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The Longitudinal Impact of Perceptions of Parental Monitoring on Adolescent Initiation of Sexual Activity

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Abstract

Purpose: The association between parental monitoring and adolescent behavior is well established. Past research suggests that parents monitor adolescent activities through parental control, solicitation of information, and youth disclosure, which increase parents' knowledge of youth activity leading to decreased risk behavior. However, there is mixed evidence of the impact of these efforts on sexual behavior. We examined these strategies from the adolescent perspective and assessed their impact on the initiation of sexual activity across the transition from middle school to high school.

Methods: Analyses include 533 primarily Latino adolescents, who had not yet had sex in eighth grade and were surveyed yearly through 10th grade.

Results: Adolescents who in eighth grade reported greater parental knowledge and more family rules about dating were less likely to initiate sex between eighth and 10th grade. Exchange of information, through parental solicitation and youth disclosure, and parental control, through rules about friends and dating, as well as maternal relationship satisfaction were significant predictors of parental knowledge. There were no gender differences in the impact of dating rules and parental knowledge on sexual initiation, but the paths to acquiring knowledge did differ by gender.

Conclusions: Results suggest that parental monitoring at earlier ages has an impact on sexual initiation. Effective monitoring is an active process within a family that includes setting boundaries and exchanging information. Interventions that encourage family rules, provide strategies for improving parental solicitation of information, and increase youth disclosure by enhancing the maternal-child relationship may be more likely to impact sexual initiation.

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Keywords

Parental monitoring; Sexual behavior; Adolescents

Despite improvements, adolescents in the United States continue to experience negative sexual and reproductive health outcomes. Of the 1.4 million cases of Chlamydia reported in 2014, 26% occurred in 15–19 year olds and 39% in 20–24 year olds [1]. In 2010, youth made up 17% of the US population, but accounted for an estimated 26% of all new HIV infections [2]. In 2014, despite improvement, the US teen birth rate continues to rank highest among developed nations and substantial racial/ethnic disparities persist [3,4]. These data highlight the need to improve prevention strategies with youth and with those who directly impact youth.

The association between parental monitoring and adolescent health is well established [5–11]. Studies have consistently shown that parental monitoring is related to decreased sexual initiation, increased condom use, and decreased sexually transmitted disease (STD) and pregnancy [5,8,9,11–20]. In an effort to develop interventions to improve monitoring, a clearer understanding of effective monitoring strategies is warranted.

Most studies of parental monitoring and adolescent risk behavior have focused on parents' knowledge of adolescents' activities, peers, and whereabouts rather than the processes by which parents acquire that knowledge [21,22]. An examination of measures used in assessing the relationship between parental monitoring and sexual risk behavior suggests that investigators have either directly assessed parental beliefs about their knowledge (e.g., "I know where my child is after school") or have summed across items that represent different ways of acquiring knowledge (e.g., "My child tells me where about his/her plans" and "I ask my child where he/she is going") [5,8,9,11,13–20].

According to Stattin and Kerr [23], parents can acquire knowledge of their children's activities through youth disclosure, parental solicitation of information, or parental control (i.e., enforcement of rules). In their study of these three processes (i.e., youth disclosure, parental solicitation, and parental control), they found that youth disclosure was the most important predictor of knowledge linked to delinquency and that active parental efforts to track and control their children's behavior may not be as effective in preventing this particular adolescent outcome. In a longitudinal study of adolescent depressive symptoms, Hamza and Willoughby [6] found parental knowledge was associated with lower adolescent depressive symptoms over time; adolescent disclosure and parental control predicted lower depressive symptoms indirectly through knowledge.

In terms of adolescent sexual behavior, a meta-analysis has found that overall parental knowledge of whereabouts, companions, and activities and parental control are directly associated with a decreased likelihood of sexual initiation, with parental rules having the stronger association. Parental knowledge was also found to be associated with increased condom use and contraceptive use, whereas parental enforcement of rules was not [24]. This review did not include the processes by which parents acquire knowledge, that is, by

soliciting information or through disclosure on the part of adolescents, or direct supervision because so few studies in this area include those constructs.

The changing nature of parent–child relationships over the course of child development points to the need to examine these relationships over time. Although some studies have done so, they too have generally focused on monitoring broadly [24]. In terms of the development of sexual behavior in the United States, the majority of adolescents initiate sexual activity by 12th grade. The most recent results from the Youth Risk Behavior Surveillance System indicate that 64.1% of 12th graders have had sexual intercourse [25]. Evidence suggests that the transition from middle school to high school is significant in terms of the initiation of sexual activity, with 30% of ninth graders reported having initiated sex [25]. Thus, the timing of parental monitoring behaviors may be crucial in preventing risky behavior. Despite this, little is known about the impact of parental monitoring in the long term and whether parental monitoring at earlier ages has longitudinal effects. The purpose of the current analysis is twofold. The first is to understand how adolescents' perceptions of their parents' monitoring is related to the initiation of sexual activity as they transition to high school. The second is a more detailed understanding of how the different processes that go into successful parental monitoring (e.g., youth disclosure, parental solicitation, parental knowledge, and parental control) are related for those youth.

Methods

Sample

Project Connect was an adolescent pregnancy and STD prevention study conducted in a public school district in Los Angeles County, California. Twelve high schools, in areas with teenage STD and birth rates exceeding Healthy People 2010 goals, and 15 of their feeder middle schools participated in the overall study. The current study includes only students from the six high schools and their feeder middle schools that did not receive interventions. The study included several longitudinal cohorts, and of those, students who were surveyed in either sixth or eighth grade and followed yearly through at least 10th grade were included in these analyses.

Because the study concerned the initiation of sexual activity, we focused our analyses on those students who had not yet had sex by the eighth grade data collection so that we could examine that transition in more detail. Of the total number of eligible students from the longitudinal cohorts, 87% had not yet had sex and were included.

Measures

Initiation of sexual activity.—Students were surveyed annually regarding initiation of sexual activity using a single yes/no question, “Have you ever had sexual intercourse?” This is the same item that is used to assess sexual experience in the CDC Youth Risk Behavior Survey. Students were categorized as having initiated sexual activity (1 = yes) or not (0 = no).

Parental monitoring.—Parent monitoring was measured with five items. Two items measured students' perceptions of their parents' knowledge: “My parents know where I am

after school” and “When I go out, my parents know where I am.” Two items measured youth disclosure of information: “I tell my parents who I am going to be with before I go out” and “I talk with my parents about the plans that I have with my friends.” One item measured parental solicitation of information: “When I go out, my parents ask me where I am going.” These items were originally used in an evaluation of a parent-based sexual risk reduction intervention in middle schools and were found to be reliable and valid [26].

Family rules (parental control).—Family rules were measured with seven items that assess parents’ restrictions on extracurricular behavior. For example, “My parents let me go out with friends on school nights” or “I can stay out as late as I want on weekend nights.” These items were reverse coded so that high scores were indicative of more rules.

Maternal relationship satisfaction.—Maternal relationship satisfaction was measured with one item, “Overall, I like the relationship that I have with her.” The response options included “0, not at all”; “1, some”; and “2, a lot.” The mean score on this item was 1.50 with a standard deviation (SD) of .65. This single item has been used in prior research and has shown excellent predictive validity of sexual behavior in national studies [27,28].

Demographic covariates.—The analyses controlled for gender, race/ethnicity, age, family structure, and receipt of free or reduced lunch. Age was treated continuously; however, all students in the analytical sample were either 13 or 14 years old at the eighth grade measurement.

Procedures

Study materials and protocols were approved by the school district and collaborators’ Institutional Review Boards. Parent consent and signed assent forms were required to participate. Parental consent forms were distributed to students during a class period in advance of the data collection. For the entire sample, across all waves of data collection, 55% of potential participants returned signed consent forms and, of those, 93% received parental consent. Among potential longitudinal participants in middle schools (from which the sample included in these analyses were derived), consent was only required at the first data collection and of those who received consent forms, 60% returned signed forms and 87% of those were consented. Participants completed the 30-minute paper-and-pencil survey during a single class period. Data were collected in the spring semester for 5 consecutive years, 2005–2009.

Analysis plan

Analyses began by conducting an exploratory factor analysis (EFA) of the parental monitoring and family rule items using *Mplus v7.2* [29]. An EFA was determined to be the most appropriate analytic method as previous research had informed the development of these items, but there was limited research or guidance on the best loadings or scales. These factor analyses used an oblique promax rotation that assumed correlation between the factors. The selection of factors was based on (1) substantive theory; (2) model fit indices, including the root mean squared error of approximation and chi-square (χ^2) test of model fit; and (3) eigenvalues. The RMSEA is a parsimony adjusted index with values less than .06

indicating close approximate fit. The χ^2 is a badness of fit-index with nonsignificant values favored. These factor analyses were estimated using means and variance adjusted least squares (weighted least squares mean variances [WLSMV]) estimation to account for the ordinal nature of the parent monitoring and family rule items. A priori the decision was made to retain any items with loadings greater than .5.

These factor analyses were used to inform the development of the scales that were included in a path analysis. This model was estimated using WLSMV estimation to account for the binary nature of sexual initiation. Model fit for the path model was assessed with the root mean square error (RMSEA), χ^2 , comparative fit index (CFI), and Tucker-Lewis index (TLI). The CFI and TLI compare the fit of the estimated model with a null model with zero covariance [30]. After pruning nonsignificant paths and assessing model fit, the built in DIFFTEST option was used in Mplus to test for gender differences.

Results

Sample characteristics

This study included 533 students who were not sexually active by the end of eighth grade. The sample included more female students (56.50%) than male and was predominantly Hispanic or Latino/a (92.9%). The average age of students at eighth grade was 13.47 (SD = .50). Almost two thirds of the sample (67.2%) reported receiving free or reduced school lunch and 69.8% lived with both of their parents. More than a quarter (26.5%) initiated sexual activity by the end of ninth grade, and an additional 18.9% initiated sexual activity by the end of 10th grade.

Parental monitoring exploratory factor analysis

The model fit indices of the EFA of the five parental monitoring items suggested a single- ($\chi^2 = 8.86$, $df = 5$, $p = .115$, RMSEA = .04) or two-factor solution ($\chi^2 = .05$, $df = 1$, $p = .818$, RMSEA = .000), and we chose the two-factor solution based on parental monitoring theory. The promax rotated loadings and factor structure for the two-factor solution are presented in Table 1. One factor, labeled knowledge, included two items regarding students' perceptions of their parents knowledge of their whereabouts. The second factor, labeled solicitation and disclosure, included three items regarding students' perceptions information exchange with their parents. The knowledge factor (M = 3.42, SD = .81) had adequate internal consistency ($\alpha = .72$) as did the disclosure/solicitation factor (M = 3.16, SD = .87), with adequate internal consistency ($\alpha = .68$).

Family rules exploratory factor analysis

The model fit indices of the EFA of the seven family rule items suggested a two- ($\chi^2 = 22.13$, $df = 8$, $p = .005$, RMSEA = .06) or three-factor solution ($\chi^2 = 3.28$, $df = 3$, $p = .351$, RMSEA = .01), and the two-factor solution was selected as most appropriate. As can be seen in Table 2, five of the family rule items loaded on a single factor, referred to as general rules (M = 2.41, SD = .91) which had good internal consistency ($\alpha = .78$). Two items loaded on their own scale referred to as dating rules (M = 3.02 SD = 1.20), also with good internal consistency ($\alpha = .84$).

Monitoring, rules, and sexual initiation path analysis

The specified path model included three dependent variables: sexual initiation, knowledge, and the solicitation/disclosure composite. There were eight exogenous predictors: general rules, dating rules, maternal relationship satisfaction, race, gender, age, family structure, and free/reduced lunch. Knowledge was predicted by the disclosure/solicitation composite, general rules, dating rules, maternal relationship satisfaction, and the demographic covariates. Disclosure was predicted by general rules, dating rules, maternal relationship satisfaction, and the demographic covariates. Removing nonsignificant paths resulted in the model shown in Figure 1. This model demonstrated good fit $\chi^2 = 9.41$, $df = 5$, $p = .094$, RMSEA = .04, CFI .99, TLI = .96 (N = 533).

As can be seen in Figure 1, there was a significant effect of dating rules ($\beta = -.31$, standard error [SE] = .06, $p < .001$) and parent knowledge ($\beta = -.25$, SE = .05, $p < .001$) on sexual initiation, such that youth with more family rules about dating and who perceived that their parents were more knowledgeable in eighth grade were less likely to initiate sexual activity from eighth through 10th grades. There were significant effects of solicitation/disclosure ($\beta = .59$, SE = .03, $p < .001$), general rules ($\beta = .14$, SE = .04, $p < .001$), dating rules ($\beta = .08$, SE = .04, $p = .017$) and maternal relationship satisfaction ($\beta = .08$, SE = .03, $p = .009$) on parent knowledge, such that youth with more rules, who exchanged more information with their parents, and who were more satisfied with their relationship with their mothers perceived that their parents were more knowledgeable. General rules ($\beta = .18$, SE = .05, $p < .001$), dating rules ($\beta = .16$, SE = .04, $p < .001$), and maternal relationship satisfaction ($\beta = .28$, SE = .03, $p < .001$) had significant effects on solicitation/disclosure, such that youth with more family rules and who were more satisfied with their maternal relationship exchanged more information with their parents. Using joint test of significance for mediated paths [31], these results suggested that there were indirect effects of disclosure/solicitation, maternal relationship satisfaction, and general rules on sexual initiation via knowledge.

R-squares (R^2) were used to estimate the amount of variance explained in the observed outcomes. The R^2 for sexual initiation ($R^2 = .24$, SE = .05), parent knowledge ($R^2 = .49$, SE = .03), and the solicitation/disclosure variable ($R^2 = .17$, SE = .03) were all statistically significant at $p < .001$.

Gender differences

Gender differences were assessed using *Mplus*'s built in DIFFTEST option for χ^2 difference testing with WLSMV. First, a model with all paths freely estimated across boys and girls was estimated. This model was compared with a model in which all of the paths were constrained to be the same for boys and girls. The findings suggest that constraining the paths to be equivalent across groups did not significantly decrease model fit ($\chi^2 = 9.60$, $df = 10$, $p = .476$). These findings suggest that gender does not significantly moderate the hypothesized path model. As can be seen in Figure 2, the results for the effects of knowledge and dating rules on sexual initiation are fairly consistent between boys and girls; thus, family rules about dating and perceptions of parental knowledge in eighth grade predict initiation of sexual activity from eighth through 10th grade for both genders. However, the effects of general rules and dating rules on knowledge are nonsignificant for boys. In addition, the

effects of dating rules and general rules on solicitation/disclosure are nonsignificant for boys. The effects of maternal relationship satisfaction and dating rules on knowledge are nonsignificant for girls. Thus, despite the models not being significantly different overall, there is some suggestion that for boys, perceptions of parental knowledge are more dependent on information exchange and relationship satisfaction, whereas for girls, it is more dependent on family rules and information exchange but not relationship satisfaction.

Summary

These findings point to meaningful longitudinal impacts of dating rules and parent knowledge on sexual initiation among urban high school students. Furthermore, there were important indirect effects of solicitation/disclosure, dating rules, rules about time spent with friends, and maternal relationship satisfaction that may play an important role in sexual initiation. These findings were largely robust with regard to gender, although patterns of indirect relationships differed.

Discussion

Our model of parental monitoring processes and sexual risk among adolescents advances our knowledge about the impact of parental monitoring on the transition to sexual activity as well as the mechanisms by which parents acquire knowledge about their adolescents' whereabouts and activities. These results could be particularly useful for the development of interventions to help parents effectively increase their adolescent's perceptions that they are involved and knowledgeable and to potentially decrease sexual activity among youth.

We found that adolescents who perceived that their parents were knowledgeable about their activities and who had family rules about dating were less likely to initiate sexual activity across the transition to high school. Although the other parental monitoring processes we examined (i.e., rules about time spent with friends, exchange of information) were not directly related to sexual activity, they were important means by which parents acquired knowledge. Interestingly, family rules and relationship satisfaction were related to increased parental knowledge, and youth who were more satisfied with their relationship with their mothers were also more likely to exchange information with their parents. These findings suggest that, in this population, active parental efforts to acquire knowledge and to control adolescent opportunity to spend time with friends and potential sex partners can be successful in decreasing adolescent risk. Finding the balance in appropriate parental control is often a key difficulty in the parent-adolescent relationship. The indication here is that there are multiple processes that contribute to parental knowledge and that maintaining relationship satisfaction may be an important part. Furthermore, these effects had significant longer term implications, in that, parental monitoring behaviors, rule enforcement, exchange of information, and satisfaction with their maternal relationship in eighth grade had an impact on the transition to sex in high school, until the end of 10th grade.

In fact, the longitudinal nature of these findings across an important transition is particularly significant. Most studies of parental monitoring and its effects on adolescent risk behavior have found that monitoring drops off as youth age and little research has examined the longer term impact of monitoring. Our findings suggest that parental monitoring at earlier

ages can be effective even into the high school years. It is likely that the way parents monitor in eighth grade persists and that our results are indicative of a pattern of ongoing monitoring and its impact on adolescent behavior. For example, this might mean that, although overall levels of parental monitoring may decrease as children get older, those families who have higher levels of monitoring early may maintain family rules, solicit information differently, or have more satisfactory relationships with their children into the first few years of high school than those families with less early monitoring. What is particularly important about looking at the relationships in this manner is that these analyses have direct implications for the design of interventions. That is, these results suggest that targeting parental monitoring late in the middle school years may prevent initiation of sexual activity through the transition to high school. Other studies, particularly those of Stanton et al. [32], have included parental monitoring interventions which have demonstrated a 12–24 months of impact on youth risk behavior; however, they have focused primarily on broad monitoring concepts and monitoring in conjunction with youth focused interventions [33]. Furthermore, while these studies have included middle school-aged youth, none have targeted early monitoring or this important transition.

The bulk of research that has looked at these individual monitoring processes—parental control, parental knowledge, solicitation of information, and youth disclosure—have not looked at sexual risk. While our results have much in common with these findings, there are some important differences. For instance, we find that parental control (in this case family rules about dating) has a more prominent role in directly preventing risk behavior. What is unclear is whether this is due to the nature of the health risk or whether cultural issues related to our predominantly Latino population influenced these relationships differently.

There are, of course, a number of limitations to the study. First, although we controlled for race/ethnicity in our analyses, our sample was also overwhelmingly Latino. It is therefore unclear whether cultural issues had an impact on the relationships found here, particularly those that differed from previous research. Thus, more research is necessary in this area that includes more diverse study samples. Second, we excluded students from the sample who had already initiated sex by the eighth grade measurement. Although this much smaller group are an important and arguably very risky group, the relationship between monitoring and initiation may be quite different. Finally, these results are based on self-report and rely on adolescents' willingness to disclose whether they have had sex. We modeled both the data collection methodology and the sexual behavior question on the Youth Risk Behavior Survey, which has demonstrated good reliability [34].

On the whole, these results present another important piece of a larger picture of the relationship between parents and their adolescents. We find that parental efforts to provide boundaries around peer and romantic relationships as well as to remain knowledgeable about their children's activities have an important impact on whether their children initiate risk behavior. The longitudinal nature of our findings suggests not only that monitoring must start early but that when it does, the impacts are long lasting. Finally, these results provide a way forward for interventions to expand their focus to include enforcement of family rules about dating and to provide strategies for information exchange between parents and youth. Our findings also suggest that these types of interventions are more likely to impact

adolescent sexual risk behavior than programs focusing solely on improving monitoring knowledge.

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IMPLICATIONS AND CONTRIBUTION

This study examines the critical transition from middle school to high school and disentangles the components of parental monitoring, such that, interventions designed to impact adolescent sexual behavior via improvements in parental monitoring can focus on the strategies found to be most influential.

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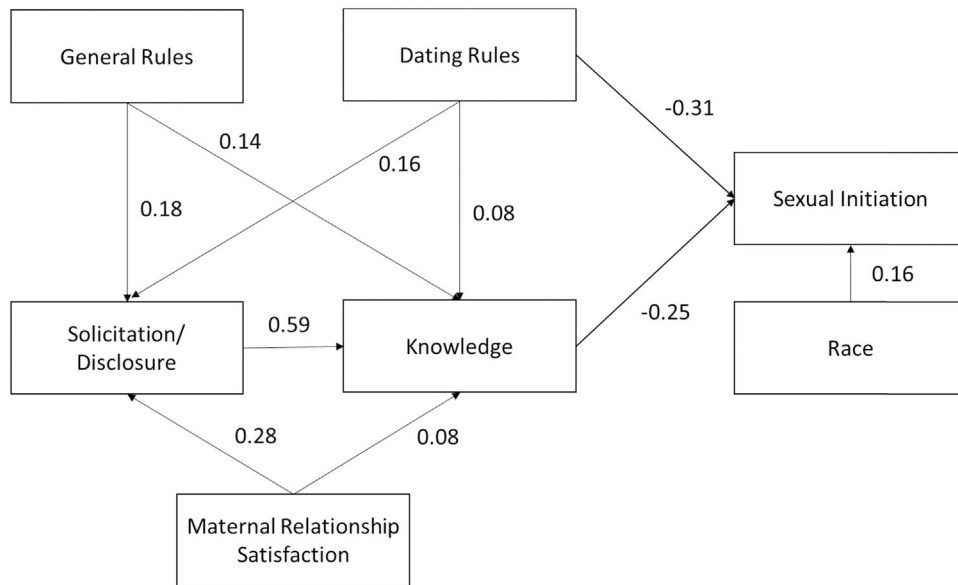


Figure 1. Path diagram of the relationship between monitoring, rules, maternal relationship satisfaction, and sexual initiation. Path coefficients are standardized. Race was binary with non-Black as the reference. All coefficients are significant at $p < .05$. $\chi^2 = 9.41$, $df = 5$, $p = .094$, RMSEA = .04, CFI = .99, TLI = .96 (N = 533).

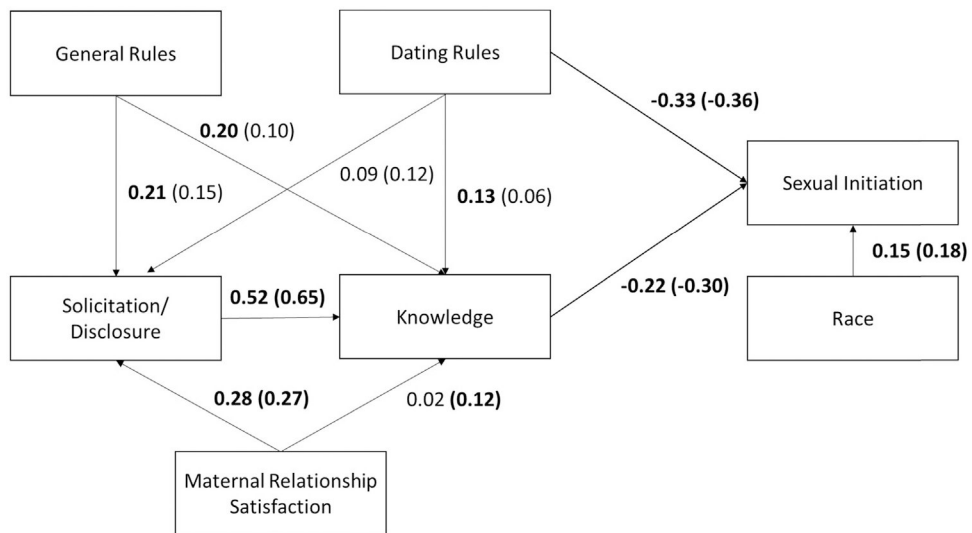


Figure 2. Path diagram of the relationship between monitoring, rules, maternal relationship satisfaction, and sexual initiation by child gender. Path coefficients in parenthesis are for boys. Path coefficients are standardized. Race was binary with non-Black as the reference group. Bolded path coefficients are significant at $p < .05$ ($N = 533$).

Promax rotated factor loadings and factor structure for two-factor solution EFA of parent monitoring items (N = 533)

Table 1

	Promax rotated loadings		Factor structure	
	Knowledge	Disclosure and solicitation	Knowledge	Disclosure and solicitation
My parents know where I am after school	.61		.76	.64
I tell my parents who I am going to be with before I go out		.52	.74	.78
When I go out at night, my parents know where I am	.64		.88	.78
I talk with my parents about the plans I have with my friends		.61	.60	.73
When I go out, my parents ask me where I am going		.65	.49	.68

$\chi^2 = .05$, $df = 1$, $p = .82$, RMSEA = .00.

EFA = exploratory factor analysis.

Table 2

Promax rotated factor loadings and factor structure for two-factor solution EFA of family rule items (N = 533)

	Promax rotated loadings		Factor structure	
	General rules	Dating rules	General rules	Dating rules
I can stay out as late as I want on weekend nights	.61		.64	.44
My parents allow me to have people of the opposite sex over to the house when no adult is at home	.54		.73	.64
My parents let me go out with friends on school nights	.80		.72	.41
My parents let me go to unsupervised parties where there will be both boys and girls	.72		.77	.56
My parents let me hang out with older friends (one or two grades older than me)	.55		.62	.47
My parents allow me to go out on "dates"		.83	.64	.89
My parents allow me to go out on "dates" with people who are older than me		.88	.72	.97

$\chi^2 = 22.13$, $df = 8$, $p = .00$, $RMSEA = .06$.

Items were reverse coded so that higher scores are indicative of more family rules.

EFA = exploratory factor analysis.