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Testing the Parent-Adolescent Acculturation Discrepancy Hypothesis: A Five-Wave Longitudinal Study

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Abstract

This 2½-year, 5-wave longitudinal study tests the hypothesis that acculturation discrepancies between Hispanic immigrant parents and adolescents would lead to compromised family functioning, which would then lead to problematic adolescent outcomes. Recent-immigrant Hispanic parent-adolescent dyads ($N = 302$) completed measures of acculturation and family functioning. Adolescents completed measures of positive youth development, depressive symptoms, problem behavior, and substance use. Results indicated that Time 1 discrepancies in Hispanic-culture retention, and linear trajectories in some of these discrepancies, negatively predicted adolescent positive youth development, and positively predicted adolescent depressive

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symptoms and binge drinking, indirectly through adolescent-reported family functioning. The vast majority of effects were mediated rather than direct, supporting the acculturation discrepancy hypothesis. Implications for further research and intervention are discussed.

KEY WORDS: Acculturation, adolescent, parent, Hispanic, family functioning, self-esteem, alcohol use.

Testing the Parent-Adolescent Acculturation Discrepancy Hypothesis: A Five-Wave Longitudinal Study

As of 2013, more than 232 million people resided in a country other than the one where they were born (United Nations, 2013). The United States is home to more than 40 million immigrants (both documented and undocumented), representing 14% of the total U.S. population (U.S. Census Bureau, 2011). Seventeen percent (6.8 million) of foreign-born individuals in the United States arrived between 2005 and 2010. Of these individuals, approximately 3 million were Hispanic. Census projections (Ennis, Ríos-Vargas, & Albert, 2011) suggest that, by 2050, more than 30% of U.S. residents will be Hispanic – and that immigration will be a major driving force behind this population increase (Bernstein, 2013). Hispanics are a young group, with 40% under age 20 (Ennis et al., 2011). Therefore, issues related to children and adolescents are critical to examine within the U.S. Hispanic population.

In addition to their relative youth and growing numbers, Hispanics are characterized by a number of important health disparities, including disproportionate rates of drug and alcohol use (especially in early adolescence; Johnston, O'Malley, Bachman, & Schulenberg, 2012). Although some Hispanic subgroups, such as first-generation immigrants, exhibit lower rates of drug and alcohol use (Hussey et al., 2007), *consequences* of these behaviors (e.g., drunk driving fatalities, drug-related arrests) tend to be more severe for Hispanic adolescents and adults than for their White counterparts (Miller & Gibson, 2010; National Highway and Traffic Safety Administration, 2009). Hispanic adolescents also tend to report higher symptoms of depression compared to other ethnic groups (McLaughlin, Hilt, & Nolen-Hoeksema, 2007), which may explain why this population has among the highest rates of suicide attempts (Zayas, 2011). Aside from these disparities in risky behavior and depressive symptoms, there is also evidence (Torney-Purta, 2007) that Hispanics evidence lower levels of positive outcomes – such as civic engagement – compared to other ethnic groups. Culturally related factors may contribute to these

disparities. The present study focuses on one potential such culturally related factor – acculturation discrepancies between immigrant parents and their adolescent children.

Acculturation

Broadly, *acculturation* refers to the process of change that occurs following contact between culturally dissimilar individuals or groups (Redfield, Linton, & Hershkovits, 1936). With regard to international migration, acculturation refers to changes over time in the extent to which immigrants (a) acquire or reject the orientations of their new receiving contexts (receiving-culture acquisition) and (b) retain or discard the orientations characteristic of their cultural heritage (heritage-culture retention). Since the 1980s, it has been widely accepted that receiving-culture acquisition and heritage-culture retention represent largely separate *dimensions* (Berry, 1980; Szapocznik & Kurtines, 1980). Individuals decide which aspects of their cultural heritage to retain and carry forward into their lives in their new homeland, and which aspects of the receiving culture to integrate into their sense of self.

More recent models have proposed that the process of acculturation is *multidimensional* and *multi-domain* (e.g., Schwartz, Unger, Zamboanga, & Szapocznik, 2010). The *dimensions* of receiving-culture acquisition and heritage-culture retention each occur in at least three separate but related *domains*: practices (e.g., language use, food preferences, peer affiliations), values (e.g., prioritizing one's own needs and desires versus those of one's family, friends, and community), and identifications (i.e., attachment to the heritage culture, the receiving culture, or both). Crossing the two dimensions with the three domains yields six distinct acculturation *components* – namely heritage and receiving cultural practices, values, and identifications. The contrast between many highly collectivist Latin American cultures and the highly individualistic U.S. cultural context (Hofstede, 2001) serves as a backdrop for the experiences of many Hispanic immigrants to the United States (Knight et al., 2009, 2010). As a result, we consider individualism and collectivism as reflective of U.S. and Hispanic values, respectively.

Acculturation is also a dynamic process that unfolds over time (Sam & Berry, 2010). Studying it at a single point in time may provide only a limited understanding of how it operates. This is especially true with regard to examining links between acculturation and other variables (e.g., family relationships, mental health, substance use). Most studies on acculturation and health outcomes have been cross-sectional, whereas associations between acculturation and health outcomes may manifest themselves quite differently in a longitudinal study. Specifically,

within a longitudinal design, change trajectories can be modeled and prior levels of the outcome variable can be controlled. Further, a high score on a specific acculturation component may reflect a continuously high trajectory, an increasing trajectory, or a curvilinear or quadratic trajectory.

Acculturation and the Family. Immigration is often a family phenomenon; most immigrants arrive with (or are joined by) spouses, parents, and/or children. When family members—especially parents and children—arrive together, the acculturation process might proceed differently for different family members (Crockett & Zamboanga, 2009). In particular, children and adolescents often learn the new culture and/or distance themselves from the heritage culture more quickly, and to a greater extent, than their parents do (Bacallao & Smokowski, 2007). What results is a cultural discrepancy within the family, where differences between traditional Hispanic cultures and individualist-oriented U.S. cultures are compounded onto typical parent-adolescent disagreements (Szapocznik & Kurtines, 1993). Specifically, the *acculturation discrepancy hypothesis* (Szapocznik & Kurtines, 1993) posits that, in immigrant families, gaps in acculturation components between parents and their adolescents can lead to compromised family functioning (e.g., poor communication, lack of involvement), which in turn can lead to problematic adolescent outcomes such as depressive symptoms and substance use. The acculturation discrepancy hypothesis thus posits that family functioning mediates the effects of parent-adolescent acculturation discrepancies on problematic adolescent outcomes.

A number of studies have been conducted to test the acculturation discrepancy hypothesis. Some of these studies have found support for the hypothesis (e.g., Martinez, 2006; Unger, Ritt-Olson, Soto, & Baezconde-Garbanati, 2009), whereas others have not (e.g., Lau et al., 2005). The literature testing this hypothesis suggests five avenues for future research. First, prior research has examined direct effects of parent-adolescent acculturation discrepancies on adolescent outcomes (e.g., Lau et al., 2005) and effects of parent-adolescent acculturation discrepancies on family functioning (e.g., Smokowski, Rose, & Bacallao, 2008), but thus far parent-adolescent acculturation discrepancies, family functioning, and adolescent outcomes have not all been included in a single study. Second, the predominance of cross-sectional studies testing the acculturation discrepancy hypothesis (e.g., Martinez, 2006) suggests that longitudinal research testing this hypothesis would be helpful. Third, because the longitudinal research that has been conducted (e.g., Schwartz, Unger, et al., 2012; Smokowski et al., 2008; Unger et al.,

2009) has only included parent-adolescent discrepancies at a single point in time, a useful advance might be to model these discrepancies as an over-time trajectory. Fourth, it is essential to utilize separate parent and adolescent reports of acculturation and of family functioning (Smokowski et al., 2008). Fifth, given the multidimensionality of acculturation (Schwartz et al., 2010), it is important to examine parent-adolescent discrepancies in Hispanic and U.S. practices, values, and identifications within a single study.

In the present study, we aimed to pursue these research directions. We conducted a fully longitudinal examination of the acculturation discrepancy hypothesis by including enough timepoints to allow for a trajectory of parent-adolescent acculturation discrepancies, an assessment of family functioning that occurred at the end of the acculturation trajectories, and an assessment of adolescent outcomes that occurred after the family functioning assessment. To allow for directional conclusions, and to account for stability over time in family functioning and in adolescent outcomes (Cole & Maxwell, 2003), we included controls for prior levels of family functioning and of adolescent outcomes. Given that acculturation trajectories were modeled beginning at Time 1, we controlled for Time 1 levels of family functioning in predicting later family functioning scores; and given that we used family functioning at the second-to-last study timepoint to predict adolescent outcomes at the last timepoint, we controlled for adolescent outcomes at the second-to-last timepoint.

A further advance in testing the acculturation discrepancy hypothesis might involve using positive as well as negative adolescent outcomes. Szapocznik and Kurtines (1980) originally proposed the acculturation discrepancy hypothesis to account for their clinical observation that, among Cuban immigrant adolescents in Miami, those referred for treatment for conduct or substance abuse problems tended to evidence acculturation-related conflicts with their parents. However, it is also plausible that some acculturation discrepancies – especially those involving heritage-culture retention (Telzer, 2010) – might affect positive as well as negative adolescent outcomes. In the present study, we included indices of positive youth development (self-esteem and optimism) as well as the more commonly used internalizing, externalizing, and substance use outcomes.

The Present Study

This study was designed to test the acculturation discrepancy hypothesis within a sample of recently immigrated Hispanic adolescents and their primary caregivers from Miami and Los

Angeles. We used a recent-immigrant sample so that we could track the development of parent-adolescent acculturation discrepancies in the years closely following immigration, when acculturative experiences are acute and when acculturation discrepancies may be most likely to change over time. Parent-adolescent dyads were assessed five times over a 2½-year period.

Gathering data from two sites provided us with two primary advantages that would not have been available through a single-site data collection. First, our sample represented a broader slice of the Hispanic population than would have been available through any one U.S. city. The two largest Hispanic immigrant groups – Mexicans and Cubans – are both well represented in our sample. Second, the present study is the first in which the acculturation discrepancy hypothesis has been tested across multiple receiving contexts. Miami represents a friendly context for Hispanic immigrants – the majority of elected officials, and many community leaders, are Hispanic (Stepick, Grenier, Castro, & Dunn, 2003). Unlike Mexicans, many of whom are undocumented (Henderson, 2011), Cubans are granted legal status in the United States as soon as they set foot on U.S. soil. As a result, Miami and Los Angeles, as very different settings for Hispanic immigration and acculturation, provide a unique opportunity to increase the diversity of our sample as part of testing the acculturation discrepancy hypothesis.

Following Telzer (2010), we hypothesized that trajectories of parent-adolescent discrepancies in Hispanic-culture retention (Hispanic practices, collectivist values, and ethnic identity) would negatively impact adolescent and parent reports of family functioning, which in turn would predict lowered levels of positive youth development and higher likelihood of aggressive and delinquent behavior, depressive symptoms, and substance use. Such a hypothesis is based on prior quantitative (e.g., Unger et al., 2009) and qualitative (e.g., Smokowski & Bacallao, 2010) evidence suggesting that discrepancies where parents endorse heritage orientations more than adolescents do are linked with problematic family functioning and with negative youth outcomes. On the other hand, also following Telzer (2010), we predicted that trajectories of parent-adolescent discrepancies in U.S.-culture acquisition would *not* adversely impact family functioning. Specifically, many parents explicitly want their adolescents to become proficient in English and to fit into U.S. society – parents' primary concern is often that adolescents might lose touch with their cultural heritage (Smokowski & Bacallao, 2010). In all cases, we hypothesized that parent and adolescent reports of family functioning would mediate the effects of acculturation discrepancy trajectories on adolescent outcomes. Specifically, we expected that

discrepancies in Hispanic-culture retention would predict compromised family functioning, which in turn would predict problematic adolescent outcomes. Given the limited number of prior multisite studies examining the acculturation discrepancy hypothesis, we did not advance specific hypotheses regarding differences in effects between Miami and Los Angeles.

Method

Participants

This study uses data from the first five timepoints of a longitudinal study of acculturation, family relationships, and adolescent outcomes among recently immigrated Hispanic families in Miami and Los Angeles. Participants for the present study were 302 parent-adolescent dyads (152 from Miami and 150 from Los Angeles) who enrolled in the study at Time 1. Each adolescent participated in the study with her/his primary parent figure (we use the term “parent” in this article for simplicity). Among parents, 70% were mothers, 25% were fathers, 3% were grandparents, and 2% were stepparents. Among the adolescents, 53% were boys, and the mean age at Time 1 was 14.51 years ($SD = 0.88$ years, range 14 to 17).

Miami families were Cuban (61%), Dominican (8%), Nicaraguan (7%), Honduran (6%), Colombian (6%), and other Hispanic nationalities (12%). Los Angeles families were Mexican (70%), Salvadoran (9%), Guatemalan (6%), Honduran (4%), and other Hispanic nationalities (11%). Significantly more of the Miami families (83%) than Los Angeles families (67%) arrived in the U.S. together, $\chi^2(1) = 9.76, p < .001, \phi = .19$. Miami families had been in the United States for less time ($Mdn = 1$ year, interquartile range = 0-3 years) compared to Los Angeles families ($Mdn = 3$ years, interquartile range = 1-4 years), Wilcoxon $Z = 6.39, p < .001$. The mean annual family income among Miami families at Time 1 was \$27,028 (SD \$13,454), compared to \$34,521 (SD \$5,398) among Los Angeles families. However, the U.S. State Department (2014) reports that the cost of living is 24% higher in Los Angeles than in Miami – and adjusting the Los Angeles mean family income for this difference would yield a value of \$26,236. The family incomes were therefore approximately equal across the two sites.

Procedures

Time 1 data were gathered during the summer and fall of 2010, and subsequent timepoints occurred twice per year through Fall 2012. Participants were recruited from randomly selected public schools in heavily Hispanic areas in Miami-Dade and Los Angeles counties. Because (a) we were interested in recent-immigrant families, and (b) many Hispanic immigrants tend to settle

in heavily Hispanic areas (Kasinitz et al., 2008; Stepick et al., 2003), we selected schools where the student body was at least 75% Hispanic. Our goal was to recruit 25 students per school – in cases where this did not happen, we recruited additional students from another nearby high school. The study was approved by the Institutional Review Boards at the University of Miami and the University of Southern California, and by the Research Review Committees for each of the participating school districts.

At each school, we first obtained approval from the principal or vice-principal to conduct the study. In Miami, we gave a brief presentation in English for Speakers of Other Languages (ESOL) classes about the study and asked interested students to provide their primary parent's phone number. We also presented to the basic-level English classes into which students would transition after completing the ESOL program. In Los Angeles, we also approached students in ESOL classes – but because students in California are transferred out of ESOL after one year, we also recruited from the student body at large. In some schools in Los Angeles, principals gave us a list of students who had been in the United States for five years or less. In Miami, 10 schools participated, and in Los Angeles, 13 schools participated.

Staff members called parents to verify that the adolescent had been in the U.S. for less than five years and that the family planned to remain in the South Florida or Southern California area during the course of the study. Parents whose adolescents met these inclusion criteria were invited to schedule evening or weekend assessment appointments at a convenient location. We received contact information for 632 adolescents who met inclusion criteria. Of these, 197 were unreachable, primarily because of incorrect or non-working telephone numbers. The remaining 435 families were reached by telephone and invited to participate. Of these 435 families, 69% ($n = 302$) participated in the study. Of the 133 families who met inclusion criteria and were contacted, but did not participate, 93 (70%) reported work or scheduling conflicts; 18 (13%) missed at least 3 scheduled assessment appointments; 1 (1%) was planning to move; 2 (2%) reported serious health problems; and 19 (14%) declined but did not provide a reason. Parents received \$40 at Time 1, and these payments increased by \$5 at each successive timepoint. Adolescents received a movie ticket at each timepoint in which they participated.

After providing informed consent/assent, each adolescent and parent completed the assessment battery in English or Spanish, according to her/his preference. Across timepoints, 98% of parents completed their assessments in Spanish. The percentage of adolescents

completing their assessments in Spanish was 84% at Time 1, 77% at Time 2, 72% at Time 3, 66% at Time 4, and 68% at Time 5. Assessments were completed using an audio computer-assisted interviewing (A-CASI) system (Turner et al., 1998) on laptop computers (for adolescents) or on touch-screen tablet PCs (for parents). The system displays each item and response choices on the screen while the item and response choices are read through a set of headphones.

Following Knight, Roosa, and Umaña-Taylor (2009), rigorous tracking procedures were used to maintain contact with participants between assessment timepoints. At Time 1, we obtained the names and contact information for three “contact persons” who would know how to reach the family if we could not. Names and phone numbers for these contact persons were updated at each assessment timepoint. Our assessors also called each family every 2-3 months to say hello and to ensure that our contact information for the family was still correct. As a result of these tracking procedures, we were able to retain 85% of the sample (256 of the original 302 families) across the five study waves.

Measures

Parents and adolescents completed identical measures of each of the acculturation components at each timepoint. Family functioning measures were parallel, but not identical, between reporters – because item phrasing often differed between adolescent and parent report measures (e.g., “My parent asks me what I am doing for the day” versus “I ask my child what s/he is doing for the day”). Outcome measures were given only to adolescents, because the adolescents likely had more accurate information on the behaviors and outcomes surveyed.

Although all measures were administered at all study timepoints, for the analytic models reported here, each set of measures was taken from a specific set of timepoints. Acculturation measures were used in the models at Times 1, 2, 3, and 4. Family functioning measures were used in the models as a mediator at Time 4 (and as a covariate at Time 1). Adolescent outcomes were used in the models at Times 4 (as controls) and 5 (as outcomes). Table 1 summarizes the measures used in the present study and their psychometric properties.

Acculturation (Times 1-4). Consistent with Schwartz et al. (2010), we assessed acculturation in terms of Hispanic and U.S. practices, values, and identifications. Parents and adolescents each completed each of these measures at each timepoint.

Cultural practices were assessed using the Bicultural Involvement Questionnaire (BIQ;

Szapocznik et al., 1980). This measure consists of 22 items, 11 assessing U.S. practices (e.g., speaking English, eating American food, celebrating holidays in American ways), and 11 assessing Hispanic practices (e.g., speaking Spanish, eating Hispanic food, celebrating holidays in Hispanic ways). A five-point Likert scale, ranging from 0 (*Strongly Disagree*) to 4 (*Strongly Agree*), was used.

We measured *cultural values* in terms of individualism-collectivism. Individualism and collectivism were assessed using a 16-item measure (8 items for individualism and 8 items for collectivism) developed by Triandis and Gelfand (1998). A five-point Likert Scale was used, ranging from 0 (*Strongly Disagree*) to 4 (*Strongly Agree*).

Ethnic and U.S. *identifications* were assessed using the Multi-Group Ethnic Identity Measure (MEIM; Roberts et al., 1999) and the American Identity Measure (Schwartz, Park, et al., 2012). The American Identity Measure was adapted from the MEIM, with “the United States” in place of “my ethnic group”.

Family Functioning (Times 1 and 4). We assessed family functioning in terms of five interrelated components: parental involvement with the adolescent, positive parenting toward the adolescent, parent-adolescent communication, and whole-family cohesion and communication (Schwartz, Pantin, Prado, Sullivan, & Szapocznik, 2005). For all parent-adolescent relationship measures, adolescents were asked to report about the parent in the study with them.

Parental involvement and positive parenting were assessed using the Parenting Practices Scale (Gorman-Smith, Tolan, Zelli, & Huesmann, 1996). The parental involvement subscale contains 15 items for adolescents and 20 items for parents. The positive parenting subscale contains 9 items for adolescents and 9 items for parents. The response scale for each item ranges from 1 (*Almost Never*) to 3 (*Often*). *Parent-adolescent communication* was assessed using the Parent-Adolescent Communication Scale (Barnes & Olson, 1982). The adolescent and parent versions each contain 20 items measuring the extent to which parents and adolescents listen to and trust one another.

Whole-family cohesion and communication were assessed using the Family Relations Scale (Tolan, Gorman-Smith, Huesmann, & Zelli, 1997). The cohesion subscale consists of six items, and the communication subscale consists of three items. All of these family functioning measures have been used with Hispanic samples (Schwartz et al., 2013).

Adolescent Outcomes (Times 4 and 5). **Positive youth development outcomes** were

assessed in terms of self-esteem and optimism. *Self-esteem* was measured using the Rosenberg Self-Esteem Scale. This measure consists of 10 items, five of which are worded positively (e.g., “I feel that I have a number of good qualities”) and five of which are worded negatively (e.g., “All in all, I am inclined to think I am a failure”). Negatively worded items are reverse-coded and summed with the positively worded items to create a total score for the scale (Time 5 $M = 30.48$, $SD = 6.90$, range 6-40).

Optimism was measured using the Children’s Hope Scale (Edwards, Ong, & Lopez, 2007). This measure, designed specifically for use with Hispanics, consists of six items assessing the extent to which young people are optimistic about their future (Time 5 $M = 23.71$, $SD = 5.72$, range 3-30). Because self-esteem and optimism were correlated at $r = .72$ at Time 5, we combined them into a latent variable for positive youth development.

Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), designed to assess depressive symptoms in the general adolescent and adult population. The CES-D consists of 20 items asking how often various depressive symptoms (e.g., lack of appetite, difficulty sleeping, lethargy) occurred during the week prior to assessment (Time 5 $M = 28.76$, $SD = 15.60$, range 0-69).

Aggressive and rule-breaking behavior were assessed using the Youth Self-Report (Achenbach, Dumenci, & Rescorla, 2002). Items on these subscales assess how true each statement is of the adolescent’s behavior within the previous six months. The aggressive behavior subscale consists of 17 items, and the rule-breaking behavior subscale consists of 15 items (Time 5 $M = 4.88$, $SD = 6.41$, range 0-34; and $M = 4.01$, $SD = 5.41$, range 0-30, respectively). For items on both subscales, the response choices include 0 (*Not true*), 1 (*Sometimes or somewhat true*), or 2 (*often or very true*). Because aggression and rule breaking were correlated at $r = .90$ at Time 5, we combined them into a latent variable for externalizing behavior.

Substance Use. We assessed cigarette and alcohol use using a modified version of the Monitoring the Future survey (Johnston, O’Malley, Bachman, & Schulenberg, 2011). We asked about frequency of cigarette use, alcohol use, binge drinking, and use of illicit drugs in the participant’s lifetime, in the 90 days prior to assessment, and in the 30 days prior to assessment. Although it is most common to analyze substance use in the 30 days prior to assessment (Johnston et al., 2012), base rates were low – so we analyzed cigarette, alcohol use and illicit

drug use in the 90 days prior to the Time 4 and 5 assessments (for which base rates were higher than for the 30 days prior to these assessment timepoints). For each substance use behavior, adolescents were asked to type in the number corresponding to how many times they had engaged in that behavior during the 90 days prior to assessment. Because of low base rates and the need to control for prior levels of these behaviors (which is difficult to do for count or negative-binomial variables), we dichotomized the responses to create binary variables (use vs. nonuse) at Times 4 and 5. Illicit drug use was not included in analysis because only eight adolescents reported any illicit drug use at any of the study timepoints.

Results

Plan of Analysis

Although the full model testing the acculturation discrepancy hypothesis included acculturation discrepancies, family functioning, and adolescent outcomes, we built this model in steps and carefully examined model fit at each step. We followed such an approach to be sure that the various components of the model fit the data well. Kline (2010) and others advocate for such a model-building approach because a well-fitting final model can hide significant misfit within specific parts of the model.

The present analytic plan consisted of four primary steps. First, we computed and examined discrepancy scores for each acculturation component. Following Kim, Chen, Wang, Shen, and Orozco-Lapray (2013), we used a multilevel algorithm, rather than simple subtractive methods, to compute these discrepancy scores. This multilevel algorithm used an empirical Bayesian approach where parents and adolescents were specified as nested within families, and where the discrepancy score for each acculturation component at each timepoint was computed as the latent difference between parent and adolescent scores on that component at that timepoint. This latent difference was computed by weighting one reporter's score by $+0.5$ and the other reporter's score by -0.5 . Kim et al. (2013) provide more details on this method. Discrepancy scores were computed using Mplus 6 (Muthén & Muthén, 2010) and saved to the dataset for use in the primary analyses.

The original version of the acculturation discrepancy hypothesis stated that compromised family functioning and adolescent outcomes would result if either (a) parents were more oriented toward their cultural heritage than adolescents were or (b) adolescents were more U.S.-oriented than their parents were (Szapocznik & Kurtines, 1980, 1993). Telzer (2010) refined this

hypothesis by proposing that case *a* was likely to be problematic, whereas case *b* was not. To facilitate a clear and fair test of the hypothesis, for indices of Hispanic-culture retention (Hispanic practices, collectivist values, and ethnic identity), we computed the discrepancy score at each timepoint as the latent difference between parent and adolescent reports (parent weighted +.5, adolescent weighted -.5); whereas for indices of U.S.-culture acquisition, we computed the discrepancy score at each timepoint as the difference between adolescent and parent reports (adolescent weighted +.5, parent weighted -.5). At each timepoint, we computed descriptive statistics for the adolescent acculturation scores, the parent acculturation scores, the discrepancy between them, and the percentage of families in which the discrepancy was in the expected direction (e.g., adolescents higher than parents on U.S. practices). For these descriptive purposes only, we report a simple subtractive difference score for ease of interpretation.

Second, we estimated simple growth curve models to examine change in each of the parent-adolescent discrepancy scores between Times 1 and 4. Whereas the discrepancy scores control for nesting of participants within dyads, growth curve modeling accounts for nesting of time within participants. In each of these models, the intercept was placed at Time 1. The purpose of this second step was to characterize the growth patterns for each component, as well as to ascertain whether or not there was significant variability around each of the mean intercepts and slopes. We ascertained the fit of a linear growth model to the over-time patterns in each acculturation component, using four standard structural equation modeling fit indices: the comparative fit index (CFI), the non-normed fit index (NNFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Good model fit can be assumed if $CFI \geq .95$, $NNFI \geq .90$, $RMSEA \leq .05$, and $SRMR \leq .06$, whereas adequate model fit can be assumed if $CFI \geq .90$, $NNFI \geq .85$, $RMSEA \leq .08$, and $SRMR \leq .10$ (Kline, 2010). The RMSEA also provides a 95% confidence interval and a “close fit probability” reflecting the likelihood that the population RMSEA value is below .05 (Hancock & Freeman, 2001).

Third, we modeled the effects of trajectories of each parent-adolescent discrepancy score between Times 1-4 on family functioning at Time 4, controlling for family functioning at Time 1 (the beginning of the acculturation discrepancy trajectories). Because Time 4 represents the end of the acculturation discrepancy trajectories in our study model, modeling family functioning at Time 4 (controlling for stability in family functioning during the interval represented by the

acculturation discrepancy trajectories) represents a longitudinal effect and allows us to draw directional inferences (Schwartz et al., 2013). In these models, we controlled for site, gender, and years in the United States.

Fourth, for each acculturation component, we added adolescent outcomes to the model including discrepancy trajectories and family functioning, and we tested the extent to which family functioning may have mediated the effects of acculturation discrepancy trajectories on adolescent outcomes. Each outcome was added to the model at Time 5, with Time 4 scores used to control for stability in each outcome over time. Robust maximum likelihood estimation was used to account for non-normality. Again, site, gender, and years in the United States were controlled in these models. We also included Site X Intercept and Site X Slope interaction terms to examine whether the effects of acculturation discrepancy trajectories on family functioning and adolescent outcomes may have been moderated by study site (Miami versus Los Angeles).

Step 1: Descriptive Statistics for Acculturation Discrepancies

Table 2 presents descriptive statistics for each of the acculturation discrepancies, and Figure 1 displays these discrepancy trajectories graphically. Most notable was the difference in discrepancy patterns between U.S. practices and the other acculturation indicators. For U.S. practices, adolescents scored higher than their parents in at least 85% of cases at all timepoints. If a more conservative cutoff (minimum $\frac{1}{2}$ standard deviation difference) is used to determine when a discrepancy is present, the percentage of families where adolescents scored higher than their parents on U.S. practices drops to 67% or higher across timepoints. However, for the other components, the percentage of families where the observed discrepancies between adolescent and parent acculturation scores followed the expected pattern (adolescents higher for U.S. acculturation components, and parents higher for Hispanic acculturation components) was far lower. Especially using the more conservative $\frac{1}{2}$ SD criterion, one-third or fewer families followed the expected pattern for individualist values, U.S. identity, and all three components of Hispanic culture retention (except for ethnic identity at Time 1). Further, across the three Hispanic culture retention components, between 30% and 40% of families evidenced the *opposite* pattern of what would be expected (i.e., adolescents scoring higher than parents). What these findings suggest is that, at the mean level and across time, parent-adolescent acculturation discrepancies are often negligible or in the opposite direction of would be expected.

However, even though these patterns of mean differences do not support our hypotheses, it is

possible that predictive links might support our hypotheses. Specifically, developmental trajectories of parent-adolescent acculturation discrepancies might predict compromised family functioning, which in turn predicts problematic adolescent outcomes. Our remaining analyses were intended to investigate this possibility.

Step 2: Creation and Acculturation Discrepancy Trajectories

U.S. Practices. For discrepancies in U.S. practices, a linear growth model fit the data well, $\chi^2(5) = 2.36, p = .80, CFI = 1.00; NNFI = 1.00; RMSEA < .001$ (90% CI = .000 to .051, close fit probability = .95); SRMR = .019. The linear slope was significant and positive (slope = 1.04, $SE = 0.22, p < .001$). On average, the discrepancy between adolescents and parents increased over time. There was significant between-family variability around the intercept ($s^2 = 114.29, SE = 10.09, p < .001$), but the variability around the slope did not reach significance ($s^2 = 4.13, SE = 3.03, p = .09$). This means that families differed significantly in where they started with regard to discrepancies in U.S. practices, but differences across families in over-time trajectories of these discrepancies were not statistically significant.

Individualist Values. For discrepancies in individualist values, a linear growth model fit the data adequately, $\chi^2(5) = 12.52, p < .03, CFI = .96; NNFI = .95; RMSEA = .071$ (90% CI = .021 to .122, close fit probability = .20); SRMR = .049. The linear slope was not significantly different from zero (slope = 0.08, $SE = 0.10, p = .55$), meaning that, on average, the difference between adolescent and parent reports was consistent over time. There was significant variability around both the intercept ($s^2 = 21.12, SE = 1.76, p < .001$), and slope ($s^2 = 1.65, SE = 0.37, p < .02$).

U.S. Identity. For discrepancies in U.S. identity, a linear growth model fit the data well, $\chi^2(5) = 8.41, p = .13, CFI = .99; NNFI = .98; RMSEA = .048$ (90% CI = .000 to .102, close fit probability = .46); SRMR = .032. The linear slope was significant and positive (slope = 0.95, $SE = 0.21, p < .001$). Adolescents scored lower than their parents at Times 1 and 2 but higher at Times 3 and 4. There was significant variability around both the intercept ($s^2 = 51.37, SE = 6.44, p < .001$) and slope ($s^2 = 7.45, SE = 1.46, p < .001$).

Hispanic Practices. For discrepancies in Hispanic practices, a linear growth model fit the data adequately, $\chi^2(5) = 10.47, p = .06, CFI = .98; NNFI = .98; RMSEA = .060$ (90% CI = .000 to .112, close fit probability = .31); SRMR = .037. The linear slope was significant and positive (slope = 0.70, $SE = 0.20, p < .01$). Adolescents began the study scoring higher than their parents,

but adolescent and parent scores converged at Time 4. There was significant variability around both the intercept ($s^2 = 84.69$, $SE = 7.77$, $p < .001$) and slope ($s^2 = 4.40$, $SE = 1.63$, $p < .04$).

Collectivist Values. For discrepancies in collectivist values, a linear growth model fit the data well, $\chi^2(5) = 6.78$, $p = .24$, CFI = .99; NNFI = .99; RMSEA = .034 (90% CI = .000 to .092, close fit probability = .60); SRMR = .032. The linear slope was not significantly different from zero (slope = 0.18, $SE = 0.10$, $p = .16$), indicating that, on average, parent-adolescent discrepancy scores remained consistent over time. There was significant variability around both the intercept ($s^2 = 12.60$, $SE = 1.48$, $p < .001$), and slope ($s^2 = 1.57$, $SE = 0.46$, $p < .01$).

Ethnic Identity. For discrepancies in ethnic identity, a linear growth model fit the data well, $\chi^2(5) = 7.75$, $p = .17$, CFI = .99; NNFI = .98; RMSEA = .043 (90% CI = .000 to .098, close fit probability = .51); SRMR = .04. The linear slope was significant and negative (slope = -0.57, $SE = 0.20$, $p < .02$). Parents began the study scoring higher than their adolescents, but parent and adolescent scores converged at Time 4. There was significant variability around the intercept ($s^2 = 42.45$, $SE = 7.55$, $p < .001$), and the slope variance approached significance ($s^2 = 2.96$, $SE = 1.55$, $p = .06$).

Step 3: Effects of Acculturation Discrepancy Trajectories on Family Functioning

We then estimated a series of models, one per acculturation component, where the acculturation discrepancy intercept and slope terms were allowed to predict family functioning (both adolescent and parent reports) at Time 4, controlling for family functioning at Time 1. Our first step was to create latent variables for family functioning for adolescents and for parents at Time 4, and to compute reliability coefficients for these latent variables. To accomplish this, we specified a model where a latent family functioning variable for each reporter was defined using the five indicators (parental involvement, positive parenting, parent-adolescent communication, and whole-family cohesion and communication). The parent-report and adolescent-report latent variables were specified as correlated with one another. Error terms for indicators for whole-family cohesion and communication were allowed to correlate within each reporter, given the substantial overlap between these two family processes (Olson, Russell, & Sprenkle, 1989). Reliability for each of these latent variables was computed using the formula developed by Fornell and Larcker (1981), where reliability represents the ratio of the variance explained by the latent variable to the total variance among the indicators.

A model with parent and adolescent family functioning attached to their respective indicator

variables at Time 4 fit the data well, $\chi^2(32) = 41.48, p = .12$; CFI = .99; NNFI = .99; RMSEA = .034 (95% CI = .000 to .061, close fit probability = .82); SRMR = .046. For adolescent-reported family functioning, standardized factor loadings ranged from .63 to .90 (mean .73). For parent-reported family functioning, standardized factor loadings ranged from .37 to .89 (mean .55). Reliability coefficients for the adolescent-reported and parent-reported family functioning latent factors were .85 and .69, respectively. The parent-reported and adolescent-reported family functioning latent variables were correlated at $r = .23 (p < .005)$.

Our second step was to estimate models where the intercept and slope terms for each acculturation component discrepancy were modeled as predictors of Time 4 family functioning (from both parent and adolescent reports). Gender, site, years in the United States, and Time 1 family functioning were used as control variables. The fit of these models was adequate, with CFI values ranging from .90 to .92, NNFI values ranging from .88 to .91, RMSEA values ranging from .051 to .060, and SRMR values ranging from .072 to .081.

With the exception of U.S. practices, intercepts for all of the acculturation discrepancy trajectories were significantly predictive of adolescent-reported family functioning at Time 4 (see Table 3). For individualist values and U.S. identity, the acculturation discrepancy intercepts and slopes positively predicted (marginally significantly for U.S. identity slope) adolescents' reports of family functioning – suggesting that it may be adaptive for adolescents to be more individualistic or identified with the United States compared with their primary caregivers. For all three domains of Hispanic-culture retention, acculturation discrepancy intercepts significantly and negatively predicted adolescent reports of family functioning at Time 4. The slopes for parent-adolescent discrepancies in collectivist values and ethnic identity significantly and negatively predicted adolescent-reported family functioning. These slope effects indicate that increases in positive discrepancies, or reductions in negative discrepancies, between parent and adolescent reports of collectivist values and of ethnic identity predict poorer family functioning as reported by adolescents. None of the intercepts or slopes predicted parent reports of family functioning.

Step 4: Effects of Acculturation Discrepancy Trajectories and Family Functioning on Adolescent Outcomes

Our final step of analysis was to examine the effects of acculturation discrepancy trajectories on adolescent outcomes through family functioning. As noted above, we first combined self-

esteem and optimism into a latent variable for positive youth development, and we combined aggression and rule breaking into a latent variable for externalizing problems. Next, in keeping with our model-building approach, we first modeled the effects of Time 4 family functioning (both adolescent and parent report) on Time 5 adolescent outcomes. Site, gender, and years in the United States served as covariates. For each Time 5 adolescent outcome, we controlled for the same outcome at Time 4 so that we could draw directional conclusions. We estimated the Family Functioning → Adolescent Outcomes paths first because these paths were common to all of the mediational models that we tested subsequently. It should be noted that standard fit indices are not provided for models using maximum likelihood estimation and dichotomous outcome variables.

All of the significant effects of Time 4 family functioning on Time 5 adolescent outcomes involved adolescent reports, but not parent reports, of family functioning. Specifically, adolescent-reported family functioning significantly predicted higher positive youth development, lower depressive symptoms, and greater odds of binge drinking, with findings approaching significance ($p < .10$) for lower levels of externalizing problems (see Table 4).

Next, for each acculturation component, we tested a full model in which acculturation discrepancy intercepts and slopes were allowed to predict both family functioning and adolescent outcomes. Both direct and indirect (mediated through family functioning) effects on adolescent outcomes were estimated (see Table 5). We added Acculturation Discrepancy Trajectory X Site interaction terms to determine whether any of the effects may have differed across study sites.

We estimated point estimates and confidence intervals for mediated effects using MacKinnon's (2008) asymmetric distribution of products test. This test provides an estimate and a standard error for the product of the two paths that comprise the mediating pathway. If the *t*-value (obtained by dividing the estimate by its standard error) is statistically significant, then partial mediation can be assumed. Because none of the acculturation discrepancy intercepts or slopes predicted parent-reported family functioning, we tested mediation only through adolescent-reported family functioning. For cigarette smoking and binge drinking, which were dichotomized because of low base rates, we report the log odds value, its standard error, and the odds ratio in Table 5.

As presented in Table 5, 19 mediated effects, but only two direct effects (with a third approaching significance), emerged. Mediated effects involving intercepts and slopes for

individualist values emerged for greater positive youth development and lower depressive symptoms. Mediated effects for intercepts and slopes for collectivist values and ethnic identity, and intercepts for Hispanic practices, emerged for higher odds of binge drinking, lower positive youth development, and higher depressive symptoms. The two significant direct effects involved binge drinking, which was positively predicted by intercepts for discrepancies in collectivist values and in ethnic identity.

Of the 48 Acculturation Discrepancy Trajectory X Site interaction terms that we tested, four were statistically significant – all involving discrepancy trajectories for U.S. culture acquisition. Positive youth development was more strongly predicted by the individualism discrepancy intercept in Miami than in Los Angeles ($B = .47, SE = .21, p < .03$). Cigarette smoking was more strongly predicted by the individualism discrepancy slope in Los Angeles than in Miami ($B = 1.53, SE = .73, p < .04$). Binge drinking was more strongly predicted by the individualism discrepancy slope in Miami than in Los Angeles ($B = .47, SE = .21, p < .03$). Parent-reported family functioning was more strongly predicted by the U.S. identity discrepancy slope in Miami than in Los Angeles ($B = .24, SE = .12, p < .05$). However, none of these interactions would remain statistically significant after a Bonferroni adjustment for multiple tests, so they should be interpreted with caution.

Discussion

The present study was designed to provide a comprehensive test of the acculturation discrepancy hypothesis by utilizing a multidimensional model of acculturation, separate parent and adolescent reports of acculturation and family functioning, growth trajectories for each of the acculturation discrepancy terms, and a fully longitudinal design with controls for earlier levels of the mediating and dependent variables. We also conducted the study with a sample of recent-immigrant families, for whom acculturative change was likely to be most pronounced.

Supporting the hypothesized multidimensionality of acculturation (Berry & Kim, 1988; Costigan, 2010; Schwartz et al., 2010), some of the parent-adolescent acculturation discrepancies changed over time, whereas others did not. On average, discrepancies in U.S. practices, Hispanic practices, and U.S. identity increased over time, whereas discrepancies in ethnic identity decreased over time. Discrepancies in individualist and collectivist values did not change significantly, on average. It should be noted that these slopes reflect sample means, and that in most cases there was significant variability across individuals. However, in only one case (U.S.

practices) did the majority of families in our sample evidence acculturation discrepancies across time in the direction that would be expected. The percentage of families with discrepancies in the expected direction was generally less than one-third across the other five acculturation components when a stringent criterion (discrepancy $\geq \frac{1}{2} SD$ in the expected direction) was used. On average, adolescents and parents tended to score fairly close together over time on all of the acculturation components except for U.S. practices, suggesting that acculturation can be characterized as a “family phenomenon” for many Hispanic immigrant families. Of course, this finding should be considered in light of the highly Hispanic communities from which families were recruited.

Effects linking acculturation discrepancy *trajectories* with family functioning support and extend Szapocznik and Kurtines’s (1980) theoretical perspective. As Szapocznik and Kurtines hypothesized, initial levels (intercepts) for some of the acculturation discrepancies were predictive of later family functioning. However, the directions of these effects provide much-needed clarification for the clinical observations that Szapocznik and Kurtines described in their writings. Specifically, in their work with Cuban immigrant families with behavior-problem and drug using adolescents, Szapocznik and Kurtines (1993) speculated that family problems resulted from the adolescent Americanizing while the parent continued to embrace her/his cultural heritage. The present results suggest that the problem is not adolescents becoming Americanized, but rather increasing positive discrepancies (or decreasing negative discrepancies) in Hispanic culture retention. In the case of ethnic identity, the general trend is for parents to *decrease* over time while adolescents remain stable – it may be that problems emerge in families where adolescents decrease (or where parents do not). The healthiest pattern may be for adolescents to be at least as closely attached to their heritage as their parents are.

Indeed, parent-adolescent discrepancies in Time 1 levels of individualist values and in U.S. identity were associated with *more favorable* family functioning, suggesting that parents may realize that embracing U.S. values and identifying as American can help the adolescent to succeed in U.S. society. Immigrant parents often explain their reasons for migrating in terms of desires for their children to have access to a greater array of opportunities than they would have had in the family’s country of origin (Smokowski & Bacallao, 2010; Suárez-Orozco & Suárez-Orozco, 2001). The finding that intercepts and slopes for discrepancies in individualist values (with adolescents higher) positively predicted adolescent reports of family functioning and

adolescent outcomes suggests that less individualistic parents may provide a better “fit” with more individualistic adolescents.

Although discrepancies in U.S. culture acquisition did not pose problems for family functioning, family functioning did appear to be compromised in cases where adolescents scored lower than their parents on Hispanic practices, collectivist values, and ethnic identity at the first study timepoint. Further, in families where a positive discrepancy between parent and adolescent reports of collectivist values and ethnic identity increased over time, family functioning was likely to be compromised. Although the majority of families did not evidence such discrepancies, family problems and compromised adolescent developmental outcomes appeared most likely to emerge for those families who did.

Our findings are consistent with Telzer (2010), who proposed that there were multiple types of acculturation discrepancies and that discrepancies in heritage-culture retention would be the most harmful for family connectedness and adolescent functioning. The present results are also consistent with prior empirical work (e.g., Bámaca-Colbert & Gayles, 2010; Céspedes & Huey, 2008) suggesting that parent-adolescent discrepancies in heritage culture retention predicted compromised family functioning and adolescent problems. Immigrant families – and especially immigrant children and adolescents – must live in two worlds, where disconnecting oneself from one’s cultural heritage has been compared to uprooting a plant from its soil (Falicov, 2013). This is especially true in contexts where there is a large heritage-cultural community. It is noteworthy that discrepancies in *all three* domains of Hispanic-culture retention – Hispanic practices, collectivist values, and ethnic identity – were predictive of impaired family functioning later on. This finding further suggests that the healthiest acculturation approach for immigrant adolescents is to embrace U.S. culture while still retaining their families’ cultures of origin. Indeed, a recent meta-analysis (Nguyen & Benet-Martínez, 2013) indicates that such biculturalism is associated with the most favorable psychosocial outcomes among individuals from immigrant families.

The acculturation discrepancy hypothesis suggests that acculturation discrepancies lead Americanizing adolescents and traditionally oriented parents to disengage from one another. Clinical work has suggested that more Americanized adolescents may view traditional, hierarchical parent-adolescent relationships as overly controlling, whereas traditionally oriented immigrant parents may view the more egalitarian, and less hierarchical, ways of relating to others in U.S. society as disrespectful (e.g., Pantin, Schwartz, Sullivan, Coatsworth, &

Szapocznik, 2003). Our results suggest that this disengagement process may begin with the adolescent, in that her/his perceptions of family functioning may be compromised by parent-adolescent discrepancies in Hispanic-culture retention.

Mediational Findings

The mediational analyses represent the fullest test of the acculturation discrepancy hypothesis – where this hypothesis proposes that acculturation discrepancies predict problematic adolescent outcomes *through* family functioning. In the present study, we expanded the set of outcomes to include positive as well as problematic outcomes, under the assumption that health represents both wellness and the absence of pathology (Keyes, 2006).

Mediational findings indicated that initial levels of parent-adolescent discrepancies in Hispanic practices, collectivist values, and ethnic identity were predictive of greater odds of binge drinking, of higher scores on depressive symptoms, and of lower scores on positive youth development, indirectly through adolescent reports of family functioning. Increases over time in parent-adolescent discrepancies in Hispanic practices and collectivist values were predictive of these same outcomes, again through adolescent reports of family functioning. There were fewer (and weaker) mediational findings for discrepancies in U.S. culture acquisition: initial values of discrepancies in individualist values were facilitative of positive youth development, and protective against depressive symptoms, indirectly through adolescent reports of family functioning. No mediational findings emerged for discrepancies in U.S. practices or U.S. identity.

Importantly, only two direct effects of acculturation discrepancies emerged vis-à-vis adolescent outcomes. In other words, mediated effects represented 91% (19 of 21) of the effects of acculturation discrepancies on adolescent outcomes. Such a finding supports Szapocznik and Kurtines's (1980, 1993) postulate that the effects of acculturation discrepancies on adolescent outcomes operate *through* family functioning. Further, it should be noted that all of the mediated effects that we found were through adolescent reports of family functioning. None of the acculturation discrepancy intercepts or slopes significantly predicted parent reports of family functioning. Although we would interpret this finding as indicating that acculturation discrepancies were more bothersome to adolescents, one must also consider the stronger factor loadings for adolescent-reported family functioning than for parent-reported family functioning. Adolescents appeared to perceive their relationships with their parents as closely tied to their

views of overall family cohesion and communication, but this pattern was less applicable to parent reports. It may be important for future studies to examine the extent to which adolescent and parent reports of family functioning are isomorphic, and if not, why not.

Taken together, our mediational findings provide strong support for a refinement of the acculturation discrepancy hypothesis – where discrepancies in heritage-culture retention predict adolescents' characterizations of their family relationships, which in turn predict alcohol misuse and symptoms of depression, as well as compromised positive outcomes. Discrepancy trajectories for individualist values *positively* predict psychosocial adaptation – again suggesting that Hispanic immigrant families may expect adolescents to be more oriented toward the United States than their parents are (see Telzer, 2010, for a supportive argument). Increasing adolescent endorsement of U.S. values may confer advantages for immigrant families, such as help with interactions with mainstream U.S. social institutions (e.g., medical appointments, financial transactions).

The initial iteration of the acculturation discrepancy hypothesis focused on differences in U.S. practices between parents and adolescents, with the assumption that parents would find U.S.-oriented behaviors disrespectful (Szapocznik & Kurtines, 1980). Surprisingly, U.S. practices were the only acculturation component that was *not* related to family functioning or to adolescent outcomes. This pattern of findings may help to explain, at least in part, the inconsistencies among prior findings examining the acculturation discrepancy hypothesis. Specifically, if discrepancy trajectories for U.S. practices (or for a unidimensional measure of acculturation where Hispanic and U.S. practices were cast as opposing ends of a continuum) were examined, significant findings may not have emerged. It is extremely important to be clear in terms of how one is defining and operationalizing acculturation so that we can understand under what conditions the acculturation discrepancy hypothesis is tenable and under what conditions it is not. An especially important next step is to identify which subgroups of Hispanic families are at risk for increasing acculturation differences, particularly in heritage-cultural components where increasing discrepancies predicted compromised family functioning and adolescent outcomes.

Implications for Intervention

The present results appear to have implications for the development and refinement of interventions to prevent alcohol misuse, aggressive behavior, and depressive symptoms, as well

as for youth development interventions to promote self-esteem and optimism. Some preventive interventions for Hispanic families (e.g., Martinez & Eddy, 2005; Prado & Pantin, 2011) work almost entirely through parents – such as through parent-group sessions. Such models carry the assumption that parents’ perceptions of family functioning are most important to influence, and that parents’ views of family processes represent the active ingredients in preventing adolescent health risk behaviors. Some evidence has supported such an assumption (Prado et al., 2007). However, such parent-centered interventions may be less efficacious with foreign-born adolescents than with their U.S.-born counterparts, particularly with regard to alcohol-related outcomes (Cordova, Huang, Prado, & Pantin, 2012). Indeed, our findings suggest that, for all acculturation components except U.S. practices, discrepancy scores are more closely correlated with adolescent acculturation than with parent acculturation – especially at later timepoints (see supplementary online materials, Table 2).

The present results may be interpreted as suggesting that acculturation discrepancies might represent one possible explanation for the lowered efficacy of parent-centered preventive efforts with foreign-born adolescents. When the adolescent and parent are both adjusting to life in the United States following migration, additional intervention modules may be needed to help adolescents retain their cultural heritage. A different scenario may be present when the adolescent is born in the United States – in this case, the adolescent’s exposure to the family’s country of origin may be largely indirect (e.g., through stories, vacations, and communication with relatives abroad), and the adolescent would therefore likely have to *acquire*, rather than *retain*, the family’s heritage culture. This distinction between heritage-culture acquisition (for U.S.-born adolescents) and heritage-culture retention (for foreign-born adolescents) is an important way in which acculturation represents a different challenge for these two groups of adolescents (Zane & Mak, 2003). The most efficacious ways to intervene with foreign-born versus U.S.-born adolescents may vary based on which type of acculturation challenge the adolescent is facing. In any case, it appears important to help adolescents and parents to “get on the same page” culturally, perhaps by promoting biculturalism in both adolescents and parents.

Some researchers (e.g., Smokowski & Bacallao, 2011; Szapocznik et al., 1986) have designed intervention modules to promote biculturalism in adolescents and parents. These interventions involve active participation on the part of both adolescents and parents, both separately (in groups of adolescents and in groups of parents) and together (where adolescents

and parents engage in collaborative activities). The extent to which these intervention modules reduce discrepancies in Hispanic practices, values, and identifications is not known, but to the extent that these discrepancies predict alcohol misuse, depressive symptoms, and lowered positive youth development, intervening to reduce the discrepancies represents an important public health priority. Our findings suggest that such interventions have the potential to be efficacious or effective.

Strengths and Limitations of the Present Study

The present study has a number of strengths as well as some limitations. In terms of strengths, the study was longitudinal, provided separate adolescent and parent reports of acculturation and family functioning, and examined trajectories (rather than scores at a single timepoint) for acculturation discrepancies. The inclusion of Miami and Los Angeles as study sites allowed us to examine a larger slice of the U.S. Hispanic population than would have been possible in either city alone.

The use of a recent-immigrant sample is both an advantage and a limitation. As an advantage, recent immigrants are likely undergoing an intense process of cultural change (Fuligni, 2001) – which may provide more variability in acculturation indices over time than would be observed in longer-term immigrants. Moreover, given that Miami families had been in the U.S. for a median of 1 year at Time 1, and given that Los Angeles families had been in the U.S. for a median of 3 years at Time 1, we were able to track the development of acculturation discrepancies beginning shortly after immigration. As a limitation, families with recent-immigrant adolescents do not represent the typical migration pattern. Families often immigrate with young children (or as couples without children, where the children are born in the United States following migration; Portes & Rumbaut, 2006). We therefore do not know how well our results reflect what would have been obtained with Hispanic families who follow the more typical migration pattern (i.e., with adolescents born in U.S. or who have lived there for many years).

A second limitation involves self-reports of substance use. Adolescents may overreport or underreport these behaviors for a number of reasons. Biological measures of substance use (e.g., urinalyses) may help to provide more accurate data on risky behavior in future studies.

Another possible limitation is that, although Miami and Los Angeles provide a larger representation of the Hispanic population than would be available in either of these cities alone,

some Hispanic groups – such as Puerto Ricans and Dominicans – are not well represented in either of these cities. A third site in the Northeast might be needed to capture these groups.

In conclusion, and despite these limitations, the present study has contributed much-needed knowledge regarding the tenability of the acculturation discrepancy hypothesis. Our results have helped to refine the hypothesis, particularly in terms of indicating that the most problematic discrepancies are those involving heritage-culture retention (see also Telzer, 2010). Further, we identified adolescent, rather than parent, reports of family functioning as a mechanism through which parent-adolescent discrepancies in Hispanic cultural practices, values, and identifications predict adolescent alcohol misuse, aggressive behavior, depressive symptoms, low self-esteem, and low optimism. Family-based interventions where most activities are delivered only to parents may be less efficacious for foreign-born adolescents (e.g., Cordova et al., 2012), perhaps because parent-adolescent acculturation discrepancies appear to compromise adolescents' reports of family functioning. In recently immigrated families, culturally based disagreements within the family are important to address as part of preventive efforts (Smokowski & Bacallao, 2011; Szapocznik et al., 1986). We hope that the present results will find their way into adaptation of family-based prevention programs for Hispanic adolescents to include modules addressing parent-adolescent discrepancies in Hispanic culture retention.

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Table 1. *Summary of Measures*

Construct	Measure	Reporter ^a	# Items	Sample Item	Alpha (A, P) ^{b,c}
<i>Acculturation</i>					
U.S. Practices	Bicultural Involvement Questionnaire (Szapocznik, Kurtines, & Fernandez, 1980)	A, P	11	I speak English at home.	.90-.91, .90-.91
Hispanic Practices	Bicultural Involvement Questionnaire	A, P	11	I speak Spanish at home.	.88-.93, .85-.98
Individualist Values	Individualism-Collectivism Scales (Triandis & Gelfand, 1998)	A, P	8	I prefer to “do my own thing.”	.73-.77, .72-.78
Collectivist Values	Individualism-Collectivism Scales	A, P	8	Parents and children should stick together, no matter the cost.	.79-.87, .70-.80
U.S. Identity	American Identity Measure (Schwartz, Park, et al., 2012)	A, P	12	I feel good about being American.	.88-.91, .88-.89
Ethnic Identity	Multi-Group Ethnic Identity Measure (Roberts et al., 1999)	A, P	12	I have a lot of pride in my ethnic group.	.91-.93, .89-.92
<i>Family Functioning</i>					
Parental Involvement	Parenting Practices Scale (Gorman-Smith et al., 1996)	A, P	A 15; P 20	When was the last time you asked your child about her/his plans for the coming day?	.86-.91, .80-.84
Positive Parenting	Parenting Practices Scale	A, P	9	When you do something that your parent likes, does s/he give you a wink or a smile?	.83-.85, .71-.78
Parent-Adolescent Communication	Parent-Adolescent Communication Scale (Barnes & Olson, 1982)	A, P	20	I can express my feelings to my parent/child without feeling restrained.	.89-.91, .85-.88

Whole-Family Cohesion	Family Relations Scale (Tolan et al., 1997)	A, P	6	Family members feel very close to each other.	.79-.86, .77-.82
Whole-Family Communication	Family Relations Scale	A, P	3	My family knows what I mean when I say something.	.67-.78, .62-.77
<i>Adolescent Outcomes</i>					
Self-Esteem	Rosenberg (1968) Self-Esteem Scale	A	10	I feel that I have a number of good qualities.	.74-.84
Optimism	Children's Hope Scale (Edwards et al., 2007)	A	6	I can think of many ways to get the things in life that are most important to me.	.86-.96
Depressive Symptoms	Center for Epidemiologic Studies Depression Scale (Radloff, 1977)	A	20	This week, I felt sad.	.91-.93
Aggressive Behavior	Youth Self-Report (Achenbach & Rescorla, 2002)	A	15	I physically attack people.	.88-.93
Rule-Breaking Behavior	Youth Self-Report	A	17	I break rules at home, school, or elsewhere.	.87-.94
Substance Use	Adapted version of Monitoring the Future instrument (Johnston et al., 2011)	A	3	How many times have you smoked cigarettes in the last 90 days?	N/A

^aA = adolescent, P = parent. ^bWhere applicable, alpha for adolescents is presented first, followed by alpha for parents. ^cRange of alphas across timepoints.

Table 2. *Acculturation Component Discrepancy Scores Over Time*

Acculturation Component	Adolescent Report	Parent Report	Discrepancy ^a	% in Expected Direction ^b
U.S. Practices				
Time 1	27.82 (10.09)	14.37 (9.34)	13.33 (12.83)	85.7% (66.8%)
Time 2	30.47 (9.43)	15.65 (9.49)	14.82 (12.54)	85.6% (75.5%)
Time 3	32.46 (9.09)	16.27 (9.32)	16.08 (12.34)	88.5% (79.8%)
Time 4	33.37 (8.38)	17.03 (9.44)	16.22 (12.31)	86.9% (77.3%)
Individualist Values				
Time 1	19.70 (4.91)	20.71 (4.60)	-1.03 (6.09)	39.5% (23.3%)
Time 2	19.71 (5.24)	21.06 (4.69)	-1.35 (7.14)	38.1% (22.7%)
Time 3	19.34 (5.31)	20.15 (4.44)	-0.72 (6.78)	40.8% (26.3%)
Time 4	19.62 (4.94)	20.51 (4.16)	-0.83 (5.92)	41.4% (30.3%)
U.S. Identity				
Time 1	27.05 (8.34)	28.86 (7.15)	-1.79 (9.94)	42.9% (25.0%)
Time 2	27.81 (9.42)	29.13 (7.15)	-1.32 (10.79)	47.1% (26.0%)
Time 3	29.46 (9.12)	28.42 (7.12)	1.16 (10.75)	56.5% (32.7%)
Time 4	29.48 (8.36)	28.93 (7.21)	0.83 (10.45)	47.1% (28.6%)
Hispanic Practices				
Time 1	33.16 (8.51)	31.13 (8.25)	-2.03 (10.77)	41.4% (23.8%)
Time 2	33.69 (9.49)	32.15 (8.54)	-1.51 (11.90)	41.7% (22.7%)
Time 3	34.33 (9.29)	33.62 (7.97)	-0.80 (11.36)	42.4% (27.1%)
Time 4	34.74 (8.90)	34.72 (7.71)	-0.14 (11.15)	44.2% (26.7%)
Collectivist Values				
Time 1	24.46 (4.07)	24.20 (3.26)	-0.24 (4.91)	42.9% (26.9%)
Time 2	24.21 (4.96)	24.47 (3.61)	-0.18 (9.19)	46.0% (32.7%)
Time 3	23.75 (5.29)	23.99 (3.48)	0.18 (6.14)	42.0% (28.6%)
Time 4	23.65 (5.18)	23.91 (3.66)	0.19 (6.09)	45.0% (28.7%)
Ethnic Identity				
Time 1	32.01 (7.92)	33.95 (5.66)	1.96 (9.34)	54.2% (35.9%)
Time 2	32.29 (8.67)	33.56 (5.80)	1.27 (10.21)	51.4% (32.0%)

Time 3	32.09 (8.16)	32.58 (6.52)	0.41 (9.66)	47.8% (32.5%)
Time 4	32.26 (7.95)	32.60 (6.62)	0.24 (9.96)	51.0% (33.9%)

^aFor this table, parent-adolescent discrepancies in U.S. acculturation components were computed by subtracting parent-report scores from adolescent-report scores. Parent-adolescent discrepancies in Hispanic acculturation components were computed by subtracting adolescent-report scores from parent-report scores.

^bReflects the percentage of discrepancies that were in the direction that would be anticipated by the acculturation discrepancy hypothesis. For example, U.S. practices would be expected to be higher in adolescents, and collectivist values would be expected to be higher in parents. The number in parentheses reflects the percentage of discrepancies that are in the expected direction by at least one-half standard deviation.

Note: Standard deviations are in parentheses. Table 3. *Adolescent and Parent Reports of Family Functioning (Time 4) by Acculturation Discrepancy Trajectories (Times 1-4)*

Acculturation Component Discrepancy	Family Functioning (Adolescent)	Family Functioning (Parent)
U.S. Practices ^a		
Intercept	.03 (.02)	-.01 (.01)
Slope	.25 (.26)	-.10 (.15)
Individualist Values ^a		
Intercept	.18** (.06)	-.03 (.03)
Slope	.56* (.27)	-.21 [§] (.13)
U.S. Identity ^a		
Intercept	.07* (.03)	-.02 (.02)
Slope	.17 [§] (.10)	-.05 (.05)
Hispanic Practices ^b		
Intercept	-.06* (.03)	-.02 (.01)
Slope	-.25 (.16)	.11 (.10)
Collectivist Values ^b		
Intercept	-.19* (.08)	-.03 (.04)
Slope	-.78* (.26)	.23 (.14)
Ethnic Identity ^b		
Intercept	-.15*** (.04)	-.01 (.02)
Slope	-.35* (.18)	.18 [§] (.10)

Note: Coefficients are unstandardized. Standard errors are in parentheses.

^aComputed as adolescent minus parent. ^bComputed as parent minus adolescent.

[§] $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Table 4. *Path Coefficients from Time 4 Family Functioning to Time 5 Adolescent Outcomes^a*

Time 5 Outcome	Time 4 Family Functioning (A)	Time 4 Family Functioning (P)
Positive Youth Development	.75** (.29)	.11 (.30)
Depressive Symptoms	-1.61* (.46)	-.50 (1.00)
Externalizing Problems	-.22 [§] (.12)	-.38 (.29)
Tobacco Use ^b	-.03 (.13), <i>OR</i> = 0.97	-.09 (.22), <i>OR</i> = 0.91
Binge Drinking ^b	-.31* (.14), <i>OR</i> = 0.73	-.22 (.23), <i>OR</i> = 0.80

Note: Coefficients are unstandardized. Standard errors are in parentheses.

^aControlling for site, gender, years in the U.S., and prior levels of the outcome in question.

^bAnalyzed as a dichotomous outcome.

[§] $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Table 5. *Significant Mediated Effects*

Acculturation Discrepancy Variable	Outcome Variable	Indirect Effect	Direct Effect
Individualist Values (Intercept) ^a	Positive Youth Development	.12* (.06)	.03 (.10)
Individualist Values (Intercept) ^a	Depressive Symptoms	-.25* (.10)	.21 (.37)
Individualist Values (Slope) ^a	Positive Youth Development	.39* (.18)	-.14 (.52)
Individualist Values (Slope) ^a	Depressive Symptoms	-.84* (.37)	.51 (1.69)
Hispanic Practices (Intercept) ^b	Binge Drinking	.03* (.02), 0.96 ^c	-.01 (.06), 0.99 ^c
Hispanic Practices (Intercept) ^b	Positive Youth Development	-.04* (.02)	.01 (.05)
Hispanic Practices (Intercept) ^b	Depressive Symptoms	.07* (.02)	.27 [§] (.15)
Collectivist Values (Intercept) ^b	Binge Drinking	.08* (.04), 0.92 ^c	-.30* (.15), 0.74 ^c
Collectivist Values (Intercept) ^b	Positive Youth Development	-.11* (.05)	-.20 (.16)
Collectivist Values (Intercept) ^b	Depressive Symptoms	.22* (.11)	.34 (.45)
Collectivist Values (Slope) ^b	Binge Drinking	.34* (.15), 1.40 ^c	-.06 (.52), 0.94 ^c
Collectivist Values (Slope) ^b	Positive Youth Development	-.45* (.20)	-.54 (.44)
Collectivist Values (Slope) ^b	Depressive Symptoms	.93* (.46)	.21 (1.25)
Ethnic Identity (Intercept) ^b	Binge Drinking	.07* (.03), 1.07 ^c	.19** (.07), 1.21 ^c

Ethnic Identity (Intercept) ^b	Positive Youth Development	-.08* (.04)	-.09 (.07)
Ethnic Identity (Intercept) ^b	Depressive Symptoms	.20* (.08)	.15 (.22)
Ethnic Identity (Slope) ^b	Binge Drinking	.19* (.09), 1.21 ^c	.06 (.30), 1.06 ^c
Ethnic Identity (Slope) ^b	Positive Youth Development	-.22* (.11)	-.42 (.41)
Ethnic Identity (Slope) ^b	Depressive Symptoms	.53* (.26)	1.40 (.93)

Note: Standard errors are in parentheses.

^aComputed as adolescent minus parent. ^bComputed as parent minus adolescent. ^cOdds ratio for dichotomous outcome.

^s $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$

Figure 1. Acculturation Discrepancies Over Time

