Published in final edited form as:

J Adolesc Health. 2014 May ; 54(5): 587–592. doi:10.1016/j.jadohealth.2013.10.004.

Sibling Influence on Mexican-Origin Adolescents' Deviant and Sexual Risk Behaviors: The Role of Sibling Modeling

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Abstract

Purpose—A growing body of research indicates that siblings uniquely influence each other's health risk behaviors during adolescence and young adulthood. Mechanisms underlying these associations, however, are largely unknown because they are rarely tested directly. The present study addressed this gap by examining the role of sibling modeling in explaining changes in Mexican-origin youths' deviant and sexual risk behaviors over time.

Methods—The sample included 380 Mexican-origin siblings (older sibling age: $M = 21.18$, $SD = 1.59$; younger sibling age: $M = 18.19$, $SD = .46$) from ($N = 190$) families. Participants provided self-reports of their sibling relationship qualities, including modeling, as well as their engagement in deviant and sexual risk taking behaviors in two home interviews across a two-year span.

Results—A series of residualized regression models revealed that younger siblings' perceptions of modeling moderated the links between older siblings' deviant and sexual risk behaviors and younger siblings' subsequent behaviors in those same domains. Specifically, high levels of modeling predicted stronger associations between older siblings' earlier and younger siblings' later risk behaviors controlling for younger siblings' earlier behaviors as well as variables that have been used as proxies for social learning in previous research.

Conclusions—Social learning mechanisms, especially modeling, are salient processes through which older siblings transmit norms and expectations regarding participation in health risk behaviors. Future research should continue to explore the ways in which siblings influence each other because such processes are emerging targets for intervention and prevention.

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Keywords

deviancy; Mexican-origin adolescents; modeling; sexual risk taking; sibling influence; sibling relationships; social learning

Introduction

A growing body of research documents similarities between adolescent siblings in a number of health-related domains, including deviant behaviors and externalizing problems [1, 2], substance use [3, 4] and sexual attitudes and behaviors [5, 6]. Importantly, behavioral genetic investigations have found that similarities between siblings in these domains exceed the influence of shared genetics and shared parenting [7, 8, 9], suggesting that sibling similarities arise via some form of social influence. Unfortunately, the processes that undergird sibling similarities are not well understood because they are rarely tested directly and instead inferred post hoc. The present study addressed this gap by examining the role of sibling modeling in explaining similarities in Mexican-origin siblings' deviant and sexual risk behaviors across the transition to adulthood. Examining sibling similarity processes, especially in the development of siblings' risky health behaviors, is crucial in furthering our knowledge of sibling dynamics and most importantly, in providing critical information for intervention programs aimed at reducing risk behaviors.

To date, most research on siblings comes from European and European American families. Surprisingly, little work has considered the nature and implications of sibling relationships for adolescents' adjustment in Mexican-origin families despite the fact that sibship sizes are larger in these families [10] and siblings in Mexican-origin families spend more time together than brothers and sisters from European American families [11]. Therefore, in addition to shedding light on how siblings socialize and influence each other's health-related behaviors during adolescence and early adulthood, this study also addresses a critical gap in the literature on the implications of sibling relationships for risky health behaviors in an understudied population.

Social Learning and Sibling Similarities in Delinquency and Sexual Behaviors

In general, most social learning theories suggest that youth acquire attitudes, skills, and behaviors through the observation of others and social reinforcement [12]. Given their ubiquity during childhood and adolescence [11, 13], as well as the unique role structure of the sibling relationship [14, 15], older siblings are especially powerful models for their younger siblings. In fact, given their advanced age and development, older siblings may be particularly important models for age-graded risk-taking behaviors.

With social learning as their basis, a number of studies have documented similarities between adolescent-age siblings' risk taking and deviant behaviors [2, 16] as well as substance use [3, 4, 17]. Yet, with the exception of seminal observational work by Patterson [16], most of this work invokes social learning as a post hoc explanation for sibling similarities or tests social learning principles indirectly. For example, consistent with social learning principles that observation and subsequent imitation are likely when models are

warm and nurturing and also share qualities similar to the observer, studies have documented that similarities in siblings' deviant behaviors and substance use were most evident when siblings: (a) reported warm and intimate relationships [2, 3, 18]; and (b) were the same gender and close in age [18, 19].

In addition to deviant behaviors, siblings are important socializers of adolescent sexuality [5]. In fact, research reveals that older brothers and sisters can play a role in increasing younger siblings' problematic sexual attitudes and behaviors. Specifically, researchers have found that adolescents with sexually active older siblings are more likely to have engaged in sexual intercourse than are adolescents with non-sexually active older siblings [20]. East and colleagues' work on older sisters' influence on sexual and childbearing behaviors and attitudes in Latino and African American families has revealed that having an older sister who is a teen mother is associated with younger sisters' greater likelihood of engaging in sexual intercourse at an early age [21], increased likelihood of early childbearing [22], and greater risk for increased frequency of sex over time [23]. Importantly, consistent with social learning principles, Latino younger siblings who perceived their older sisters as powerful were more likely to partake in risky sexual behaviors [24]. Similarly to work on risk taking and delinquency, researchers have indirectly tested social learning mechanisms as explanations for sibling similarities in sexual attitudes and behaviors as well. For example, using data from the National Longitudinal Study of Adolescent Health, McHale and colleagues [6] found sibling similarities in risky sexual attitudes (e.g., beneficial or negative consequences of engaging in sexual behaviors and risky attitudes toward pregnancy) and behaviors (e.g., number of partners in the last 12 months and number of lifetime sexual partners) were strongest when siblings reported close relationships.

Current Study

Taken together, research on delinquency and adolescent sexuality clearly implicates social learning processes as potential explanations for sibling similarities. Unfortunately, because social learning mechanisms have rarely been assessed directly, it is unclear as to whether proxy variables used in previous work (e.g., sibling warmth/closeness, age-spacing) adequately capture modeling processes or are uniquely associated with adolescent outcomes. Additionally, with few exceptions, most previous work on sibling similarities is limited by the fact that influence processes and sibling similarities are measured concurrently (i.e., cross-sectional), which may inflate associations. In the present study, we address these limitations by directly assessing younger siblings' perceptions of modeling their older brothers' and sisters' behaviors and linking those perceptions to sibling similarities in a sample of Mexican-origin adolescents. Importantly, using longitudinal data, we examine whether younger siblings' modeling is uniquely associated with their later deviant and sexual risk behaviors above and beyond the influence proxy variables used in previous research (i.e., sibling warmth, gender composition, and age-spacing). On the basis of social learning theory, we expected that older siblings' deviant and sexual risk behaviors would be more predictive of younger siblings' subsequent risk behaviors when younger siblings reported a high degree of modeling. Additionally, because models are expected to be most powerful when they are similar [12], we tested whether the links between modeling and sibling similarities were further moderated by the gender composition of the sibling dyad

(same- versus mixed-gender) and age-spacing. We expected that associations between older and younger siblings' behaviors would be stronger for siblings who shared the same gender and were closer in age.

Method

Participants

Data came from a longitudinal study of family processes and youth development [11]. Mexican-origin families with a 7th grader (i.e., target adolescent and younger sibling in the study) were recruited from schools in and around a large southwestern metropolitan area. The percent of students receiving free/reduced lunch varied from 8% to 82% across schools. Eligibility requirements included that (a) the target adolescent (i.e., younger sibling) and at least one older adolescent sibling were living at home with their biological mothers and biological or long-term adoptive fathers (i.e., 10 years or more), (b) mothers were of Mexican origin; and (c) fathers were working at least 20 hours/week (given the larger study's interest in parents' roles). Although not a requirement, 93% of fathers also were of Mexican descent.

The larger study consists of four waves of data. This study focused on data from Time 3 (T3) and Time 4 (T4) when variables of interest were administered. At T3 and T4, 75% ($n = 184$) and 70% ($n = 173$) of original families participated, respectively. The current analyses included younger and older siblings who had data on the variables of interest at either of the latter two waves ($n = 190$). Families that were excluded from the current analyses ($n = 56$) reported lower T1 income ($M = \$36,229$; $SD = \$29,378$ vs. $M = \$59,229$; $SD = \$47,717$), T1 parental education ($M = 8.92$; $SD = 3.49$ vs. $M = 10.45$; $SD = 3.67$), and were more likely to have offspring born in Mexico (57% vs. 32% and 59% vs. 43% for younger and older siblings, respectively). These 190 families represented a range of socioeconomic levels, with a median annual household T3 income of \$48,500 ($SD = \$47,717$; range = \$9,400 to \$250,000). Mothers and fathers completed an average of 10.69 ($SD = 3.73$) and 10.23 ($SD = 4.38$) years of education, respectively. Parents were most likely to be born in Mexico (i.e., 66%), whereas younger and older siblings were most likely to be born in the U.S. (i.e., 68% and 57%, respectively). At T3, younger siblings were 18.19 years of age ($SD = .46$) and 52% female, and older siblings were 21.18 years of age ($SD = 1.59$) and 48% female. T4 interviews took place two years later.

Procedures

At T3 and T4, home interviews were conducted by bilingual interviewers separately with each family member using laptop computers. Informed consent was obtained from each family member prior to their interview. All items were read aloud in participants' preferred language: English (37% parents; 88% siblings) or Spanish (63% parents; 12% siblings). Participating families received an honorarium at T3 (\$125) and each family member was paid separately at T4 (\$75). The Institutional Review Board approved all procedures.

Measures

Background Characteristics (T1; T3)—Parents reported on each sibling's country of birth and gender at T1. Family SES at T3 was calculated by standardizing maternal and paternal education levels and family income (after family income was log transformed to correct for skewness) and averaging all three scores. (See Table 1 for Cronbach's alphas for all measures.)

Sibling Modeling (T3)—Younger siblings' modeling of their older siblings' behaviors was indexed via an eight-item measure developed by Whiteman and colleagues [25, 26]. On a scale ranging from 1 (*never*) to 5 (*very often*) younger siblings reported how often they tried to be like their sibling, the degree to which their sibling set a positive example, and the extent to which their sibling encouraged them to participate in particular activities. Items were averaged such that higher scores indicated greater modeling.

Sibling Intimacy (T3)—Younger siblings rated the degree of emotional intimacy they felt with their older sibling using an 8-item scale developed by Blyth and Foster-Clark [27]. Items were rated by each sibling on a 5-point scale (1 = *Not at all* to 5 *Very much*). Scores were averaged across the items and higher scores reflected greater sibling intimacy.

Deviant Behaviors (T3; T4)—Older siblings' (T3) and younger siblings' (T3, T4) reports of their involvement in 23 deviant behaviors (e.g., done something dangerous just for the thrill of it, contact with police, gotten drunk or high, stole something) in the past 12 months were assessed with a scale developed by Eccles and Barber [28]. Older and younger siblings reported on the frequency of engagement in each item on a 4-point scale (1 = *Never* to 4 = *More than 10 times*). Items were averaged such that higher scores indicated greater involvement in deviant activities.

Sexual Risk Behaviors (T3; T4)—Older and younger siblings rated three items from the National Study of Adolescent Health (Add Health) [29] to assess their involvement in risky sexual behaviors in the past 12 months. These items included: (a) the number of sexual partners; (b) the frequency of sexual relations under the influence of drugs or alcohol; and (c) the frequency of sexual relations without contraception. The latter two items were rated on a 4-point scale (1 = *Never* to 4 = *More than 10 times*). Items were standardized and averaged to create the scale score, with higher scores reflecting more involvement in sexual risk behaviors.

Results

Table 1 presents the correlations, means, and standard deviations for study variables. To address the current study's research questions, a series of residualized change regression models were conducted in MPLUS Version 6.1. Specifically, younger siblings' T4 outcomes (i.e., deviant behaviors, sexual risk taking) were regressed onto older and younger siblings' T3 outcomes (i.e., deviant behaviors, sexual risk taking), younger siblings' modeling (T3), and the interaction between older siblings' T3 outcome and younger siblings' modeling. Additionally, variables used as proxies for modeling in previous work including sibling intimacy at T3, gender composition of the sibling dyad (0 = mixed gender, 1 = same

gender), and age-spacing as well as family socioeconomic status, gender, and nativity were included as controls in all analyses (as described below, gender composition and age-spacing were also tested as potential moderators). All variables were grand-mean centered and interaction terms (i.e., older siblings' outcome X younger siblings' modeling) were created by multiplying centered variables. In the first model, main effects and control variables were included, followed by the interaction term (Model 2). Significant interactions were probed using procedures outlined by Aiken and West [30]. Missing data was handled using full information maximum likelihood [31].

To examine whether the effects of younger sibling modeling were further moderated by sibling gender constellation or age-spacing, two additional models were tested. With respect to gender constellation, a multi-group analysis was conducted with dyad gender constellation as the grouping variable (0 = opposite gender, 1 = same gender). First, an unconstrained model was run followed by a model in which the main effects and interaction term were constrained to be equal across groups. A log-likelihood ratio test was conducted to see if constraining the model reduced model fit (suggesting moderation by sibling gender constellation). To examine moderation by age-spacing between siblings, a three-way interaction was created between T3 older siblings' outcome, younger sibling modeling, and age gap.

Deviant behaviors

As seen on the left side of Table 2 (Model 1a), results revealed some stability in younger siblings' deviant behaviors over time. Specifically, younger siblings' participation in T3 deviant behaviors was a significant predictor of their T4 deviant behaviors (neither older siblings' T3 deviant behaviors or younger siblings' T3 modeling were significant predictors). Consistent with hypotheses, however, Model 1b revealed a significant interaction between older siblings' deviant behaviors and younger siblings' modeling above and beyond the effects of younger siblings' T3 behaviors. Probing of the interaction revealed that at high levels of modeling (1 *SD* above the mean), older siblings' T3 deviant behaviors were positively associated with younger siblings' T4 deviant behaviors, [$b = .32$, $SE = .12$, $p = .01$]. At low levels of younger sibling modeling (1 *SD* below the mean), however, there was no relation between older and younger siblings' deviant behaviors [$b = .01$, $SE = .10$, ns] (see Figure 1). Multi-group analyses by sibling gender constellation revealed no difference across same gender and opposite gender sibling dyads [$\chi^2(3) = 4.65$, ns]. Further, no significant interactions involving sibling age-spacing emerged (not shown in Table 2).

Sexual risk behaviors

Similarly to deviant behaviors, results revealed some stability in younger siblings' sexual risk behaviors from T3 to T4, but no significant effects for older siblings' T3 sexual risk behaviors or younger siblings' T3 modeling on younger siblings' T4 sexual risk behaviors (see Table 2, Model 2a). Again, consistent with hypotheses, older siblings' T3 sexual risk behaviors interacted with younger siblings' sibling T3 modeling to predict younger siblings' T4 sexual risk behaviors above and beyond the younger siblings' earlier risk behaviors (Model 2b). As seen in Figure 2, probing of the interaction revealed that at high levels of sibling

modeling (1 *SD* above the mean), older siblings' T3 sexual risk behaviors were positively linked to younger siblings' T4 sexual risk behaviors [$b = .36, SE = .12, p = .01$]. At low levels of younger sibling modeling (1 *SD* below the mean), however, there was a negative association between older siblings' T3 sexual risk behaviors and younger siblings' T4 sexual risk behaviors [$b = -.24, SE = .13, p = .05$]. Multi-group analyses by sibling gender constellation revealed no difference across same- and opposite-gender sibling dyads [$\chi^2 (3) = 1.16, ns$]. Further no significant interactions involving siblings' age-spacing emerged (not shown in Table 2).

Discussion

Accumulating evidence highlights that siblings (especially older siblings) are important socializers of health risk behaviors in adolescence and early adulthood [3, 4, 5, 6]. Unfortunately, the processes by which siblings influence each other are not well understood because they are rarely the focus of empirical inquiry. The present study addressed this gap by directly assessing and connecting younger siblings' reports of modeling their older siblings' behaviors to their own deviant and sexual risk taking behaviors across the transition to adulthood. Importantly, we explored these dynamics in Mexican-origin families, an understudied population in which sibling relationships have been shown to be highly influential [11].

Consistent with earlier work indirectly linking social learning processes to similarities between siblings' health risk behaviors [2, 3, 6, 17, 18], we found that younger siblings' reports of modeling moderated the linkages between their older siblings' deviant and sexual risk taking behaviors and their participation in those same behaviors two years later, while controlling for younger siblings' earlier- risk behaviors. Specifically, older siblings' risk behaviors were positively associated with younger siblings' deviant and sexual risk taking behaviors when younger siblings reported a high degree of modeling. In contrast, when younger siblings reported low levels of modeling their older brothers' and sisters' behaviors, there was no association between older and younger siblings' deviant behaviors and a negative association for sexual risk taking behaviors. This latter finding is interesting, as low reports of modeling may reflect the operation of a different influence process, namely sibling differentiation (or deidentification). In general, differentiation theories suggest that siblings may consciously or unconsciously choose different niches and engage in different behaviors to protect themselves from social comparison and rivalry [32, 33]. Although typically studied in areas such as personality and temperament, a few recent studies highlight that siblings' differentiation efforts are indeed linked to differences in their health risk attitudes and behaviors during adolescence [26, 34].

Our findings are consistent with earlier work invoking social learning processes as explanations for sibling similarities, but our results suggest that modeling dynamics are not fully captured by proxy variables such as sibling closeness, age-spacing, and gender composition used in previous work. That is, our results indicate the moderating effects of sibling modeling were unique, net of sibling intimacy, age-spacing, and gender composition. Inconsistent with social learning principles which suggest that models that are similar to the observer would be more salient, we did not find that age-spacing and gender composition

further moderated the links between modeling and older and younger siblings' health risk behaviors. It is possible that by directly assessing youths' perceptions and efforts of modeling, the more distal markers of similarity become less relevant. It is also possible that gender and age-spacing are inadequate markers of similarity. As such future research should consider whether similarities in siblings' personal characteristics, such as personality and temperament, moderate the links between sibling influence processes and siblings' behaviors and activities.

This study adds to the literature in its attempt to elucidate the mechanisms that underlie similarities between adolescent and young adult siblings, but also has a few notable limitations. First, the utilization of an ethnic homogenous design restricts the ability to generalize the findings to youth from other racial and ethnic backgrounds. It is possible, for example, that sibling influence dynamics are stronger among Mexican-origin youth given their ubiquity [11] and cultural values such as familism which emphasize loyalty, reciprocity, and solidarity among family members [35]. Additionally, given that our sample included longitudinal data from two-parent families, our results may not generalize to the full spectrum of Mexican-origin families. Second, because our data were not drawn from a genetically informed sample, we were unable to examine the extent to which sibling similarities may have been grounded in genetic similarity or shared environments (including shared parenting). Although behavioral genetic work indicates that social influence processes play a unique role in shaping sibling' risky behaviors [7, 8, 9], future work would benefit from the examination of how social, genetic, and environmental effects interact to influence youths' behaviors. Third, the measure of sibling modeling also included a few items that could index shared participation in activities [25, 26]. Future work should investigate how modeling and joint engagement in activities mutually influence sibling' health risk behaviors. Fourth, this study considered sibling influence as a top-down process, occurring from older to younger siblings. To date, little is known about the ways in which younger siblings may influence their older brothers' and sisters' attitudes, behaviors, and activities. Given that sibling relationships are reciprocal, it is critical that future work consider how younger siblings affect their older counterparts to advance our understanding of how and when sibling influence occurs. Finally, this study focused on sibling influences on adolescents' risky health behaviors. It is important for future work to explore how brothers and sisters influence each other's positive health behaviors, such as nutrition, exercise, and normative sexual development.

Despite these limitations, this study adds to a growing body of work highlighting the ways in which brothers and sisters influence each other's health risk behaviors during adolescence. Findings indicated that social learning processes, especially modeling, undergird sibling similarities in deviant and sexual risk taking behaviors over time. The identification of the processes by which siblings influence one another is critical, as such knowledge is essential for the development of effective family-based intervention programs aimed at curbing adolescent risk behaviors. In fact, intervention programs specifically targeting sibling relationships may be especially effective given their ability to promote health and well-being as well as their less stigmatizing entrée into the family [36, 37].

Acknowledgments

We are grateful to the families and youth who participated in this project, and to the following schools and districts who collaborated: Osborn, Mesa, and Gilbert school districts; Willis Junior High School; Supai and Ingleside Middle Schools; St. Catherine of Siena; St. Gregory; St. Francis Xavier; St. Mary-Basha; and St. John Bosco. We thank Susan McHale, Ann Crouter, Adriana Umaña-Taylor, Mark Roosa, Nancy Gonzales, Roger Millsap, Jennifer Kennedy, Leticia Gelhard, Melissa Delgado, Emily Cansler, Shawna Thayer, Devon Hageman, Norma Perez-Brena, Lorey Wheeler, Ji-Yeon Kim, Lilly Shanahan, Chum Bud Lam, Megan Baril, Anna Solmeyer, and Rajni Nair for their assistance in conducting this investigation. Funding was provided by NICHD Grant R01 HD39666 (Updegraff, PI), NIAAA Grant R21 AA017490 (Whiteman, PI), and the Cowden Fund to the T. Denny Sanford School of Social and Family Dynamics at ASU.

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Implications and Contributions

This study explored the role of social learning, in particular modeling, in explaining similarities in late adolescent and young adult siblings' health risk behaviors. Findings suggest that younger siblings' modeling of their older brothers and sisters is related to increased similarity in deviant and sexual risk taking behaviors over time.

Figure 1.

Relation between older siblings' (OS) deviant behaviors at Time 3 and younger siblings' (YS) deviant behaviors at Time 4 as a function of younger siblings' reports of modeling at T3 controlling for younger siblings' Time 3 deviant behaviors. *ns* = non-significant slope, ** slope is significant at $p < .01$.

Figure 2.

Relation between older siblings' (OS) sexual risk taking at Time 3 and younger siblings' (YS) sexual risk taking at Time 4 as a function of younger siblings' reports of modeling at T3 controlling for younger siblings' sexual risk taking at Time 3. *slope is significant at $p < .05$; ** slope is significant at $p < .01$.

Table 1

Correlation, Means, and Standard Deviations for Study Variables for the Overall Sample

	1	2	3	4	5	6	7	8	9	10	11
1. SES	--	0.04	0.32	0.15	0.08	0.01	0.01	0.05	0.02	0.11	0.09
2. Gender		--	-0.01	-0.31	-0.23	0.01	-0.24	-0.26	-0.01	0.21	0.25
3. Nativity			--	0.06	0.09	0.08	-0.01	0.08	0.17	-0.05	-0.05
4. YS Deviant behaviors T3				--	0.73	0.16	0.57	0.43	0.25	-0.11	-0.02
5. YS Deviant behaviors T4					--	0.25	0.41	0.58	0.21	-0.01	0.03
6. OS Deviant behaviors T3						--	0.17	0.12	0.55	-0.25	-0.23
7. YS Sexual risk taking T3							--	0.47	0.31	-0.10	0.01
8. YS Sexual Risk taking T4								--	0.16	-0.14	-0.01
9. OS Sexual Risk taking T3									--	-0.07	-0.04
10. YS Modeling T3										--	0.71
11. YS Intimacy T3											--
Overall											
<i>Mean</i>	-0.03	0.52	0.68	1.53	1.47	1.46	0.00	0.00	0.00	2.89	3.58
<i>Standard deviation</i>	0.86	0.50	0.47	0.40	0.40	0.37	0.75	0.73	0.76	0.84	0.79
<i>Minimum value</i>	-5.74	0.00	0.00	1.00	1.00	1.00	-55	-73	-76	1.00	1.50
<i>Maximum value</i>	1.75	1.00	1.00	2.91	3.43	2.78	2.82	2.75	2.94	4.75	5.00
<i>Cronbach's α</i>	0.75	--	--	0.88	0.88	0.86	0.62	0.59	0.64	0.87	0.86

Note. SES = family socio-economic status; YS = younger sibling; OS = older sibling; T3 = time 3; T4 = time 4; Gender is coded 0 = male, 1 = female; Nativity is coded 0 = Mexico born, 1 = U.S. born. Bold coefficients are significant at $p < .05$.

Table 2

Results of residualized regression models predicting younger siblings' health risk behaviors at T4 as a function of older and younger siblings' T3 health risk behaviors and younger siblings' modeling (N = 190)

Predictors	Younger sibling deviant behaviors (T4)			Younger sibling sexual risk taking (T4)	
	Model 1a	Model 1b	Model 2a	Model 2b	Model 2b
<i>Intercept</i>	1.47 (.05)***	1.48 (.05)***	0.13 (.12)	0.15 (.12)	
<i>Younger sibling outcome (T3)</i>	0.70 (.06)***	0.70 (.06)***	0.40 (.08)***	0.41 (.08)***	
<i>Younger sibling intimacy (T3)</i>	-0.01 (.04)	-0.01 (.04)	0.13 (.11)	0.16 (.10)	
<i>Family SES (T3)</i>	-0.03 (.04)	-0.03 (.04)	0.04 (.09)	0.01 (.09)	
<i>Younger sibling gender</i>	-0.05 (.05)	-0.05 (.05)	-0.29 (.11)*	-0.26 (.11)*	
<i>Younger sibling nativity</i>	0.07 (.05)	0.06 (.05)	0.15 (.12)	0.13 (.12)	
<i>Sibling gender constellation</i>	-0.03 (.04)	-0.02 (.04)	-0.12 (.11)	-0.12 (.10)	
<i>Sibling age spacing (T3)</i>	0.02 (.01) [†]	0.02 (.01) [†]	0.01 (.03)	0.00 (.03)	
<i>Older sibling outcome (T3)</i>	0.13 (.08)	0.16 (.08)*	0.06 (.09)	0.06 (.08)	
<i>Younger sibling modeling (T3)</i>	0.07 (.04) [†]	0.07 (.04) [†]	-0.11 (.10)	-0.13 (.09)	
OS outcome X YS modeling (T3)		0.19 (.09)*		0.36 (.11)***	

Note. Italicized variables names represent control variables. YS = younger sibling; OS = Older sibling; SES = Socioeconomic status, T3 = Time 3; T4 = Time 4; Gender is coded 0 = male, 1 = female; Nativity is coded 0 = Mexico born, 1 = U.S. born. Sibling gender constellation is coded 0 = mixed gender, 1 = same gender.

[†] p .10,
 * p .05,
 ** p .01,
 *** p .001