an effort to contribute to the existing body of empirical literature, the current investigation utilized latent growth curve modeling to achieve the following specific research aims:

Specific Aim 1a. *To evaluate the initial association and pattern of variation over time between maternal level of acculturation and paternal extra-familial immigration-related stress (see Model 1a).*

It was expected that mothers' level of acculturation would not increase over time, whereas fathers' reports of extra-familial stress would gradually increase. Further, changes in perceived extra-familial stress reported by fathers would not be associated with maternal level of acculturation.

Specific Aim 1b. *To evaluate the initial association and pattern of variation over time, between paternal level of acculturation and maternal extra-familial immigration-related stress (see Model 1b).*

It was expected that fathers' level of acculturation would increase over time, as well as mothers' reports of extra-familial stress. Further, changes in perceived extra-familial stress reported by mothers would be associated with changes in paternal level of acculturation.

Specific Aim 2a. *To evaluate the initial association and pattern of variation over time, between maternal level of acculturation and paternal intra-familial immigration-related stress (see Model 2a).*

It was expected that mothers' level of acculturation would not increase over time, whereas fathers' reports of intra-familial stress would gradually increase. Further, changes in perceived intra-familial stress reported by fathers would not be associated with maternal level of acculturation.

Specific Aim 2b. *To evaluate the initial association and pattern of variation over time, between paternal level of acculturation and maternal intra-familial immigration-related stress (see Model 2b).*

It was expected that fathers' level of acculturation would increase over time, as well as mothers' reports of intra-familial stress. Further, changes in perceived intra-familial stress reported by mothers would be associated with changes in paternal level of acculturation.

Specific Aim 3. To evaluate the extent to which time in host country predicts changes over time between parental level of acculturation and parental depression (see Model 3).

Time in the host country would predict increased levels of acculturation, but only for fathers. Similarly, only mothers would report significantly higher levels of depression over time. Further, there would be a significant relationship between increased levels of depression reported by mothers and fathers' increased levels of acculturation.

Specific Aim 4a. To evaluate the initial association and pattern of variation over time, between maternal level of acculturation and parental alliance (see Model 4a).

It was expected that mothers' level of acculturation would not increase over time, whereas parental alliance would gradually increase. Further, there would not be an association

between maternal level of acculturation and parental alliance.

Specific Aim 4b. To evaluate the initial association and pattern of variation over time, between paternal level of acculturation and parental alliance (see Model 4a).

It was expected that fathers' level of acculturation would increase over time, as well as levels of parental alliance. Further, there would not be an association between paternal level of acculturation and parental alliance.

Due to the inherent bias in this study, which referred to 69% of the sample being exposed to a culturally adapted version of the PMTO intervention, treatment condition was included in the models as a covariate, with the exception of model three, in which time in country was included as a predictor.

Guiding Theories

The core theories informing this study were: (a) Immigration-Related Stress (J. W. Berry, 2006; John W. Berry, 2006; Adriana J. Umana-Taylor & Alfaro, 2009), (b) Acculturation Theory (Schwartz et al., 2006; Schwartz, Unger, Zamboanga, & Szapocznik, 2010; Schwartz, Zamboanga, & Weisskirch, 2008), and (c) Parental Alliance in Parenting Practices (Bearss & Eyberg, 1998; Gullan, LeRoy, Boxer, & Mahoney, 2014; Weissman & Cohen, 1985)

Immigration-Related Stress

Immigration-related stress refers to the nature and impact of stressors commonly experienced by immigrants (Berry, 2006a, 2006b; Umana-Taylor & Alfaro, 2009). Stress resulting from immigration can be examined by identifying the reasons for immigration (e.g., economic, social, political), the context of reception for immigrants (e.g., accepting and open vs. closed and discriminatory contexts), and the impact that the immigration process has on individuals and families experiencing relocation. Due to the complexity of the construct and the

various dimensions associated with immigration-related stress, this study focused exclusively on two dimensions of this variable: (a) intra-familial stress, which refers to couple and family conflicts associated with immigration stressors (e.g., parent-child conflicts due to contrasting cultural values and practices) (Cavazos-Rehg, Zayas, Walker, & Fisher, 2006). In addition, (b) extra-familial stress refers to the extent to which contextual stressors associated with the immigration experience have an impact on individuals and families (e.g., effects of perceived discrimination, economic challenges).

There continues to be a gap in research with regards to understanding how immigration-related stressors are associated with individual levels of acculturation, parental mental health, and parental alliance on parenting practices (John W. Berry, 2006; Gamst et al., 2002; Marsiglia, Nagoshi, Parsai, Booth, & Castro, 2014; Rueschenberg & Buriel, 1989; Schwartz et al., 2010; Paul R. Smokowski et al., 2008). This study will offer a contribution towards exploring these associations according to self-reports of first-generation Latino/a immigrant parents.

Acculturation

Scholars have expressed the need to challenge unidimensional models of acculturation in which affiliation with the majority culture and host country is identified as the optimal outcome (Parra-Cardona, Busby, & Wampler, 2004; Schwartz et al., 2010). This limited notion of acculturation has been challenged by researchers highlighting the need to understand acculturation according to multidimensional perspectives. For example, Schwartz and colleagues (2010) define acculturation as a multi-dimensional process, consisting of multiple alternatives of personal cultural identifications, as well as a range of preferences of cultural practices and values (see Figure 15).

The need to understand acculturation according to multidimensional models is relevant as

there is a risk to conceptualize this construct according to limited perspectives that rely on single indicators of acculturation (e.g., language of preference). As Figure 15 illustrates, immigrants may experience a wide range of changes in their preferred ethnic self-identification (e.g., country of origin vs. host country), cultural values (e.g., collectivist vs. individualist), and cultural practices (e.g., language, traditions, food).

Parental Alliance

Parental alliance theory addresses a particular type of couple relational dynamic, distinct from marital or romantic relationships (Bearss & Eyberg, 1998; Weissman & Cohen, 1985). A strong parental alliance occurs when both parents openly communicate and support each other regarding child-rearing responsibilities, express mutual validation and respect, and share a commitment towards their children's well-being (Bearss & Eyberg, 1998). A strong parental alliance is associated with reductions in child internalizing and externalizing behaviors (e.g., Dumka, Prost, & Barrera, 2002; Mitrani, Santisteban, & Muir, 2004; Weissman & Cohen, 1985), increased paternal involvement with the children (McBride & Rane, 1998), and decreased incidence of depression in mothers (e.g., Hughes, Gordon, & Gaertner, 2004; McBride & Rane, 1998).

Limited empirical data have been generated to understand changes in parental alliance over time among first generation Latino immigrant families (Cabrera et al., 2013). This line of research is relevant because increases in parental alliance are associated with improved sense of parental self-efficacy. However, this hypothesis remains to be thoroughly tested with Latino immigrant parents (Dumka et al., 2002). Thus, this investigation will assess whether increased parental alliance over time can be achieved, despite contrasting levels of acculturation between mothers and fathers.

Significance of the Study

A body of literature has documented the various ways in which immigration impacts the well-being of immigrants, including the impact of immigration-related stress on individual physical and mental health (e.g., Archuleta & Teasley, 2013; Berry, 2006b; Cervantes, Padilla, Napper, & Goldbach, 2013; Hovey & Magana, 2000; Rueschenberg & Buriel, 1989; Schwartz et al., 2006). Randomized controlled trials have documented the efficacy of family-focused interventions aimed at addressing within-family cultural conflicts, however, the main focus of these interventions have primarily centered on the parent-adolescent relationship (e.g., Archuleta & Teasley, 2013; Cuéllar et al., 1997; Gamst et al., 2002; Rogler et al., 1991; Smokowski et al., 2008; Schwartz, Unger, et al., 2014Szapocznik et al., 1984), with less attention given to managing cultural conflicts in the couple relationship (e.g., Flores, Tschann, VanOss Marin, & Pantoja, 2004; Padilla & Borrero, 2006; Rueschenberg & Buriel, 1989). Thus, there is a need to better understand the ways in which acculturation changes among immigrant parents are associated with perceived immigration-related stress, parental mental health, and parental alliance related to parenting practices (e.g., Flores et al., 2004; Formoso et al., 2007; Gullan et al., 2014; Marsiglia et al., 2014; Updegraff, McHale, Crouter, & Kupanoff, 2001). This study offers a contribution towards addressing this gap in research by exploring associations among these relevant constructs.

Limitations of the Study

Important research design limitations must be noted. First, the data consisted of participants' self-reports. Chan (2009) contends that self-report studies are valuable and important in the social sciences field. However, this type of studies can be impacted by social desirability bias and possible fears of legal repercussions. For example, in the proposed study all

research participants were first-generation immigrants, and their responses could have been influenced according to what they considered threatening (e.g., instances of discrimination by authorities).

An additional important limitation refers to the fact that 69% of research participants attended a 12-week parenting program. Of this sub-sample, half were exposed to a culturally-enhanced parenting intervention which addressed in depth key cultural issues such as, acculturation-related stressors, discrimination, and biculturalism. Thus, although the focus of the intervention was primarily the promotion of parenting skills according to relevant cultural themes, it may be possible that the parenting intervention had an effect beyond immediate parenting outcomes, such as parental perceptions of ethnic self-identification and parenting alliance. Finally, whereas the instrument utilized in this study provides scores relative to level of biculturalism, as well as US and Latino orientations (Szapocznik, Kurtines, & Fernandez, 1980), a more comprehensive approach to measure acculturation was not used in this study such as including separate measures to more accurately assess language preferences, cultural practices, ideologies, beliefs, and self-defined cultural identity. Notwithstanding these limitations, the current study constitutes a relevant contribution to the literature on Latino immigrant families based on the examination of key variables and processes that are likely to impact the immigration experiences of first-generation Latinos/as.

CHAPTER 2: LITERATURE REVIEW

There is extensive research on Latino immigration and acculturation (e.g., Archuleta & Teasley, 2013; Dillon et al., 2013; Flores et al., 2008; Lueck & Wilson, 2011; Padilla & Borrero, 2006; Russell & Doucette, 2012; Snyder, 1987), particularly as it refers to the children and youth of Latino immigrant families (Cavazos-Rehg & DeLucia-Waack, 2009; Pokhrel, Herzog, Sun, Rohrbach, & Sussman, 2013; Schwartz, Des Rosiers, et al., 2013; Schwartz, Unger, et al., 2014; Sirin et al., 2013). Gaps in research remain concerning the specific ways in which immigration has a differential impact on parents (e.g., differential rates/levels of acculturation over time between mothers and fathers), and how individual immigration-related processes (e.g., acculturation level) impact specific couple-level parenting dynamics (e.g., parental alliance).

In the sections below, a review of the literature focused on areas of scholarship relevant to this investigation is presented. First, a brief overview is presented focused on immigration-related stress, including a discussion on what is known as the *Latino/a immigrant paradox*. Next, the relevant constructs of acculturation and biculturalism are defined, complemented by a review of their associated effects on individuals and family relations. Finally, a discussion on key constructs relevant to this investigation is presented (i.e., parenting, parental alliance, resilience). Although some references to non-Latino/as are included, the majority of the scholarship cited in this study refers to Latino/a immigrant populations.

Immigration-Related Stress

The experience of immigration is associated with opportunities for immigrants who want to improve their quality of life by seeking economic security, provide new opportunities for their children, or escape unstable and dangerous contexts. However, the immigration experience is associated with considerable challenges for immigrants at multiple levels.

Extra-familial immigration-related stress. Extra-familial immigration-related stress refers to the anxiety experienced by immigrants resulting from contextual factors associated with immigration (R. C. Cervantes, Padilla, & Salgado de Snyder, 1991). Although the literature on this topic is extensive, I will highlight below some of the areas related to extra-familial stress that have been reported in the literature and that are most pertinent to this investigation.

Whereas immigrants frequently report the important ways in which immigration has helped them overcome extreme economic adversity or community violence experienced in their countries of origin, such positive changes are often times associated with exploitation in the workplace, fear of deportation, experiences of discrimination, and barriers to access health and mental health services (Galvan, Wohl, Carlos, & Chen, 2015; Ramos, Su, Lander, & Rivera, 2015; Sarmiento & Cardemil, 2009). Further, lack of documentation and fear deportation keep many immigrants from accessing health and mental health services (López et al., 2012; Vega et al., 2009). These challenges are exacerbated due to limited bilingual and culturally competent providers, as well as lack of adequate health insurance coverage (Saechao et al., 2011; Vega et al., 2009).

Comprehensive federal initiatives have been launched aimed at addressing health disparities experienced by ethnic minority populations in the US (Dankwa-Mullan et al., 2010). However, recent studies indicate that these disparities persist among Latino populations, with the highest negative impact experienced by Latino immigrants. For example, Alegria and colleagues (2008) documented failure to detect depression among Latino immigrants due to limited cultural relevance of screening procedures. These challenges are compounded by political debates identifying Latino immigrants as contributors to economic and social crises (Becerra, 2012; Becerra, Androff, Cimino, Wagaman, & Blanchard, 2012Levers & Hyatt-Burkhart, 2012).

Intra-familial immigration-related stress. At the individual level, first-generation Latinos tend to report better health and mental health than their US-born counterparts. This phenomenon has attracted the interest of researchers and is known as the *Latino/a immigrant paradox.* Simply stated, the paradox establishes that, in spite of low socio-economic status and increased exposure to contextual challenges, Latino/a immigrants tend to have better health and mental health outcomes than their US-born counterparts (Balcazar, Grineski, & Collins, 2015). The paradox has not been fully understood, but the research suggests that multiple factors may account for this phenomenon, such as low levels of acculturation, protective cultural values and practices, potentially healthier lifestyles, and genetics (Alegria et al., 2008; Campbell, Garcia, Granillo, & Chavez, 2012; Fuller et al., 2009; Teruya & Bazargan-Hejazi, 2013).

Cognitive appraisal of adversity may be a particularly salient protective factor helping Latino/a immigrants attenuate the impact of immigration-related stress. One example refers to Driscoll and Torres' (2013) model of immigration stress, which focuses on immigrants' coping styles and meaning-making. According to this model, first-generation Latinos attenuate the effects of immigration based on their ability to find a unique sense of purpose for the immigration experience. For example, being able to compare their current life circumstances with those of their countries of origin, can allow immigrants to consider that the benefits of immigration outweigh its associated challenges. Therefore, having a permanent income, achieving food security for one's family, and experiencing lower risk of community violence and victimization, are contrasting realities that may help Latino immigrants frame adversity in the US as an opportunity for securing a better future for their children (Driscoll & Torres, 2013).

Length of stay: The counterpart of the immigration paradox. The Latino paradox has been documented among foreign-born Latinos. However, empirical data from longitudinal

studies have also demonstrated that Latinos' rates of health and mental health disorders tend to increase with length of residence in the United States (Ornelas & Perreira, 2011). For example, depression appears to particularly affect Latino immigrants over time. Research with first generation Latino parents has demonstrated associations between depression and multiple risk factors such as racial discrimination, language barriers, work exploitation, poverty, social isolation, limited access to cultural resources, and prolonged separation from loved ones left behind in countries of origin (Gee, Ryan, Laflamme, & Holt, 2006; Mair et al., 2009; Moynihan, Gaboury, & Onken, 2008; Ornelas, Perreira, Beeber, & Maxwell, 2009; Perreira, Chapman, & Stein, 2006; Torres, 2010). Because depression is one of the major mental health problems that can be manifested earlier among Latino immigrants, self-reported depressive symptomatology constitutes one of the outcomes of interest in this investigation.

The Impact of immigration on couples. At the couple level, immigration can lead to couple/marital distress (Negy & Snyder, 1997). Key predictors for this outcome include partners' differential access to resources as they adjust to the immigration experience, as well as level of difficulty for each partner to cope with the losses associated with the immigration experience. For example, the member of a couple who has a work permit and access to external groups of reference (e.g., coworkers) is likely to experience less social isolation and more economic freedom than the partner who does do not have access to these sources of support. For immigrants with increased access to resources, losses associated with the country of origin can be attenuated with access to a permanent income, a work environment, and increased social networks (Negy, Hammons, Ferrer, & Carper, 2010). Furthermore, the experience of distress in one partner is particularly exacerbated if the partner with more coping resources is not empathic and supportive about the other's isolation and cultural losses. The negative impact experienced

by partners with limited access to resources can be particularly pronounced if they must depend on their spouses for legal documentation status (Falconier, Huerta, & Hendrickson, 2015; Falconier, Nussbeck, & Bodenmann, 2013; Orengo-Aguayo, 2015). More research is needed to examine how immigration-related stress impacts couples.

The impact of immigration on families. Immigrant families experience stress related to differential and changing cultural identities among family members, loss of family connections, family differences in perception related to the benefits of immigration, and potential isolation as a family unit. For instance, whereas many families experience multiple sources of stress, immigration-related stressors can have a particularly deleterious effect if the stressors negatively impact family cohesion, communication, interaction, and emotional intimacy (Forster, Grigsby, Soto, Schwartz, & Unger, 2014; Negy et al., 2010; Negy & Snyder, 1997; Padilla & Borrero, 2006). It has also been documented that family cohesion decreases in immigrant families within two years of relocation to the new country (Dillon et al., 2013). The negative impact on family cohesion also increases as immigrants face educational, economic, and documentation challenges. Thus, although *familism* is a key Latino cultural value that highlights the importance of family cohesion and support (Sabogal, Marín, Otero-Sabogal, Marín, & Perez-Stable, 1987), immigration-related stressors can gradually erode the protective characteristics of this cultural value.

Furthermore, immigration stressors associated with a decline in family functioning due to immigration challenges can result in increased depression among Latino parents (Sarmiento & Cardemil, 2009). An additional risk factor refers to family separation when not all members of extended families can emigrate (Rusch & Reyes, 2013). These separations negatively impact family structure and family dynamics, as well as increasing anxiety and depression (Rusch &

Reyes, 2013).

Measurement of immigration-related stress among Latino/a immigrants. Among existing measures, the Hispanic Stress Inventory (HSI) constitutes one of the most comprehensive and widely utilized instruments. The HSI is focused on the specific ways in which immigration-related stress can impact families in five domains (R. C. Cervantes et al., 1991): (a) couple/marital relationship, (b) occupational and economic stress, (c) parental stress, (d) familial stress, and (e) contextual stress. Because the intensity of stressors and nature of stress can vary by ethnic self-identification, the use of ethnic-specific measures on immigration-related stress is particularly relevant (Cavazos-Rehg et al., 2006). In the methods section, a description of a valid and abbreviated version of the HSI is be provided.

Acculturation and Biculturalism

Historically, the concept of acculturation frequently meant "assimilation" and defined by the extent to which immigrants accepted the customs and practices of the receiving culture/country. In the context of the US, successful assimilation was defined by acquisition of English language and embracing US cultural values, traditions, and social practices (Sam, 2006). This unidimensional perspective informed immigrant acculturation studies for decades; however, contemporary acculturation scholars strongly emphasize the need for multidimensional conceptualizations of acculturation, including biculturalism (Santisteban et al., 2012; Schwartz & Zamboanga, 2008; Sullivan et al., 2007; Szapocznik et al., 1984).

Schwartz et al. (2008) proposed a multi-dimensional definition of acculturation (Fig. 1) that assesses individual preferences on cultural practices, values, and cultural identification. This model of acculturation incorporates traditional indicators of acculturation including specific behaviors and practices (e.g., language preference, preferred TV shows and music, retaining or

revising customs and celebrations). In addition, attention is given to individual preferences regarding individualistic versus community orientations. An individualistic orientation is the extent to which independent ways of living (e.g., little interaction with extended family and traditional social networks) are preferred, in contrast to a community orientation characterized by high interdependence with groups of reference (e.g., frequent interaction with extended family and other social support networks). Finally, the level of identification refers to an overall identification with the receiving country or in contrast, with the country of origin.

A multidimensional understanding of acculturation has led researchers to focus on the study of biculturalism. That is, rather than expecting individuals to identify themselves only with opposite extremes of an acculturation continuum, biculturalism for immigrants is understood as the capacity to integrate elements from two cultures (Bacallao & Smokowski, 2005; Szapocznik et al., 1980). Conceptualizing acculturation as a multidimensional phenomenon and valuing biculturalism as a healthy integration of two cultures present an alternative to unidimensional notions of acculturation. The remaining challenge in the field is the effective measurement of biculturalism (Schwartz, Zamboanga, et al., 2008; P. R. Smokowski & Bacallao, 2008). Thus, it is critical to expand these lines of scholarship to increase the empirical evidence associated with potential benefits represented by biculturalism. For example, adopting biculturalism and retaining traditional *familism* values have been found to be protective factors against internalizing and externalizing problem behaviors in adolescents (P. R. Smokowski & Bacallao, 2006; Paul R. Smokowski et al., 2008). Specifically, Smokowski and Bacallao (2006) found that biculturalism and *familism* were related to higher self-esteem and lower internalizing behaviors in adolescent Latino immigrants. These researchers also confirmed that biculturalism can act as a buffer against the potentially deleterious effects of immigration-related stress. Additional studies

have confirmed additional protective effects of biculturalism, such as increased prosocial behavior in youth and improvements in the quality of family relationships (Schwartz et al., 2015; Paul R. Smokowski, Rose, & Bacallao, 2009).

Acculturation and individuals. Previous studies have found that, over time, greater acculturation and identification with the US is associated with increased risk for internalizing (e.g., Cuéllar, Nyberg, Maldonado, & Roberts, 1997; Pokhrel et al., 2013; Schwartz et al., 2011, 2014; Zamboanga, Schwartz, Jarvis, & Tyne, 2009) and externalizing problems in individuals (Cavazos-Rehg & DeLucia-Waack, 2009; Chavez-Korell et al., 2014; Gamst et al., 2002; Schwartz, Des Rosiers, et al., 2013; Torres, 2010). The majority of these studies have focused on the impact of acculturation on children and adolescents (Cavazos-Rehg & DeLucia-Waack, 2009; Cuéllar et al., 1997; Pokhrel et al., 2013; Schwartz et al., 2011; Schwartz, Syed, et al., 2014; Schwartz, Waterman, et al., 2013; Zamboanga et al., 2009).

The relationship between acculturation and risk for unsuccessful adaptation still needs to be fully understood. For example, researchers have found that a stronger Latino cultural orientation is associated with increased self-esteem among adolescents enrolled in bilingual education programs (Cavazos-Rehg & DeLucia-Waack, 2009). Higher levels of acculturation are associated with increased risk for internalizing and externalizing problems in youth, including higher rates of alcohol use, increased frequency of unprotected sex, and delinquent and antisocial behaviors (e.g., Gamst et al., 2002; Pokhrel et al., 2013; Rogler, Cortes, & Malgady, 1991; Schwartz et al., 2012; Sirin et al., 2013; Zamboanga et al., 2009).

However, the relationship between level of acculturation and risk for behavior problems is not linear and is characterized by complex interactions. For example, Schwartz and colleagues (2014) conducted research in two densely populated Latino cities (Los Angeles and Miami).

They found that highly acculturated male adolescents who reported a preference for individualism also reported a larger number of oral sex partners and greater frequency of unprotected sex. However, adolescent males who reported low levels of acculturation engaged in more heavy drinking and higher number of sexual partners (Schwartz et al., 2014).

With regards to the relationship between acculturation and mental health, researchers have reported high acculturation to be associated with increased risk for mental health (Torres, 2010). Interestingly, biculturalism has been reported to have a protective effect against depression (Chavez-Korell et al., 2014). These findings correspond with studies conducted with immigrant college students from multiple nationalities, in which those students with the highest levels of mental health also reported high levels of biculturalism. Those with greater levels of acculturation also reported positive overall well-being (Schwartz, Waterman, et al., 2013).

Acculturation and family relations. Whereas acculturation was originally conceptualized as an individual-level phenomenon, recent studies have examined how acculturation impacts multiple levels of family functioning. For example, Sabogal et al. (1987) explored the association between acculturation and its impact on the cultural value known as *familism*. *Familism* has been described in the literature as the importance of family life and family cohesion (Sabogal et al., 1987). According to these researchers, whereas some dimensions of *familism* (e.g., familial obligations) decreased as Latino youth acculturated, the overall importance attributed to family remained unchanged (Sabogal et al., 1987). In a similar line of research, Rueschenberg and Buriel (1989) classified Latino immigrants into three distinct categories: (a) families with parents residing in the United States for less than five years and reporting low levels of acculturation, (b) families with parents residing in the United States for at least ten years with US-born children, and (c) families with parents and children born in the

United States with both parents and children reporting high levels of acculturation. The most relevant finding was that parents reporting low levels of acculturation and high preference for speaking Spanish had the strongest orientation towards achieving goals as a family, even if ensuring family cohesion led to reduced opportunities for professional advancement.

Acculturation and parent-youth relationships. Several correlational studies focused on youth have reported an association between higher levels of acculturation and increased risk for internalizing and externalizing behaviors (Marsiglia et al., 2014; Perreira et al., 2006; Schwartz et al., 2012; Unger, Ritt-Olson, Soto, & Baezconde-Garbanati, 2007; Updegraff et al., 2001; White, Roosa, Weaver, & Nair, 2009). Recent studies provide a more comprehensive framework to understand risk and protective factors, examining the relationship between biculturalism and mental health outcomes. For example, Sullivan and colleagues (2007) found that adolescents who reported adopting US cultural values while maintaining their Latino cultural heritage, also reported higher levels of family support, parental involvement, and positive parenting. In contrast, adolescents who reported adopting US cultural values but rejected or minimized their Latino cultural heritage also reported higher levels of aggressive behaviors compared to their counterparts.

More empirical research is needed to further clarify the impact of biculturalism on parent-youth relationships. In this regard, research on what is known as the "acculturation gap" hypothesis has become a prominent line of inquiry among acculturation scholars. Briefly, the acculturation gap hypothesis was first proposed by Szapocznik and colleagues (1989) after corroborating the increased risk for Hispanic youth drug use in first generation immigrant families. These researchers documented that differences on level of acculturation between foreign-born parents and their US- or foreign-born youth increased the risk for parent-youth

conflict, with resulting youth internalizing and externalizing behaviors. The basic premise referred to the fact that parent-youth cultural differences could lead to increased parent-youth conflicts. As a result, youth may feel alienated and gravitate towards peers for support. If these peers were engaged in risky behaviors, adolescents experiencing cultural conflicts at home would also be exposed to such risky behaviors. In order to reduce cultural differences associated with the parent-youth gap, Szapocznick and colleagues (1984) proposed to identify such gaps and promote a process of cultural understanding among family members. This focus of intervention, also referred to as promotion of biculturalism, has been found to constitute a protective factor against acculturation gaps in families with associated reductions of internalizing (e.g. depression) and externalizing behaviors (e.g., antisocial behaviors, drug use) in Latino youth (Bacallao & Smokowski, 2005; P. R. Smokowski & Bacallao, 2008; Unger et al., 2007). However, these studies were implemented in contexts characterized by high Hispanic population densities, a key factor in understanding the potential deleterious or functional effects of within-family acculturation gaps. For families surrounded by Hispanic cultural resources, a cultural gap may be perceived by parents as undesirable as it would be an indication that the youth is moving away from the roots of Latino culture and the Latino community. In contrast, in contexts characterized by low Hispanic population density with few resources for Latinos/as, an acculturation gap may be perceived by parents as functional if the role of adolescents is to act as "cultural brokers," which refers to communicating and interacting with external systems on behalf of the parents (Paul R. Smokowski et al., 2008).

The dynamic nature of the acculturation gap hypothesis has been partially supported in empirical research. Schwartz and colleagues (2012) reported that a Miami sample of Latino families characterized by low acculturated parents and high acculturated youth reported

increased parent-youth communication problems. In contrast, this same family configuration was not predictive of communication problems in a sample of Latino families residing in California. Clearly, there is a need to further examine the ways in which history of migration, immigration status, and differences among Latino communities could be associated with these contrasting findings.

In closing, an accurate understanding of the acculturation gap hypothesis with regards to its multiple expressions and associated outcomes remains inconclusive. Continuing this line of research is of relevant because due to the lack of consistency in existing studies (Elder, Broyles, Brennan, Nuncio, & Nader, 2005; Lau et al., 2005; Pasch et al., 2006).

Acculturation and couple relationships. Empirical studies indicate that high acculturation can be associated with higher risk for emotional distress in intimate relationships. For example, Negy and Snyder (1997) reported that first generation Latina immigrants in committed relationships reporting high levels of acculturation experienced higher marital distress than their lower acculturated counterparts. Similarly, in a study conducted by Flores and colleagues (2004), highly acculturated males reported their sex life and relationships with in-laws as primary reasons for family conflict, whereas highly acculturated wives identified control struggles and physical threats or aggression as primary reasons for couple conflict. This study indicates how acculturation can be indicative of the extent to which each member of a couple may align with traditional societal norms (e.g., unquestioned control by males in extreme *machismo*), or actively question social mandates and expectations.

Additional lines of research have examined the impact of acculturation on the couple relationship. These studies indicate that empathy between members of a couple, particularly if couples report differential acculturation, plays a key role in adapting to immigration challenges

(Cruz et al., 2014; Harris, Skogrand, & Hatch, 2008; Orengo-Aguayo, 2015). Further, studies have confirmed the importance of couple conflict resolution as related to level of acculturation (Bermúdez & Stinson, 2011). Wheeler et al. (2010) found significant associations between high acculturation and higher risk for couple conflict and decreased relationship quality.

Parental alliance in immigrant families

As previously discussed, immigration is likely to increase parenting challenges as normative childrearing challenges are exacerbated by immigration-related factors, such as differential acculturation among family members, discrimination, lack of social support, language barriers, poverty, food insecurity, and social stigma (Cabrera, Shannon, and Jolley-Mitchell, 2013; Gonzalez, Fabrett, & Knight, 2009; Knight, Roosa, Calderon-Tena, & Gonzalez, 2009; Quintana & Scull, 2009). In the face of these challenges, parents capable of embracing a parental alliance are more likely to adapt and successfully manage these complex challenges. Parental alliance is formulated on the premise that there is a difference between the marital relationship and the parental relationship (Weissman & Cohen, 1985), although each relationship type influences the other to varying degrees. That is, the parental alliance is differentiated from the marital/couple relationship by having its main focus on the patterns of interactions associated with childrearing activities and the extent to which these patterns shared a common vision, goals, values, and negotiated responsibilities for these tasks. Thus, a functional parental alliance occurs when each partner values and respects the contributions of the other with regards to parenting responsibilities and involvement (Feinberg, Brown, & Kan, 2012; Gullan et al., 2014; Hock & Mooradian, 2013).

Low parental alliance has been associated with increased risk for child internalizing and externalizing behaviors, low quality of paternal involvement, and decreased marital satisfaction

(Bearss & Eyberg, 1998; Dumka et al., 2002; Flores et al., 2004; Formoso et al., 2007; Gullan et al., 2014; Hughes et al., 2004; McBride & Rane, 1998). In immigrant families, cultural factors play a critical role in parenting interactions and the resulting quality of the parental alliance. Cabrera and colleagues (2009) found that highly acculturated Latino fathers were more engaged in co-parenting behaviors than less acculturated fathers. The more acculturated fathers remained engaged in parenting behaviors even when reporting low parental alliance and high frequency of co-parenting conflict. As a protective factor, high parental alliance is associated with increased sense of parental self-efficacy (Dumka et al., 2002), increased frequency and quality of paternal involvement (Formoso et al., 2007), and higher levels of marital/couple satisfaction (Cabrera et al., 2009; Hughes et al., 2004; McBride & Rane, 1998). Despite the benefits of parental alliance, the mechanisms by which this process operates in immigrant couples remain to be corroborated in empirical research (Dumka et al., 2002).

Resilience

Latino/a immigrants can be characterized as having resilient attributes that allow them to adapt and cope with extreme adversity, as demonstrated by the Latino health paradox. Resilience is a concept that has been widely disseminated across multiple fields in the social sciences, and there has been increased recent attention to resilience in biomedical research (Chen, Miller, Lachman, Gruenewald, & Seeman, 2012; Henry, Sheffield Morris, & Harrist, 2015). According to Walsh (2015), resilience refers to the "ability to withstand and rebound from serious life challenges" (p. 4). Three key processes are associated with resilience: (a) family belief systems, (b) family organizational patterns, and (c) family communication processes. Family belief systems refer to the family's capacity to find meaning in adversity, as influenced by the family's perceptions of hope and spirituality. Clear family structures and predictable patterns of

interaction assist families to overcome life challenges. Finally, family communication processes include clear family patterns of communication, emotional sharing, and collaborative problem solving (Walsh, 2015).

Whereas resilience was not measured in this study, I have included a brief narrative on this topic as I hypothesize that research findings will show potential indicators of resilience among participants in this investigation. For example, one of the few resilience studies conducted with Latino immigrants indicates that three specific domains of resilience among participants acted as protective factors against the deleterious effects of immigration. Among these were individual characteristics of resilience (e.g., positive interpretation of adversity), adaptive family dynamics, and access to community support (Bermudez & Mancini, 2013; Cardoso & Thompson, 2010; Gallo, Penedo, Espinosa de los Monteros, & Arguelles, 2009; Morgan Consoli & Llamas, 2013). Further, Morgan Consoli and Llamas (2013) found that specific cultural values, such as *familism*, can be critical precursors of resilience among immigrant families.

CHAPTER 3: METHODOLOGY

Participants

Data for this study were collected from 103 low-income Latino immigrant families residing in the Midwestern US at the time of recruitment. It is important to note that all participating families were recruited and participated in the study between 2011 and 2014. At the time of implementation of this investigation, nationwide expressions of hostility and rejection towards Latino immigrants were less pronounced than in recent years, in which negative perceptions have been exacerbated due to the US political climate (Hacker, Chu, Arsenault, & Marlin, 2012; Hardy et al., 2012; Kugel & Zuroweste, 2010). Because immigrant reception contexts change according to contrasting political and global events, the immigration-related stress documented in this study was likely influenced by the social, economic, and political climate corresponding to the implementation timeline of this study.

Detailed screening procedures focused on participating children and parents. Specifically, one focal child (FC) per family was identified using the following inclusionary criteria: (a) between ages 4 and 12, (b) English speaking, Spanish speaking, or bilingual, (c) attending kindergarten or elementary school, and (d) no documentation of active sexual abuse. Bird and colleagues' screening measure (2001) was used to categorize potential participating children according to level of severity of behavioral problems. Families were included in this study if parents reported at least one child externalizing problem behavior but the child did not meet criteria for conduct or oppositional defiant disorder.

Eligibility criteria for parents included: (a) living in single or two-parent families at the time of the study, (b) identified themselves as first generation Latino/a or Hispanic, (c) Spanish speaking, (d) 18 years of age or older, and (e) reported financial adversity as confirmed by a

family income not higher than 40% of federal poverty guidelines. If individuals did not meet the full eligibility criteria or expressed a need for specialized mental health services, they were referred to community mental health services. The detailed demographic characteristics of participants are presented in Table 1.

Procedure

Recruitment strategies consisted of targeting key community settings with high Latino presence such as faith-based organizations, health care settings, and mental health organizations. Recruitment activities were also conducted at Latino-oriented community events and cultural festivals. In addition to intense person-to-person recruitment, flyers advertising the study were distributed and posted in the aforementioned locations. Parents who participated in the intervention also provided word-of-mouth referrals.

Parents were compensated at every assessment according to amounts carefully planned to prevent coercion, particularly due to the participants' low socio-economic status. Thus, parents who completed the baseline assessment (T1) were given a $30 gift card. At treatment completion (T2), parents received a $40 gift card, and a $50 gift card at 6-month follow-up (T3). From initial recruitment contacts, 139 families were screened for eligibility. Thirty-six families were excluded from the study based on the following reasons: 3 families declined participation (8.3%), 4 families had scheduling conflicts (11.1%), 3 families relocated or could not be reached (8.3%), and 26 (72.2%) families did not meet eligibility requirements.

Most adult participants were born in Mexico (96.1% mothers, 77.7% fathers) and most target children were born in the United States of America (87.3%). The remaining parents traced back their birthplace to various Central and South American countries.

Southwest Detroit was the main geographical area from which participants were recruited. This ethnic enclave is characterized by several sources of support for low-income Latinos such as affordable health and mental health care centers, as well as immigration advocacy community resources. It is important to recognize this contextual characteristic of the study, which contrasts with other studies focused on Latinos residing in isolated communities.

Parents in this study were allocated to one of three conditions: (a) a culturally adapted version of PMTO, (b) a culturally adapted and culturally-enhanced version of PMTO, and (c) a wait-list control condition. The adapted intervention consisted of a rigorous adaptation of PMTO but did not include sessions nor components exclusively focused on key cultural issues. The adapted and culturally-enhanced intervention included all core PMTO components, as well as culturally-specific sessions focused on immigration-related stress, cultural values, and biculturalism. Participants allocated to the control condition received the intervention after they completed T3 assessments. Additional details of the adapted interventions have been reported elsewhere (Parra-Cardona et al., 2016).

Assessments were administered by university-extension research assistants, who were also residents of the target community. Assessments were completed at the participants' homes or at a site of their choice (e.g., local church). In the case of two-parent families, each parent completed a separate, confidential survey. One child per family was identified as the focal child (FC) according to eligibility criteria. Parents were given a choice to complete the measures in Spanish or English. All participants chose to complete the measures in Spanish.

Data collection began by obtaining written consent and addressing questions related to intervention goals and assessment procedures. Verbal assent was obtained from children 7 years old or older. Parents separately completed the demographic and self-report questionnaires. In the

case of literacy limitations, research assistants invited the parents into a separate room where the measures were administered verbally and privately. This procedure had the goal to prevent data contamination. Assessments consisted of demographic information and self-report questionnaires focused on the key intervention outcomes, including measures of parenting skills and child internalizing and externalizing behaviors.

Measures

Parental Alliance: Measure of Co-Parenting Alliance (Dumka et al., 2002). This measure was developed specifically for ethnically diverse populations. In addition to assessing parental alliance, the instrument also assesses parenting communication, shared responsibility in childrearing, and inter-parental respect. Sample items include, "When I have a problem with the children, I can go to my partner and her or she will listen and be supportive," "My partner helps enough with the children," and "My partner and I talk about what we should do as parents." Participants were asked to rate each statement on a 5-point Likert scale. Higher scores indicated a higher level of parental alliance. Adequate reliability ranging from $\alpha = .74$ (fathers) to $\alpha = .91$ (mothers) has been reported in studies with Latino/a parents (Dumka et al., 2002).

Immigration-Related Stress: Hispanic Stress Inventory-Immigrant Version (HSI-I, Cervantes, Padilla, & Salgado de Snyder, 1991b). Two subscales of the HSI-I were used in this study: Intra-Familial Stress and Extra-Familial Stress. The Intra-Familial Stress subscale contains items that examine familial, marital, and parental conflicts as related to immigration and cultural stress. Items from the Intra-Familial Stress subscale include, "My children have not respected my authority the way they should" and "My children have talked about leaving home." Items from the Extra-Familial Stress subscale include, "I have been forced to accept low paying jobs," and "Because I am a Latino, it has been hard for me to get promotions or salary raises."

Participants were asked to rate each item on a 5-point Likert scale ranging from 1=Not At All Stressful to 5=Extremely Stressful. Higher scores indicate higher levels of immigration-related stress. Adequate reliability (α= .85) has been reported in studies with Latino/a parents (R. C. Cervantes et al., 1991)

Acculturation: Bicultural Involvement Questionnaire (Szapocznik et al., 1980). The BIQ measures acculturation according to language preferences and level of affinity with various cultural practices. Sample items include, "How comfortable do you feel speaking Spanish," "How comfortable do you feel speaking English," "How much do you enjoy Hispanic music," and "How much do you enjoy American music?" The BIQ is scored by subtracting the total sum of "Hispanic" items from the total sum of "US orientation" items. The closer the score is to zero, the more likely the participant is bicultural. A positive score indicates Hispanic orientation (lower levels of acculturation) and a negative score indicates US orientation (higher levels of acculturation). Adequate reliability ranging from α = .75 to α = .96, has been reported in studies with Latino/a parents (Guo et al., 2009).

Psychological Adjustment: Center for Epidemiologic Studies Depression Scale (CES-D, Radloff, 1997). The CES-D is a reliable and valid measure that has been used in research with Latino populations in multiple studies (Crockett, Randall, Shen, Russell, & Driscoll, 2005; H. M. González, Haan, & Hinton, 2001; Grzywacz, Alterman, et al., 2009; Posner, Stewart, Marín, & Pérez-Stable, 2001). The advantage of the CES-D over other depression measures refers to its short length and solid psychometric properties. Participants were asked to rate the extent to which they experienced various depressive symptoms in the previous week. Sample items include, "I thought my life had been a failure," "I felt lonely," and

"I had crying spells." Higher scores indicate higher levels of depression. Adequate reliability (α= .85) has been reported in studies with Latino/a parents (González et al., 2016).

Time in Country of Destination. The demographics questionnaire included an item to determine length of residence in the US.

Missing Data

Of the total possible 570 interviews, 56 (9.8%) were missing, apparently completely at random (Little's MCAR $\chi 2$ (df = 382) = 153.573, p = 1.0. For outcome analyses, missing values were handled in two ways, through expectation maximization (EM) and FIML estimation (Enders, 2010). Results were virtually identical and EM estimated results are reported elsewhere (Parra-Cardona et al., 2016).

Analytical Plan

The analyses for this study focused on achieving the following goals: (1) evaluation of the association and variation over time, between parental level of acculturation and extra-familial immigration-related stress, (2) evaluation of the association and variation over time, between parental level of acculturation and intra-familial immigration-related stress, (3) evaluation of the extent to which time in host country predicted changes in levels of acculturation and parental depression, and (4) evaluation of the association and variation over time, between parental alliance and parental level of acculturation. All analyses included treatment condition as a covariate.

To achieve these goals, the initial step consisted of using latent growth curve modeling to assess the change in immigration related stress as acculturation changes (Chan, 1998; Hancock, Kuo, & Lawrence, 2001; Preacher, Wichman, MacCallum, & Briggs, 2008; Sayer & Cumsille, 2001). Next, parallel process modeling was used (Preacher et al., 2008), as this latent growth

modeling method simultaneously examines the growth relationship between two variables. In this study, this method was used to evaluate the effect that time in host country had on parental depression and levels of acculturation. Finally, growth curve modeling was used to evaluate the association between changes in parental alliance and changes in acculturation. Details of these models are described next.

Latent growth curve analyses. Latent growth curve models provide a process by which parameter estimates can be analyzed at baseline, as well as change over time (Little, 2009). Another benefit of using an LGM model refers to the fact that time between assessments can be taken into account. Because the time between assessments varied in this study, the model uses time of assessment rather than actual time-points. Thus, the models in the current study provided information about the average levels of acculturation and immigration- related stress (i.e., intercept) at baseline, and their corresponding increase or decrease (i.e., slope) over time. In addition, these models were useful to provide estimation of whether observed change was constant, accelerated, or decelerated (i.e., linear versus nonlinear growth). The general equation for the parallel process models used in analyses was:

Level 1: $y[t]_n = Icept_n + Slope_n * [t] + \varepsilon[t]_n$

Level 2: $Icept_n = \text{Incept}_{00} + Slope_{10} + v[0]_n$

$$Slope_n = Incept_{01} + Slope_{11} * [TCon] + v[1]_n$$

where $y[t]_n$ was the score of parent n at time t for extra-familial stress (HSI), intra-familial stress (HSI), acculturation (BIQ), or Parental Alliance. $Icept_n$ represented parent *n's* predicted level of the outcome measure. $Slope_n$ depicted parent *n's* predicted rate of growth of that outcome. *Icept* was defined as a parent's predicted score on the measure presented when *[t]* equals zero, and *Slope* was defined as the predicted magnitude of growth for a one-unit change in *[t]*. $\varepsilon[t]_n$ was

the error in prediction for each individual *n* at each time point *t*. The Level 2 equations reflected the average intercept and slope across all parents. $Incept_{00}$ and $Incept_{01}$ represented the intercept of Level 2 equations. $Slope_{10}$ and $Slope_{11}$ were the regression slopes for the intercepts at Level 1 as a function of the covariate *[TCon]* (i.e., treatment condition). $v[0]_n$ and $v[1]_n$ represented the variances in the slopes for each parent *n*. Within each model, the intercepts and slopes were correlated both within and across variables. In Model 1a (see models in Appendix A) for example, mother's extra-familial stress (HSI) intercept was correlated with father's acculturation (BIQ) intercept and slope and father's acculturation (BIQ) slope was correlated with mother's extra-familial stress (HSI) slope and intercept.

Each model utilized a similar equation with one exception. Specifically, model 3 contained a Level 2 predictor. Thus, the equation for model 3 was:

$$\text{Level 1: } y[t]_n = Icept_n + Slope_n * [t] + \mathcal{E}[t]_n,$$

$$\text{Level 2: } Icept_n = Incept_{00} + Slope_{10} * [tHost] + v[0]_n$$

$$Slope_n = Incept_{01} + Slope_{11} * [tHost] + Slope_{21} * [TCon] + Slope_{31} * [tHost] * [TCon] + v[1]_n$$

where $y[t]_n$ was either depression or acculturation scores for parent *n* at time *t*. $Icept_n$ represented parent *n's* predicted level of the outcome measure. $Slope_n$ depicted parent *n's* predicted rate of growth on that outcome. *Icept* was defined as a parent's predicted score on the measure presented when *[t]* equals zero, and *Slope* was defined as the predicted magnitude of growth for a one-unit change in *[t]*. $\mathcal{E}[t]_n$ was the error in prediction for each individual *n* at each time point *t*. $Incept_{00}$ and $Incept_{01}$ represented the intercept of Level 2 equations. $Slope_{10}$ and $Slope_{11}$ were the regression slopes for the intercepts at Level 1 as a function of the predictor [*tHost*] (i.e., time in host country) and the covariate *[TCon]* (i.e., treatment condition). $v[0]_n$ and $v[1]_n$ represented

the variances in the slopes for each parent *n*. The residual correlations were also estimated to account for possible variances between mother and father at each time point after accounting for time in host country.

Limitations

Important methodological limitations must be noted. First, data consisted of parental self-reports, which carries the risk for response bias due to social desirability (Neuman, 2002; Vartanian, 2010). In addition, because the target population consisted of low-income Latino immigrants, illiteracy was a challenge throughout data collection. Although a rigorous protocol was implemented to assist parents with completion of questionnaires, it is possible that some parents with literacy limitations were hesitant to request additional support to answer measures. In addition, because 69% of participants were exposed to a culturally-adapted parenting intervention, parental reports of the targeted outcomes were likely to have been influenced by their exposure to the adapted intervention. This was particularly the case for parents exposed to the culturally-enhanced intervention. Finally, a more comprehensive measurement of acculturation would have been ideal. Specifically, the best measurement approaches of acculturation include scales that examine cultural preferences, cultural identities, and cultural values.

Ethical Considerations

Data for this study were generated from a randomized controlled trial approved by the Michigan State University Human Research Protection Program. All participants provided consent to participate in research and were adequately compensated. An exempt application for this study was submitted and approved by the MSU IRB. All identifying information associated with this project has been deleted, ensuring the anonymity of research participants.

CHAPTER 4: RESULTS

Latent growth models present a challenge to the researcher and the reader. What outcomes are important, how to present them, and ultimately how to interpret them are questions that must be addressed. The first step is to examine reliabilities for each instrument used; reliabilities must be at an acceptable level. Then, basic descriptive data (means, standard deviations, medians) for each gender must be examined to ensure that the scale scores make sense in the research context. Because latent growth models depend upon inter-correlations among scales and genders, correlations must also be part of the preliminary review. Finally, proposed models must be built in a logical sequence, from simple to complex, and evaluated at each step and between steps.

Measurement Reliabilities

The reliability (internal consistency) of each measure has been examined in previous research. The measurement reliabilities in this sample are stronger when compared to previous studies (R. C. Cervantes et al., 1991; Dumka et al., 2002; P. González et al., 2016; Guo et al., 2009). The overall reliability coefficients (Cronbach alpha) for Co-Parenting Alliance (COPA) scale in this sample at Time 1 were α = .940; Time 2, α = .923; Time 3, α = .900. Overall Intra-Familial Stress (IFS) scale reliabilities for Time 1 were α = .769; Time 2, α = .858; Time 3, α = .850. Overall Extra-Familial Stress (EFS) scale reliabilities for this sample at Time 1 were α = .800; Time 2, α = .878; Time 3, α = .899. The Bicultural Involvement Questionnaire (BIQ) overall reliabilities for this sample at Time 1 were α = .860; Time 2, α = .866; Time 3, α = .908. The Spanish translation of the Center for Epidemiologic Studies Depression Scale (S-CED-D) had overall reliabilities for Time 1 in this sample were α = .836; Time 2, α = .872; Time 3, α = 862. Thus, all scales can be considered to be internally consistent at acceptable levels (α > .70).

Descriptive Statistics

Table 2 presents the means and standard deviations for each scale separately and by treatment and control groups over time. A MANOVA indicated that treatment and control group scale scores were significantly different over the three times, $F(24, 53) = 1.975$, $p = .020$, *Wilks Λ* $= .528$, *partial* $\eta^2 = .472$.

Correlations between Variables and between Genders

Correlations between variables are presented by gender in Table 3. Table 4 presents the correlations between members of the couples.

Latent Growth Curve Analysis

Six LGM models representing the research questions were analyzed using AMOS. For each model, four theoretical models (intercept only, fixed intercept-fixed slope, unconstrained intercept-fixed slope, unconstrained intercept-unconstrained slope) were examined to identify the one that best fit the data and the research question (Table 5). Byrne (2013) suggests a model with a nonsignificant chi-square (χ^2) value indicates a good fitting model; however, many authors recommend also using relative fit indices to determine which of the models provide the best fit for the data: root mean squared error of approximation (RMSEA < .05), normed fit index (NFI > .95), comparative fit index (CFI > .95), and the Tucker-Lewis index (TLI > .95) (see Table 5).

Each analysis began by calculating an intercept only model. None of the intercept only models had an adequate fit for any of the research questions. Then, the analysis was repeated by adding the slope and constraining both the slope and intercept variances to zero. For each research question, the fixed effects models also fit poorly. Removing the constraint on the intercept in each model, while fixing the slope resulted in an "acceptable" fit for Models 1a, 1b, 2a, and 2b; however, Models 3, 4a, and 4b were still a poor fit. In the fourth step, both the

intercept and slope were unconstrained. These random models were the best fitting for all research questions. For Models 1a, 1b, 2a, and 2b, a χ^2 difference test ($\Delta \chi^2$) indicated that the fully unconstrained models were the best fitting models.

Looking at the fit indices for the unconstrained models, four of the models (1a, 1b, 2a, 2b, and 3) were found to have good fit using the χ^2 indicator alone (i.e., the most conservative measure, χ^2, was not significant). Including the relative fit indices with the χ^2 value, Models 1a and 1b had an overall excellent fit; Models 2a, 2b, and 3 had an overall acceptable fit; and Models 4a and 4b had a poor fit (Little, 2009). Even for the poorest fitting models, the test of $\Delta\chi^2$ between the random intercept/fixed slope model and the fully unconstrained model indicated that the latter was the best fit for all research questions. Having identified the best fit for each model, I calculated the parameters for each research question. The parameter estimates for each model are presented in Table 6 (Models 1a and 1b), Table 7 (Models 2a and 2b), Table 8 (Model 3), and Table 9 (Models 4a and 4b).

Model misfit. Among the possible reasons for models having a poor fit include sample size, poor modeling, and issues with the instruments used (Little, 2009; Preacher et al., 2008). The desired sample size for Models 4a and 4b would have been between 290 and 350 cases as calculated by R (Preacher & Coffman, 2006). The sample size for this study was 78 cases, thus creating the possibility that the sample size was not sufficient for the complexity of the model. The other possibility for the misfit is that the model just was not a proper model for the data, sample size, and research questions. One common way of identifying if the model needs to be re-specified is by using modification indices (Little, 2009). The modification indices for Models 4a and 4b are reported in Table 10. Little (2009) recommends identifying modification indices that have large effects (roughly 10% of the χ2 value), and then only if justified by theory. After

examining the modification indices for both Model 4a and 4b, there were no suggested changes that were theoretically justified. The last issue examined for model misfit was problems with the measurements used (i.e. Parental Alliance, BIQ). Scale reliabilities for both the BIQ and Parental Alliance with alphas within acceptable ranges between .860 and .940. I performed a repeated measures ANOVA on the Parental Alliance instrument to determine if the estimated means were significantly different from each other. Mauchly's Test of Sphericity indicated that the assumption of sphericity had not been violated for mothers' ($\chi2(2) = 4.132$, $p = .127$) estimated means in the control group. The ANOVA results for the mothers' estimated means in the control group indicated that they were not significantly different from each other ($F(2, 46) = 0.797$, $p = .457$). However, the same test indicated that the assumption of sphericity had been violated for mothers' ($\chi2(2) = 17.088$, $p < .001$) and fathers' ($\chi2(2) = 16.051$, $p < .001$) estimated means in the treatment group, and fathers' ($\chi2(2) = 6.377$, $p < .05$) in the control group. To be conservative the Greenhouse-Geisser correction was utilized for the ANOVA results when the sphericity assumption was violated (Abdi, 2010). Fathers' estimated means in the control group indicated that they were not significantly different from each other ($F(1.59, 36.75) = 1.306$, $p = .278$). Not surprisingly, the ANOVA results for the estimated means in the treatment group for both mothers' ($F(1.56, 82.81) = 18.044$, $p < .001$) and fathers' ($F(1.58, 83.76) = 16.662$, $p < .001$) indicated that the means were significantly different from each other.

Taking all of this together, it is likely that the effect of the treatment condition and the model itself contributed to the misfit. The model is very large and complex and would require a larger sample size to adequately fit the data. No modification indices were theoretically justifiable, meaning nothing more could be done to better fit the model outside of completely

redesigning it to fit the data. The significant differences between the means in the treatment group also likely contributed to the model misfit.

Changes in Parent Acculturation and Extra-Familial Stress (Table 6)

Models 1a and 1b analyzed the rate of change and initial level of parent's acculturation and extra-familial stress. Initial level of acculturation for mothers (μ = 14.59, *SE* = 1.66, $p <$ .001) and fathers (μ = 12.79, *SE* = 1.15, $p < .001$) indicated a preference toward Latino cultural orientation. Only father acculturation rate of change was significant (μ = 2.33, *SE* = 1.12, $p <$ .05). Significant intercept (ψ = 118.40, *SE* = 43.03, $p < .05$; ψ = 70.27, *SE* = 21.62, $p < .05$) and slope (ψ = 47.52, *SE* = 22.22, $p < .05$; ψ = 24.81, *SE* = 9.94, $p < .05$) variances for both mothers and fathers (respectively) indicated significant individual differences in initial reports and growth over time of acculturation.

Likewise, fathers' (μ = 0.77, *SE* = 0.09, $p < .001$) and mothers' (μ = 0.83, *SE* = 0.08, $p <$ .001) initial level of extra-familial stress (intercept) was low, and only father's experienced more extra-familial stress (μ = 0.14, *SE* = 0.06, $p < .05$) over time (slope). Mixed results for intercept (ψ = 0.31, *SE* = 0.13, $p < .05$; ψ = 0.17, *SE* = 0.12, $p = .18$) and slope (ψ = 0.04, *SE* = 0.07, $p =$ .59; ψ = -0.22, *SE* = 0.08, $p < .05$) variances of both mothers and fathers (respectively) extra-familial stress indicated that mothers experienced individual differences in initial levels and fathers experienced individual differences in change over time of extra-familial stress. Additionally, a significant correlation between father extra-familial stress intercept and slope (ρ = -.19, $p < .05$) indicated an inverse relationship between father initial level of extra-familial stress and change over time.

The results for Model 1a did not indicate an association between mother's acculturation and father's extra-familial stress (intercept covariance: ψ = 2.11, *SE* = 1.30, ρ = .48, p = .11;

slope covariance: ψ = -0.56, *SE* = 0.35, ρ = -.18, *p* = .11; BIQ int/HSI slope covariance: ψ = 0.25, *SE* = 0.52, ρ = .03, *p* = .64; HSI int/BIQ slope covariance: ψ = -0.21, *SE* = 0.83, ρ = -.07, *p* = .80). However, the results for Model 1b did indicate an association between fathers' acculturation and mothers extra-familial stress (intercept covariance: ψ = 2.17, *SE* = 0.88, ρ = .47 *p* < .01), such that fathers with higher initial level of orientation toward Latino culture was associated with lower levels of mother extra-familial stress. No other associations were detected in Model 1b (slope covariance: ψ = 0.13, *SE* = 0.27, ρ = .13, *p* = .64; BIQ int/HSI slope covariance: ψ = 0.33, *SE* = 0.45, ρ = .21, *p* = .47; HSI int/BIQ slope covariance: ψ = 0.08, *SE* = 0.51, ρ = .03, *p* = .88).

The effect of treatment condition on the slope of acculturation and extra-familial stress. An important aspect of the data used in this study is that parents were randomly assigned to either a control or treatment group. As such, it is important to identify how the parent's random assignment to a treatment condition impacted the slope of the models. Including treatment condition in the analysis for Model 1a did significantly impact the mean slopes of mothers' acculturation (b = -4.38, SE = 1.84, p < .01) and fathers' extra-familial stress (b = -0.19, SE = 0.07, p < .01). These results indicate that when parents were assigned to the intervention, the mothers tended to have lower orientation toward Latino culture, and lower extra-familial stress for fathers. The effect size of the intervention for mothers' acculturation was β = -.281, p < .05, however the standardized regression coefficient could not be estimated for fathers' extra-familial stress.

Parent Acculturation and Intra-Familial Stress (Table 7)

The rates of change and parent's initial level of acculturation and intra-familial stress were examined in Models 2a and 2b. As would be expected from Model 1, the parents differed significantly in their initial level of cultural orientation (mothers: μ = 14.67, *SE* = 1.66, *p* < .001;

father's: $\mu = 12.80$, $SE = 1.15$, $p < .001$). Likewise, father's tended toward a more Latino orientation over time ($\mu = 2.43$, $SE = 1.14$, $p < .05$). A significant intercept variance for both mothers ($\psi = 112.77$, $SE = 42.47$, $p < .05$) and fathers ($\psi = 75.28$, $SE = 22.37$, $p < .05$) indicated significant individual differences in initial levels of acculturation. However, a significant slope variance was only found for fathers ($\psi = 27.57$, $SE = 10.31$, $p < .05$) which indicated significant individual differences in change of acculturation over time.

As with extra-familial stress in Model 1, the initial estimated level of intra-familial stress for fathers ($\mu = 0.59$, $SE = 0.06$, $p < .001$) and mothers ($\mu = 0.81$, $SE = 0.09$, $p < .001$) was low. Similarly, only fathers ($\mu = 0.10$, $SE = 0.05$, $p < .05$) experienced more intra-familial stress over time. Interestingly, mothers' initial cultural orientation was significantly related with the trajectory of fathers' intra-familial stress (BIQ intercept and HSI slope covariance: $\psi = 0.99$, $SE = 0.43$, $\rho = .47$, $p < .05$). These results indicated that mothers initial level of acculturation was associated with change over time of fathers' intra-familial stress. Additionally, the covariance between the slopes of mother acculturation and father intra-familial stress were inversely related (slope covariance: $\psi = -0.65$, $SE = 0.28$, $\rho = -.52$, $p < .05$). In other words, mothers' change over time in cultural orientation was negatively associated with fathers change over time in intra-familial stress. No other associations were detected in Model 2a (intercept covariance: $\psi = 0.12$, $SE = 0.89$, $\rho = .03$, $p = .89$; HSI int/BIQ slope covariance: $\psi = 0.80$, $SE = 0.59$, $\rho = .31$, $p = .17$) or Model 2b (intercept covariance: $\psi = 0.65$, $SE = 0.89$, $\rho = .13$, $p = .47$; slope covariance: $\psi = 0.06$, $SE = 0.25$, $\rho = .15$, $p = .79$; BIQ int/HSI slope covariance: $\psi = 0.35$, $SE = 0.41$, $\rho = .50$, $p = .387$; HSI int/BIQ slope covariance: $\psi = -0.37$, $SE = 0.54$, $\rho = -.12$, $p = .50$).

The effect of treatment condition on the slope of acculturation and intra-familial stress. Including treatment condition in the analysis for Model 2a significantly impacted the

mean slopes of mother's acculturation (b = -4.17, SE = 1.80, p < .05), and father's intra-familial stress (b = -0.23, SE = 0.05, p < .01). These results indicate that parents assigned to an intervention class tended to have lower mother orientation toward Latino culture, and lower father intra-familial stress. The effect size of the intervention for mothers' acculturation was β = -.290, p < .05, and β = -.472, p < .001 for fathers' intra-familial stress.

Including the treatment condition in Model 2b only resulted in a significant impact on father acculturation (b = -2.59, SE = 1.29, p < .05) and the effect size was β = -.222, p < .05. The level of mother intra-familial stress (b = -0.14, SE = 0.08, p = .07) was not significantly lower due to treatment condition with a standardized regression coefficient of β = -.616, p = .07.

Parent Acculturation and Depression (Table 8)

The connections between parental depression and cultural orientation are presented in Table 8 (Model 3). The initial parental depression (μ = 0.62, SE = 0.09, p < .01) and acculturation (μ = 18.67, SE = 2.43, p < .01) levels were estimated to be low. Unlike the mean slopes in Models 1 and 2, mean slopes for both depression (μ = -0.04, SE = 0.04, p = .39) and acculturation (μ = 1.87, SE = 1.72, p = .28) were not significant. However, the slope variance (ψ = -0.02, SE = 0.01, p < .05) for parental depression was significant, indicating individual differences in the change of parent depression over time.

Additionally, mothers' and fathers' initial cultural orientation was related to their rate of acculturation over time (ψ = 27.11, SE = 10.79, ρ = -.34, p < .05). In other words, initial levels of parent acculturation were inversely associated with their rate of change over time.

The results for Model 3 did not indicate an association between parents' acculturation and reports of depression (intercept covariance: ψ = 0.29, SE = 0.27, ρ = .09, p = .27; slope covariance: ψ = 0.05, SE = 0.09, ρ = -.17, p = .58; CESD int/BIQ slope covariance: ψ = -0.15, SE

= 0.16, ρ = -.78, p = .34; BIQ int/CESD slope covariance: ψ = -0.09, *SE* = 0.14, ρ = .004, p = .50).

The effect of time in country of reception on acculturation and depression. Neither the initial level nor rate of change for parents report of depression (mother years in US on intercept: b = 0.001, *SE* = 0.006, p = .92; mother years in US on slope: b = -0.001, *SE* = 0.003, p = .61; father years in US on intercept: b = -0.001, *SE* = 0.005, p = .89; father years in US on slope: b = 0.002, *SE* = 0.002, p = .50) or acculturation (mother years in US on intercept: b = -0.29, *SE* = 0.16, p = .08; mother years in US on slope: b = 0.06, *SE* = 0.11, p = .59; father years in US on intercept: b = -0.08, *SE* = 0.14, p = .59; father years in US on slope: b = -0.02, *SE* = 0.09, p = .85) were predicted by the number of years either parent had been in the United States.

The effect of treatment condition on the slope of acculturation and depression. Once again including the treatment condition in the analysis resulted in a significant impact on acculturation rate of change (b = -3.19, *SE* = 1.12, p < .01) with an effect size of β = -.686, p < .05. Treatment condition did not impact the rate of change for parents' report of depression (b = -0.02, *SE* = 0.03, p = .50) and the standardized regression coefficient could not be estimated.

Acculturation and Parental Alliance (Table 9)

Parents' level of acculturation was analyzed with parental alliance in Model 4 (Table 9). Initial parental acculturation scores were similar to those of the other models where acculturation was assessed (mothers: μ = 14.32, *SD* = 1.67, p < .01; fathers: μ = 12.79, *SD* = 1.16, p < .01) and only fathers rate of change was significant (μ = 2.49, *SD* = 1.15, p < .01). Mother acculturation also resulted in significant intercept (ψ = 128.22, *SE* = 42.83) and slope (ψ = 42.20, *SE* = 21.99, p < .05) variances indicating significant individual differences in initial level and growth over time of acculturation.

The results for parental alliance were mixed. Parental alliance was high in both the mother acculturation (μ = 3.59, *SE* = 0.07, $p < .01$) and father acculturation (μ = 3.61, *SE* = 0.07, $p < .01$) models. However, only Model 4a (mother acculturation) found significant individual differences in initial levels of parental alliance (ψ = 0.18, *SE* = 0.05, $p < .05$). Similarly, only Model 4a found a significant correlation between parental alliance intercept and slope (ρ = -.56, $p < .05$). This significant finding indicated an inverse relationship between initial levels of parental alliance and the rate of change of parental alliance over time. With the exception of a significant mean intercept for parental alliance, Model 4b (father acculturation) found no other significant relationships (mean slope: μ = 0.03, *SE* = 0.05, $p = .50$).

The results for Model 4a did not indicate an association between mother's acculturation and parental alliance (intercept covariance: ψ = -0.71, *SE* = 0.86, ρ = -.15, $p = .41$; slope covariance: ψ = -0.47, *SE* = 0.28, ρ = -.50, $p = .10$; BIQ int/Alliance slope covariance: ψ = 0.50, *SE* = 0.42, $\rho = .30$, $p = .23$; Alliance int/BIQ slope covariance: ψ = 0.29, *SE* = 0.56, $\rho = .10$, p = .60). Likewise, Model 4b did not indicate an association between father acculturation and parental alliance (intercept covariance: ψ = -0.26, *SE* = 0.63, ρ = -.047, $p = .69$; slope covariance: ψ = -0.16, *SE* = 0.21, ρ = -.22, $p = .44$; BIQ int/Alliance slope covariance: ψ = 0.06, *SE* = 0.31, ρ = .05, $p = .85$; Alliance int/BIQ slope covariance: ψ = 0.26, *SE* = 0.38, $\rho = .11$, $p = .49$).

The effect of treatment condition on the slope of acculturation and parental alliance. Treatment condition impacted the slopes of acculturation in mothers (b = -4.25, *SE* = 1.84, $p <$ .05) and fathers (b = -2.66, *SE* = 1.31, $p < .05$), but not parental alliance (Model 4a: b = 0.08, *SE* = 0.04, $p = .07$; Model 4b: b = 0.08, *SE* = 0.04, $p = .06$). The effect size of treatment condition on mother acculturation was β = -.287, $p < .05$, and on father acculturation was β = -.217, $p < .05$. Families assigned to an intervention class tended to have parents with lower orientation toward

Latino culture. The standardized regression coefficients for parent alliance were $\beta = .192$, $p = .07$ for Model 4a and $\beta = .269$, $p = .06$ for Model 4b.

CHAPTER 5: DISCUSSION

The study of acculturation has changed significantly in recent years. Rather than conceptualizing acculturation as a process primarily related to assimilation to a host country, contemporary models of acculturation describe the nature of this phenomenon as the exchange of cultural experiences, values, and traditions; with the possibility for multiple outcomes, including biculturalism (Schwartz, Zamboanga, et al., 2008; Szapocznik et al., 1980, 1984). This change in paradigm has promoted the study of relevant acculturation-related processes such as acculturative stress, which refers to stressors resulting from the immigration experience (J. W. Berry, 2006; John W. Berry, 2006; Schwartz et al., 2010; Adriana J. Umana-Taylor & Alfaro, 2009). Recent scholarship focused on these issues has offered important contributions to the study of Latino/a immigrant populations in the U.S. (Archuleta & Teasley, 2013; Buchanan & Smokowski, 2011; Schwartz, Des Rosiers, et al., 2013; Schwartz et al., 2010; Schwartz, Zamboanga, et al., 2008). However, important areas of research remain to be explored (Cavazos-Rehg & DeLucia-Waack, 2009; R. C. Cervantes et al., 1991; Chavez-Korell et al., 2014; Galvan et al., 2015; López et al., 2012; Schwartz et al., 2011; Torres, Driscoll, & Voell, 2012; Zamboanga et al., 2009).

This study constitutes an effort to address this gap in research. Specifically, limited empirical literature exists focused on studying the relationship among acculturation, immigration-related stress, and co-parenting alliance (e.g., Flores et al., 2004; Formoso et al., 2007; Gullan et al., 2014; Marsiglia et al., 2014; Updegraff, McHale, Crouter, & Kupanoff, 2001). Addressing this gap in knowledge is necessary, particularly in the context of developing prevention and clinical intervention programs aimed at supporting underserved immigrant populations.

Changes in Parental Acculturation

The use of the Bi-Cultural Involvement Questionnaire (BIQ) represents an advantage for the study of acculturation as the measure offers a scoring criteria in which individuals can be classified as bicultural-, Latino-, or US-oriented. Thus, rather than consisting of an unidimensional continuum (high vs low acculturation), the BIQ allows for the identification of the respondent's positing relative to experiences of biculturalism (Schwartz et al., 2010; Schwartz, Zamboanga, Rodriguez, & Wang, 2007).

This measurement approach allows for a broader understanding of acculturation. For example, the "acculturation-distress hypothesis" was first defined as the cultural gap between low acculturated Latino immigrant parents and their highly acculturated US-born children. According to this theory, the greater the gap, the higher the possibility for parent-child conflicts due to cultural differences (Szapocznik, Kurtines, & Fernandez, 1980). This hypothesis can also be applied to Latino couples as research has demonstrated that Latino immigrant men tend to acculturate faster than women.

The use of measures such as the BIQ, allows for the identification of cultural preferences and identities with a new perspective. That is, rather than analyzing a relationship between two members of a couple according to unidimensional acculturation criteria (see Figure 16), the measurement of biculturalism allows for the identification of members of a couple according to their proximity to biculturalism (see Figure 17). Such a revised framework allows for a more comprehensive analysis of the immigrant experience, as well as how such an experience impacts couple and family dynamics (Bacallao & Smokowski, 2007; R. C. Cervantes, Fisher, Córdova, & Napper, 2012; Flores et al., 2004; Hengstebeck, Helms, & Rodriguez, 2014; Lau et al., 2005; Marsiglia et al., 2014; Pasch et al., 2006; Paul R. Smokowski et al., 2008).

The findings from this investigation will be discussed below according to the guiding research hypotheses. It is important to clarify that research results indicate associations and patterns of change over time of the constructs under study. Due to the fact that the intervention condition consisted of data from two versions of a culturally adapted intervention (i.e., CAPAS-Original, CAPAS-Enhanced) and a control condition, group differences must be interpreted in light of the complexity of the multi-group data. As stated in the limitations section, small sample sizes did not allow for examination of models according to type of group. However, current findings provide relevant empirical evidence of areas of inquiry that continue to be minimally explored in research with Latino immigrant families.

Parental Acculturation and Extra-Familial Stress

Hypothesis 1a stated that mothers' level of acculturation would not be associated with fathers' reports of extra-familial stress. Further, it was expected that whereas mothers' level of acculturation would not increase over time, fathers' reports of extra-familial stress would increase. Current results supported this hypothesis, however, findings need to be carefully analyzed as these trends were not similar according to intervention condition. Specifically, fathers' reports of extra-familial stress in the intervention group decreased over time, whereas fathers' reports in the control group increased over time.

These findings may be attributed to the fact that whereas fathers in the intervention group were able to have discussions about their sources of stress and coping mechanisms, fathers in the control group did not have this resource. Such a difference in experience for fathers is necessary to consider when analyzing current findings because research has clearly identified the key role of contextual factors on the level of stress experienced by immigrants, particularly as it refers to the deleterious impacts of discrimination, poverty, and unwelcoming contexts of reception in

host countries (Galvan et al., 2015; Ramos et al., 2015; Sarmiento & Cardemil, 2009). Further, the impact of extra-familial immigration stress can significantly increase feelings of anxiety and vulnerability if immigrants do not have an opportunity to process the impact of such stressors nor access to resources aimed at supporting their coping efforts (Cervantes et al., 2012, 2013).

Hypothesis 1b stated that mothers' level of extra-familial stress would be associated with fathers' acculturation, and that participants' reports on these variables would increase over time. Research findings partially supported this hypothesis as there was a significant association between fathers' level of acculturation and mothers' extra-familial stress. A possible explanation for these findings refers to the fact that fathers in the intervention group remained more oriented towards biculturalism throughout the measurement points in contrast to fathers in the control condition, who moved towards a Latino orientation by 6-month follow-up. Extra-familial stress reported by mothers remained stable in the intervention condition and decreased for mothers in the control group.

The stability of cultural orientation for fathers in the intervention condition may be attributed to the fact that biculturalism was promoted in the parenting groups. Thus, whereas there was not a significant movement towards biculturalism, they remained relatively at the same level as reported in baseline measurements. In contrast, fathers in the control condition moved towards a Latino orientation, a finding that contrasts with research indicating that men tend to acculturate at a faster rate than women (Cruz et al., 2014; Falconier et al., 2013; Hengstebeck et al., 2014; Negy & Snyder, 1997; Pardo, Weisfeld, Hill, & Slatcher, 2012). Whereas the context in which this study was implemented is considered a Latino enclave in the State of Michigan, the specific reasons behind the fathers' change in the control group towards a Latino orientation can only be clarified in future longitudinal research.

Of interest is the fact that mothers' level of extra-familial stress was associated with fathers' cultural orientation. These findings are relevant because they confirm previous calls for studies aimed at investigating the relationship between individuals' cultural identities and their partners' perceptions of contextual immigration stressors (Cruz et al., 2014; Pardo, Weisfeld, Hill, & Slatcher, 2012; Rodriguez, Helms, Supple, & Hengstebeck, 2014; Wheeler et al., 2010).

Parental Acculturation and Intra-Familial Stress

Hypothesis 2a stated that mothers' level of acculturation would not be associated with fathers' intra-familial stress. It was also expected that mothers' acculturation would not increase over time, in contrast to a gradual increase of fathers' intra-familial stress. This hypothesis was not supported as there was a significant association between mothers' level of acculturation and fathers' intra-familial stress. Furthermore, the rate of change for mothers' acculturation was inversely related to fathers' intra-familial stress.

These findings are highly relevant as they indicate that the acculturation experiences for mothers were associated with perceived stress by fathers as it referred to within-family acculturation issues. As a reminder, intra-familial stress in the HSI refers to family conflicts related to the immigration experience which can include conflicts related to parenting expectations, adjustment difficulties, and sense of loss resulting from the immigration experience (Arbona et al., 2010; Castillo, Cano, Chen, Blucker, & Olds, 2008; Grzywacz, Rao, Gentry, Marín, & Arcury, 2009). Of interest is to examine current results according to intervention condition. That is, mothers in the intervention condition became more bicultural according to BIQ scores, which was associated with gradual decrease of intra-familial stress reported by fathers. In contrast, mothers in the control condition increased their Latino orientation over time, which was associated with a slight increase of fathers' intra-familial stress. These results are

relevant and constitute an expansion of previous interpretations of the acculturation distress hypothesis. Specifically, current findings indicate the importance of examining how the pattern of change in the cultural experiences of one member of the couple, can be associated with reduction of stress in the other partner if biculturalism informs couple interactions (Cabrera et al., 2009; Cruz et al., 2014; Falconier et al., 2015; Negy & Snyder, 1997; Sarmiento & Cardemil, 2009). Furthermore, cognitive appraisal of adversity and the ability to engage in meaning-making are particularly effective buffers among immigration stress (Driscoll & Torres, 2013). Thus, it may be possible that changes in one partner's appraisal of immigration challenges as informed by biculturalism, may help the other partner's perceptions of immigration stressors impacting family functioning. These findings indicate the relevance of continuing to examine this hypothesis in future empirical research.

Hypothesis 2b stated that mothers' level of intra-familial stress would be associated with changes in paternal level of acculturation. Further, it was expected that fathers' acculturation would increase over time, as well as mothers' reports of intra-familial stress. This hypothesis was not supported in this study. Specifically, fathers' acculturation decreased over time and there was not an association between paternal level of acculturation and mothers' intra-familial stress.

Within-group differences must be analyzed in order to offer potential explanations for these findings. Specifically, fathers in the intervention condition did not report significant changes in their level of acculturation over time, which could have been related to exposure to an intervention in which biculturalism was promoted. Thus, they retained a cultural identity with proximity to biculturalism. Further, mothers in the intervention condition reported a noticeable decrease of intra-familial stress over time.

In contrast, fathers in the control condition reported at 6-month follow-up an increase in their Latino orientation, whereas mothers did not report changes in their perceived levels of intra-familial stress. This lack of reduction in mothers' intra-familial stress is of interest, particularly when considering that decreased levels of stress reported by mothers in the intervention condition was associated with fathers' apparent stability of cultural identity. Expanding this line of research inquiry is highly relevant as it appears to indicate that biculturalism constitutes a protective factor for immigrant couples in this study. That is, results suggest that a partner orientation towards biculturalism is associated with reduction in immigration-related intra-familial stress for the other member of the couple. To date, the most robust interventions focused on promoting biculturalism have primarily focused on promoting biculturalism in the parent-youth relationship, in an effort to reduce acculturation gaps and the risk for maladaptive behaviors in youth (Guo et al., 2009; Schwartz et al., 2015; P. R. Smokowski & Bacallao, 2006; Paul R. Smokowski et al., 2008). However, current findings indicate the need for future studies aimed at more clearly understanding the relationship between level of acculturation and intra-familial stress in couples, as well as patterns of relationship functioning associated with this interaction. Such line of inquiry may be particularly relevant as it may indicate the importance of promoting biculturalism among Latino immigrant couples as a protective factor for parents and families.

Parental Acculturation and Depression

Hypothesis 3 stated that time in host country would predict increased levels of acculturation for fathers, and that mothers would experience higher levels of depression over time. Further, it was expected that mothers' depression would be significantly associated with fathers' increased level of acculturation. Findings did not support any of these hypotheses. By

examining patterns of change within groups (intervention vs. control), no significant patterns can be observed as mothers in both conditions reported a gradual reduction in depression over time but not at statistically significant levels.

A potential explanation for current findings could be that as a prevention study, parents with serious mental illness were excluded from the investigation during screening procedures. Thus, whereas parents reported significant levels of immigration-related stress at baseline, the sampling procedures excluded parents in the clinical range for mood disorders. Statistically, model 3 was not a parsimonious model as the best models for examining this type of hypotheses consist of larger sample sizes and multiple measurements points. The time points in this study were separated by an average of 6 months, but covered only 12 months (i.e., baseline, intervention completion, 6-month follow-up). Such a time frame proved to be insufficient to track changes in outcomes in which time of residence in the US is particularly important. Nonetheless, these findings are relevant as they indicate important design considerations that must be examined in future studies focused on similar outcomes, particularly because alternative studies have reported an association between fathers' level of acculturation and mothers' depression in immigrant families (Elder et al., 2005; Ornelas & Perreira, 2011; Ornelas et al., 2009; Sarmiento & Cardemil, 2009; Torres, 2010).

Acculturation and Parental Alliance

Hypothesis 4a stated that mothers' level of acculturation would not increase over time, whereas parental alliance would gradually increase. Further, it was expected that there would not be an association between mothers' level of acculturation and parental alliance. Hypothesis 4b stated that fathers' level of acculturation would increase over time, as well as levels of parental

alliance. Furthermore, it was expected that there would not be an association between paternal level of acculturation and parental alliances.

Results provided partial support for these hypotheses. However, the overall and relative fit of the models was poor which indicates that findings can only be considered tentative. First, parental alliance in both groups (intervention vs. control) showed slight increases over time. However, because the model integrated parental alliance scores from mothers and fathers, it cannot be determined how the relationship between perceived parental alliance and acculturation differed according by gender.

Refining this line of research inquiry is important because parental alliance involves the capacity for both parents to be mutually supportive of each other's experiences. As previously discussed, an orientation towards biculturalism appeared to have a beneficial impact for families in the intervention group. However, the relationship between biculturalism and parental alliance has been seriously overlooked in empirical research with Latino immigrant families (Cabrera et al., 2013; Dumka et al., 2002; Formoso et al., 2007; Gullan et al., 2014; Mitrani et al., 2004). Addressing this gap in research is critical as family interventionists are at risk of primarily focusing on parent-child outcomes, overlooking the saliency of also promoting key protective factors for immigrant couples (Coatsworth et al., 2002; Gullan et al., 2014; Santisteban et al., 2012; Schwartz, Mason, et al., 2008).

Directions for Future Research

Results from this study indicate important areas for future research. First, 69% of participants in the current investigation were exposed to one version of a culturally adapted parenting intervention (i.e., CAPAS-Original, CAPAS-Enhanced). However, participant data from both adapted interventions were integrated into a single intervention condition for data

analytical purposes. Thus, whereas it is relevant to continue to conduct empirical studies in which various levels of cultural adaptation can be compared and contrasted, sample sizes for the different conditions being examined must be increased in order to clearly identify intervention effects according to level of adaptation. This is particularly necessary for studies utilizing data analytical approaches similar to the ones used in this study.

Due to less than optimal fit findings, models 3, 4a, and 4b should be interpreted cautiously. However, these models are conceptually relevant and merit replication in future research, particularly because the relationships among the constructs included in these models have been minimally examined in empirical research. Finally, the socio-political context experienced by participants at the time of the study was less politically charged than the current anti-immigration climate. Thus, parental reports on immigration-related extra-familial stress may be significantly higher at the current time due to widespread anti-immigration rhetoric. Examining extra-familial stress and its impact on intra-familial stress constitutes a critical component of future studies with Latino/a immigrant parents residing in the US.

Clinical Implications

According to the models with best statistical fit in the current study, there are two relevant findings with potential relevant clinical implications. First, findings provide a new perspective with regards to the understanding of the concept of acculturation. In previous frameworks, the acculturation gap has been determined by comparing differences in overall acculturation scores as originally proposed in the acculturation gap-distress hypothesis (see Figure 16). The limitation of this conceptualization for clinical practice refers to the fact that therapists can develop a narrow perception of the acculturation gap and associated acculturative processes. Current findings indicate the need to refine the definition of the acculturation gap

construct by including biculturalism as a reference point (see Figure 17). This perspective can expand the therapists' understanding of the acculturation gap as one that is determined by the contrasting experiences of biculturalism embraced by each member of the couple.

In addition to the expanded understanding of the acculturation gap, current findings indicated the potential protective effect of biculturalism for immigrant couples. In previous studies, the relationship between biculturalism and specific mental health outcomes has been primarily analyzed in reference to the parent-adolescent dyad (Bacallao & Smokowski, 2007; R. C. Cervantes et al., 2013; Unger et al., 2007). However, this study provides empirical evidence indicating the potential relevance of this relationship as applied to couples. Thus, therapists should explore with couples the potential benefits associated with promoting biculturalism in the couple relationship, if such an outcome is acceptable to both members of the couple. Existing research indicates the multiple benefits of promoting biculturalism in the parent-adolescent dyad (Santisteban et al., 2012; Szapocznik et al., 1984), particularly as it refers to biculturalism acting as a protective factor against internalizing and externalizing symptoms in youth. However, this line of intervention has been minimally explored in prevention and clinical research with couples. Such a therapeutic perspective has the potential to protect the therapeutic process from becoming ethnocentric in nature, particularly because biculturalism refers to identifying and celebrating cultural strengths in all the cultures represented in the immigration experience, rather than expecting immigrants to assimilate to the cultural expectations of the host country (Elder et al., 2005; Guo et al., 2009; Romero, Carvajal, Valle, & Orduña, 2007; Schwartz et al., 2006; P. R. Smokowski, Buchanan, & Bacallao, 2009). In addition, because fathers are likely to have increased access to external resources (e.g., employment), and social support networks (e.g., co-

workers), it is important to attend to the social support barriers that immigrant mothers are likely to experience, as well as alternatives to eliminate them.

Finally, whereas resilience was not measured in this study, the participants' ability to adapt to immigration stressors as well as their ability to embrace two cultures, constitute expressions of resilience as biculturalism may be expressed through adaptation of their belief systems, organizational patterns, and family communications processes (Walsh, 2015). Thus, a critical area for future research should consist on identifying specific expressions of resilience as influenced by the experience of biculturalism.

Policy Implications

Low-income immigrants in the US are exposed to an excessive amount of contextual challenges that can lead to multiple physical and mental health problems. Whereas current findings do not have the level of empirical evidence required to justify specific policies, the study findings indicate important areas for future research aimed at generating valuable empirical data to inform policy. For example, a relevant finding from this investigation refers to the potential benefits of biculturalism on the couple relationship, which extends the historical research focus of biculturalism as exclusively related to the parent-youth dyad. Therefore, policies that discourage immigrants from embracing their cultural heritage can ultimately have a detrimental effect on the couple relationship. For example, individuals in this study expressing an affinity with biculturalism were likely to report comfort speaking Spanish and English. However, there is a risk for policies prohibiting or openly discouraging the use of languages other than English, particularly as it refers to the potential detrimental effects on family and couple relationships.

In addition, health disparities research indicates that many health and mental health providers continue to lack sufficient training in cultural competence. Thus, an additional policy implication from this study refers to the need to promote cultural competence training with professionals in various fields (e.g., health, mental health, education, etc.) according to comprehensive and multi-dimensional frameworks such as it is postulated in recent biculturalism frameworks. Such trainings can be enhanced by promoting a critical analysis of traditional conceptualizations of acculturation and the need to inform practice with immigrant populations according to comprehensive biculturalism frameworks. Promoting this type of cultural training through effective legislation would constitute a relevant advancement for increasing the quality of life of vulnerable immigrant populations.

Finally, federal funding allocated to prevention and clinical research focused on promoting interventions informed by biculturalism frameworks would be highly relevant to clearly understand the specific ways in which biculturalism operates in families as a protective factor. To date, the impact of biculturalism continues to be understood as a black box process phenomenon, in which positive outcomes are identified but with little understanding of the mechanisms of change associated with such outcomes. Policies aimed at increasing funding lines focused on mechanisms of change of biculturally informed interventions would constitute a highly relevant alternative for promoting the successful adaptation among immigrant families.

Conclusion

A vast body of research exists focused on documenting the effects of immigration-related stress and acculturation. As the immigration experience continues to expand in the world, there is a need to reach a better understanding of how this experience impacts families and couples. Current findings indicate a promissory line of future research and clinical intervention. Such a

direction highlights the need to identify and honor all the cultural experiences associated immigration, which is at the core of what characterizes biculturalism. In essence, biculturalism facilitates a "both/and" rather than an "either/or" cultural experience. Whereas this perspective has been confirmed as it refers to the parent-youth relationship, current findings indicate a potential similar effect for the couple relationship. Furthermore, the study of biculturalism should be promoted along with the study of resilience as biculturalism also constitutes an expression of successful adaptation to immigration challenges. Integrating these lines of research constitutes a critical opportunity to refine prevention and clinical interventions aimed at helping couples successfully adapt and thrive in the face of the immigration experience.

APPENDICES

APPENDIX A:

Model Images

Figure 1. Hypothesized Model 1a.

Latent Growth Model of mothers' level of acculturation and extra-familial immigration-related stress.

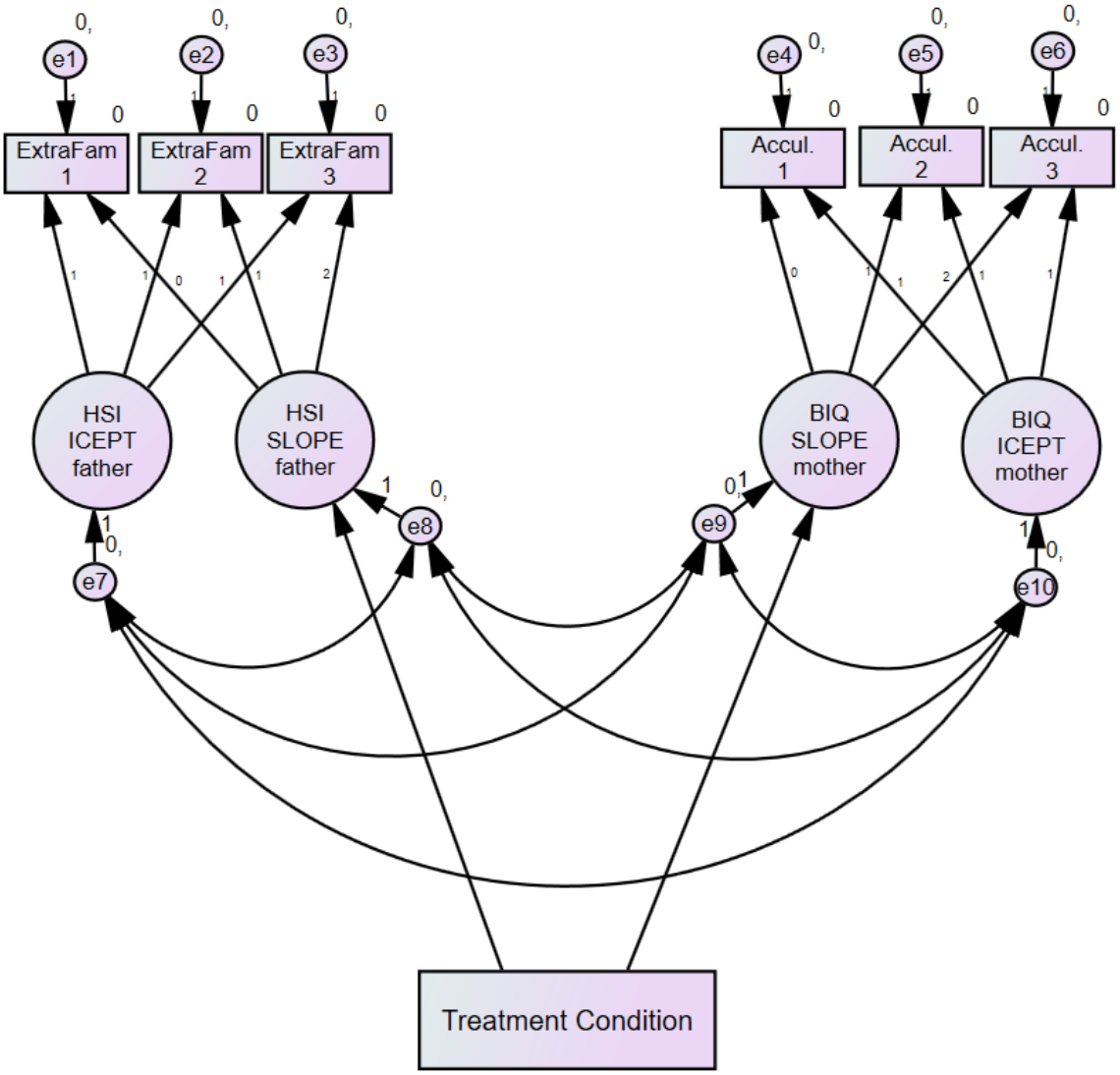
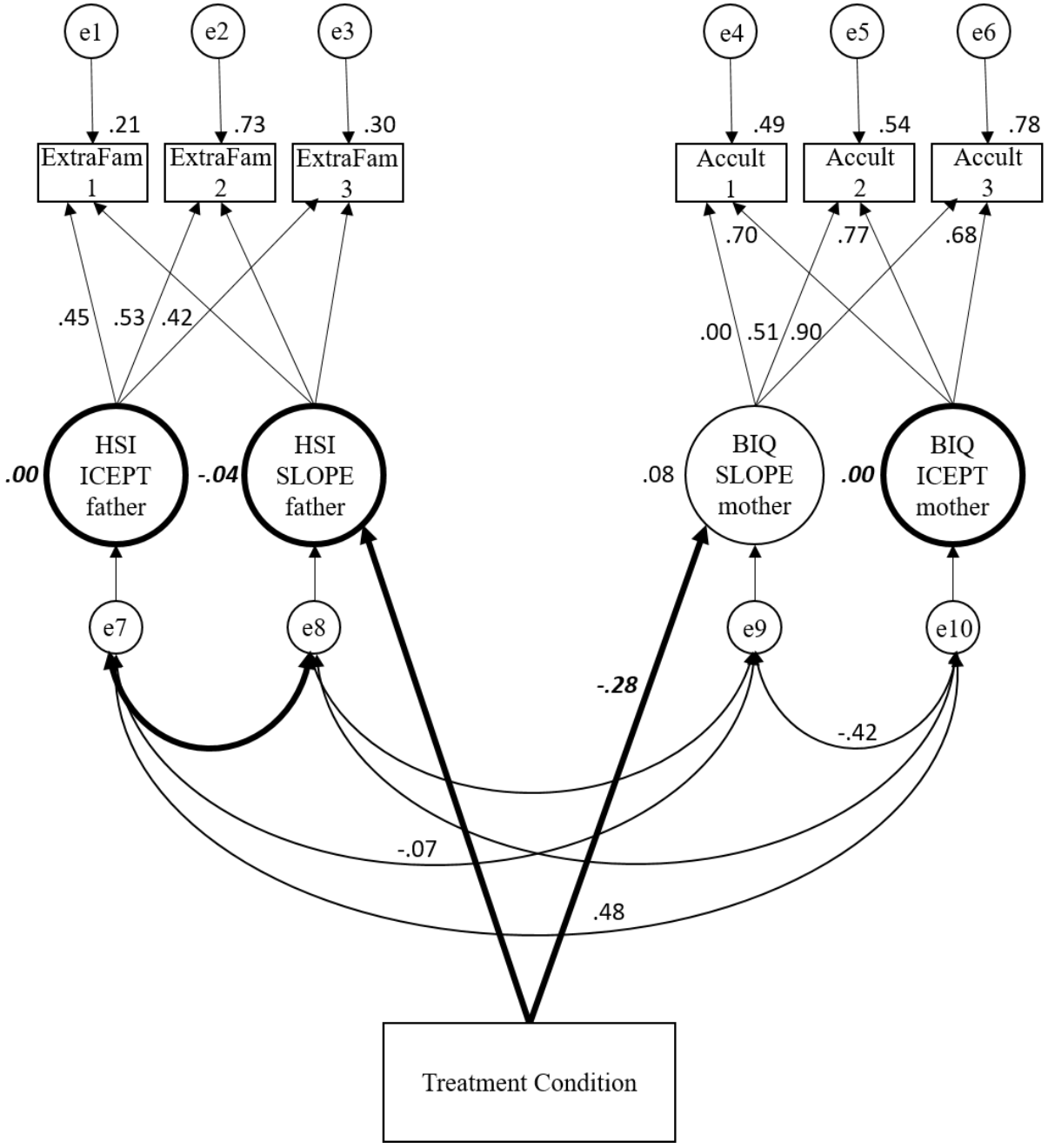


Figure 2. Analyzed Model 1a.

Latent Growth Model of mothers' level of acculturation and extra-familial immigration-related stress.



Note: Bolded lines indicate statistical significance; $\alpha < 0.05$. Bolded and italicized numbers next to bolded lines indicate significant effect sizes; $\alpha < 0.05$.

Figure 3. Hypothesized Model 1b.

Latent Growth Model of fathers' level of acculturation and extra-familial immigration-related stress.

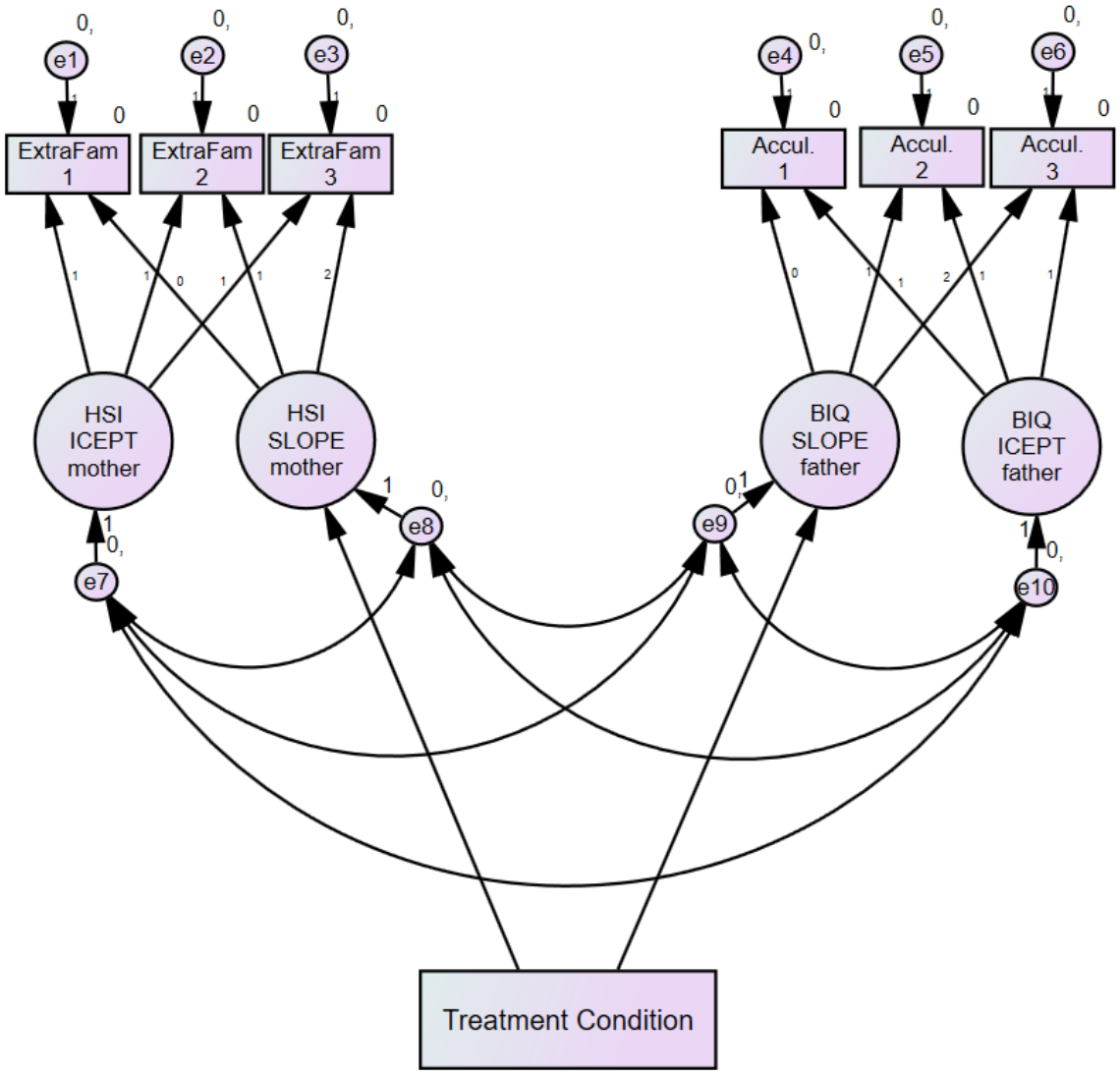
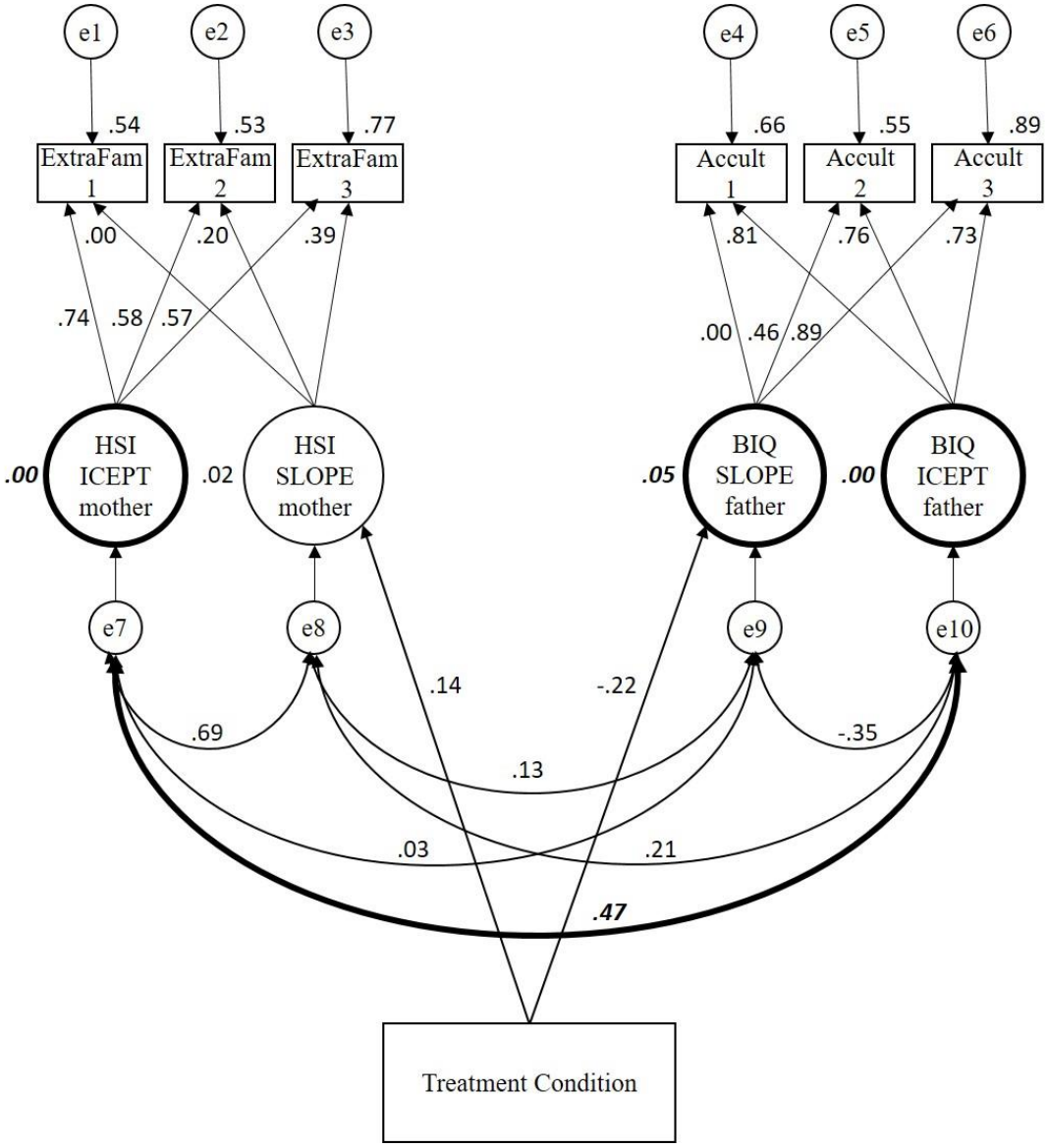


Figure 4. Analyzed Model 1b.

Latent Growth Model of fathers' level of acculturation and extra-familial immigration-related stress.



Note: Bolded lines indicate statistical significance; $\alpha < 0.05$. Bolded and italicized numbers next to bolded lines indicate significant effect sizes; $\alpha < 0.05$.

Figure 5. Hypothesized Model 2a.

Latent Growth Model of mothers' level of acculturation and intra-familial immigration-related stress.

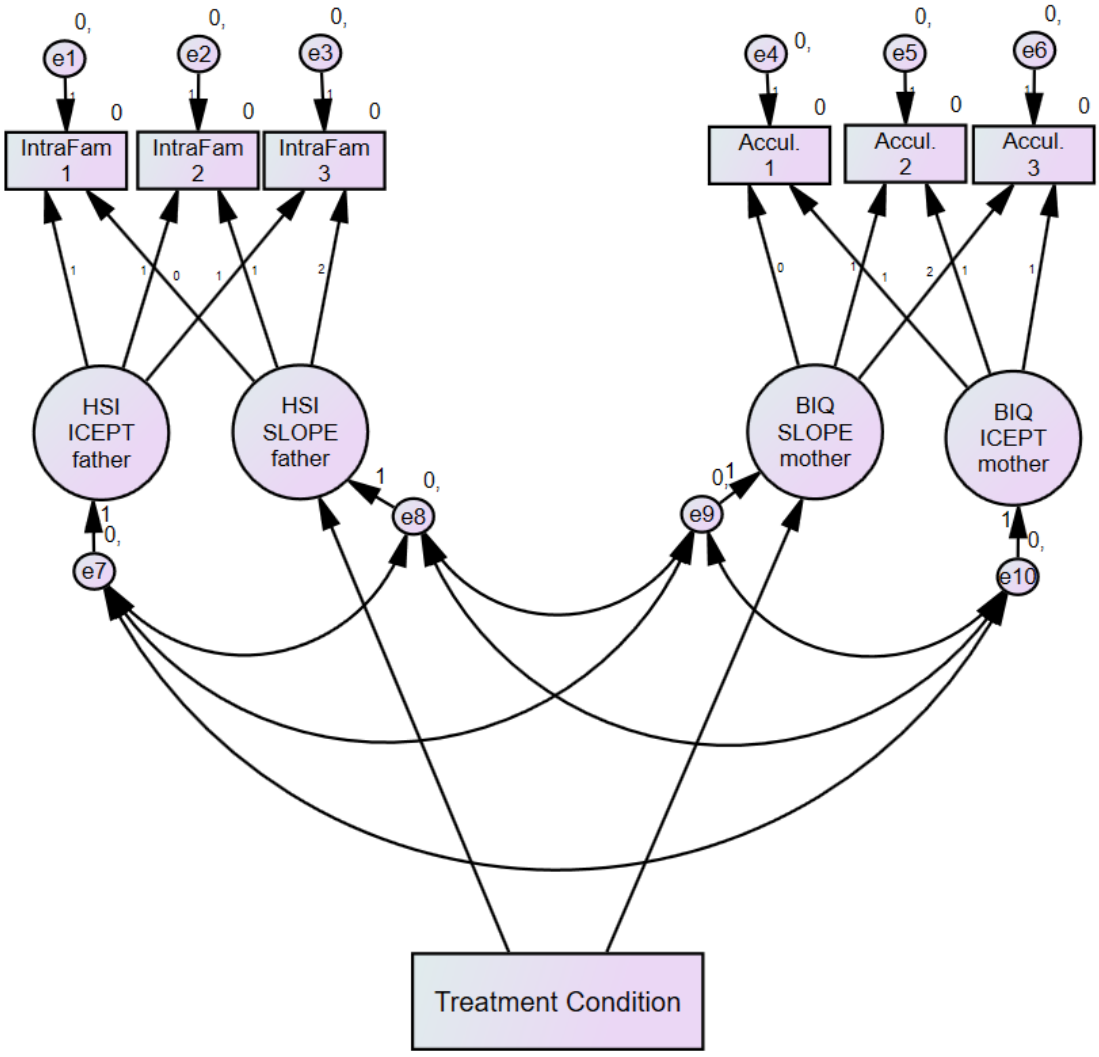
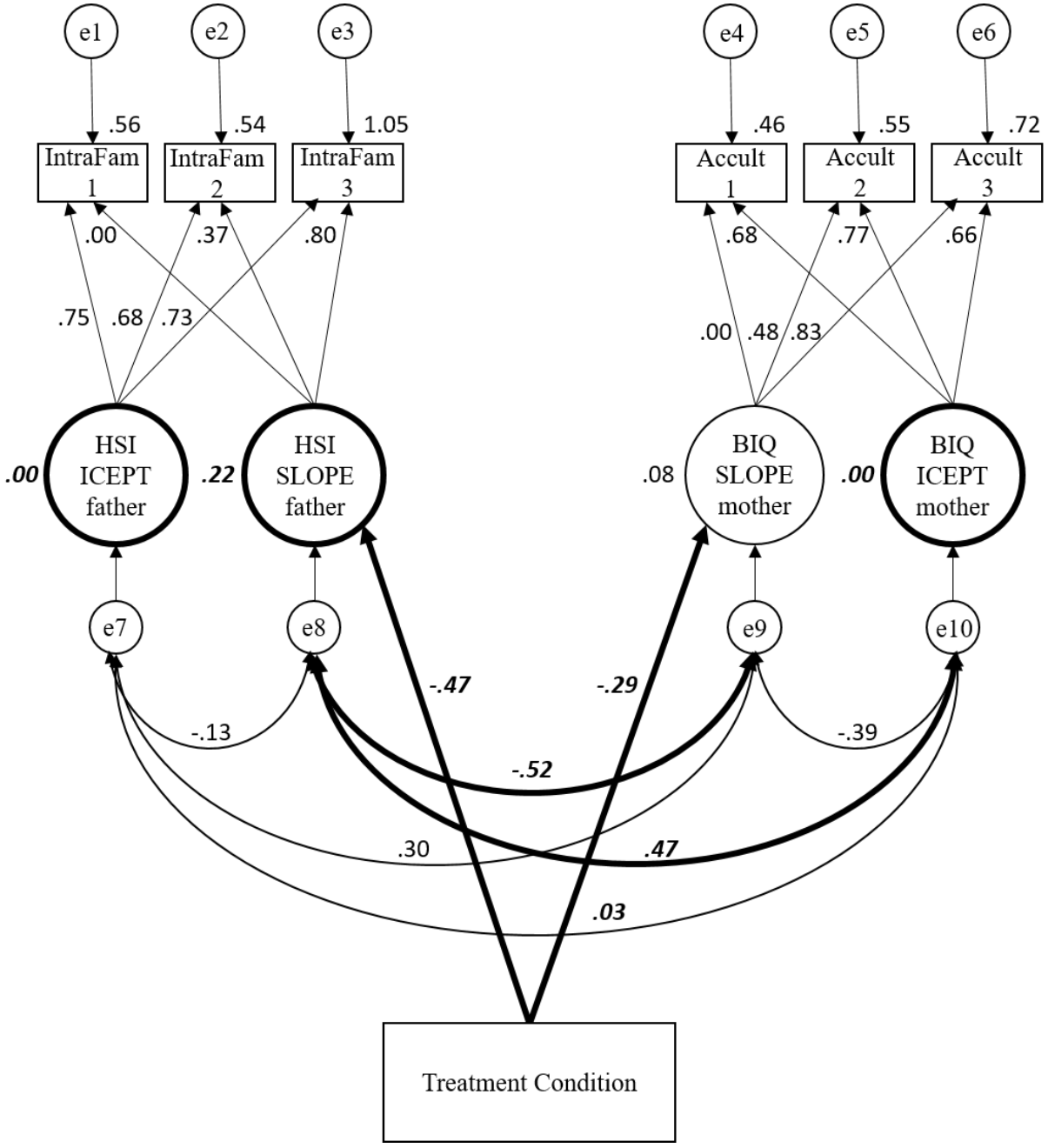


Figure 6. Analyzed Model 2a.

Latent Growth Model of mothers' level of acculturation and intra-familial immigration-related stress.



Note: Bolded lines indicate statistical significance; $\alpha < 0.05$. Bolded and italicized numbers next to bolded lines indicate significant effect sizes; $\alpha < 0.05$.

Figure 7. Hypothesized Model 2b.

Latent Growth Model of fathers' level of acculturation and intra-familial immigration-related stress.

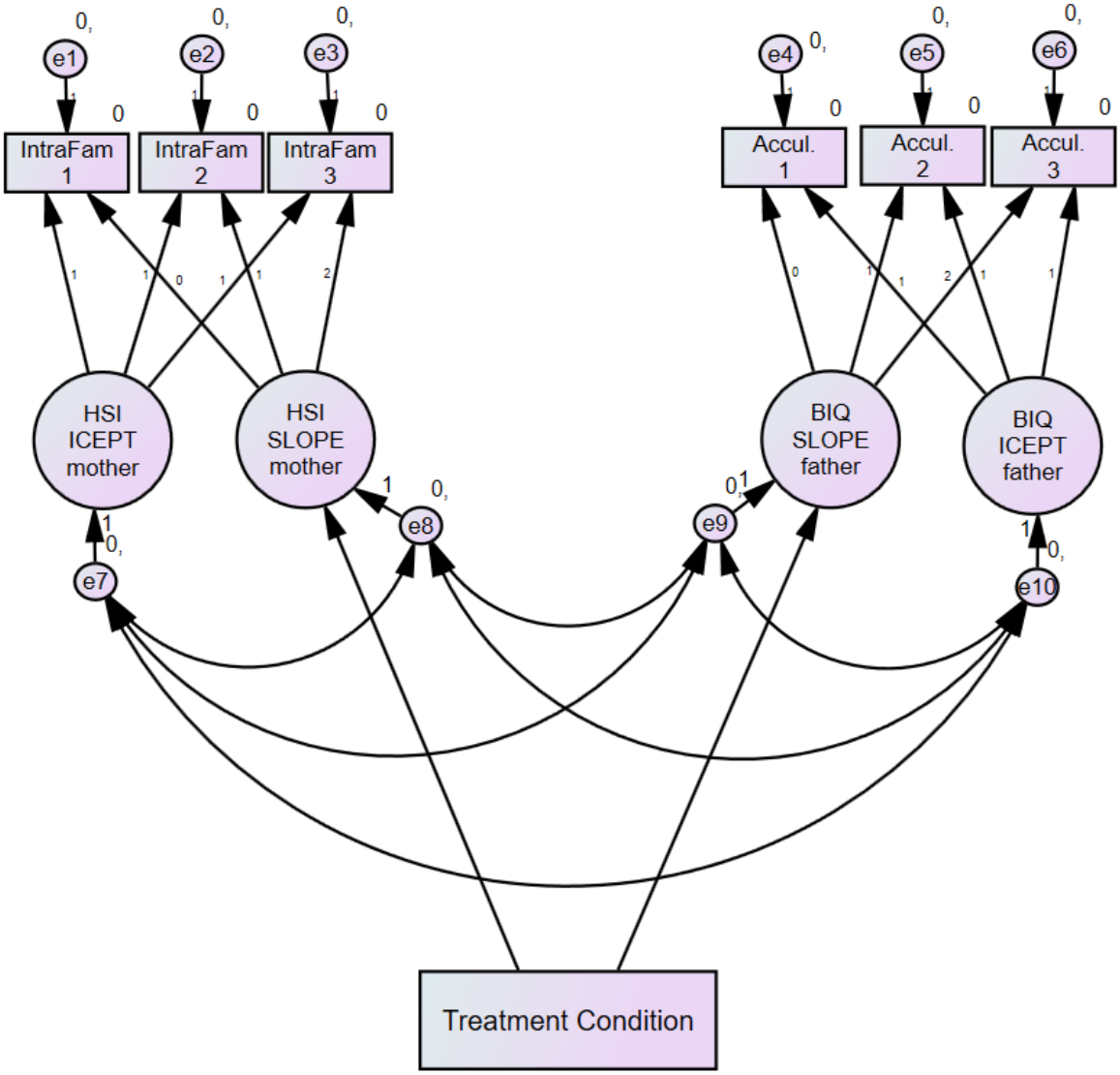
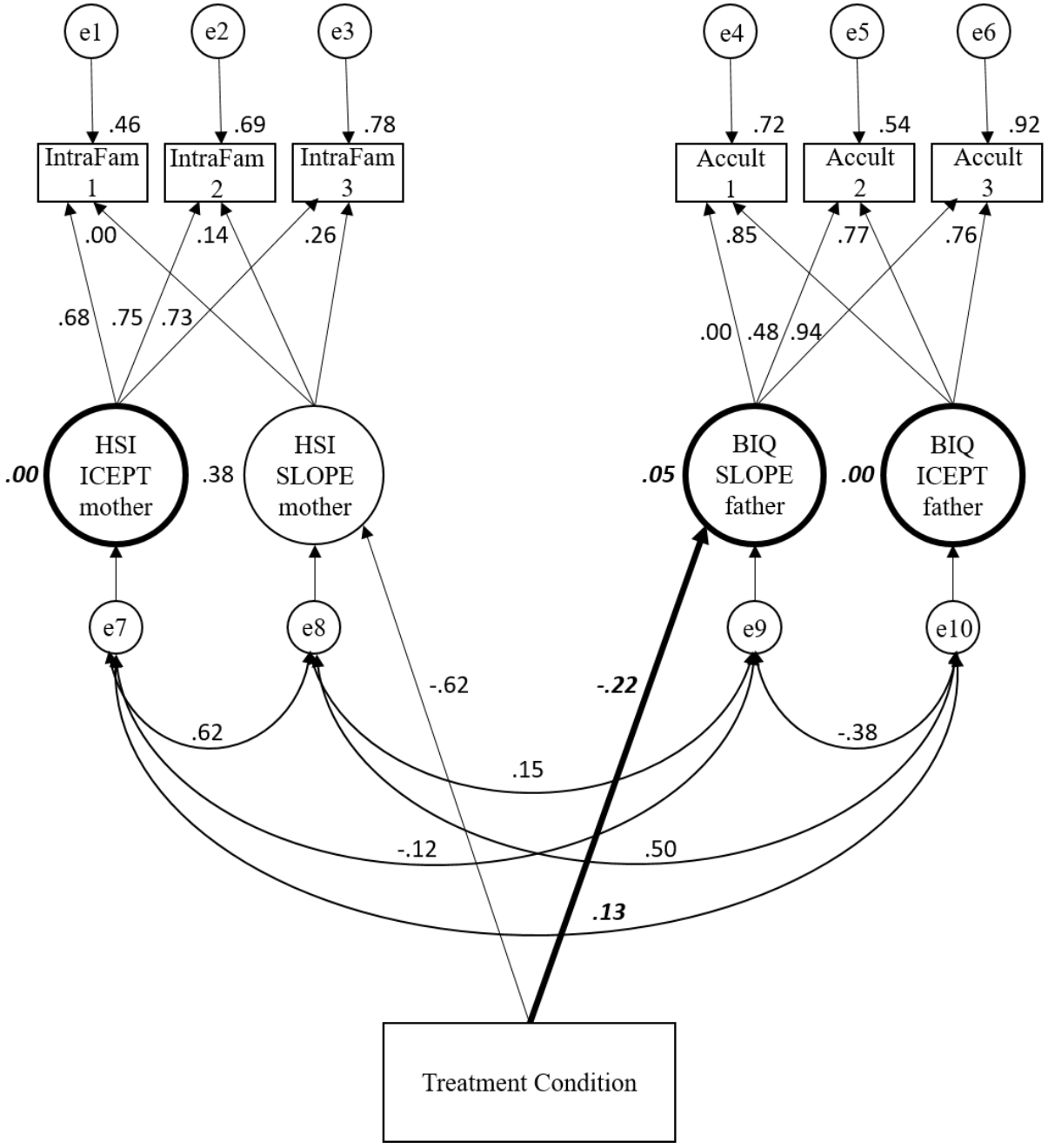


Figure 8. Analyzed Model 2b.

Latent Growth Model of fathers' level of acculturation and intra-familial immigration-related stress.



Note: Bolded lines indicate statistical significance; $\alpha < 0.05$. Bolded and italicized numbers next to bolded lines indicate significant effect sizes; $\alpha < 0.05$.

Figure 9. Hypothesized Model 3.

Predictive Latent Growth Model of parental level of acculturation and depression.

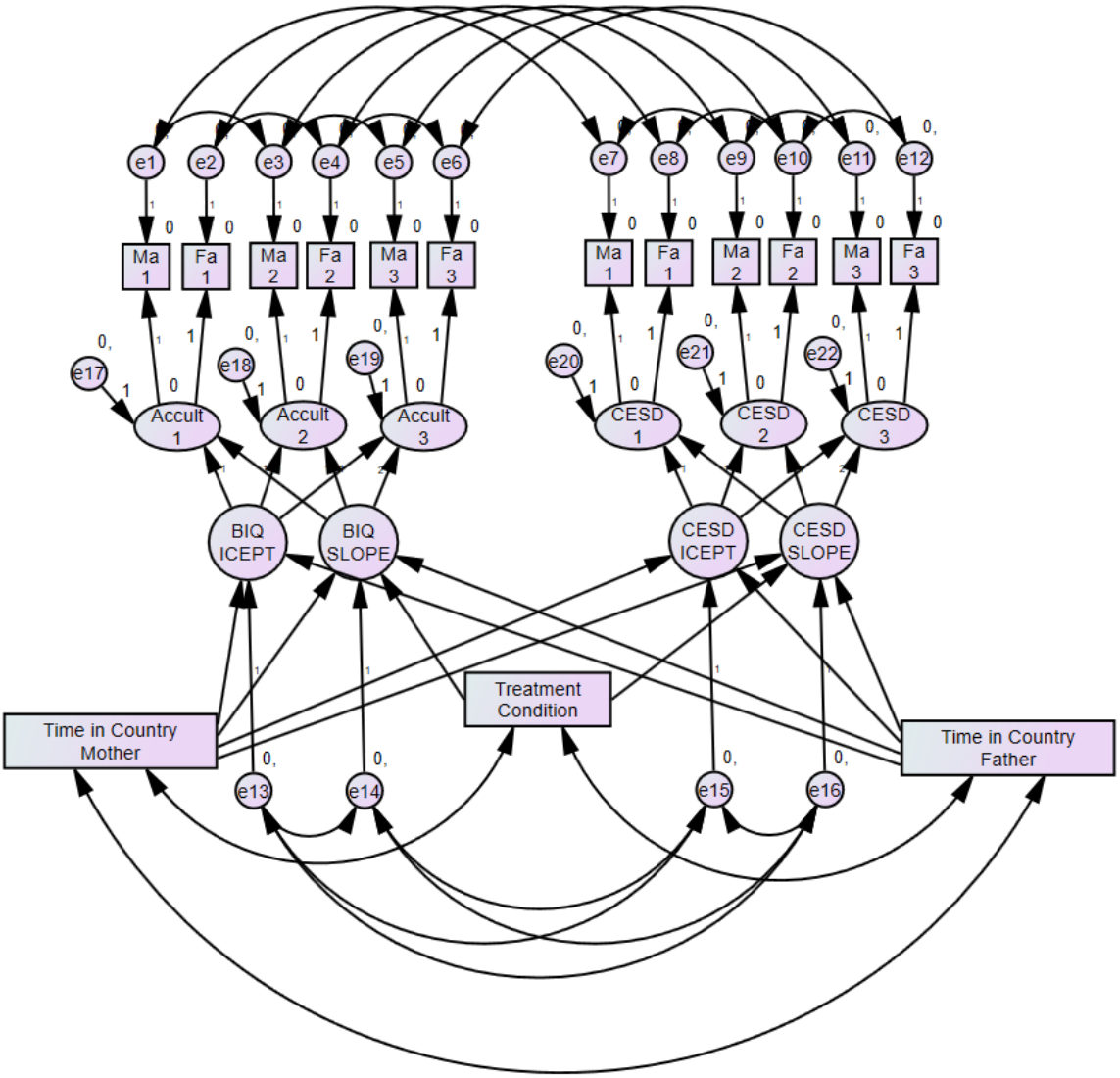
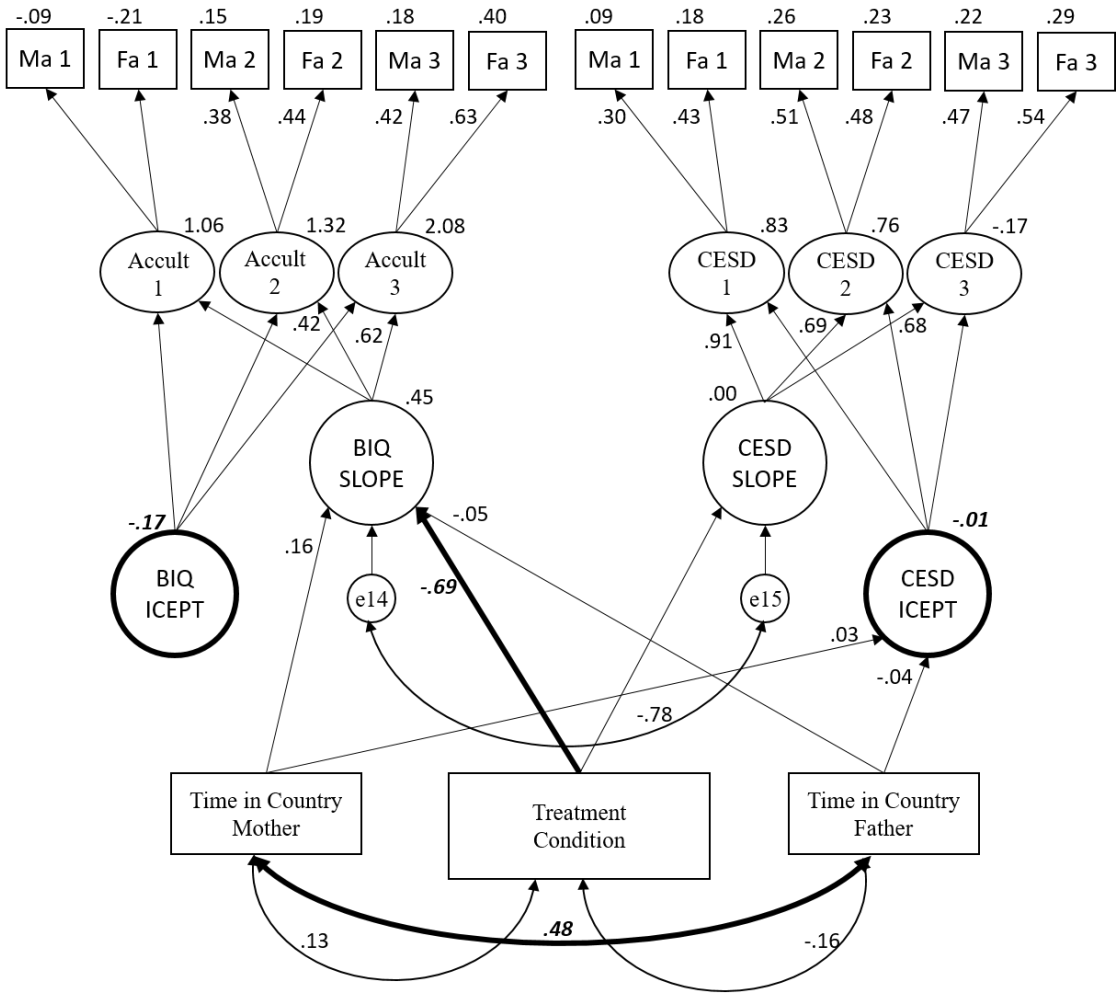


Figure 10. Analyzed Model 3.

Predictive Latent Growth Model of parental level of acculturation and depression.



Note: Some estimates and variances are not shown for simplicity and reading ease. Bolded lines indicate statistical significance; $\alpha < 0.05$. Bolded and italicized numbers next to bolded lines indicate significant effect sizes; $\alpha < 0.05$.

Figure 11. Hypothesized Model 4a.

Latent Growth Model of mothers' level of acculturation and parental alliance.

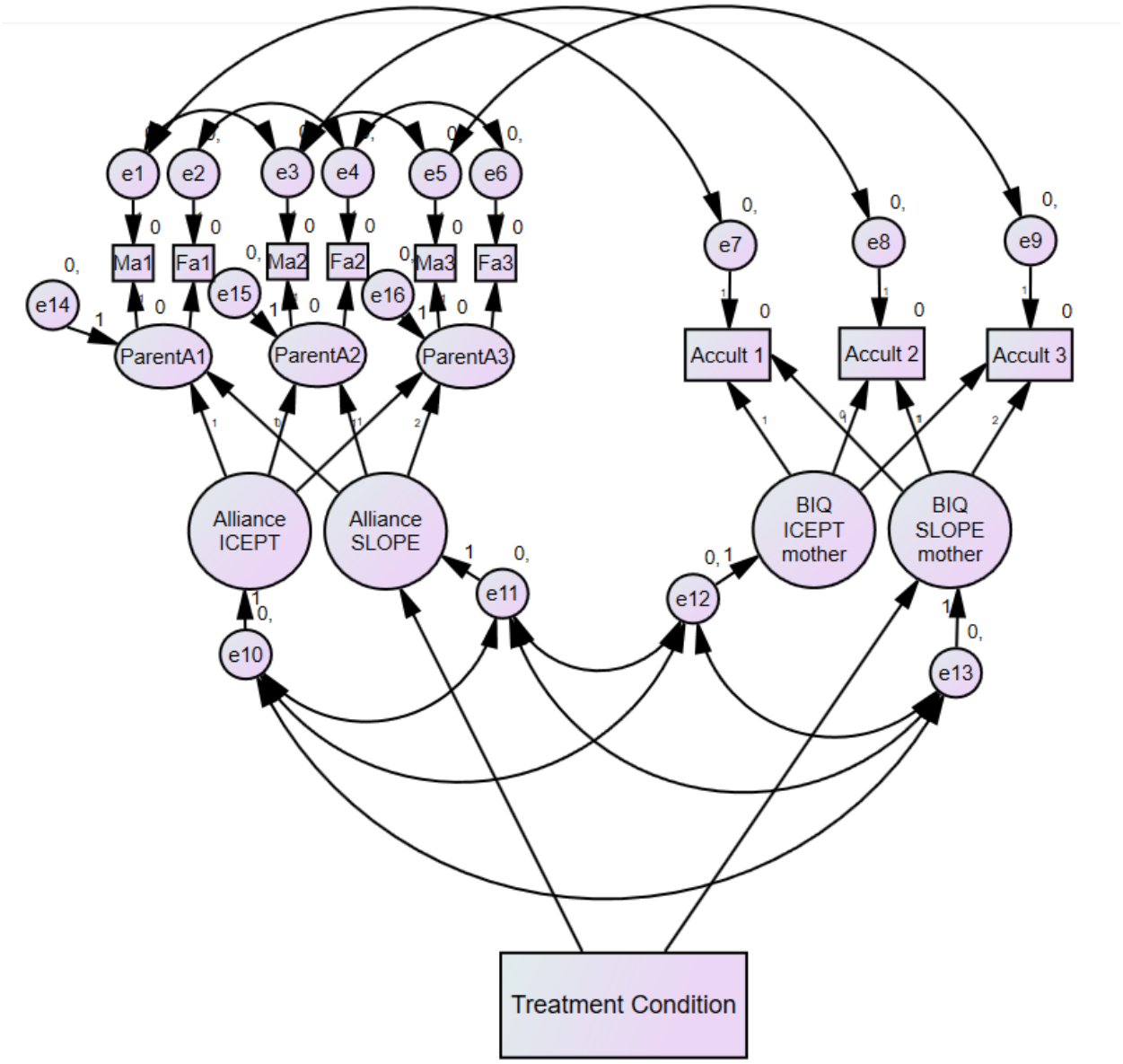
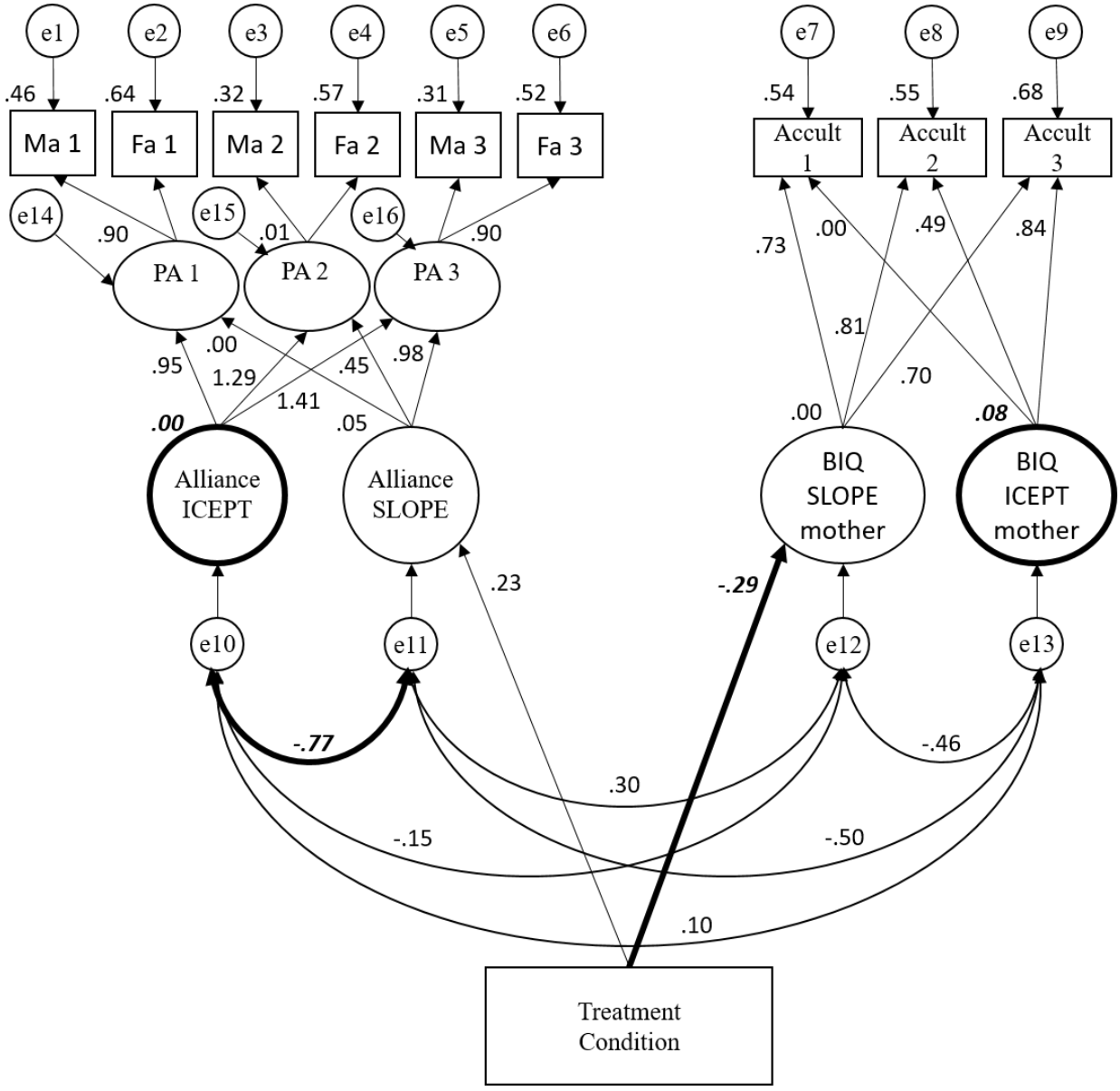


Figure 12. Analyzed Model 4a.

Latent Growth Model of mothers' level of acculturation and parental alliance.



Note: Some estimates and variances are not shown for simplicity and reading ease. Bolded lines indicate statistical significance; $\alpha < 0.05$. Bolded and italicized numbers next to bolded lines indicate significant effect sizes; $\alpha < 0.05$.

Figure 13. Hypothesized Model 4b.

Latent Growth Model of fathers' level of acculturation and parental alliance.

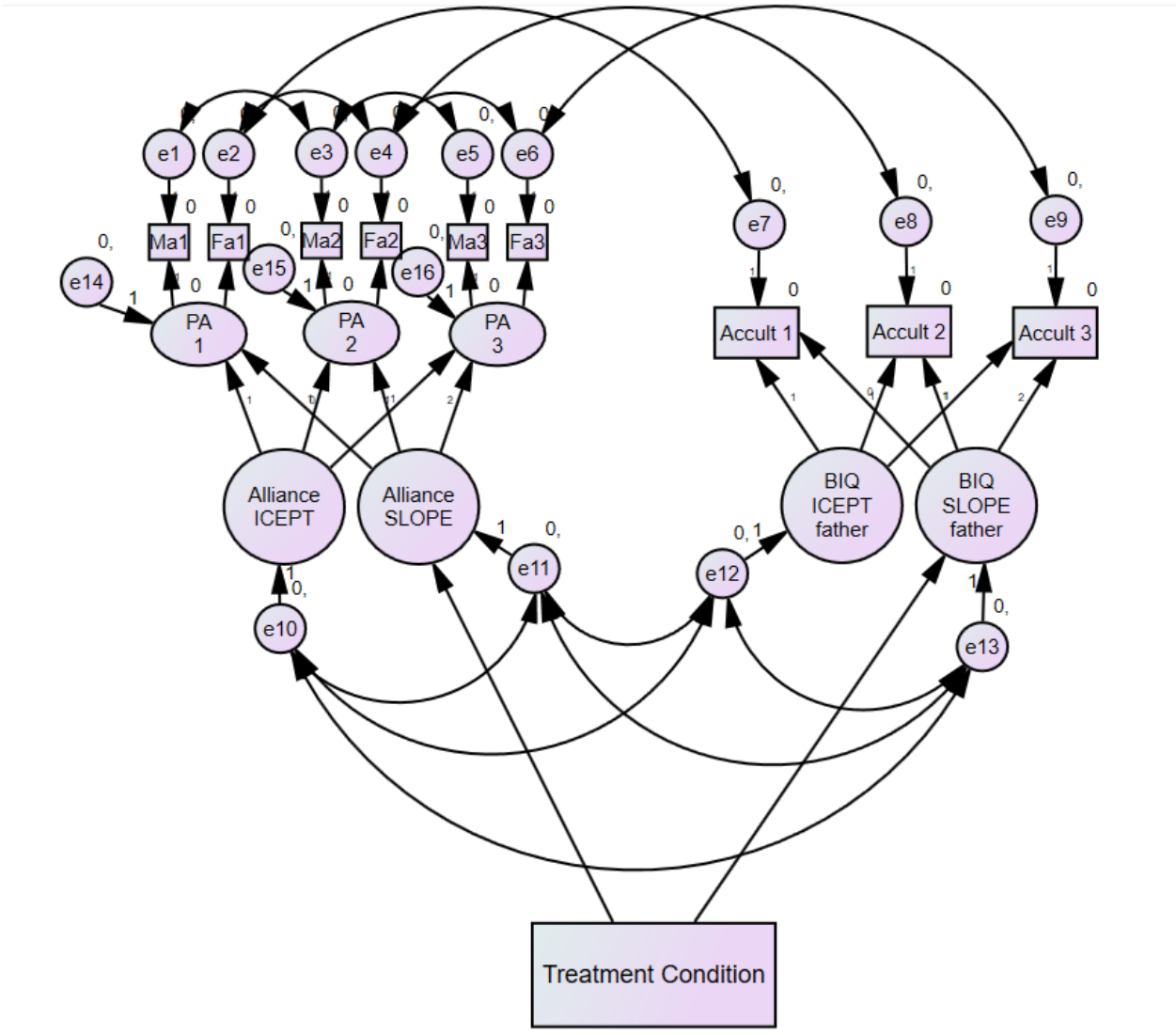
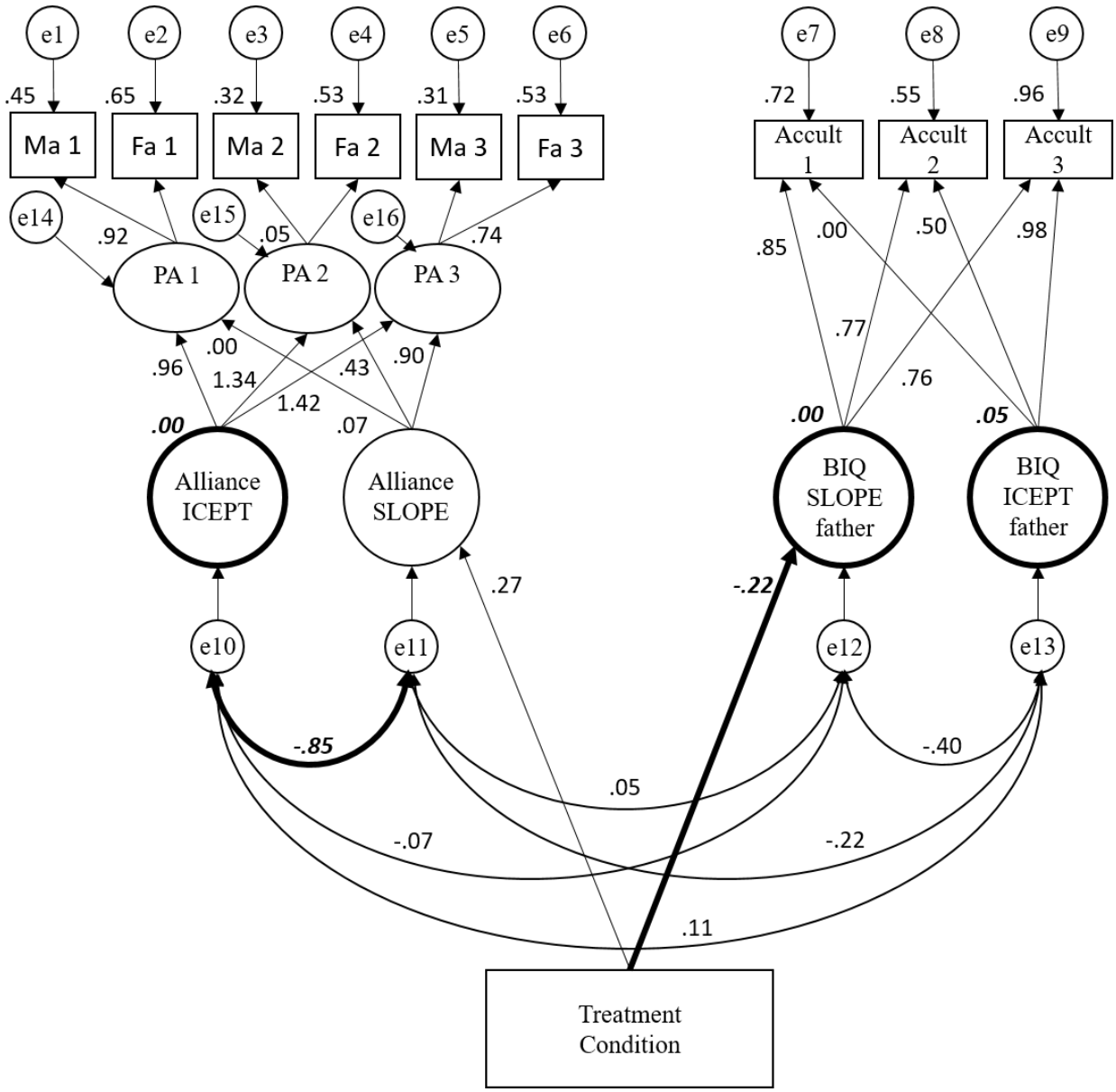


Figure 14. Analyzed Model 4b.

Latent Growth Model of fathers' level of acculturation and parental alliance.



Note: Some estimates and variances are not shown for simplicity and reading ease. Bolded lines indicate statistical significance; $\alpha < 0.05$. Bolded and italicized numbers next to bolded lines indicate significant effect sizes; $\alpha < 0.05$.

APPENDIX B:

Figures

Figure 15. Multidimensional model of acculturation.

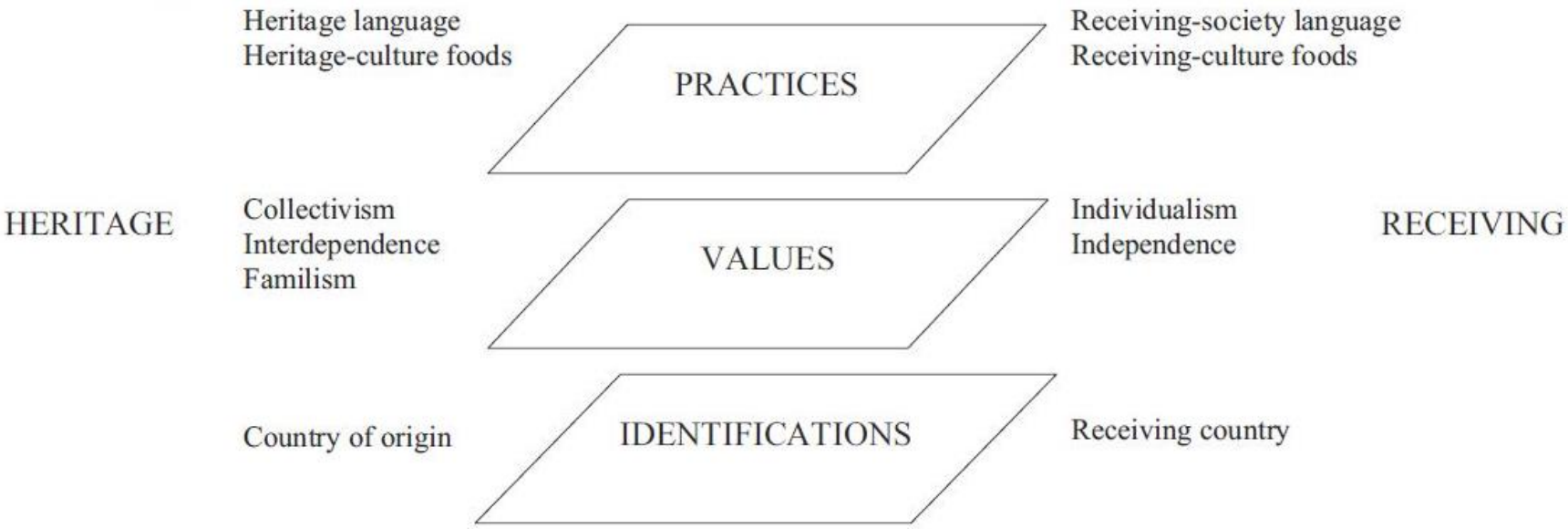


Figure 16. Traditional acculturation gap.

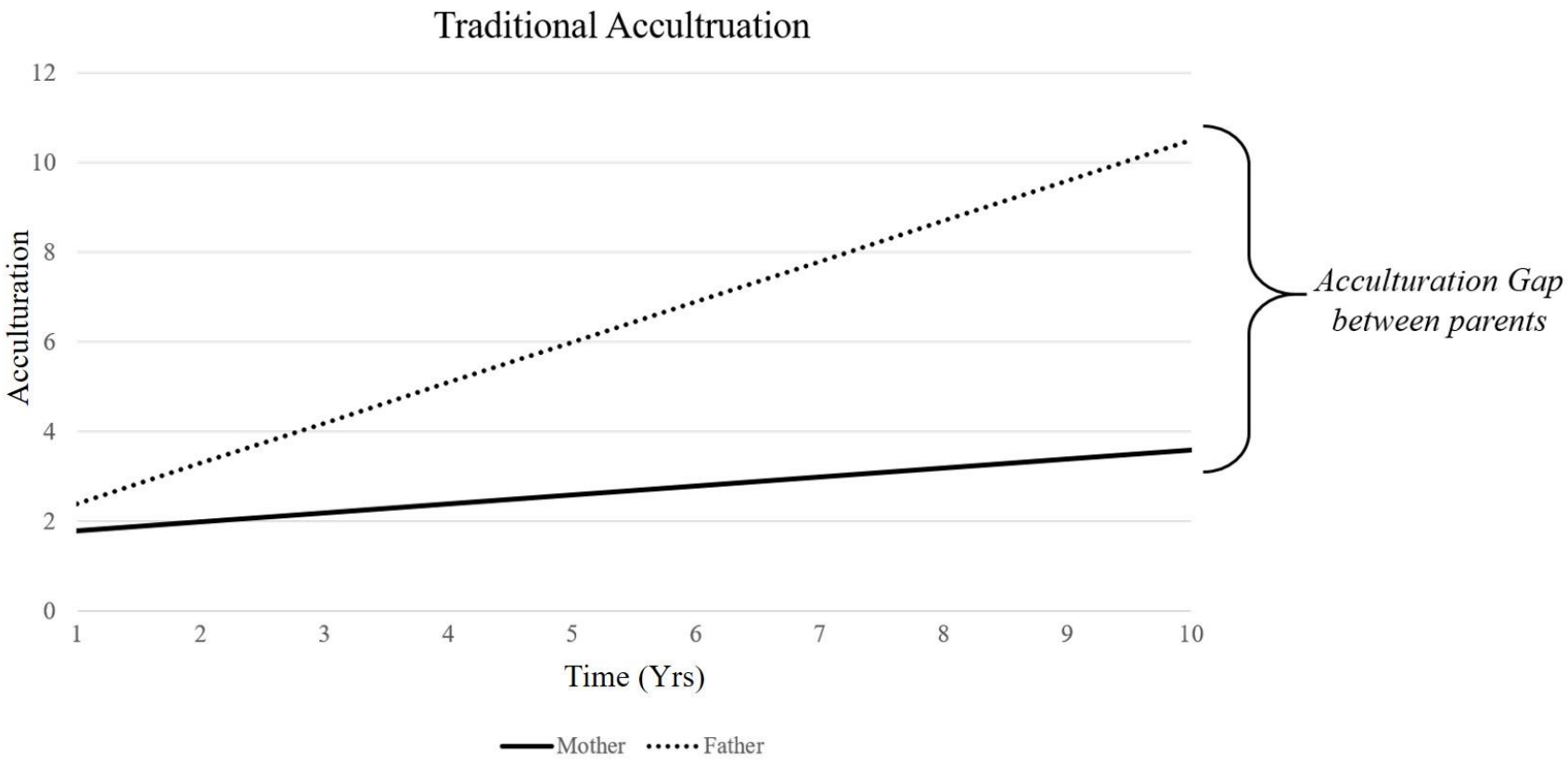
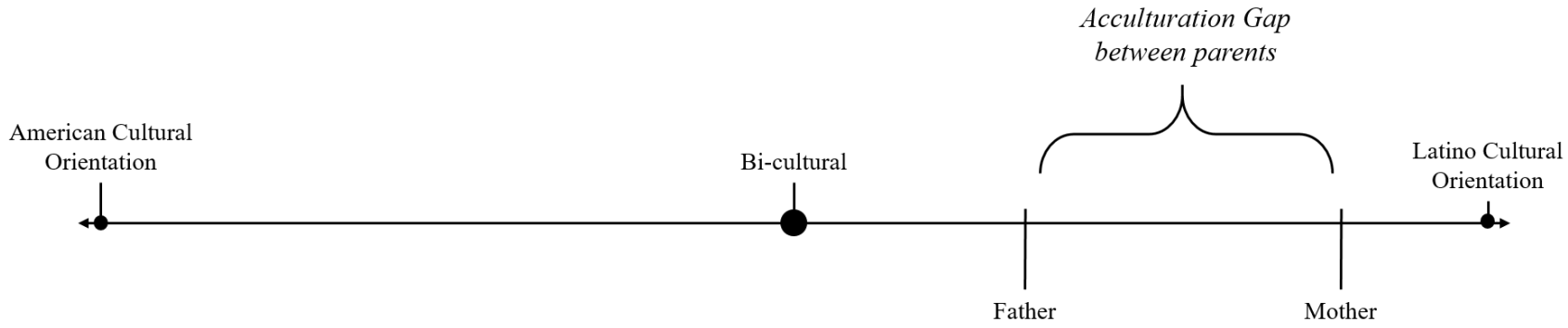


Figure 17. Biculturalism gap.



APPENDIX C:

Tables

Table 1. Participants demographic information.

	CAPAS-Original (CA)	CAPAS-Enhanced (CE)	Control Group
Family Characteristics			
Participating Families	36	35	32
Annual Family Income			
$10,000-20,000	41.7%	22.9%	25.0%
$21,000-30,000	25.0%	34.3%	37.5%
$31,000-40,000	11.1%	22.9%	15.6%
Higher than $40,000	13.9%	11.4%	12.5%
Average Number of Children in Household[a]	2.69 (±0.98)	2.63 (±1.11)	3.10 (±1.08)
Average Age of Children[a]	9.44 (±3.35)	8.66 (±2.85)	9.16 (±3.18)
Individual Characteristics			
Participating Individuals	66	64	59
Mothers	36	35	32
Fathers	30	29	27
Country of Origin			
Mexico	59	57	55
Average Parent Age[a]	35.97 (±4.83)	36.97 (±6.48)	36.52 (±5.29)
Average Years Living in US[a]	15.04 (±4.88)	14.11 (±5.48)	14.80 (±5.72)
Median (Mothers)	14.00	13.00	11.00
Median (Fathers)	14.00	14.00	14.00

[a]MANOVA results - $F(8, 182) = 0.828$, $p = .579$; *Wilk's* $\Lambda = .931$, partial $\eta^2 = .035$.

Table 2. Descriptive statistics by treatment condition and time.

(N=78; Families: 54 - Treatment Class, 24 - Control).

Variables	Mothers			Fathers		
	Pre	*Post*	*6-Mo FU*	*Pre*	*Post*	*6-Mo FU*
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Acculturation						
Treatment Class	13.99 *(14.52)*	14.69 *(13.57)*	10.66 *(15.58)*	12.03 *(9.78)*	11.75 *(11.69)*	12.16 *(11.35)*
Control	13.05 *(17.73)*	17.25 *(14.99)*	19.08 *(15.94)*	14.68 *(11.53)*	16.62 *(9.94)*	18.45 *(11.45)*
Intra-Familial Stress						
Treatment Class	0.94 *(0.91)*	0.61 *(0.81)*	0.55 *(0.75)*	0.64 *(0.53)*	0.34 *(0.45)*	0.33 *(0.35)*
Control	0.79 *(0.73)*	0.66 *(0.59)*	0.78 *(0.89)*	0.64 *(0.65)*	0.61 *(0.84)*	0.79 *(0.81)*
Extra-Familial Stress						
Treatment Class	0.77 *(0.62)*	0.77 *(0.96)*	0.72 *(1.03)*	0.90 *(0.87)*	0.70 *(0.81)*	0.79 *(0.82)*
Control	0.92 *(0.98)*	1.00 *(1.09)*	0.74 *(0.84)*	0.77 *(1.00)*	0.77 *(0.65)*	1.07 *(1.22)*
Parental Alliance						
Treatment Class	3.45 *(0.72)*	3.88 *(0.58)*	3.84 *(0.55)*	3.82 *(0.66)*	4.18 *(0.43)*	4.17 *(0.41)*
Control	3.64 *(0.56)*	3.76 *(0.66)*	3.71 *(0.64)*	3.85 *(0.46)*	3.90 *(0.55)*	4.02 *(0.51)*
Depression						
Treatment Class	0.64 *(0.43)*	0.55 *(0.36)*	0.51 *(0.41)*	0.58 *(0.32)*	0.54 *(0.39)*	0.54 *(0.32)*
Control	0.72 *(0.41)*	0.67 *(0.33)*	0.56 *(0.36)*	0.63 *(0.35)*	0.59 *(0.32)*	0.59 *(0.35)*

Table 3. Correlations for each measure by gender.

(Mothers, italics, below diagonal; Fathers, above diagonal)

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Treatment Condition	—	-.16	-.12	.00	.06	-.02	-.05	-.20	-.21	-.04	**.27**	-.06	**-.25**	**-.37**	-.14	.16	-.08
2. Years in the US	*.13*	—	-.22	-.10	**-.30**	-.06	-.13	-.07	.17	-.07	.16	.07	.00	.06	-.12	.12	-.10
3. Acculturation (Time 1)	*.03*	*-.06*	—	.17	**.33**	.06	-.01	**.50**	.02	.14	-.00	-.10	**.37**	.09	**.32**	-.00	-.08
4. Intra-Familial Stress (Time 1)	*.08*	*.07*	*-.04*	—	**.41**	-.22	**.31**	.18	**.48**	.20	**-.25**	.07	.08	**.48**	**.45**	**-.30**	**.26**
5. Extra-Familial Stress (Time 1)	*-.10*	*-.21*	*.00*	*.20*	—	.01	**.32**	**.26**	.17	**.60**	-.01	.10	.14	**.29**	**.75**	.02	.15
6. Parental Alliance (Time 1)	*-.13*	*-.05*	*-.03*	***-.34***	*.05*	—	**-.34**	-.05	-.16	-.11	**.53**	-.21	.11	-.19	-.15	**.31**	**-.23**
7. Depression (Time 1)	*-.09*	*.15*	*.09*	***.24***	***.28***	***-.28***	—	.01	**.36**	**.54**	**-.43**	**.51**	-.00	**.30**	**.43**	**-.34**	**.54**
8. Acculturation (Time 2)	*-.09*	*-.19*	***.42***	*.12*	*.05*	*-.15*	*.11*	—	-.05	.09	-.04	-.13	**.63**	.02	**.23**	-.30	-.18
9. Intra-Familial Stress (Time 2)	*-.03*	*-.01*	*.01*	***.58***	*.15*	***-.37***	***.24***	*.18*	—	**.48**	**-.41**	**.33**	.05	**.73**	**.34**	**-.30**	**.28**
10. Extra-Familial Stress (Time 2)	*-.11*	*-.10*	*.15*	***.35***	***.55***	*.04*	*.21*	*.18*	***.40***	—	-.22	**.31**	.03	**.42**	**.63**	-.18	**.39**
11. Parental Alliance (Time 2)	*.09*	*.06*	*-.01*	***-.31***	*.05*	***.64***	*-.15*	*-.05*	***-.58***	*-.07*	—	**-.39**	-.16	**-.45**	-.22	**.61**	**-.35**
12. Depression (Time 2)	*-.14*	*.02*	*.10*	*.12*	*.09*	***-.26***	***.62***	*.16*	***.23***	*.09*	***-.35***	—	-.03	**.26**	**.25**	-.22	**.31**
13. Acculturation (Time 3)	***-.24***	*-.15*	***.22***	*-.11*	*-.10*	*-.00*	*-.05*	***.54***	*.01*	*-.00*	*-.03*	*.06*	—	.13	.19	-.08	-.20
14. Intra-Familial Stress (Time 3)	*-.13*	*.03*	*.08*	***.59***	***.32***	*-.21*	***.24***	*.22*	***.72***	***.41***	***-.50***	***.27***	*-.07*	—	**.54**	**-.41**	**.30**
15. Extra-Familial Stress (Time 3)	*-.01*	*-.04*	*.15*	***.25***	***.60***	*.08*	*.19*	*.21*	***.31***	***.66***	*-.11*	*.16*	*-.06*	***.62***	—	-.13	**.30**

Table 3 (cont'd)

16. Parental Alliance (Time 3)	*.11*	*.18*	*.05*	***-.24***	*.01*	***.44***	*-.16*	*-.17*	***-.43***	*-.11*	***.74***	***-.32***	*-.07*	***-.34***	*-.07*	—	***-.42***
17. Depression (Time 3)	*-.06*	*.03*	***.24***	***.40***	*.16*	*-.04*	***.44***	***.23***	***.53***	*.16*	***-.28***	***.36***	*-.11*	***.58***	***.50***	***-.30***	—

N = 78; *significant findings p<0.05 are bolded.*

Table 4. Inter-parental correlations between study variables.

	Fathers' Responses →																
↓ Mothers' Responses	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Treatment Condition	—	-.16	-.12	.00	.07	-.02	-.05	-.20	-.21	-.04	**.27**	-.06	**-.25**	**-.37**	-.14	.16	-.08
2. Years in the US	.13	**.48**	**-.23**	.10	**-.23**	-.09	-.08	-.12	.04	-.13	.08	.01	-.14	.01	-.17	.05	-.06
3. Acculturation (Time 1)	.03	.07	-.13	-.04	.20	.01	.01	.01	.15	.16	-.05	**.23**	.11	.18	.18	.15	-.02
4. Intra-Familial Stress (Time 1)	.08	.07	.21	**.38**	.09	-.20	.22	.09	.22	.18	-.07	-.01	.03	.20	**.25**	.02	.01
5. Extra-Familial Stress (Time 1)	-.10	.22	.22	-.01	.20	.06	.03	**.30**	.13	**.26**	.01	.04	**.23**	.10	.16	.10	-.04
6. Parental Alliance (Time 1)	-.13	-.03	-.01	**-.24**	.10	**.60**	-.15	.03	-.19	.00	**.42**	-.16	.02	-.12	-.01	**.26**	.01
7. Depression (Time 1)	-.09	.18	.01	.02	-.01	-.12	.11	.12	.06	.13	-.22	.12	.18	.04	.06	-.02	.00
8. Acculturation (Time 2)	-.09	-.13	-.02	.18	**.22**	.01	.17	.15	.17	.13	-.16	.09	**.42**	**.31**	**.24**	-.13	.13
9. Intra-Familial Stress (Time 2)	-.03	.22	.01	**.37**	.07	**-.33**	**.37**	-.06	**.60**	**.34**	**-.31**	.12	.01	**.40**	.21	-.15	.20
10. Extra-Familial Stress (Time 2)	-.12	.16	**.33**	.15	**.42**	-.03	.16	**.41**	.14	**.38**	.07	-.09	**.38**	.13	**.40**	.04	.06
11. Parental Alliance (Time 2)	.09	.03	-.14	**-.30**	-.02	**.51**	**-.24**	.03	**-.28**	-.10	**.48**	-.21	.05	**-.29**	-.13	**.35**	-.15
12. Depression (Time 2)	-.14	.06	.00	-.01	-.01	-.01	**.25**	.10	.06	.03	**-.26**	.20	.01	.09	.05	-.13	.00
13. Acculturation (Time 3)	**-.24**	-.19	-.01	.20	.11	.07	.01	.17	.13	.07	-.18	.03	.19	.18	.02	-.12	.15
14. Intra-Familial Stress (Time 3)	-.13	.18	**.26**	**.28**	.09	-.11	**.25**	.11	**.44**	**.31**	-.21	.17	.15	**.46**	**.24**	-.10	.15
15. Extra-Familial Stress (Time 3)	-.01	.14	**.26**	.02	**.30**	.04	**.23**	**.23**	.16	**.48**	.04	.14	**.28**	**.23**	**.33**	.02	.12

Table 4 (cont'd)

16. Parental Alliance (Time 3)	.12	.10	-.19	**-.37**	-.08	**.36**	**-.30**	-.03	**-.27**	-.06	**.44**	-.17	-.01	**-.30**	**-.25**	**.43**	**-.34**
17. Depression (Time 3)	-.06	.17	.04	.11	.10	-.14	**.32**	.02	.20	**.26**	-.15	**.25**	.14	**.31**	**.28**	-.18	.22

Note: N = 78; *significant findings p<0.05 are bolded.*

Table 5. Fit statistics.

Models	*Chi-square*	$\chi^2 \Delta$ (*df;p*)	*RMSEA*	*NFI*	*CFI*	*TLI*
1a						
Intercept only	χ^2 (16, *N* = 78) 28.779, *p* = .025		.114*	.750*	.858*	.865*
Fixed intercept, fixed slope	χ^2 (17, *N* = 78) 161.73, *p* = .000		.333*	.077*	.062*	-.159*
Random intercept, fixed slope	χ^2 (15, *N* = 78) 29.035, *p* = .016		.110*	.834*	.909**	.873*
$\Delta\chi^2$ between fixed interval, fixed slope models		**132.695 (2,1; *p*< .05)**	-	-	-	-
Random interval, random slope	χ^2 (11, *N* = 78) 12.315, *p* = .340		.039**	.930**	.991***	.984***
$\Delta\chi^2$ between random interval, random slope models		**16.720 (4,1; *p*< .05)**	-	-	-	-
1b						
Intercept only	χ^2 (22, *N* = 78) 32.537, *p* = .069		.079*	.811*	.930**	.934**
Fixed intercept, fixed slope	χ^2 (17, *N* = 78) 145.08, *p* = .000		.313*	.158*	.153*	-.046*
Random intercept, fixed slope	χ^2 (15, *N* = 78) 23.912, *p* = .067		.096**	.851*	.929**	.900*
$\Delta\chi^2$ between fixed interval, fixed slope models		**121.168 (2,1; *p*< .05)**	-	-	-	-
Random interval, random slope	χ^2 (11, *N* = 78) 11.099, *p* = .435		.011***	.936**	.999***	.999***
$\Delta\chi^2$ between random interval, random slope models		**12.813 (4,1; *p*< .05)**	-	-	-	-
2a						
Intercept only	χ^2 (22, *N* = 78) 58.152, *p* = .000		.146*	.641*	.743*	.755*
Fixed intercept, fixed slope	χ^2 (17, *N* = 78) 129.83, *p* = .000		.294*	.197*	.198*	.010*
Random intercept, fixed slope	χ^2 (15, *N* = 78) 25.751, *p* = .041		.088**	.852*	.937***	.911**
$\Delta\chi^2$ between fixed interval, fixed slope models		**104.079 (2,1; *p*< .05)**	-	-	-	-
Random interval, random slope	χ^2 (11, *N* = 78) 15.287, *p* = .170		.071**	.906**	.970**	.942**
$\Delta\chi^2$ between random interval, random slope models		**10.464 (4,1; *p*< .05)**	-	-	-	-
2b						

Table 5 (cont'd)

Intercept only	χ^2 (22, N = 78) 44.489, p = .003		.115*	.755*	.860*	.867*
Fixed intercept, fixed slope	χ^2 (17, N = 78) 171.67, p = .000		.344*	.056*	.038*	-.188*
Random intercept, fixed slope	χ^2 (15, N = 78) 27.124, p = .028		.102*	.851*	.925**	.894*
$\Delta\chi^2$ between fixed interval, fixed slope models		**144.546 (2,1; p< .05)**	-	-	-	-
Random interval, random slope	χ^2 (11, N = 78) 18.059, p = .080		.091**	.901**	.956**	.916**
$\Delta\chi^2$ between random interval, random slope models		9.065 (4,1; *ns)*	-	-	-	-
3						
Intercept only	χ^2 (85, N = 78) 127.37, p = .002		.080**	.647*	.834*	.795*
Fixed intercept, fixed slope	χ^2 (76, N = 78) 145.77, p = .000		.109*	.595*	.727*	.622*
Random intercept, fixed slope	χ^2 (15, N = 78) 108.54, p = .006		.078**	.699*	.865*	.808*
$\Delta\chi^2$ between fixed interval, fixed slope models		37.230 (61,1; *ns)*	-	-	-	-
Random interval, random slope	χ^2 (70, N = 78) 87.614, p = .076		.057**	.757*	.931**	.897*
$\Delta\chi^2$ between random interval, random slope models		20.926 (55,1; *ns)*	-	-	-	-
4a						
Intercept only	χ^2 (36, N = 78) 73.808, p = .000		.117*	.745*	.845*	.807*
Fixed intercept, fixed slope	χ^2 (31, N = 78) 135.91, p = .000		.210*	.530*	.571*	.377*
Random intercept, fixed slope	χ^2 (29, N = 78) 56.325, p = .002		.111*	.805*	.888*	.826*
$\Delta\chi^2$ between fixed interval, fixed slope models		**79.585 (2,1, p< .05)**	-	-	-	-
Random interval, random slope	χ^2 (25, N = 78) 47.028, p = .005		.107*	.837*	.910**	.838*
$\Delta\chi^2$ between random interval, random slope models		9.297 (4,1; *ns)*	-	-	-	-
4b						
Intercept only	χ^2 (36, N = 78) 86.782, p = .000		.130*	.734*	.824*	.780*
Fixed intercept, fixed slope	χ^2 (31, N = 78) 161.77, p = .000		.234*	.480*	.509*	.287*
Random intercept, fixed slope	χ^2 (29, N = 78) 69.567, p = .000		.135*	.777*	.848*	.764*
$\Delta\chi^2$ between fixed interval, fixed slope models		**92.203 (2,1; p< .05)**	-	-	-	-

Table 5 (cont'd)

Random interval, random slope	χ^2 (25, N = 78) 53.632, p = .001		.122*	.828*	.892*	.806*
$\Delta\chi^2$ between random interval, random slope models		**15.935 (4,1; p< .05)**	-	-	-	-

N = 78; ****Excellent fit; **Acceptable fit; *Poor fit; significant findings, p< .05, are bolded.*

Table 6. Model 1 parameter estimates.

Model 1a		*Model 1b*	
Parameter	*Estimate (SE)*	*Parameter*	*Estimate (SE)*
Mother acculturation		*Father acculturation*	
Mean intercept	**14.59** (1.66)	Mean intercept	**12.79** (1.15)
Mean slope	2.57 (1.67)	Mean slope	**2.33** (1.12)
Intercept variance	**118.40** (43.03)	Intercept variance	**70.27** (21.62)
Slope variance	**47.52** (22.22)	Slope variance	**24.81** (9.94)
Intercept/slope covariance	-31.58 (24.74)	Intercept/slope covariance	-14.41 (11.21)
Father extra-familial stress		*Mother extra-familial stress*	
Mean intercept	**0.77** (0.09)	Mean intercept	**0.83** (0.08)
Mean slope	**0.14** (0.06)	Mean slope	-0.09 (0.08)
Intercept variance	0.17 (0.12)	Intercept variance	**0.31** (0.13)
Slope variance	**-0.22** (0.08)	Slope variance	0.04 (0.07)
Intercept/slope covariance	**0.24** (0.08)	Intercept/slope covariance	0.07 (0.07)
Curve covariances		*Curve covariances*	
Intercept covariance	2.11 (1.30)	Intercept covariance	**2.17** (0.88)
BIQ int/HSI slope covariance	0.25 (0.52)	BIQ int/HSI slope covariance	0.33 (0.45)
HSI int/BIQ slope covariance	-0.21 (0.83)	HSI int/BIQ slope covariance	0.08 (0.51)
Slope covariance	-0.56 (0.35)	Slope covariance	0.13 (0.27)
Curve correlations		*Curve correlations*	
Intercept covariance	0.48	Intercept covariance	**0.47**
BIQ int/HSI slope covariance	0.03	BIQ int/HSI slope covariance	0.21
HSI int/BIQ slope covariance	-0.07	HSI int/BIQ slope covariance	0.03
Slope covariance	-0.18	Slope covariance	0.21
Impact of Treatment Condition		*Impact of Treatment Condition*	
Father Extra-fam. Stress Slope	**-0.19** (0.07)	Mother Extra-fam. Stress Slope	0.06 (0.09)
Mother Acc. Slope	**-4.38** (1.84)	Father Acc. Slope	-2.44 (1.27)

N = 78; *significant findings p<0.05 are bolded.*

Table 7. Model 2 parameter estimates.

Model 2a		*Model 2b*	
Parameter	*Estimate (SE)*	*Parameter*	*Estimate (SE)*
Mother acculturation		*Father acculturation*	
Mean intercept	**14.67** (1.66)	Mean intercept	**12.80** (1.15)
Mean slope	2.44 (1.65)	Mean slope	**2.43** (1.14)
Intercept variance	**112.77** (42.47)	Intercept variance	**75.28** (22.37)
Slope variance	40.15 (22.49)	Slope variance	**27.57** (10.31)
Intercept/slope covariance	-26.06 (24.93)	Intercept/slope covariance	-17.42 (11.52)
Father intra-familial stress		*Mother intra-familial stress*	
Mean intercept	**0.59** (0.06)	Mean intercept	**0.81** (0.09)
Mean slope	**0.10** (0.05)	Mean slope	-0.01 (0.07)
Intercept variance	**0.17** (0.06)	Intercept variance	**0.33** (0.11)
Slope variance	0.04 (0.03)	Slope variance	0.01 (0.05)
Intercept/slope covariance	-0.01 (0.03)	Intercept/slope covariance	0.03 (0.06)
Curve covariances		*Curve covariances*	
Intercept covariance	0.12 (0.89)	Intercept covariance	0.65 (0.89)
BIQ int/HSI slope covariance	**0.99** (0.43)	BIQ int/HSI slope covariance	0.35 (0.41)
HSI int/BIQ slope covariance	0.80 (0.59)	HSI int/BIQ slope covariance	-0.37 (0.54)
Slope covariance	**-0.65** (0.28)	Slope covariance	0.06 (0.25)
Curve correlations		*Curve correlations*	
Intercept covariance	0.03	Intercept covariance	0.13
BIQ int/HSI slope covariance	**0.47**	BIQ int/HSI slope covariance	0.50
HSI int/BIQ slope covariance	0.31	HSI int/BIQ slope covariance	-0.12
Slope covariance	**-0.52**	Slope covariance	0.15
Impact of Treatment Condition		*Impact of Treatment Condition*	
Father Intra-fam. Stress Slope	**-0.23** (0.05)	Mother Intra-fam. Stress Slope	-0.14 (0.08)
Mother Acc. Slope	**-4.17** (1.80)	Father Acc. Slope	**-2.59** (1.29)

N = 78; *significant findings p<0.05 are bolded.*

Table 8. Model 3 parameter estimates.

Model 3	
Parameter	*Estimate (SE)*
Mother and father depression	
Mean intercept	**0.62** (0.09)
Mean slope	-0.04 (0.04)
Mother years in US on intercept	0.001 (0.01)
Father years in US on intercept	-0.001 (0.01)
Mother years in US on slope	-0.001 (0.003)
Father years in US on slope	0.002 (0.002)
Intercept variance	0.02 (0.02)
Slope variance	**-0.02** (0.01)
Intercept/slope covariance	0.01 (0.01)
Mother and father acculturation	
Mean intercept	**18.67** (2.43)
Mean slope	1.87 (1.72)
Mother years in US on intercept	-0.29 (0.16)
Father years in US on intercept	-0.08 (0.14)
Mother years in US on slope	0.06 (0.11)
Father years in US on slope	-0.02 (0.09)
Intercept variance	-27.95 (21.78)
Slope variance	2.54 (9.00)
Intercept/slope covariance	**27.11** (10.79)
Curve covariances	
Intercept covariance	0.29 (0.27)
CESD int/BIQ slope covariance	-0.15 (0.16)
BIQ int/CESD slope covariance	-0.09 (0.14)
Slope covariance	0.05 (0.09)
Curve correlations	
Intercept covariance	0.09
CESD int/BIQ slope covariance	-0.78
BIQ int/CESD slope covariance	0.004
Slope covariance	-0.17
Impact of Treatment Condition	
Parent Acculturation Slope	**-3.19** (1.12)
Parent Depression Slope	-0.02 (0.03)

N = 78; *significant findings p<0.05 are bolded.*

Table 9. Model 4 parameter estimates.

Model 4a		*Model 4b*	
Parameter	*Estimate (SE)*	*Parameter*	*Estimate (SE)*
Mother acculturation		*Father acculturation*	
Mean intercept	**14.32** (1.67)	Mean intercept	**12.79** (1.16)
Mean slope	2.62 (1.67)	Mean slope	**2.49** (1.15)
Intercept variance	**128.22** (42.83)	Intercept variance	76.35 (22.31)
Slope variance	42.20 (21.99)	Slope variance	30.49 (10.25)
Intercept/slope covariance	-33.81 (25.21)	Intercept/slope covariance	-19.30 (11.41)
Parental alliance		*Parental Alliance*	
Mean intercept	**3.59** (0.07)	Mean intercept	**3.61** (0.07)
Mean slope	0.04 (0.05)	Mean slope	0.03 (0.05)
Intercept variance	**0.18** (0.05)	Intercept variance	**0.19** (0.05)
Slope variance	0.02 (0.02)	Slope variance	0.02 (0.02)
Intercept/slope covariance	**-0.05** (0.02)	Intercept/slope covariance	**-0.05** (0.02)
Curve covariances		*Curve covariances*	
Intercept covariance	-0.71 (0.86)	Intercept covariance	-0.25 (0.63)
BIQ int/PA slope covariance	0.49 (0.42)	BIQ int/PA slope covariance	0.06 (0.31)
PA int/BIQ slope covariance	0.29 (0.56)	PA int/BIQ slope covariance	0.26 (0.38)
Slope covariance	-0.47 (0.28)	Slope covariance	-0.16 (0.21)
Curve correlations		*Curve correlations*	
Intercept covariance	-0.15	Intercept covariance	-0.07
BIQ int/PA slope covariance	0.31	BIQ int/PA slope covariance	0.05
PA int/BIQ slope covariance	0.10	PA int/BIQ slope covariance	0.11
Slope covariance	-0.50	Slope covariance	-0.22
Impact of Treatment Condition		*Impact of Treatment Condition*	
Parental Alliance Slope	0.08 (0.04)	Parental Alliance Slope	0.08 (0.04)
Mother Acc. Slope	**-4.25** (1.84)	Father Acc. Slope	**-2.66** (1.31)

N = 78; *significant findings p<0.05 are bolded.*

Table 10. Model 4 modification indices.

Model 4a			*Model 4b*		
Recommended Changes	*M.I.*	*Par Change*	*Parameter*	*M.I.*	*Par Change*
Covariances:			*Covariances:*		
e04 ←→ Treatment Condition	7.373	.047	e15 ←→ Treatment Condition	7.062	.035
e15 ←→ Treatment Condition	7.370	.034	e04 ←→ Treatment Condition	6.951	.046
Regression Weights:			*Regression Weights:*		
Mother PA_T2 ← Father PA_T1	13.048	.039	Mother PA_T2 ← Father PA_T1	14.115	.042
Mother PA_T2 ← Father PA_T2	12.822	.036	Mother PA_T2 ← Father PA_T2	14.077	.039
Mother PA_T2 ← Father PA_T3	12.753	.036	Mother PA_T2 ← Father PA_T3	13.949	.039
Mother PA_T2 ← Mother PA_T1	12.683	.041	Mother PA_T2 ← Mother PA_T1	13.869	.044
Mother PA_T2 ← Mother PA_T3	12.675	.039	Mother PA_T2 ← Mother PA_T3	13.867	.042
Mother PA_T2 ← Treatment Con.	11.569	.170	Mother PA_T2 ← Treatment Con.	12.405	.182
Mother PA_T1 ← Treatment Con.	9.632	-.216	Mother PA_T2 ← Father Accult_T3	10.359	.008
Mother PA_T2 ← Mother Accult_T2	6.900	.006	Mother PA_T2 ← Father Accult_T2	10.184	.008
Mother PA_T2 ← Mother Accult_T3	6.573	.005	Mother PA_T1 ← Treatment Con.	10.069	-.228
Mother PA_T2 ← Mother Accult_T1	6.185	.005	Mother PA_T2 ← Father Accult_T1	7.314	.007
Intercepts:			*Intercepts:*		
Mother PA_T2	12.700	.148	Mother PA_T2	13.960	.161
Mother PA_T1	6.218	-.144	Mother PA_T1	6.710	-.155

N = 78

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