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Immigration and sexual partner risk among Latino adolescents in San Francisco

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Abstract

Background—Sexual partner characteristics increase risk for adverse reproductive health outcomes. Evidence is limited regarding whether choice of sexual partners among Latino adolescents changes with U.S. acculturation/adaptation.

Methods—We used generalized estimating equations to assess the associations between immigrant generation (recent immigrant, 1.5 [immigrated prior to adolescence], 2nd and 3rd) and sexual partner risk in a prospective cohort study of 411 Latino adolescents aged 14-19. We examined three measures of partner risk and mediating effects of family influence (familism and parental monitoring).

Results—The odds of reporting a partner with frequent substance use increased with increasing immigrant generation (odds ratios (OR) [reference=recent immigrants]: 2.3, 3.4, and 5.6) as did having a partner who was in a gang/incarcerated (OR [reference=recent immigrants]: 2.4, 3.6, and 5.7). Though the odds of having high-risk partners decreased with higher parental monitoring, neither family influence measure mediated these relationships.

Discussion—Findings underscore the need for a prevention focus on partner choice with attention to increased risk with increasing U.S. generation.

Keywords

Hispanic Paradox; Sexual Partners; Hispanic Americans; Adolescent; Immigration; Sexual Behavior; Generation 1.5

INTRODUCTION

Latinos constitute a large and growing minority group in the U.S., reaching 46.9 million in 2008, comprising 15.4% of the total U.S. population (1). This demographic trend is more pronounced in California where, in 2008, 36.6% of California's population was Latino (2), with Latinos comprising 41.9% of youth aged 15-24 (3). The Latina teen birth rate is the highest of any major racial/ethnic group in the United States; more than double the national average (4). In 2008, the Latino teen birth rate in California was 56.9 per 1000 females, compared to 39.9 among African Americans and 13.1 among Whites (5). Latino youth also

are disproportionately affected by sexually transmitted infections (STIs). In 2008, national rates of chlamydial infection among Latinos aged 15-19 were 1,873.6 (per 100,000 population) as compared to 849.3 among non-Latino whites (6).

Partner risk behaviors, including substance use, incarceration, gang affiliation and sexual partner concurrency, influence the disproportionately high rates of pregnancy and STIs experienced by Latino adolescents and have been shown to be as or more important than individual behaviors in influencing reproductive risk in youth generally (7-10). Among 15-25 year old clinic attendees in Florida, a composite partner risk measure that included incarceration, STI diagnosis, concurrency, and alcohol and marijuana use was independently associated with STI diagnosis (11). In a community-based predominantly Latino sample of female teens, partner gang affiliation was associated with increased risk of pregnancy (12). Similarly, in an ethnically diverse sample of detained male youth, gang-involved youth were more likely than non-gang involved detainees to have gotten someone pregnant, to have had sex while using alcohol or drugs, and to have had concurrent sex partners (13). In 2009, Latino youth comprised 57% of youth offenders in the California Juvenile Justice system (14) and constituted the majority of the estimated 10,000 gang members in the San Francisco Bay Area (15-16).

Immigration may assume a prominent role in influencing Latino adolescents' reproductive health with much epidemiologic research suggesting increased sexual risk with increased time in the U.S. (17-22). In analysis of waves 1 and 2 of the National Longitudinal Study of Adolescent Health (1994-96), Mexican-born adolescents reported lower rates of early sexual intercourse compared to U.S.-born Mexicans, but they were also less likely to use contraception at first intercourse (18). Likewise, among Latino participants in the National Longitudinal Survey of Youth (1997-2003), first generation youth were less likely than second and third generation youth to have become sexually active before age 18; however, compared to third generation peers, first generation males and second generation females had a lower odds of consistent condom and contraceptive use (23). Several other studies suggest changes in condom use with migration to the U.S., with higher condom use documented among Mexican migrants to the U.S. relative to their non-migrant Mexican peers (24). While research to date provides evidence that partner risk behaviors increase an individuals' risk of STIs and pregnancy, we are aware of no studies that have examined whether such factors vary between immigrant and U.S.- born Latino youth, and, in addition, between recent immigrants and generation 1.5 (immigrants who moved to the U.S. prior to adolescence).

Conceptual framework

This investigation is shaped conceptually as an examination of whether the "Hispanic Paradox" holds for sexual partner choice among Latino adolescents. This paradox emerged in research among adult Latina populations suggesting that despite lower socioeconomic status and poorer access to health care, immigrant Latinos tend to have better health outcomes than their U.S.-born counterparts (25). Among Latino adolescents, however, the findings are more inconsistent (20), and there has been little focus on partnership characteristics and partner risk behaviors known to be important in determining STI and pregnancy outcomes. In some studies of adolescents, lower acculturation (e.g., shorter time in the U.S.) has been associated with older age at sexual debut and fewer non-marital births (18, 26-28). Other studies, however, have documented the inverse relationship (29-30) or have found no differences in reproductive health behavior based on acculturation measures (31). Most studies of adolescents have examined this paradox among females only. Given evidence for gender differences in partnership patterns and risk-taking (21, 32), we examine whether relationships between immigrant generation and partner risk vary between male and female adolescents.

Family influence, articulated through parental monitoring and *familism*, a multi-dimensional cultural measure, may contribute to this paradoxical relationship found between immigration and reproductive health (33-34). Adherence to traditional cultural and familial values may change with more time in the U.S. which, in turn, may illuminate a trajectory of increased risk associated with separation from traditional cultural norms. In a study of middle-school aged Latino youth in New York City, Guilamo-Ramos *et al.* (35) found that low *familism* beliefs was predictive of sexual risk-taking for females (but not males). In addition, studies of adolescent sexual risk-taking and reproductive health have underscored the protective benefits of parental monitoring and communication (36). Thus, we consider both a cultural and a structural measure of family influence, adherence to traditional family norms (*familism* (37)) and parental monitoring, as potential mediators of the relationship between immigration and partner risk characteristics.

In this manuscript, we examine whether immigrant generation is associated with sexual partner risk behaviors among a population of Latino adolescents in San Francisco, California. We compare three measures of partner risk assessed prospectively (partner concurrency; partner substance use; and partner gang affiliation/incarceration). Furthermore, we evaluate the mediating effects of two measures of family influence on the relationship between immigrant generation and partner risk.

METHODS

Participants

We conducted a prospective cohort study with 555 adolescents aged 14-19 years who were recruited from a predominantly Latino neighborhood in San Francisco (the Mission Teen Health Project). Recruitment strategies included venue-based purposive sampling, direct recruitment from community agencies and friend referrals. Study methods have been described in detail elsewhere (21, 38-39). 411 participants in the Mission Teen Health Project identified as Latino/-a at enrollment (74% of total sample); 13.6% also cited other racial/ethnic affiliations (e.g., African American). This analysis includes all those youth who identified as Latino and who reported having had a sexual partner during at least one interval over the two-year observation period.

Data collection

Participants completed in-person study visits every six months over two years (up to five visits). Each visit consisted of an interviewer- or computer-administered questionnaire; urine and blood specimen collection for STI (chlamydia, gonorrhea and Herpes Simplex Virus-2) and pregnancy testing; and a brief reproductive health education session, including referrals, condom provision, and pregnancy options counseling. Participants with positive STI results were followed to confirm treatment, including treatment for current sexual partners. Study visits were conducted at our community-based study office, adjacent to a teen health clinic. Because gang affiliation limited the mobility of some youth, we also developed satellite interview sites at youth service agencies.

Measures

Exposure—We considered immigrant generation as our immigration measure. We created a four-level generation measure: recent immigrant (moved to the U.S. after age 10); 1.5 generation (immigrant and moved to the U.S. at age 10 or younger); 2nd generation (born in the U.S. but at least one immigrant parent); and 3rd generation (adolescent and parents born in the U.S. with at least one immigrant grandparent). The cut-point of age 10 was chosen to differentiate youth who immigrated to the U.S. prior to versus during adolescence, a relevant distinction when examining sexual risk (40).

Outcomes—Three prospective measures of sexual network risk constituted the primary outcomes examined and included a participant’s report of whether one or more of their partners: 1) had concurrent partners; 2) used alcohol and/or marijuana at least weekly; and 3) belonged to a gang or was incarcerated at any time during their sexual relationship. Participants’ reports of their partners’ behaviors were assessed for the four most recent sexual partners reported at each study visit.

Covariates—We measured baseline socio-demographic factors, including gender, age, maternal educational attainment, and crowded housing conditions (41) as potential confounders. We assessed baseline sexual history, including number of lifetime partners, age of coital debut, and condom use frequency in the previous six months as descriptive characteristics of the study population. Two measures of family influence assessed at baseline were included as potential mediators: an attitudinal 14-item *familism* scale (42) that assessed three dimensions of culturally-based *familism* (familial obligations [e.g., “Much of what a son or daughter does should be done to please the parents”], perceived support from family [e.g., “When someone has problems s/he can count on help from his/her relatives”], and family as referents [e.g., “The family should consult close relatives concerning its important decisions”]); and a four-item parental monitoring scale adapted from Jessor et al. (43) (e.g., “How much of the time do your parent(s)/guardian(s) generally know what you are doing when you’re away from home?”). Descriptive characteristics of partners included: Latino ethnicity; immigrant vs. U.S.-born; where the respondent met his/her partner(s); whether the respondent met their partner(s) in their neighborhood; and whether they considered the partners main or casual. We report on partnership characteristics at the first follow-up visit during which a participant reported being sexually active.

Analysis

We examined descriptive characteristics of respondents and their partnerships and compared these factors by immigrant generation using chi-square, t-tests, and Wilcoxon rank sum tests. To examine the relationship between immigrant generation and each of the partner risk outcomes we used generalized estimating equations (GEE) to accommodate the repeated measurements of partner risk within individuals over time. In multivariable analyses, we examined potentially confounding effects of baseline sociodemographic factors and effect modification by gender. We examined the potential mediating role of the two family influence measures on the relationship between immigrant generation and each partner risk measure added individually and jointly into the multivariable models.

Human Subjects Protection

All study procedures and interviews were approved by the Committee for Human Research at the University of California San Francisco. Participants or parents/guardians of minors gave informed consent prior to study enrollment. The institutional review board at RTI International approved this analysis.

RESULTS

A total of 411 Latino adolescents enrolled in the study with 84 percent of expected follow-up study visits completed (1718 of 2055). This analysis includes the 343 adolescents who were sexually active at baseline or during follow-up with sexual partnership data. Excluded were 58 youth (14 percent) who were not sexually active during the study and 10 sexually-active youth (2 percent) missing partnership data.

Study population characteristics

The mean age for participants was 16.6 years (table 1) and over half (55.4 percent) were female. Nearly 40% reported that their mothers had less than high school education and nearly half (45.9%) resided in crowded conditions. One in three were born outside the U.S.; Mexico and Central American countries constituted the predominant places of origin. Among immigrants, 58% immigrated to the U.S. after age 10 (“recent immigrants”). At baseline, 20% reported speaking and reading Spanish primarily or exclusively. Three-quarters of participants were sexually active at baseline and one-third began having sex by 14 years of age.

Partnership characteristics

At the first follow-up visit at which participants reported being sexually active, nearly two-thirds (63.1%) reported having only Latino partners and one-quarter (27.3%) reported having only immigrant partners during the previous six months (table 2). Nearly 40% of participants reported having casual partners. Though over half of participants (55.9%) reported meeting all of their sexual partners outside their neighborhood,¹ most met partners through friends and school and almost one-quarter met partners on the street. Compared to all other generations, a greater proportion of recent immigrants reported having only Latino partners (81.3%) and only immigrant partners. Having both Latino and non-Latino partners was reported by a greater proportion of generation 1.5 youth (32.6%). We found no differences by immigrant generation in partnership type (i.e., main, casual, both) nor in whether participants met partners in their neighborhood.

Partner risk behaviors over time

Overall, participants reported high levels of partner risk. At 40% of visits participants reported that they had a partner during the previous six months who had concurrent sexual partners, with little difference by gender (38.9% among males and 40.8% among females, $p=0.68$). At 52% of visits participants reported that they had a sexual partner who used alcohol and/or marijuana regularly. A higher proportion of females than males reported having a partner with regular substance use (58.0% vs. 42.2%, $p=0.0003$). At 38% of visits participants reported having a partner who was in a gang or incarcerated at the time they were having a sexual relationship, with this being much more common for females than males (53.7% vs. 17.7%, $p<0.0001$).

Effects of immigrant generation on partner risk profile

Despite gender differences in the overall levels of partner risk, no differences by gender in the direction or magnitude of these associations were found for any outcomes, so we present only combined estimates, adjusted for gender and age. Immigrant generation had no significant relationship with partner concurrency (odds ratios comparing 1.5, 2nd and 3rd generations to 1st generation were: 1.2, 1.3, and 1.7, respectively [table 3]). However, generation was significantly associated with having a partner who used alcohol and/or marijuana frequently (odds ratios comparing 1.5, 2nd and 3rd generations to 1st generation were: 2.3, 3.4, and 5.6, respectively), with evidence of a trend toward an increased odds of having a partner with frequent alcohol/marijuana use with increasing U.S. generation, even between recent immigrants and generation 1.5. Immigrant generation also was significantly associated with increased odds of having a partner who was in a gang and/or incarcerated

¹Though partners may be from other “neighborhoods” in many cases they attended the same school, affiliated with the same friends, and lived in great proximity to one another since neighborhood was self-defined based on social features rather than geographic boundaries.

during their relationship with increasing U.S. generation (odds ratios comparing 1.5, 2nd and 3rd generations to 1st generation: 2.4, 3.6, and 5.7, respectively).

Mediating role of family influence

Neither *familism* nor parental monitoring mediated the relationship between immigrant generation and either of the two partner risks for which significant differences by generation were found (table 4). Nonetheless, parental monitoring maintained an independent relationship with partner risk: stronger parental monitoring was associated with a decreased odds of choosing higher-risk partners.

DISCUSSION

The high proportion of sexual partnerships reported to be high-risk for STI transmission and pregnancy among this population of Latino adolescents in San Francisco underscores the need for a prevention focus on partner risk and the pattern of increased risk with increasing U.S. generation. The magnitude of partner risk was greatest among 2nd and 3rd generation youth; however, differences in partner risk profile were found even comparing recent immigrants and generation 1.5. Though a greater proportion of females than males reporting having high-risk partners, the magnitude and pattern of the associations between immigrant generation and partner risk were similar for females and males.

Other examinations of immigration-related measures and reproductive health have compared immigrants to U.S.-born populations without attention to differences within immigrant groups. A more nuanced understanding of how these changes in partner risk occur between 1st and 1.5 generations, as well as between generations 1.5 and 2, could offer insight into the origins of increased risk that builds among later generations (44). Sharing characteristics of first and second-generation immigrants, generation 1.5 youth may face distinct challenges including linguistic incompatibility with family members; conflicts over intergenerational values (45-46); and peer discrimination both from peers of the same ethnicity but of different immigrant generation and from U.S.-born peers of different ethnic backgrounds (46). Our finding that 1.5 generation youth were significantly more likely to have both Latino and non-Latino partners compared to all other immigrant groups may reflect a distinct identity formation and immigrant adaptation as they negotiate peer relationships and social norms (47-48). Aligning themselves with higher-risk second-generation youth could also contribute to their choice of higher-risk partners. Consequently, in addition to the clear need for interventions designed to reach 2nd and 3rd generation youth who, due to discrimination and persistent poverty, may experience limited future opportunities that minimize the perceived negative consequences of engaging in risk behavior (44), 1.5 generation youth represent an important group for targeted prevention. Likewise intervening with 1.5 generation youth could improve outcomes for their 2nd generation children.

That two measures of family influence, *familism* and parental monitoring, did not explain associations between immigrant generation and choice of higher-risk partners suggests that an examination of other contextual factors related to migration and adaptation could offer greater understanding of the mechanisms by which immigrant generation is associated with partner choices. However, stronger parental monitoring was found to be independently protective against selecting a high-risk partner when controlling for *familism*. This relationship suggests that not only does parental monitoring constitute a unique component of family influence, intervention strategies designed to improve positive monitoring techniques within families in this population may reduce adolescents' sexual risks.

A substantial body of literature has highlighted the important role that concurrent partnerships play in the spread of STIs. Despite high rates of partner concurrency in this

population of youth, that no differences were found by immigrant generation suggests concurrency is an key feature of sexual partnership norms for Latino youth in this community. Consequently, this finding points to the potential for amplified STI spread should sufficient levels of STI pathogens be introduced into the community (49). Partner concurrency, substance use and gang affiliation also reflect social network norms as indicated by the majority of youth reporting meeting their partners through friends or at school.

A closer examination of social networks could offer insight into tailoring interventions that address partner-risk behavior and the adoption of community norms following immigration. Another analysis of these data showed that having a gang-affiliated partner increased the risk of pregnancy (12). Thus, living in or migrating to a neighborhood with high levels of gang activity may affect the social network influence on partner selection, not only for U.S.-born youth, but also for recent immigrant and 1.5 generation youth seeking peer relationships and negotiating identity formation during adolescence (50). In another examination of the relationship between the recency of immigration and risk behavior, Blake et al. (51) found, among 2635 8th and 10th grade students in Massachusetts, that youth living in the U.S. six or fewer years reported lower alcohol and marijuana use compared with lifetime residents ($p < 0.001$); however, recent immigrants also reported greater peer pressure to engage in and less parental support to avoid risk behaviors ($p < 0.001$). These findings highlight the importance of attention to the social network, including peer, family, and community influences in the initiation of risk behavior among 2nd and 3rd generation youth as well as the vulnerability to negative peer pressure and the consequent adaptation of risk behavior among recent immigrants.

Our findings are limited by several study design issues. First, partner risk was reported by the index participant, not his or her partner and may be biased by participants' lack of knowledge of their partner's behavior. However, we would expect this measurement error to be non-differential and to bias estimates toward no effect of immigrant generation on partner risk. Second, though we defined a four-level immigrant generation measure that permitted estimation of effects, we had relatively small samples, reflected in the imprecise confidence intervals. Furthermore, addressing other migration characteristics (e.g., with whom migrated; established vs. new sending area) could be informative to the formation of sexual partnerships in the U.S. Finally, due to low prevalence of STIs within the community, we were not able to examine biological outcomes as measures of partner risk; nonetheless, our previous research indicated a relationship between partner gang affiliation and pregnancy (12).

New Contribution to the Literature

This study examined the relationship between immigrant generation and sexual partner risk using prospective data from a community-based sample of underserved Latino urban youth. It improves upon much past epidemiologic research through examination of a four-level generation measure, with differentiation between recent immigrants and youth who moved to the U.S. prior to adolescence (generation 1.5) and focus on established sexual partner risks rather than on individual-level behaviors alone. The significant increases in choice of higher-risk partners with increasing U.S.-generation, even within immigrant youth (generations 1 and 1.5), were found similarly for males and females. Finally, though parental monitoring reduced choice of high-risk partners, neither this measure nor the multi-dimensional *familism* mediated the relationship between immigrant generation and high-risk partner choice. Thus, further attention to how social networks and other neighborhood factors such as poverty and ethnic enclaves contribute to this pattern of increasing risk with increased time in the U.S. appears warranted.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Baseline Sociodemographic Characteristics, Cultural Factors and Sexual Behaviors
Latino Youth, Mission Teen Health Project, San Francisco: 2001-2004

Total	N 343	Percent
Sociodemographic Factors		
Mean age in years (SD)	16.6	(1.6)
Gender		
Female	190	55.4
Male	153	44.6
Low maternal education (< high school)	123	38.4
Reside in crowded housing (¹)	156	45.9
Married or engaged	10	2.9
Cultural Factors		
Language(s) spoken and read currently		
English	182	54.3
Spanish	61	18.2
English and Spanish used equally	92	27.5
Immigrant Generation (²)		
Recent immigrant	62	18.2
1.5 generation	44	12.9
2nd generation	183	53.7
3rd generation	52	15.3
Weekly religious service attendance (previous 6 months)	71	20.7
Religious affiliation		
Catholic	252	74.6
Protestant	73	21.6
Other	20	5.9
Mean <i>familism</i> (SD) (³)	2.3	(0.42)
Mean parental monitoring (SD)	2.5	(0.96)
Baseline Sexual Behaviors		
Sexually active	262	76.4
Early coital debut (<= age 14)	117	34.1
Mean lifetime no. partners (SD) (N=256)	4.9	(5.65)
Condom use frequency (previous 6 months) (N=231)		
Always	77	33.3
Sometimes	117	50.7
Never	37	16.0

1) Crowded based on U.S. Census definition: >1 person/room.

2) 50% of immigrants born in Mexico, 21% El Salvador, 12% Guatemala, 17% other Latin American country.

3) 14-item scale measures three dimensions of *familism*: familial obligations; perceived support from the family; and family as referents (mean of 5-point scale).

4) 4-item parental monitoring scale (mean of 4-point scale).

Table 2

Descriptive Partnership Characteristics
 Latino Youth, Mission Teen Health Project, San Francisco: 2001-2004

	<i>N</i> ¹	Percent
Partner ethnicity		
Latino only	202	63.1
Non-Latino only	53	16.6
Both	65	20.3
Partner nativity		
U.S.-born only	201	64.6
Immigrant only	85	27.3
Both	25	8.0
Partnership type		
Main partners only	201	62.8
Casual partners only	58	18.1
Both	61	19.1
Neighborhood Mixing		
Met partner(s) in neighborhood only	107	34.0
Met partner(s) outside neighborhood only	176	55.9
Both	32	10.2
How met partner(s) ²		
Family	20	6.2
Friends	97	30.2
School	126	39.3
On the street	75	23.4

1) Partnership data from first follow-up visit at which participants reported sexual activity summarized within individuals (N=321).

2) Total sums to more than 100% because participants could chose more than one response option.

Table 3

Relationship between Immigrant Generation and Partner Risk Characteristics
 Latino Youth, Mission Teen Health Project, San Francisco: 2001-2004

Generation	Overall			Partner Concurrency			Frequent Alcohol/Marijuana Use			Gang Affiliation/Incarceration		
	N=341	%		% Yes	Odds Ratio ¹	95% CI	% Yes	Odds Ratio ¹	95% CI	% Yes	Odds Ratio ¹	95% CI
Recent immigrant	62	18.2	33.3	-	-	-	24.2	-	-	17.2	-	-
1.5 generation	44	12.9	36.7	1.2	(0.6, 2.2)	43.4	2.3	(1.1, 5.0)*	32.9	2.4	(1.1, 5.4)*	
2nd generation	183	53.7	40.4	1.3	(0.8, 2.2)	56.7	3.4	(1.9, 6.3)**	42.7	3.6	(1.9, 6.7)**	
3rd generation	52	15.3	47.8	1.7	(1.0, 3.1)	66.7	5.6	(2.5, 12.3)**	49.7	5.7	(2.8, 11.4)**	

1) Estimates are derived using GEE and are adjusted for gender and age.

* p<0.05

** p<0.001.

Table 4

Analysis of Mediating Effects of Family Influence on Relationship between Nativity and Partner Risk Latino Participants, Mission Teen Health Project, San Francisco: 2001-2004

	Model 1	Model 2	Model 3
	Nativity & Familism	Nativity & Parental Monitoring	Nativity, Familism & Parental Monitoring
	OR (95% CI)	OR (95% CI)	OR (95% CI)
<i>Outcome: Partner Used Alcohol/Marijuana Frequently</i>			
Immigrant Generation (¹)			
1.5 Generation	2.2 (1.0, 4.8) *	2.2 (1.1, 4.6) *	2.1 (1.0, 4.5) *
2nd Generation	3.3 (1.2, 6.1) **	3.2 (1.7, 5.9) **	3.1 (1.7, 5.8) **
3rd Generation	5.4 (2.4, 12.0) **	5.4 (2.5, 11.8) **	5.2 (2.4, 11.5) **
Family Influence			
Familism	1.0 (0.9, 1.2)	-	1.0 (0.87, 1.2)
Parental Monitoring	-	0.7 (0.6, 0.9) **	0.7 (0.5, 0.8) **
<i>Outcome: Partner Gang Affiliated/Incarcerated</i>			
Immigrant Generation (¹)			
1.5 Generation	2.3 (1.1, 5.2) *	2.3 (1.0, 4.9) *	2.2 (1.0, 4.8)
2nd Generation	3.4 (1.8, 6.5) **	3.1 (1.6, 5.9) **	3.0 (1.6, 5.7) **
3rd Generation	5.5 (2.7, 11.1) **	5.3 (2.6, 10.7) **	5.1 (2.5, 10.4) **
Family Influence			
Familism	1.1 (1.0, 1.3)	-	1.1 (0.9, 1.2)
Parental Monitoring	-	0.7 (0.6, 0.9) **	0.7 (0.6, 0.9) **

* p<0.05

** p<0.001.

1) Reference is 1st generation, recent immigrant.