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Parent–Child Acculturation Discrepancies as a Risk Factor for Substance Use among Hispanic Adolescents in Southern California

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Abstract

Theories of acculturation predict that discrepancies in cultural orientation between adolescents and their parents will increase the adolescents' risk for behavior problems such as substance use. This study evaluated this hypothesis in a sample of 1772 Hispanic 9th grade students in Southern California. Parent–child discrepancy in U.S. orientation (defined as the difference between the child's U.S. orientation and the child's perception of the parents' U.S. orientation) was a risk factor for past-month smoking, lifetime and past-month alcohol use, and lifetime and past-month marijuana use. Parent–child discrepancy in Hispanic orientation (defined as the difference between the child's Hispanic orientation and the child's perception of the parents' Hispanic orientation) was a risk factor for lifetime and past-month alcohol and marijuana use. The adolescents' own Hispanic orientation was protective against lifetime and past-month smoking and marijuana use, but not alcohol use. In an analysis of mediation, U.S. acculturation discrepancy was associated with lower levels of family cohesion, which in turn was associated with higher levels of substance use. Results suggest that family-based interventions for acculturating and bicultural Hispanic families may be useful in decreasing the likelihood of substance use among Hispanic adolescents.

Keywords

Acculturation; Hispanic; Adolescence; Tobacco; Alcohol; Drugs

Introduction

Hispanics are the most rapidly-growing foreign-born group in the United States [1]. For Hispanic immigrants, the challenges of acculturating to the United States culture are numerous, including learning a new language and new customs, coping with discrimination, and finding a balance between adopting the cultural norms and values of the United States and preserving those of the culture of origin. Not surprisingly, the stress of the acculturation process can cause psychological and behavioral problems among adolescents. Among Hispanic-American adolescents, acculturation to the United States culture has been associated with an increased risk of tobacco, alcohol, and other drug use [2–7]. The association between acculturation and substance use probably involves several mechanisms, including the more individualistic and rebellious social norms for adolescents in the United

States, loss or rejection of traditional Hispanic cultural norms such as familism [8, 9], and the stress of navigating two cultures simultaneously and feeling marginalized from one or both of those cultures [10]. It is important to understand the role of acculturation in the development of risk behaviors such as substance use, and to create culturally appropriate health education programs to make youth more resilient to becoming involved in those behaviors.

Although several studies have documented associations between acculturation and substance use among Hispanic adolescents, most previous studies have assessed only the adolescents' acculturation levels, without considering those of their family members. Adolescents' acculturation patterns and cultural identity develop within a family context. When a family immigrates to a new country, the acculturation process typically is not uniform across generations of the family [11, 12]. Mainly due to rapid English language acquisition, children typically learn the new culture more rapidly than their parents do, and if attributes of the culture of origin are not maintained and supported by family and other community members, they also might abandon or forget the culture of origin more rapidly than their parents do, leading to discrepancies in acculturation between adolescents and their parents [12].

Parent-child discrepancy in acculturation patterns might affect parent-child relationships in several ways. When children learn the U.S. culture more rapidly than their parents do, parents might become dependent on their children to help navigate and interpret the new culture. That might undermine parental authority and lead to family conflict and inconsistent parental discipline and monitoring, increasing the risk of adolescents' involvement in problem behaviors [12-14].

Family conflict and adolescent rebelliousness might arise when parents attempt to transmit protective cultural values and traditions to their children, but the children are not interested in learning those values or participating in those traditions [12]. Children and adolescents growing up in the United States might not perceive their families' cultures of origin as useful or relevant in their daily lives, and they might be embarrassed by their parents' traditional behaviors. Parents' unsuccessful attempts to transmit traditional cultural information to their children might result in strained communication and limited social support across the generations. That might limit the extent to which the children become involved in traditional culturally-oriented activities and social structures (e.g., religious institutions and cultural heritage groups), which typically encourage adolescents to engage in non-rebellious activities with adult supervision and guidance [15]. Therefore, when assessing the effects of acculturation on adolescents, it is important to consider the family context.

The acculturation gap hypothesis [11] has formed the basis of much of the current thought about the effects of acculturation on families and adolescents. However, only recently have researchers attempted to validate this hypothesis empirically. Several studies have examined parent-child acculturation discrepancy as a correlate of substance use among adolescents, but their results have been inconsistent. Felix-Ortiz et al. [16] found that parent-child acculturation discrepancy was associated with an increased risk of drug use in a small sample of predominantly Mexican-American adolescents. Elder et al. [17] found that Mexican-American adolescents who were more Anglo-oriented than their parents had an especially high risk of alcohol use. However, contrary to expectations, a measure of total acculturation discrepancy (discrepancy in Anglo orientation plus discrepancy in Hispanic orientation) was associated with a lower risk of alcohol use. Pasch et al. [18] found no association between parent and child acculturation discrepancy and substance use; the highest levels of substance use and other problem behaviors were found in families in which

both the adolescents and their parents were highly U.S.-oriented. Lau et al. [19] also found no association between parent–child acculturation discrepancy and adolescents’ conduct problems; contrary to expectations, their study found more conduct problems among adolescents who were more traditionally-oriented than their parents. All of these studies used small samples, and the generalizability of their findings is unknown. In addition, research is needed to identify the mediating mechanisms by which acculturation discrepancies influence adolescents’ substance use. Theories of acculturation [20] predict that this association is mediated by breakdowns in family functioning, but this has not yet been empirically demonstrated.

Because the few empirical tests of the acculturation gap hypothesis have found inconsistent results, additional tests of the hypothesis are warranted. This study examined parent–child acculturation discrepancies as correlates of the adolescents’ substance use. We hypothesized that parent–child discrepancies in U.S. orientation (i.e., adolescent more U.S.-oriented than parents) and parent–child discrepancies in Hispanic orientation (i.e., adolescent less Hispanic-oriented than parents) would be associated with a higher risk of substance use. Furthermore, we hypothesized that the associations between parent and child acculturation discrepancy and substance use would be mediated by lower levels of family cohesion.

Methods

Subjects

Project RED (Reteniendo y Entendiendo Diversidad para Salud) is a longitudinal study of acculturation patterns and substance use among Hispanic/Latino adolescents in Southern California. The respondents in this study were 9th grade students attending seven high schools in the Los Angeles area. Because this is a study of Hispanic adolescents, schools were approached and invited to participate if they contained at least 70% Hispanic students, as indicated by data from the California Board of Education. Efforts were also made to obtain a sample of schools with a wide range of socioeconomic characteristics. The median annual household incomes in the ZIP codes served by the schools ranged from \$29,000 to \$73,000, according to 2000 U.S. Census data. Of the 31 schools approached, eight agreed to participate. One school was eliminated because its schedule would have required half of the students to be surveyed in fall and half in spring, which could have introduced confounding. The remaining seven schools participated in the study. Approval was obtained from the school principals and/or district superintendents, according to their established procedures.

Survey Procedure

The survey was conducted in the Fall of 2005. All ninth-grade students in the school were invited to participate in the survey. Trained research assistants visited the students’ classrooms, explained the study to the students, and distributed parental consent forms and student assent forms. To increase the return rate of consent forms, each classroom was offered a pizza party if every student in the class returned the forms, regardless of whether the parents said yes or no. Parents who did not return the consent forms were telephoned in the evenings by a bilingual research assistant to obtain verbal consent or refusal.

The research assistants returned to the school twice over a 2-week period to pick up signed consent forms and distribute new forms to students who had lost them. Students were allowed to participate if they provided written or verbal parental consent and student assent. The informed consent procedure was approved by the university’s Institutional Review Board.

Across the seven schools, 3,218 students were invited to participate. Of those, 2,420 (75%) provided parental consent and student assent. Of those, 2,225 (92%) completed the survey.

Of those, 1,922 (86%) self-identified as Hispanic or Latino or reported a Latin American country of origin. Of those, 1,772 (92%) provided complete data on all variables in this analysis.

On the day of the survey, the data collectors distributed surveys to all students who had provided parental consent and student assent. Using a standardized script, they reminded the students that their responses were confidential and that they could skip any questions they did not want to answer. The classroom teachers were present during survey administration, but the data collectors instructed them not to participate in the survey process to ensure that they would not inadvertently see the students' responses. To help students with low literacy skills, the data collectors also read the entire survey aloud during the class period. Students were instructed that they could follow along with the data collector and write their answers after the data collector read each question, or answer the questions at their own pace.

Demographic Characteristics of Participants

The demographic characteristics and substance use of the respondents are shown in Table 1. The students' mean age was 14.0 years ($SD = 0.4$), and slightly over one-half (53%) were female. Most had been born in the United States (85%), but most reported that neither of their parents were U.S. natives (75%). Respondents were categorized as 1st generation if they and their parents were born outside the U.S. These respondents represented 14% of the sample, as shown in Table 1. Respondents were categorized as 2nd generation if they were born in the U.S. but both parents were born outside the U.S. These respondents represented 59% of the sample. Respondents were categorized as 3rd generation if they were born in the U.S. and at least one parent was born in the U.S. These respondents represented 23% of the sample.

Their countries of origin included Mexico (84%), the United States (29%), El Salvador (9%), Guatemala (6%), and Honduras (1%) (respondents were allowed to select more than one country of origin). The mean annual household income in their Zip codes (from 2000 U.S. Census data) was \$38,540.

Measures

Surveys were available in English and Spanish. To create the Spanish translations, we first looked for the translated items that were published or recommended by the scales' authors. If none were available, one translator translated the items from English to Spanish, and then the translation was back-translated into English and checked by a translation team including bilingual researchers of Mexican, Salvadoran, and Argentinean descent. This procedure was used to ensure that the Spanish translation reflected the idioms that are used among Mexican-Americans and other Hispanic/Latinos living in Southern California. Although English and Spanish versions were available, only 17 students (0.8%) chose to complete the survey in Spanish. This is consistent with our previous research and indicates that among adolescents attending schools with English-only instruction, their English reading ability is at least as high as their Spanish reading ability, even if their speaking ability is better in Spanish. The survey assessed substance use, acculturation, family and peer characteristics, psychological variables, and demographic characteristics.

Adolescents' Acculturation—Adolescents responded to 12 items from the ARSMA-II [21]: 7 from the Anglo orientation subscale and 5 from the Hispanic orientation subscale. These 12 items were selected based on a pilot study in a similar school, in which these items had the highest factor loadings on their respective scales. Recently, a shorter version of the ARS-MA-II was validated among adolescents [22]. Unfortunately, this scale had not yet been published at the time when this survey was conducted.

Parents' Cultural Orientations—Financial constraints prevented us from surveying the parents about their cultural orientations, so we surveyed the adolescents about their perceptions of their parents' cultural orientations. Because a validated measure of adolescents' perceptions of their parents' cultural orientations was not available, a measure was created by adapting questions from existing self-report acculturation scales such as the ARSMA-II. Parents' U.S./White cultural orientation and parents' Hispanic cultural orientation were assessed. The following items assessed parents' U.S./White cultural orientation: "My parents want me to speak English at home," "My parents want me to speak English outside the home," "My parents want me to live by or follow the U.S./White way of life," "My parents want me to be a success in the U.S./White way or life." The following items assessed parents' Hispanic cultural orientation: "My parents want me to speak Spanish at home," "My parents want me to speak Spanish outside the home," "My parents want me to live by or follow the Hispanic or Latino way of life," and "My parents want me to be a success in the Hispanic or Latino way or life." The response options were "strongly agree," "agree," "disagree," and "strongly disagree." The Cronbach's alphas were .69 for the parents' U.S./White cultural orientation scale and .86 for the parents' Hispanic orientation scale.

Parent–Child Acculturation Discrepancy—The adolescents' self-reported acculturation scores and their perceptions of their parents' acculturation were used to compute parent–child acculturation discrepancy scores. Two scores were calculated: discrepancy in U.S. orientation and discrepancy in Hispanic orientation. The adolescents' self-reported acculturation scores and their perceptions of their parents' acculturation were standardized to a mean of 0 and a standard deviation of 1. The U.S. discrepancy score was the adolescent's U.S. orientation minus the parents' U.S. orientation. The Hispanic discrepancy score was the parents' Hispanic orientation minus the adolescent's Hispanic orientation. Thus, a higher U.S. discrepancy score indicates that the adolescent is more U.S.-oriented than the parents. A higher Hispanic discrepancy score indicates that the parents are more Hispanic-oriented than the adolescent.

Family Cohesion—It was assessed with the following 6 questions from the FACES-II scale [23]: "In our family, everyone shares responsibility," "Family members like to spend their free time with each other," "Our family tries new ways of dealing with problems," "Family members go along with what the family decides to do," "Discipline is fair in our family," "Family members feel very close to each other." These 6 items were selected because they had the highest factor loadings on a family cohesion factor in a pilot study in a similar sample. The Cronbach's alpha of this scale was .78.

Substance Use—Tobacco, alcohol, and marijuana use were the outcome measures. Two dichotomous measures were used for each substance: lifetime use (0 = never, 1 = ever) and past-month (0 = no use in past month, 1 = any use in past month). To reduce the number of outcome variables in the mediation analyses, these six dichotomous measures were summed to create a single variable that ranged from 0 to 6.

Demographic Characteristics—It included age, gender, and socioeconomic status (SES). Age and gender were self-reported. Socioeconomic status was a composite measure consisting of 7 indicators: parents' education (rated on a 6-point scale ranging from "8th grade or less" to "advanced degree"; each respondent's score indicates the maximum of mother's and father's education if both were reported), number of rooms per person in home, median household income in the respondent's Zip code (from 2000 U.S. Census data), eligibility for free/reduced price lunch at school (1 = no, 0 = yes), homeownership (1 = family owns its home, 0 = family rents home from a landlord), presence of a computer in

the home (1 = yes, 0 = no), and availability of the Internet at home (1 = yes, 0 = no). These items were standardized to a mean of 0 and a standard deviation of 1 and averaged together to create an SES score (Cronbach's $\alpha = .56$).

Data Analysis

Frequencies and means were calculated to characterize the sample. Preliminary analyses were conducted to determine whether any of the independent or dependent variables differed significantly by country of origin. None of these differences were significant, so all countries of origin were grouped together into a single analytic sample.

Multilevel logistic regression models were used to evaluate the association between acculturation discrepancies and substance use, controlling for the covariates. Separate models were run for lifetime smoking, past-month smoking, lifetime alcohol use, past-month alcohol use, lifetime marijuana use, and past-month marijuana use. The variables were entered into the model in steps. In Step 1, the adolescents' acculturation scores (U.S. orientation score and Hispanic orientation score) were entered into the model. In Step 2, the parent-child acculturation discrepancy scores (parent-child discrepancy in U.S. orientation and parent-child discrepancy in Hispanic orientation) were entered into the model, controlling for the adolescents' acculturation scores. All models were controlled for age, gender, SES, and the random effect of school. To control for the multilevel data structure (students nested within schools), the GLIMMIX procedure in SAS was used, with school as a random effect.

Biculturalism (high scores on both U.S. orientation and Hispanic orientation) could be modeled as an interaction term in the regression analyses. To examine whether the adolescents' or parents' biculturalism was related to their substance use, we constructed U.S. orientation $\times$ Hispanic orientation interaction terms for adolescents and parents by centering both variables and multiplying them together. However, these variables did not approach statistical significance in any of the regression models, so they were dropped from the analysis.

Path analyses were used to evaluate family cohesion as a mediator of the association between acculturation discrepancy and substance use. To simplify these analyses, the six substance use outcome variables were added together to produce a single outcome variable. Using the MIXED procedure in SAS, multilevel linear regression analyses were used to evaluate the paths in the model. As recommended by Baron and Kenny [24], first substance use was regressed on acculturation discrepancies, without family cohesion in the model. Then family cohesion was added to the regression model and the significance of the acculturation discrepancy variables was re-assessed. Finally, family cohesion was regressed on the acculturation discrepancy variables. Mediation was confirmed if (1) the acculturation discrepancy variable was significantly associated with substance use, without family cohesion in the model; (2) the acculturation discrepancy variable was significantly associated with family cohesion; and (3) the association between the acculturation discrepancy variable and substance use decreased significantly when family cohesion was added to the model. The Sobel test was used to evaluate the significance of the mediated effect, using the equations described by MacKinnon and Dwyer [25] and the programs described by Preacher and Hayes [26]. All models were controlled for age, gender, SES, the adolescent's self-reported acculturation, and the random effect of school.

Results

Table 2 shows the results of the logistic regression analyses with the substance use outcome variables. The adolescent's Hispanic orientation was protective against smoking and

marijuana use (lifetime and past-month), but it was not associated with alcohol use. Parent–child discrepancy in U.S. orientation was a risk factor for smoking (past-month only), alcohol use (lifetime and past-month), and marijuana use (lifetime and past-month). Parent–child discrepancy in Hispanic orientation was a risk factor for alcohol and marijuana use (lifetime and past-month), but not for smoking.

Figure 1 shows the results of the mediational path analysis. The numbers shown are standardized regression coefficients. All numbers shown are significant at $P < .05$. Controlling for the covariates described above, parent–child discrepancies in U.S. and Hispanic orientations were each significantly associated with substance use. Without family cohesion in the model, the standardized beta coefficients were .112 for U.S. acculturation discrepancy and $-.102$ for Hispanic acculturation discrepancy (both $P < .05$). When family cohesion was added into the model, the standardized betas decreased to .092 for U.S. acculturation discrepancy and $-.097$ for Hispanic acculturation discrepancy. As shown in Fig. 1, the paths from U.S. acculturation discrepancy to family cohesion and from family cohesion to substance use were significant (standardized betas of $-.085$ and $-.219$, respectively, each $P < .05$), but the path from Hispanic acculturation discrepancy to family cohesion was not. The Sobel test for mediation indicated a significant mediated effect for U.S. acculturation discrepancy (Sobel test statistic = -2.02 , $P < .05$) but not for Hispanic acculturation discrepancy (Sobel test statistic = -1.22 , $P = .22$). Therefore, family cohesion partially mediated the association between U.S. acculturation discrepancy and substance use, but not the association between Hispanic acculturation discrepancy and substance use.

Discussion

The results of this study support the hypothesis that parent–child discrepancy in acculturation is a risk factor for substance use among Hispanic adolescents in the United States. In this sample of 1,772 predominantly second-generation Mexican-American adolescents in Southern California, parent–child discrepancies in U.S. orientation were associated with tobacco, alcohol, and marijuana use, and parent–child discrepancies in Hispanic orientation were associated with alcohol and marijuana use. The association between U.S. acculturation discrepancy and substance use was partially, but not completely, mediated by lower levels of family cohesion. Although no causal inferences can be drawn from this cross-sectional study, these results are consistent with the theory postulated by Szapocznik et al. [11], that discrepancies in U.S. orientation between adolescents and their parents lead to decreased levels of family cohesion, which in turn lead to an increased risk of substance use among the adolescents.

These findings support the acculturation gap theories of Szapocznik and colleagues [11], whereas the findings of some previous studies have not. An important difference between this study and the others is that this study assessed adolescents' perceptions of their parents' cultural orientations, rather than the parents' own self-reports. It is possible that acculturation gaps adversely affect adolescents' behavior only when they are acutely perceived by the adolescent. In other words, if an acculturation gap exists but the adolescent is not aware of it, it would not be expected to affect the adolescent's behavior.

Another unique aspect of the parental acculturation measure used in this study is that it focused on the parents' preferences for their children's acculturation (e.g., the parents' desire for their children to speak English, the parents' desire for their children to be a success in the U.S. way of life). Therefore, this study focuses on the gap between how the adolescents preferred to live and how they perceived that their parents preferred for them to live. Further research is necessary to determine whether this is the appropriate way to conceptualize and measure the parent–child acculturation gap. Other studies (e.g., [17], have

measured the parents' own acculturation (i.e., their own preferred way of living rather than their expectations for their children's ways of living).

The adolescents' Hispanic orientation scores were associated with a lower risk of their use of cigarettes and marijuana, but not alcohol. This may indicate that there are different cultural and family norms for alcohol than for other substances. In Hispanic-oriented families, alcohol use at family gatherings may be normative and may even serve as a rite of passage into adulthood. This may explain why Hispanic orientation did not protect against alcohol use. Further research is needed to understand the cultural norms and values about specific substances, including parents' views about their adolescents' use of various substances.

Family-based interventions may be useful for Hispanic families with high levels of parent-child acculturation discrepancy. According to Szapocznik et al. [11], these families may be characterized by poor communication, high levels of conflict, and breakdowns in parental authority, which may lead to substance use among the adolescents in the family. Although the exact mechanisms of these associations remain to be determined, it is possible that acculturation discrepancies, and the resulting breakdowns in family functioning, may lead to psychological stress among the adolescents, rebelliousness, and increased opportunities to affiliate with deviant peers, which may in turn lead to substance use. Interventions to increase parent-child communication and understanding may be useful to prevent this negative sequence of events.

Further research will be needed to determine the most effective content for family-based prevention programs. The results of this study suggest that teaching parents and adolescents to communicate and maintain family cohesion despite their cultural differences may be a promising strategy. Parents and adolescents may benefit from bicultural competence training [27], which teaches coping skills to navigate two cultures simultaneously and to understand the feelings, motivations, and perspectives of people from unfamiliar cultures. Another possible strategy is to help parents monitor their children's activities and prevent the children from getting into situations in which substance use is likely, such as unsupervised parties, clubs, and street locations. It also may be helpful to educate parents about the U.S. laws about underage alcohol and tobacco use and encourage them to avoid providing illegal substances to minors. More research is needed to develop culturally competent ways to teach these concepts and to determine whether family-based curricula can prevent adolescent substance use.

Limitations and Directions for Further Research

These results are based on adolescents' perceptions of their parents' acculturation, rather than the parents' own reports. Although adolescents may be somewhat inaccurate in their reports of their parents' cultural preferences, one might argue that it is the adolescents' perceptions of their parents' cultural attitudes that actually influences the adolescents' decisions about their own behaviors. Additional research is needed to validate adolescents' reports of their parents' acculturation. It is possible that adolescents' misperceptions of their parents' actual attitudes may be another indicator of poor family communication, which also may be a risk factor for the adolescents' problem behaviors.

Although the acculturation gap hypothesis has been posited in the theoretical literature for years, [11], only recently have researchers begun to test it empirically. Therefore, extensive research has not yet been done to determine the most valid methods of measuring this construct. Continuing research is needed to develop and validate improved measures of adolescents' acculturation and parent-child acculturation discrepancies.

These results are based on adolescents' self-reports of their substance use. Respondents may have underreported their substance use. However, the respondents were assured that their surveys were completely confidential, and previous studies have found adolescents' self-reports of substance use to be quite accurate under confidential survey conditions [28].

Because these data are cross-sectional, causal inferences cannot be made. These analyses are based on the theoretical assumption that parent-child acculturation patterns influence the adolescents' decisions about substance use, which is consistent with theories of family acculturation patterns [11, 12]. However, it is also plausible that adolescents who experiment with substance use may elicit more conflict with their parents, causing them to perceive that their parents' attitudes are very different from their own attitudes, or that their parents disapprove of their decisions. Longitudinal research is needed to determine whether adolescents' perceptions of acculturation discrepancies actually precede their substance use.

This survey did not ask about each parent separately, but it is possible that acculturation discrepancies also may exist between the parents or among other extended family members. For example, it is possible that the father has more outside contact than the mother does, and he therefore might adopt the U.S. culture more rapidly than the mother does. This could create acculturation discrepancies between the parents, which could further alter the family dynamics and increase the potential for family conflict. It is also possible that multiple generations of extended family members may be living in the same household or nearby, and acculturation discrepancies between the grandparents and the parents could affect the entire family climate and thereby affect the youngest generation of the family. More U.S.-oriented cousins or other relatives also may influence adolescents to engage in risk behaviors. Future research should assess the cultural orientations of all family members to gain a more complete understanding of all the possible acculturation discrepancies within the immediate family, and, if possible, the extended family as well.

The acculturation gap hypothesis specifies that the effects of acculturation gaps are negative, i.e., that they lead to family conflict and problem behaviors among the adolescent generation. However, parent-child acculturation gaps also may have the effect of encouraging the adolescents to become more responsible and more accountable, because they are the conduits of information for the rest of the family [29]. Being information-brokers for other family members can potentially put inordinate amounts of stress on children and adolescents in difficult situations such as interpreting medical information for sick relatives. However, if the amount of added responsibility is not too excessive, it is possible that the responsibility of being an information-broker could encourage adolescents to make more responsible decisions about their personal behaviors. More research is needed to understand whether acculturation gaps can sometimes have beneficial effects.

In addition to the acculturation variables examined in this study, numerous other risk and protective factors have been associated with substance use among Hispanic adolescents. These include peer substance use, peer norms, family substance use problems, general delinquency, rebelliousness, and other variables [30]. Some of these risk and protective factors, in addition to family cohesion, also may mediate the association between parent-child acculturation discrepancy and adolescent substance use. Further research is needed to understand the mediating mechanisms more completely.

Despite these limitations, the results of this study indicate that parent-child acculturation discrepancy is a risk factor for substance use among Hispanic adolescents, and that this association may be mediated by decreases in family cohesion and increases in family conflict. Family-based interventions for acculturating families may be effective in improving

family functioning, which in turn may decrease the likelihood of the adolescents' substance use.

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Fig. 1.
Path diagram for mediation by family cohesion

Table 1Demographic characteristics of sample ($N = 1,772$)

	<i>N</i>	%
Age		
12–13	132	7
14	1,497	84
15–16	143	8
Gender		
Male	832	47
Female	940	53
Nativity		
Adolescent and parents all born outside U.S.	246	14
Adolescent born in U.S., but both parents born outside U.S.	1,046	59
Adolescent and at least one parent born in U.S.	412	23
Missing	53	3
Substance use		
Lifetime smoking	490	28
Past-month smoking	127	7
Lifetime alcohol	848	48
Past-month alcohol	457	26
Lifetime marijuana	369	21
Past-month marijuana	217	12

Table 2

Associations between family acculturation patterns and substance use

	Lifetime smoking			Past-month smoking			Lifetime alcohol			Past-month alcohol			Lifetime marijuana			Past-month marijuana		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
<i>Step 1. Adolescent's acculturation</i>																		
Adolescent's U.S. orientation	0.90	(0.81, 1.00)		0.86	(0.72, 1.03)		0.97	(0.88, 1.08)		0.86*	(0.77, 0.97)		0.98	(0.87, 1.11)		0.90	(0.78, 1.04)	
Adolescent's Hispanic orientation	0.85*	(0.76, 0.96)		0.79*	(0.64, 0.97)		0.97	(0.87, 1.07)		1.03	(0.91, 1.16)		0.83*	(0.73, 0.94)		0.81*	(0.69, 0.95)	
<i>Step 2. Parent-child acculturation discrepancy</i>																		
Parent-child discrepancy in U.S. orientation	1.05	(0.93, 1.18)		1.33*	(1.09, 1.61)		1.15*	(1.03, 1.27)		1.18*	(1.05, 1.32)		1.25*	(1.10, 1.41)		1.28*	(1.10, 1.49)	
Parent-child discrepancy in Hispanic orientation	1.15	(1.32, 1.00)		1.08	(0.85, 1.33)		1.32*	(1.16, 1.49)		1.19*	(1.03, 1.37)		1.16*	(1.01, 1.35)		1.20*	(1.01, 1.45)	

Note: Odds ratios are controlled for age, gender, socioeconomic status, and school (random effect)

* $P < .05$