ORIGINAL INVESTIGATION

A Longitudinal Analysis of Hispanic Youth Acculturation and Cigarette Smoking: The Roles of Gender, Culture, Family, and Discrimination

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ABSTRACT

Introduction: Risk for smoking initiation increases as Hispanic youth acculturate to U.S. society, and this association seems to be stronger for Hispanic girls than boys. To better understand the influence of culture, family, and everyday discrimination on cigarette smoking, we tested a process-oriented model of acculturation and cigarette smoking.

Methods: Data came from Project RED (Reteniendo y Entendiendo Diversidad para Salud), which included 1,436 Hispanic students (54% girls) from Southern California. We used data from 9th to 11th grade (85% were 14 years old, and 86% were U.S. born) to test the influence of acculturation-related experiences on smoking over time.

Results: Multigroup structural equation analysis suggested that acculturation was associated with increased *familismo* and lower traditional gender roles, and enculturation was linked more with *familismo* and *respeto*. *Familismo*, *respeto*, and traditional gender roles were linked with lower family conflict and increased family cohesion, and these links were stronger for girls. *Familismo* and *respeto* were further associated with lower discrimination. Conversely, *fatalismo* was linked with worse family functioning (especially for boys) and increased discrimination in both the groups. Discrimination was the only predictor of smoking for boys and girls.

Conclusions: In all, the results of the current study indicate that reducing discrimination and helping youth cope with discrimination may prevent or reduce smoking in Hispanic boys and girls. This may be achieved by promoting *familismo* and *respeto* and by discouraging fatalistic beliefs.

INTRODUCTION

Every day, about 4,000 youth in the United States try their first cigarette, and ~1,000 of these adolescents become regular smokers (SAMHSA, 2010). Among Hispanic youth, risk for smoking initiation increases with acculturation to the dominant U.S. culture, and Hispanic girls' smoking is more strongly influenced by acculturation than the smoking of boys (Epstein, Botvin, & Diaz, 1998; Lorenzo-Blanco, Unger, Ritt-Olson, Soto, & Baezconde-Garbanati, 2011). To date, the process by which acculturation leads to smoking is not completely understood. Cigarette smoking is the leading cause of preventable death in the United States (Centers for Disease Control and Prevention 2009). It is, therefore, vital to understand why acculturation increases Hispanic youth smoking and why this is especially true for girls. This knowledge can inform smoking prevention and intervention strategies aimed at reducing smoking among the largest and fastest growing

group of young people in the United States (U.S. Census Bureau, 2010).

Acculturation, Enculturation, and Cigarette Smoking

Traditionally, Hispanic acculturation was defined as a unidimensional process in which Hispanic youth abandoned the practices, values, and identifications of their Hispanic culture to adopt those of the dominant U.S. society. Today, multidimensional acculturation theory recognizes that Hispanic youth can simultaneously acculturate and enculturate. *Enculturation* is the process by which Hispanic youth learn about and engage in their Hispanic cultural practices, values, and identifications (Schwartz, Unger, Zamboanga, & Szapocznik, 2010). Acculturation scholars propose that enculturation protects from and acculturation increases smoking risk (De la Rosa, 2002). Though acculturation has been linked with elevated smoking in Hispanic youth, especially for girls (Epstein et al., 1998;

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Lorenzo-Blanco et al., 2011), past studies are based on unidimensional models of acculturation and have seldom accounted for the simultaneous influence of acculturation *and* enculturation on youth smoking (Epstein et al., 1998). Also, studies have relied on proxies of acculturation (e.g., language proficiency) to represent complex lived experiences (Schwartz et al., 2010). These strategies have provided a fragmented understanding of why acculturation is linked with increased smoking. Research that investigates the experiences that accompany acculturation and that identifies acculturation-related experiences linked with smoking risk is needed. Past research has similarly treated gender as a proxy for complex gendered experiences (Cole, 2009), offering a limited understanding of why girls are more affected by acculturation than their male counterparts. Since acculturation-related experiences can differ for boys and girls, it is vital to investigate how acculturation-related experiences vary by gender to elevate or reduce smoking.

Everyday Discrimination and Family Functioning

One acculturation-related experience is *everyday discrimination*, defined as perceived daily experiences of unfair, differential treatment (Gyll, Matthews, & Bromberger, 2001). Hispanic youth experience discrimination, and boys report more discriminatory experiences than girls (Lorenzo-Blanco et al., 2011). Moreover, acculturation has been linked with more frequent discrimination in boys and girls (Kam, Cleveland, & Hecht, 2010), and discrimination links with elevated smoking in Hispanic boys (Wiehe, Aalsma, Liu, & Fortenberry, 2010) and girls (Lorenzo-Blanco et al., 2011). Thus, discrimination may explain the link between acculturation and smoking risk.

Hispanic youth also experience family conflict as they acculturate to the dominant U.S. culture (Céspedes & Huey, 2008), and family conflict has been linked with increased substance use (Canino, Vega, Sribney, Warner, & Alegria, 2008). Evidence indicates that Hispanic females are more negatively affected by family conflict than their male counterparts (Sarmiento & Cardemil, 2009). Consequently, increased family conflict as a result of acculturation may explain why girls' smoking is more affected by acculturation than boys' smoking.

In addition to family conflict and everyday discrimination, acculturation can be accompanied by a loss of family cohesion (Miranda, Estrada, & Firpo-Jimenez, 2000). Family cohesion entails perceptions of family closeness, communication, and support (Olson, Portner, & Bell, 1982). Low family cohesion relates to increased smoking in Hispanic women (Coonrod, Balcazar, Brady, Garcia, & Van Tine, 1999). Although studies have not documented gender differences in family cohesion among Hispanic youth, non-Latina White female college students reported higher levels of family cohesion than their male counterparts, and their mental health was more negatively influenced by low family cohesion than the mental health of males (Durell Johnson, Lavoie, & Mahoney, 2001). Gendered experiences of family cohesion may further shed light onto why Hispanic girls are more negatively influenced by acculturation than boys.

Hispanic Cultural Values

Hispanic youth are often raised according to Hispanic cultural values and ways of interaction that differ from those of

the dominant U.S. culture (Azmitia & Brown, 2002). Hispanic cultural values are thought to protect against external stress, to discourage family conflict, and to promote a strong orientation toward the family (Gonzales, Deardorff, Formoso, Barr, & Barrera, 2006; Rivera et al., 2008). With acculturation, youth may disengage from, or not learn about, these protective cultural values, thereby increasing their smoking risk (Gil, Wagner, & Vega, 2000). The cultural value of *familismo* emphasizes trust between family members, loyalty to the family, and a general orientation to the family. The cultural value of *respeto* dictates deferential behavior toward relatives and maintains family harmony (Azmitia & Brown, 2002). Low *familismo* and *respeto* relate to more substance use, and acculturation has been linked with less *familismo* and *respeto* (Gil et al., 2000). The cultural value of *fatalismo* encompasses the belief that one cannot control the future. *Fatalismo* has been portrayed as a culturally rooted adaptive response to external stress in collectivistic cultures where it promotes social support (Neff & Hoppe, 1993), possibly by de-emphasizing personal control, responsibility, and blame for negative life circumstances or perceived failure. Although studies have failed to find a direct relationship between *fatalismo* and substance use (Unger et al., 2002), *fatalismo* may influence smoking indirectly by way of family functioning and discrimination.

Hispanic children are also frequently socialized according to traditional gender roles that afford boys more freedom than girls (Zayas, Lester, Cabassa, & Fortuna, 2005). For example, it is more acceptable for boys to smoke cigarettes and venture outside the home than it is for girls (Marsiglia, Kulis, Hussaini, Nieri, & Becerra, 2010). Scholars postulate that Hispanic girls acculturate faster than boys, embracing the liberty that comes with less traditional gender roles (Zayas et al., 2005). As a result, girls may experience more family conflict and less cohesion when parents and other relatives impose rules on them and when they rebel against these gendered restrictions. Hispanic girls endorse more liberal gender role attitudes than boys (Valenzuela, 1999), possibly leading to difficulties in the family domain (Zayas et al., 2005).

The Current Study

The current study integrated extant empirical research and theory on acculturation and substance use into a process-oriented model to better understand how diverse acculturation-related experiences influence each other and unfold in the everyday lives of Hispanic youth to influence smoking risk. We also examined how this process differed for boys and girls because acculturation-related experiences can be gendered. Based on research reviewed above, we developed the model illustrated in Figure 1. We utilized data from a three-wave longitudinal study to establish time precedence of acculturation-related experiences and smoking and because acculturation is a process that unfolds over time (Smart & Smart, 1995). Our model (Figure 1) proposes that acculturation (wave 1) is negatively associated with cultural values (wave 2), and enculturation (wave 1) is positively associated with cultural values (wave 2). We also expected cultural values (wave 2) to be positively associated with family cohesion and to be negatively associated with family conflict and discrimination (wave 2). Finally, we expected discrimination and family conflict (wave 2) to predict increased smoking (wave 3) and we anticipated family cohesion (wave 2) to predict

Figure 1. Hypothesized model showing all expected relationships and their predicted valence. Covariates were age, socio-economic status, friend smoking, and adult smoking.

less smoking (wave 3). We also expected to find gender effects. Specifically, we anticipated the links between cultural values and family functioning to be stronger for girls than for boys, and we expected family functioning to more strongly predict girls' than boys' smoking.

METHODS

Participants

Participants included 1,436 Hispanic students who participated in Project RED (Reteniendo y Entendiendo Diversidad para Salud), a three-wave study of acculturation and substance use among Southern California youth (Unger, Ritt-Olson, Wagner, Soto, & Baezconde-Garbanati, 2009). Participants self-identified as Latino/a or Hispanic. About 54% of participants were female, 85% were 14 years old, and 86% were U.S. born. The majority of the students in the current study (85%) had a Mexico-born parent, grandparent, or great-grandparent, followed by the United States (30%), El Salvador (8%), Guatemala (6%), Honduras (1%), and Spain (1%). Over half of the students (56%) reported speaking "English and another language equally" at home, 17% of the students reported "speaking mostly English" at home, 12% reported "speaking only another language at home," and 14% reported "speaking mostly another language" at home. Likewise, about 36% of the students reported speaking "mostly English" with friends, 33% reported speaking "only English" with friends, and 29% reported speaking "English and another language equally" with friends.

Data Source and Procedure

Youth were enrolled when they were in 9th grade, attending seven high schools in the Los Angeles area. Schools were

invited to participate if they contained at least 70% of Hispanic students, as indicated by the California Board of Education. Sampling included an emphasis on 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 census data. Because students were sampled from seven schools, we calculated intraclass correlations (ICC) that were low and did not affect the results.

The 9th grade survey (Year 1) was administered in the Fall of 2005, the 10th grade survey (Year 2) in the Fall of 2006, and the 11th grade survey (Year 3) in the Fall of 2007. In 2005, all 9th graders attending selected schools ($n = 3,218$) were invited to participate in the survey. Of those, 75% ($n = 2,420$) provided parental consent and student assent. Of the 2,420 students who provided consent and assent, 2,222 (92%) completed the survey in the 9th grade. Of the 2,222 students who completed the 9th grade survey, 1,773 (80%) also completed surveys in the 10th and the 11th grades with 182 (8%) students completing the survey in the 10th grade but not in the 11th grade, 50 students (2%) completing the survey in the 11th grade but not in the 10th grade, and 217 (10%) students were lost to attrition before the 10th grade survey. Because the current study investigated Hispanic acculturation, we only retained data from students who self-identified as either Hispanic, Latino/a, Mexican, Mexican American, Chicano/a, Central American, South American, Mestizo, La Raza, or Spanish in Year 1 ($N = 1,922$). We used data from Years 1, 2, and 3, and 486 students were excluded from the analysis due to missing data. This resulted in a final sample of 1,436 students. A comparison of study variables at time 1 between the final ($N = 1,436$) and omitted sample ($n = 486$) revealed differences. While students in the final sample scored significantly higher on acculturation ($M = 0.65$, $SD = 1.39$, and $M = 0.62$, $SD = 1.60$, respectively) ($p < .001$;

Acculturation, gender, smoking, Hispanic youth

$d = .26$) and *familismo* ($M = 3.36$, $SD = 0.57$ and $M = 3.23$, $SD = 0.65$, respectively) ($p < .001$; $d = .20$), students in the omitted sample scored higher on traditional gender roles ($M = 2.25$, $SD = .63$, and $M = 2.18$, $SD = 0.62$, respectively) ($p < .05$; $d = -.12$). Students in the final sample (8.1%) were also more likely to have smoked cigarettes in the past 30 days than students in the omitted sample (5.0%) ($p < .05$; $\phi = .05$) and they were more likely to report adult smoking (33.8%) than the omitted sample (23.3%) ($p < .001$; $\phi = .10$).

Measures

Acculturation and Enculturation

We used 10 items from the short form of the Revised Acculturation Rating Scale for Mexican Americans (ARSMA-II; Cuéllar, Arnold, & Maldonado, 1995). Five items came from the Anglo orientation and five from the Hispanic orientation subscales (see Unger et al., 2009 for a detailed description). Adolescents indicated on a 5-point scale (1 = *not at all* to 5 = *almost always/extremely often*) how much they did or enjoyed certain activities (e.g., speaking Spanish/English, reading books in English, and watching TV in Spanish) (Cronbach's $\alpha = .75$ for the United States and .88 for Hispanic orientation).

Everyday Discrimination

Everyday discrimination was measured with 10 items (Guyll et al., 2001). A sample item was, "You are treated with less respect than other people." Adolescents indicated the frequency of each experience (4 = *often* to 1 = *never*). Higher scores represent more experiences of everyday discrimination (Cronbach's $\alpha = .88$).

Family Cohesion

Family cohesion was assessed with six questions from FACES II (Olson et al., 1982). These were selected because they had the highest factor loadings in a study with a comparable sample (Unger, unpublished data). A sample item was, "Family members feel very close to each other." Higher scores represent more cohesion (Cronbach's $\alpha = .77$).

Family Conflict

Family conflict was measured with six items from FACES II (Olson et al., 1982). These were selected because they had the highest factor loadings in a study with a comparable sample (Unger, unpublished data). A sample item was, "We have difficulty thinking of things to do as a family." Response choices ranged from 1 = *almost never* to 6 = *almost always*. Higher scores represent more family conflict (Cronbach's $\alpha = .69$).

Familismo

Four items assessed *familismo*. Three of the items came from the *familismo* scale described by Sabogal, Marín, Otero-Sabogal, & Marín (1987), and one item from the *familismo* scale described by Cuéllar et al. (1995). The four items had the highest factor loadings in an earlier study (Unger et al., 2002). Youth indicated (1 = *definitely no* to 4 = *definitely yes*) the likelihood of their families engaging in family-oriented behaviors. Higher scores represent greater *familismo* (Cronbach's $\alpha = .79$).

Respeto

Four items assessed *respeto*. A sample item included "It is important to honor my parents." Youth indicated their agreement on a 4-point scale (1 = *definitely no* to 4 = *definitely yes*) (Cronbach's $\alpha = .89$).

Traditional Gender Roles

Seven items assessed traditional gender roles. Items came from the MACCSF (Cuéllar et al., 1995). They were selected because they had the highest factor loadings. Adolescents indicated (1 = *strongly disagree* to 4 = *strongly agree*) their agreement with statements such as, "Boys should not be allowed to play with dolls and other girls' toys." Higher scores reflect more traditional gender roles (Cronbach's $\alpha = .80$).

Fatalismo

Four items assessed *fatalismo*. Items came from the MACCSF (Cuéllar et al., 1995). They were selected because they had the highest factor loadings on their respective scales and did not load highly on other scales. Youth indicated the degree (1 = *definitely no* to 4 = *definitely yes*) to which they endorsed fatalistic beliefs: "It's more important to enjoy life now than to plan for the future." Higher scores denote more *fatalismo* (Cronbach's $\alpha = .78$).

Past-30-Day Smoking

One item assessed youth's smoking: "During the past 30 days, on how many days did you smoke cigarettes?" Responses were rated on a 7-point scale (1 = *0 days*, 2 = *1 or 2 days*, 3 = *3 to 5 days*, 4 = *6 to 9 days*, 5 = *10 to 19 days*, 6 = *20 to 29 days*, 7 = *all 30 days*). We recoded responses to *0 days* versus *all other* due to skewed distributions.

Adult Smoking

One question assessed adult smoking: "Think of the two (2) adults that you spend the most time with. How many of them smoke cigarettes every day or most days?" Response options included *none or 0*, *1 of them*, and *2 of them*. We recoded responses to *none or 0 adults* versus *1 or 2 adults*. We controlled for adult smoking to rule this out as an alternative explanation for youth smoking (Tyas & Pederson, 1998).

Friend Smoking

Adolescents were asked to think of their five best friends at school. Next, they indicated whether any of their friends had ever tried cigarettes. This variable was dummy coded as *yes* = 1 and *no* = 0. Friend smoking is the most consistent predictor of youth smoking. Thus, we controlled for friend smoking to rule this out as an alternative explanation for youth smoking (Tyas & Pederson, 1998).

Demographic Characteristics

Age, gender, and socioeconomic status (SES) were self-reported. We used father's and mother's education as indicators of SES. Students responded to one question (once for their father and once for their mother): "What is the highest grade completed by your father/mother?" Response options were 1 = *8th grade or less*, 2 = *Some high school*, 3 = *High school graduate*, 4 = *Some college*, 5 = *College graduate*, and 6 = *Advanced degree*. Data from students who did not know their parents' educational level were treated as missing.

Table 1. Descriptive Characteristics for Overall Sample, Girls, and Boys

Variables	Overall sample (<i>N</i> = 1,436) No. (%) or <i>M</i> (<i>SD</i>)	Girls (<i>N</i> = 775) No. (%) or <i>M</i> (<i>SD</i>)	Boys (<i>N</i> = 634) No. (%) or <i>M</i> (<i>SD</i>)
Age			
12 years or younger	—	—	—
13 years	107 (7.5)	63 (8.1)	40 (6.3)
14 years	1,220 (85.0)	667 (86.1)	531 (83.8)
15 years	106 (7.4)	44 (5.7)	61 (9.6)
16 years or older	3 (0.2)	1 (0.1)	2 (0.3)
Nativity			
U.S. born	1,229 (85.6)	671 (86.6)	535 (84.4)
Foreign born	172 (12.0)	87 (11.2)	82 (12.9)
Missing	35 (2.4)	17 (2.2)	17 (2.7)
Acculturation	0.65 (0.14)	0.68 (0.13)	0.61 (0.15)
Enculturation	0.43 (0.20)	0.45 (0.20)	0.40 (0.21)
Perceived discrimination	1.56 (0.56)	1.51 (0.54)	1.84 (0.60)
Family cohesion	3.12 (0.90)	3.15 (0.93)	3.30 (0.81)
Family conflict	2.22 (0.79)	2.24 (0.83)	2.20 (0.72)
<i>Familismo</i>	3.36 (0.60)	3.40 (0.55)	3.27 (0.63)
<i>Respeto</i>	3.71 (0.52)	3.75 (0.44)	3.69 (0.55)
Gender roles	2.04 (0.64)	1.79 (0.52)	2.46 (0.60)
<i>Fatalismo</i>	2.89 (0.73)	2.95 (0.71)	2.92 (0.67)
Past-30-day smoking	91 (6.3)	30 (3.9)	60 (9.5)
Father's education			
8th grade or less	266 (18.5)	147 (19.0)	111 (17.5)
Some high school	276 (19.2)	166 (21.4)	104 (16.4)
High school graduate	242 (16.9)	120 (15.5)	117 (18.5)
Some college	128 (8.9)	64 (8.3)	64 (10.1)
College degree	63 (4.4)	35 (4.5)	27 (4.3)
Advanced degree	21 (1.5)	11 (1.4)	9 (1.4)
Missing	440 (30.6)	232 (29.9)	202 (31.9)
Mother's education			
8th grade or less	287 (20.0)	168 (21.7)	111 (17.5)
Some high school	284 (19.8)	185 (23.9)	97 (15.3)
High school graduate	263 (18.3)	132 (17.0)	126 (19.9)
Some college	143 (10.0)	76 (9.8)	64 (10.1)
College degree	92 (6.4)	48 (6.2)	41 (6.5)
Advanced degree	24 (1.7)	14 (1.8)	10 (1.6)
Missing	343 (23.9)	152 (19.6)	185 (29.2)
Friend smoking	692 (48.2)	365 (47.1)	313 (49.4)
Adult smoking	486 (33.8)	249 (32.1)	225 (35.5)

Note. We lost 27 participants in the descriptive data by gender due to missing values on youth gender.

Analytic Plan

We conducted all descriptive analyses with SPSS 19.0. We tested for gender differences with *t* tests for continuous and χ^2 tests for categorical variables. To perform structural equation modeling with latent variables, we used Mplus Version 6.1 (Muthén & Muthén, 2010). Missing data were handled in Mplus 6.1 with weighted least squares estimation. Weighted least squares estimation uses all available data, except for missing values on covariates (i.e., age, SES, friend and adult smoking in the current study). Weighted least squares estimation is superior to other missing data techniques (e.g., list-wise and pair-wise deletion) in terms of model estimation, bias, and efficiency. It is also relatively equivalent to multiple imputation techniques (Asparouhov & Muthén, 2010).

RESULTS

Descriptive Analyses

Table 1 shows descriptive characteristics for the overall sample (*N* = 1,436) for girls and boys. The mean age was 13.97 years (*SD* = 0.4), and boys were slightly older (*M* = 14.0, *SD* = 0.4) than girls (*M* = 13.95, *SD* = 0.4) (*p* < .05). Compared with boys, girls had higher mean scores on acculturation (*p* < .001), enculturation (*p* < .001), *familismo* (*p* < .05), *respeto* (*p* < .05), and *fatalismo* (*p* < .05). Compared with girls, boys had higher mean scores on everyday discrimination (*p* < .05) and traditional gender roles (*p* < .001). Boys were also more likely to have smoked cigarettes in the past 30 days (*p* < .001).

Table 2 shows correlations among all constructs. Although many of these correlations were statistically significant, their magnitude was small to moderate, suggesting low multicollinearity. We also conducted a multicollinearity diagnostic test in version 19 of SPSS which further indicated that multicollinearity was not a problem. The variance inflation factors (VIF) were relatively low, ranging from 1.02 to 1.61.

Overall Structural Equation Modeling

Prior to modeling, we randomly assigned and averaged items for constructs consisting of five or more items into two to three manifest indicators (Little, Cunningham, Shahar, & Widaman, 2002). For example, everyday discrimination items were randomly parceled into three indicators of the latent factor “everyday discrimination.” Next, we conducted structural equation modeling with latent variables to test our hypothesized model (see Figure 1). First, we estimated the measurement model for the latent variables to ensure that the psychometric properties of the measures were adequate and loaded on the hypothesized factors (Anderson & Gerbing, 1988). Hereby, we estimated a measurement model for each construct separately, then for each pair of constructs, combining them two by two before estimating the measurement model for all the constructs in one model (Jöreskog, 1993). The only exception to this procedure was with past-30-day smoking, age, SES, friend smoking, and adult smoking. We evaluated overall fit with the comparative fit index (CFI), the chi-square test of model fit (χ^2), and the root mean square error of approximation (RMSEA) (Hu & Bentler, 1998).

The overall measurement model produced excellent fit indices (CFI = .972; RMSEA = .027, 90% CI [.025, .030]; $\chi^2 = 702$, $df = 289$, $p < .001$). After testing the measurement model, we estimated the structural model (Figure 1) (Anderson & Gerbing, 1988). The structural model provided a good fit to the data (CFI = .924; RMSEA = .027, 90% CI [.025, .030]; $\chi^2 = 872$, $df = 418$, $p < .001$). As shown in Figure 2, standardized path coefficients suggested that acculturation was associated with higher *familismo* ($\beta = .15$) and lower traditional gender roles ($\beta = -.27$). Enculturation was also linked with higher *familismo* ($\beta = .15$), higher *respeto* ($\beta = .14$), and lower traditional gender roles ($\beta = -.08$). *Familismo* and *respeto* related with lower levels of discrimination ($\beta = -.13$ and $\beta = -.08$, respectively), lower family conflict ($\beta = -.16$ and $\beta = -.32$, respectively), and higher family cohesion ($\beta = .25$ and $\beta = .29$, respectively). *Fatalismo* was associated with more frequent discrimination ($\beta = .08$), more family conflict ($\beta = .22$), and lower levels of family cohesion ($\beta = -.16$). Everyday discrimination ($\beta = .17$) was the only significant predictor of past-30-day smoking.

Multigroup Structural Equation Modeling: Gender as a Moderator

We examined gender as a moderator with multigroup structural equation modeling. First, we reestimated the fit of our model with the overall sample ($N = 1,436$), while constraining both the measurement and structural models to equality between boys and girls. As shown in Table 3, model fit indices of the fully gender-invariant model were acceptable (Test 1 of Table 3). Nevertheless, we sought to determine whether fit could be improved and whether the form of the proposed model and/or

strength of relations among the variables differed between boys and girls. Next, we permitted the measurement errors of the indicators to differ between genders (Test 2 of Table 3). This resulted in a significant improvement in model fit as indicated by a significant $\Delta\chi^2$. We then examined whether the strength of the structural paths depicted in Figure 1 differed for boys and girls.

To do so, we systematically removed the gender equality constraint on each individual path, and examined whether allowing paths to differ between boys and girls resulted in significant model fit improvement. Table 3 illustrates the results of this process. Test 1 examined the fully gender-invariant model, and Test 3 allowed the measurement error and the path from acculturation to *familismo* to vary by gender. This change did not result in significant model fit improvement when compared with Test 2. In Test 4, we removed the gender-equality constraint on the path from enculturation to *familismo*, and in Test 5 we allowed the path from acculturation to *respeto* to vary by gender. None of these changes resulted in significant model fit improvement, compared with Test 2. We continued this process until we had allowed each path depicted in Figure 1 to differ by gender. In all, we tested 26 different models. Test 26 allowed those paths to vary by gender that had resulted in significant model fit improvement (i.e., Tests 11 through 18) while keeping those paths constrained that had not resulted in significant model fit improvement (i.e., Tests 3 through 10 and Tests 19 through 25). That is, Test 26 allowed the paths from *familismo*, *respeto*, gender roles, and *fatalismo* to family conflict to vary by gender. It also allowed the paths from *familismo*, *respeto*, gender roles, and *fatalismo* to family cohesion to vary by gender. Test 26 resulted in significant model fit improvement ($p < .001$), compared with Test 2. Test 26 had the best model fit compared with any of the other tests. Figure 3 shows the results of the structural form of Test 26.

As illustrated in Figure 3, acculturation was positively associated with *familismo* in boys and girls ($p < .001$), and it was negatively associated with traditional gender roles in both groups ($p < .001$). Enculturation was associated with higher *familismo* and *respeto* for boys and girls ($p < .001$). *Familismo* and gender roles, in turn, were linked with lower family conflict for girls ($p < .001$ and $p < .05$, respectively) but not for boys. *Respeto* was related with lower family conflict for both groups ($p < .001$), but this association was stronger for girls ($\beta = -.343$) than boys ($\beta = -.342$). Conversely, *fatalismo* was associated with more family conflict for both groups ($p < .001$) but this link was stronger for boys ($\beta = .27$) compared with girls ($\beta = .18$). Moreover, *familismo* and *respeto* were linked with lower discrimination in both genders ($p < .05$ and $p < .05$, respectively) and higher family cohesion in girls ($p < .001$ and $p < .001$, respectively) and boys ($p < .05$ and $p < .001$, respectively). However, the links of *familismo* and *respeto* with family cohesion were stronger for girls ($\beta = .25$ and $\beta = .40$, respectively) than boys ($\beta = .23$ and $\beta = .23$, respectively). Gender roles were also linked with more family cohesion in girls ($p < .05$) but not in boys. *Fatalismo* was associated with higher levels of discrimination in both groups ($p < .05$ and $p < .05$, respectively), and it was related with lower family cohesion in both genders ($p < .05$), but this connection was stronger for boys ($\beta = -.17$) than girls ($\beta = -.13$). Discrimination was the only predictor of smoking in both groups ($p < .05$).

In sum, structural multigroup analyses showed that boys and girls experience a loss in traditional gender roles as they adopt aspects of the dominant non-Latino/a White culture. This

Table 2. Intercorrelations Between All Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age																
2. Gender	-.08*															
3. Acculturation	-.08**	.19**														
4. Enculturation	-.02	.13**	-.12**													
5. Discrimination	.05	-.08**	-.07*	.04												
6. Family cohesion	.02	-.02	-.00**	.16**	-.08**											
7. Family conflict	.05	.03	.04	-.06*	.21**	-.30**										
8. <i>Familismo</i>	-.02	.07*	.10**	.09**	-.14**	.30**	-.22**									
9. <i>Respeto</i>	-.05	.09**	.02	.11**	-.13**	.33**	-.28**	.46**								
10. Gender roles	-.03	-.43**	-.20**	-.05	.05	.07**	-.02	.03	.05							
11. <i>Fatalismo</i>	-.07*	.09**	-.03	.04	.04	-.04	.09**	.15**	.17**	.10**						
12. Past-30-day smoking	.02	-.14**	-.05	-.08*	.14**	-.11**	.11**	-.09**	.08*	.03	.01					
13. Father's education	.05	-.04	-.01	-.04	-.02	-.00	-.01	-.03	-.04	.02	.01	.00				
14. Mother's education	.01	-.12**	-.02	-.06*	-.04	.03	-.02	-.01	-.02	.08**	.06*	.01	.63**			
15. Friend smoking	.03	-.02	-.02	-.06*	.12**	-.10**	.09**	-.08**	-.11**	.05	.05	.16**	-.06*	-.04	—	
16. Adult smoking	.04	-.04	-.00	-.06*	.06*	-.05**	.10**	-.03	-.05	.03	.04	.12**	-.05	-.02	.14**	—

Note. Categorical measures: Gender, past-30-day smoking, father's education, mother's education, friend smoking, and adult smoking. * $p < 0.05$, ** $p < 0.01$.

Table 3. Goodness-of-Fit Indices for the Multigroup Analysis by Gender

Model	χ^2	df	RMSEA	CFI	$\Delta\chi^2$	Δdf	Sig. $\Delta\chi^2$
Test 1: Fully invariant by gender	1,557	960	.03	.89			
Test 2: Gender constraint released on measurement error	1,505	933	.03	.89	92	27	yes
Test 3: Gender constraint released on measurement error and acculturation $\rightarrow$ <i>familismo</i>	1,503	932	.03	.89	4	1	no
Test 4: Gender constraint released on measurement error and enculturation $\rightarrow$ <i>familismo</i>	1,505	932	.03	.89	2	1	no
Test 5: Gender constraint released on measurement error and acculturation $\rightarrow$ <i>respeto</i>	1,509	932	.03	.89	2	1	no
Test 6: Gender constraint released on measurement error and enculturation $\rightarrow$ <i>respeto</i>	1,507	932	.03	.89	3	1	no
Test 7: Gender constraint released on measurement error and acculturation $\rightarrow$ gender roles	1,504	932	.03	.89	2	1	no
Test 8: Gender constraint released on measurement error and acculturation $\rightarrow$ gender roles	1,505	932	.03	.89	2	1	no
Test 9: Gender constraint released on measurement error and acculturation $\rightarrow$ <i>fatalismo</i>	1,505	932	.03	.89	3	1	no
Test 10: Gender constraint released on measurement error and enculturation $\rightarrow$ <i>fatalismo</i>	1,511	932	.03	.89	0	1	no
Test 11: Gender constraint released on measurement error and <i>familismo</i> $\rightarrow$ family conflict	1,472	932	.03	.90	13	1	yes
Test 12: Gender constraint released on measurement error and <i>respeto</i> $\rightarrow$ family conflict	1,469	932	.03	.90	14	1	yes
Test 13: Gender constraint released on measurement error and gender roles $\rightarrow$ family conflict	1,495	932	.03	.90	9	1	yes
Test 14: Gender constraint released on measurement error and <i>fatalismo</i> $\rightarrow$ family conflict	1,492	932	.03	.90	8	1	yes
Test 15: Gender constraint released on measurement error and <i>familismo</i> $\rightarrow$ family cohesion	1,437	932	.03	.91	19	1	yes
Test 16: Gender constraint released on measurement error and <i>respeto</i> $\rightarrow$ family cohesion	1,416	932	.03	.91	23	1	yes
Test 17: Gender constraint released on measurement error and gender roles $\rightarrow$ family cohesion	1,477	932	.03	.90	13	1	yes
Test 18: Gender constraint released on measurement error and <i>fatalismo</i> $\rightarrow$ family cohesion	1,472	932	.03	.90	14	1	yes
Test 19: Gender constraint released on measurement error and <i>familismo</i> $\rightarrow$ discrimination	1,529	932	.03	.89	0	1	no
Test 20: Gender constraint released on measurement error and <i>respeto</i> $\rightarrow$ discrimination	1,529	932	.03	.89	0	1	no
Test 21: Gender constraint released on measurement error and gender roles $\rightarrow$ discrimination	1,506	932	.03	.89	3	1	no
Test 22: Gender constraint released on measurement error and <i>fatalismo</i> $\rightarrow$ discrimination	1,522	932	.03	.89	0	1	no
Test 23: Gender constraint released on measurement error and family conflict $\rightarrow$ smoking	1,507	932	.03	.89	1	1	no
Test 24: Gender constraint released on measurement error and family cohesion $\rightarrow$ smoking	1,506	932	.03	.89	1	1	no
Test 25: Gender constraint released on measurement error and discrimination $\rightarrow$ smoking	1,507	932	.03	.89	1	1	no
Test 26: Gender constraint released on measurement error and <i>familismo</i> , <i>respeto</i> , gender roles, <i>fatalismo</i> $\rightarrow$ conflict; <i>familismo</i> , <i>respeto</i> , gender roles, <i>fatalismo</i> $\rightarrow$ cohesion.	1,348	925	.03	.92	74	8	yes

Note. Twenty-seven cases were dropped from the multigroup analysis due to missing values on youth gender. CFI = comparative fit index; df = degrees of freedom; RMSEA = root mean square error of approximation.

Figure 3. Results of the multigroup model. Standardized path coefficients for girls ($n = 775$) are in bold type, and results for boys ($n = 633$) are in regular type. Dashed lines indicate nonsignificant paths (unless indicated). Twenty-seven cases were dropped from the multigroup analysis due to missing values on youth gender. Error variances and their respective covariances are missing from the diagram to avoid complexity. Covariates were age, socioeconomic status, friend smoking, and adult smoking.

(Halgunseth, Ispa, & Rudy, 2006). Hispanic parents are often more concerned about negative peer influences for girls than boys, and they use control or monitoring with their daughters more than with their sons (Azmitia & Brown, 2002). This gendered parenting may lead girls with lower endorsement of *familismo*, *respeto*, and traditional gender roles to rebel against parental control, causing family conflict and disharmony. Additionally, these gendered parenting strategies may protect girls from smoking indirectly by shielding them from everyday discrimination. Compared with boys, girls scored higher on *familismo* and *respeto*, which were associated with less discrimination (the only significant predictor of smoking).

Surprisingly, acculturation was related with *higher* and *not lower* levels of *familismo*. This was surprising because studies have shown negative associations between acculturation and family closeness (Miranda et al., 2000). It is possible that the association of acculturation with *familismo* depends on the larger sociocultural context of U.S. Hispanic families. Youth in the current study were predominantly U.S. born. The parenting of parents with U.S.-born children may differ from the parenting of parents with foreign-born youth. Parents of U.S.-born children may increasingly emphasize *familismo* as their children become acculturated because they may fear that their U.S.-born children never learn about or disengage from familistic values, which may be valued by parents because they promote family cohesion and support. Family support may be viewed as vital in the United States, where Hispanics experience discrimination and hostility outside the home (Kam et al., 2010). Experiences of everyday discrimination may keep families from finding social support that does not involve the family and other Hispanics, and parents may instill familistic values to their children to ensure that they have access to social support systems. That is, parents' fear of their children lacking family support may encourage them to transmit familistic values to greater degrees than they normally would. So, youth may have

had greater exposure to messages endorsing the importance of *familismo* as they acculturate into the U.S. culture. Parents may intuitively teach *familismo* in their parenting to protect their children from the adverse effects of discrimination such as cigarette smoking. *Familismo* was associated with lower reports of discrimination, and everyday discrimination was directly linked with elevated smoking.

Interestingly, *fatalismo* was linked with less family cohesion and increased conflict, and these links were stronger for boys. Youth who endorse fatalistic beliefs may experience adolescent angst, disillusionment, hopelessness, and lack of future aspirations. Youth who lack motivation and a positive attitude toward the future may experience increased family conflict and feel less supported by parents when they try to encourage their children to make responsible decisions for the future. Parents may encourage their sons more than their daughters to take advantage of available opportunities in the United States because in Hispanic culture men are responsible for the financial security of the family (Sarmiento & Cardemil, 2009). As a result of these dynamics, boys with more fatalistic beliefs may report more conflict and less cohesion. Moreover, youth who feel disillusioned and hopeless about the future may have a general pessimistic view of the world. They may also be more apt to focus on negative experiences such as discrimination and family conflict and report more of these instances (regardless of whether they experience more discrimination and family conflict) compared with youth with a more positive cognitive style. Boys may feel more hopeless about the future than girls because they may feel to never be able to meet parental standards of success in the United States where they experience more discrimination than their non-Hispanic White peers and female counterparts.

As expected, *familismo* and *respeto* were linked with less discrimination. This indicates that *familismo* and *respeto* protect youth from experiences of unfair differential treatment.

Youth who endorse *familismo* and *respeto* to greater degrees may spend more time with their Hispanic families or other Hispanic friends, and consequently, they may have fewer opportunities to experience everyday discrimination against them. Contrary to expectations, *fatalismo* was linked with increased everyday discrimination. Reasons for why *fatalismo* is linked with more discrimination are not clear. It is possible that youth with fatalistic beliefs have more pessimistic views of the world, possibly focusing on negative experiences such as discrimination to greater degrees than focusing on positive experiences. Understanding the connections between *fatalismo*, *familismo*, *respeto*, and discrimination is important. These may be promising avenues for protecting youth from the deleterious health consequences of everyday discrimination. Discrimination was linked with more frequent smoking and thus, understanding how *fatalismo*, *familismo*, and *respeto* link with more or less frequent discrimination may help in reducing Hispanic youth smoking.

The current study clearly suggests that reducing discrimination against Hispanic youth is vital, and this might be especially important for Hispanic boys who reported more discrimination and more smoking than girls. Discrimination was directly linked with smoking in boys and girls, and this association remained above and beyond the protective role of family cohesion. Efforts should also be placed on helping youth learn to cope with discriminatory acts against them. This may be achieved by fostering *familismo* and *respeto*, both of which were linked with lower reports of everyday discrimination. This may also be achieved by combating youth's fatalistic beliefs and possible negative interpretations of everyday experiences. Youth may be using cigarettes to cope with the potential distress caused by everyday discriminatory experiences. Thus, it is important to combat discrimination against Hispanic youth or help youth find ways to deal with discrimination in more healthy ways. This may ultimately lead to reduced smoking among Hispanic youth. Most studies on Hispanic youth acculturation and substance use have assessed the role of the family. In the present study, everyday discrimination predicted smoking above and beyond family functioning. These findings highlight the need to investigate the roles of culture, family, and also structural factors such as discrimination on Hispanic youth smoking.

LIMITATIONS AND CONCLUSIONS

There are limitations to this study. Our integrative model captured key sociocultural variables relevant to Hispanic youth smoking, but it did not account for other factors linked with smoking. Research shows that as Hispanics acculturate into the dominant U.S. culture, their smoking norms and attitudes more closely resemble those of the dominant U.S. culture, thereby increasing Hispanic smoking (Marin, Marin, Otero-Sabogal, Sabogal, & Perez-Stable, 1990). Girls may experience greater changes in smoking norms than boys due to gendered smoking norms in Hispanic culture (Marsiglia et al., 2010). This in turn may explain why girls' smoking is more influenced by acculturation than boys' smoking. Smoking onset has also been linked with genetic and biological factors (Heath, Kirk, Meyer, & Martin, 1999; Li, 2003). Therefore, future research on Hispanic youth smoking should extend our sociocultural model

with cognitive, genetic, and biological determinants of smoking. Moreover, all data were obtained via youth self-report preventingus from examining parents' and teachers' evaluations of youth smoking. Students may have underreported their cigarette use. Thus, future studies should collect data from various informants to avoid this self-report bias.

Despite these limitations, this study contributes to the research on Hispanic youth acculturation and smoking. We examined the process by which acculturation-related experiences unfold to influence each other to influence youth smoking, and we investigated how this process differed for boys and girls. We were able to identify promising areas for future prevention and intervention research. Hispanic youth are at risk for cigarette smoking, and they belong to the largest and fastest growing immigrant group in the United States. So, to the extent that acculturation leads to cigarette smoking, it is important to understand why.

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DECLARATION OF INTERESTS

None declared.

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