Published in final edited form as:

J Res Adolesc. 2010 June 1; 20(2): 259–273. doi:10.1111/j.1532-7795.2010.00636.x.

Family Structure, Family Processes, and Adolescent Smoking and Drinking*

Susan L. Brown and Lauren N. Rinelli

Department of Sociology and Center for Family and Demographic Research, 222 Williams Hall, Bowling Green State University, (419) 372-9521

Susan L. Brown: brownsl@bgsu.edu

Abstract

This study examined whether family structure was associated with adolescent risk behaviors, including smoking and drinking. Family living arrangements have become increasingly diverse, yet research on adolescent risk behaviors has typically relied on measures of family structure that do not adequately capture this diversity. Data from the 1994-95 National Longitudinal Study of Adolescent Health were used to conduct logistic regression analyses that revealed adolescents in two biological married parent families were least likely to smoke or drink, whereas adolescents in cohabiting stepfamilies were most likely. Those in single-mother families and married stepfamilies were in between. Maternal socialization was related to reduced odds of smoking and drinking. Maternal modeling was positively associated with smoking and drinking. Family structure is indicative of distinct family processes that are linked to risky behaviors among adolescents.

The onset of risk behaviors, including smoking and drinking, often occurs during adolescence. In 2005, about one-quarter of 9th-12th graders smoked cigarettes and over 40% consumed alcohol in the past month (Centers for Disease Control and Prevention, 2006). Moreover, smoking or drinking in adolescence is positively associated with these same behaviors in adulthood (e.g., Chen & Kandel, 1995; Hu, Davies, & Kandel, 2006; Riala et al., 2004). Risk behaviors tend to cluster together (Igra & Irwin, 1996) and also co-occur with other negative outcomes, such as poor school performance (Crosnoe, 2006), school misbehavior (Ludden & Eccles, 2007), delinquency and fighting (Bergman & Scott, 2001; Swahn et al., 2004; Wiesner & Windle, 2006), and sexual activity (Crockett, Raffaelli, & Shen, 2006; Rashad & Kaestner, 2004).

Engaging in risky behaviors is one way in which adolescents test family boundaries to assert their autonomy (e.g., Irwin & Millstein, 1992; Schulenberg, Maggs, & Hurrelmann, 1997). The family operates as an important socializing agent in which parents not only serve as role models but also provide varying levels of support and control as adolescents navigate the path toward independence. By establishing a context in which these family processes unfold,

* An earlier version of this paper was presented at the annual meeting of the Society for Research on Adolescence, San Francisco, CA (March 2006). The research for this paper is supported by a grant to the first author from the National Institute of Child Health and Human Development (K01-HD42478) and by the Center for Family and Demographic Research, Bowling Green State University, which has core funding from the National Institute for Child Health and Human Development (R21-HD042831). This research uses data from the Add Health project, a program project designed by J. Richard Udry (PI) and Peter Bearman, and funded by grant P01-HD31921 from the National Institute of Child Health and Human Development to the Carolina Population Center, University of North Carolina at Chapel Hill, with cooperative funding from 17 other agencies. Persons interested in obtaining data files from The National Longitudinal Study of Adolescent Health should contact Add Health, Carolina Population Center, 123 West Franklin Street, Chapel Hill, NC 27516-2524 (www.cpc.unc.edu/addhealth).

family structure is related to adolescent health and well-being (e.g., Brown, 2004; Dawson, 1991; Manning & Lamb, 2003; McLanahan & Sandefur, 1994).

Yet, prior research on the relationship between family structure and risk behaviors such as smoking and drinking is scant, even though family structure of origin has enduring consequences for adult smoking and drinking (Wolfinger, 1998). Additionally, these studies typically have only compared those in two- versus one-parent families (Blum et al., 2000; Kirby, 2002; Oman et al., 2007). An exception is DeLeire and Kalil's (2002) examination of the relationship between family structure and smoking *or* drinking (a combined measure). They found 12th graders who resided in single-parent, stepfamilies, or cohabiting families in 8th grade were more likely to smoke or drink in 12th grade than those in two biological married parent families, but did not test for differences among stepfamilies, single-parent, and cohabiting families. Two other studies that rely on international data reach different conclusions, although this simply may reflect country variation. Reports of smoking among British teens residing in stepfamilies versus two biological parent families were similar (Bergman & Scott, 2001). Yet, a comparison of adolescents across seven European countries showed smoking was least common among those who reside with two biological parents and most common among those in stepfamilies (Griesbach, Amos, & Currie, 2002). Not only has this small literature yielded disparate findings, it also does not adequately assess variation across the diverse living arrangements experienced by today's adolescents.

Fewer adolescents reside in two biological married parent families and growing shares live in married stepfamilies or unmarried families, including single-parent and cohabiting families (U.S. Bureau of the Census, 2001). Recent estimates indicate 40% of children will spend time in a cohabiting family by age 16 (Bumpass & Lu, 2000). Children who reside in cohabiting, single-mother, and married stepfamilies are disproportionately Black or Hispanic (Manning & Brown, 2006), and the association between family structure and child well-being tends to be smaller for nonwhites than whites (Dunifon & Kowaleski-Jones, 2002). Adolescent well-being (e.g., educational performance, behavioral problems, psychosocial adjustment) is lower, on average, in cohabiting than two biological parent married families and often resembles that of stepfamilies and single-mother families (Brown, 2004; Dunifon & Kowaleski-Jones, 2002; Hao & Xie, 2002; Manning & Lamb, 2003). Some evidence indicates adolescents in cohabiting families fare worse than those in married stepfamilies or single-mother families (Brown, 2006).

Indeed, we hypothesize that adolescents in two biological parent married families are least likely to smoke or drink whereas adolescents in cohabiting families are most likely to engage in these risky behaviors. Adolescents in married stepfamilies and single-mother families fall in between. Further, we posit that this pattern of family structure variation in risk behaviors largely reflects differences in key family processes, specifically, parental socialization, modeling of risky behaviors, and economic resources, as described below.

Parental socialization is linked to adolescent risk behaviors (Adalbjarnardottir & Hafsteinsson, 2001). High levels of support and moderate levels of control are associated with lower likelihoods of smoking (Scal et al., 2003; Van Den Bree, Whitmer, & Pickworth, 2004) and drinking (Barnes, Farrell, & Cairns, 1986; Guilamo-Ramos et al., 2005). Two biological married parents provide the highest levels of support and control, on average (Thomson, McLanahan, & Curtain, 1992; Thomson, Hanson, & McLanahan, 1994). The patterns for other family types are less clear. One study shows cohabiting parents offer more support than married stepparents (Thomson et al., 1994), although another reaches the opposite conclusion (Thomson et al., 1992). Parental control is lowest in single-mother families (Thomson et al., 1992).

In line with social learning theory, parents serve as behavioral role models (Barnes et al., 1986; Nichols et al., 2004). A longitudinal analysis of the Add Health showed adolescents whose parent smokes are more likely to initiate smoking (Kirby, 2002), although a meta study published around the same time concluded that the evidence for parental modeling is mixed (Avenevoli & Merikangas, 2003). Similarly, parent drinking patterns are positively associated with adolescent alcohol consumption (Barnes et al., 1986), although high levels of parental support can attenuate this effect (Urberg, Goldstein, & Toro, 2005). Cohabitors tend to be unconventional in their values and attitudes (Clarkberg, Stolzenberg, & Waite, 1995) and they are especially likely to engage in risky behaviors themselves, including cigarette and alcohol consumption (DeLeire & Kalil, 2005), which may have a direct influence on adolescents' risky behaviors through modeling. Cohabiting parents spend more money on tobacco and alcohol than do married, divorced, or never-married parents (DeLeire & Kalil, 2005).

Socioeconomic disadvantage is a risk factor for adolescent smoking and drinking. Parent education is negatively associated with teen smoking (Friestad et al., 2003), but the relationship between family income and risk behaviors is modest (Blum et al., 2000; Friestad et al., 2003; Zweig, Lindberg, & McGinley, 2001). Parent education levels are lowest in cohabiting families, followed by single-parent families, married stepfamilies, and married two biological parent families, respectively. Poverty is highest among cohabiting and single-mother families, followed by married stepfamilies and married two biological parent families (Manning & Brown, 2006).

We used data from the first wave (1994-95) of the National Longitudinal Study of Adolescent Health (Add Health) to investigate the association between family structure and indicators of adolescent risk-taking behaviors: smoking, drinking, and the co-occurrence of smoking and drinking. Unlike several prior studies (Blum et al., 2000; Kandel et al., 2004; Kirby, 2002; Scal et al., 2000) that use Add Health data to examine smoking or drinking that rely on dichotomous measures of family structure, we distinguished among adolescents who reside with two biological married parents, a biological mother and married stepfather (i.e., married stepfamily), a single mother, and a biological mother and cohabiting partner (i.e., cohabiting stepfamily).¹ We tested three hypotheses. First, adolescents in two biological married parent families are less likely to smoke, drink, or both smoke and drink than those in other family types. Second, adolescents who reside in cohabiting stepfamilies are most likely to engage in these risk behaviors. Third, family structure variation in these likelihoods are attenuated by maternal socialization and modeling as well as the family economic context.

Method

Participants

Data came from the 1994-95 Add Health, a nationally representative sample of more than 90,000 adolescents in grades 7-12 (Bearman, Jones, & Udry, 1997). An in-home interview was conducted with a subset of students (N=20,745) and their parents (N=17,700). Of the 18,924 adolescents in the in-home sample with valid sample weights, 16,461 resided with a biological or adoptive mother in either a two biological parent married family, a married stepfamily, a single-mother family, or a cohabiting stepfamily. We excluded adolescents whose mother did not complete the parent interview, yielding an analytic sample size of n=13,282.

¹Very few adolescents reside with two biological cohabiting parents (Brown, 2002; Manning & Lamb, 2003) and thus this group was not examined in this study. Other research on family structure that used Add Health data also examined cohabiting stepfamilies but not two biological parent cohabiting families (Brown & Manning, in press; Brown, 2006; Manning & Lamb, 2003).

Measures

Risk behaviors—Adolescent smoking was tapped by the question, “During the past 30 days, on how many days did you smoke a cigarette?” Responses ranged from 0 to 30+. Since many adolescents were non-smokers, we created a dummy, *smoking*, with values (0) 0 days (74%) and (1) 1-30+ days (26%). Adolescent drinking was ascertained by asking, “During the past 12 months, on how many days did you drink alcohol?” Responses were reverse coded to range from (0) never to (6) everyday to almost everyday. A dummy variable, *drinking*, was coded (0) if the adolescent had no alcohol in the last year (53%) and (1) if the adolescent had consumed alcohol on one or more days in the last year (47%).² These smoking and drinking measures are consistent with those used in other risk behavior research that relies on Add Health data (e.g., Blum et al., 2000; Scal et al., 2003; Swahn & Hammig, 2000). *Smoking and drinking* captured (1) affirmative responses to both smoking and drinking variables (21%) versus (0) others (79%).

Family structure—*Family structure* was derived from the adolescent's report of the household roster and distinguished among adolescents in a two biological married family (61%, reference), married stepfamily (13%), single-mother family (23%), or cohabiting stepfamily (3%).

Maternal socialization—*Maternal support*, a four-item scale (Cronbach's alpha = .85), measured how close the adolescent felt toward the mother. Items included “How close do you feel toward your mother,” with response categories ranging from (1) not at all to (5) very much, and the extent of agreement that “most of the time your mother is warm and loving toward you,” “you are satisfied with the way your mother and you communicate with each other,” and “overall, you are satisfied with your relationship with your mother,” with responses ranging from (1) strongly disagree to (5) strongly agree. *Maternal control* summed adolescents' yes/no responses to: “Do your parents let you make your own decisions about what time you must be home on weekend nights; the people you hang around with; what you wear; how much television you watch; which television programs you watch; what time you go to bed on week nights; what you eat?”

Maternal modeling—*Maternal smoking* was reported by mothers: (0) no (76%) and (1) yes (24%). *Maternal drinking* was reported by mothers and ranged from (1) never to (6) nearly everyday, which was collapsed into three dummy variables: never drink (54%), rarely drink (i.e., once or twice a month) (35%, reference), and drink at least weekly (11%).

Family economic context—*Mother's education* was classified as: less than high school (19%), high school graduate (39%, reference), some college (18%), or college degree or higher (25%). *Family income*, reported by the mother, included all income received by every member of the household and all income from welfare, dividends and all other sources before taxes in 1994. Since the distribution of income is skewed, the logged values were used in the analyses.

Statistical Analyses

Multivariate analyses were conducted with logistic regression since the dependent variables were dichotomous. Initial models tested for family structure variation in the likelihoods of adolescent smoking, drinking, and co-occurring risk behaviors, controlling for adolescent

²We tested whether further differentiation of drinking was warranted by comparing less frequent (i.e., no more than 2-3 days per month) and more frequent (i.e., weekly or more) drinking. Multinomial logistic regression analyses (not shown, but available upon request from the authors) revealed no family structure variation for the two groups, supporting our decision to use the dichotomous measure that simply distinguishes drinkers from non-drinkers.

characteristics (i.e., age, gender, and race-ethnicity). Subsequent models included maternal socialization, modeling, and family economic context measures to examine the role of family processes. All analyses were conducted in Stata with the survey procedures to account for the complex sampling design of the Add Health study.

Results and Discussion

Descriptive Statistics

The weighted means of all the variables are presented in Table 1. The proportion of adolescents that smoked, drank, or both smoke and drank was lowest in married two biological parent families and highest in cohabiting stepfamilies. Whereas 24% of adolescents in two biological married parent families smoked, 27% in single-mother families, 31% in married stepfamilies, and 39% in cohabiting stepfamilies smoked. Similarly, 43% of adolescents in two biological married parent families consumed alcohol, versus 47% in single-mother families, 52% in married stepfamilies, and 58% in cohabiting stepfamilies. A larger share of adolescents in cohabiting stepfamilies (33%) both smoked and drank than adolescents in other family structures.

Family economic context differed across family structures. Maternal education levels were highest in two biological parent married families where 28% of mothers had a college degree, followed by married stepfamilies (22%), single-mother families (19%), and finally cohabiting stepfamilies (15%). A similar pattern was observed for family income, although levels were slightly higher in cohabiting stepfamilies than single-mother families, presumably reflecting the availability of two earners in the former group. Family structure variation in maternal socialization was modest. Adolescents in two biological married parent families, married stepfamilies, and single-mother families reported average maternal support levels ranging from 17.2 to 17.4. The average level of support reported by those in cohabiting stepfamilies was somewhat lower at 16.7. Maternal control differed little by family structure, ranging from 1.8 to 2.0, on average. Maternal modeling varied considerably across family structures, consistent with the pattern of adolescent smoking and drinking described above. About 22% of mothers in two biological married parents smoked versus 55% of mothers in cohabiting stepfamilies. About 42% of mothers in both married stepfamilies and single-mother families smoked. Similarly, 12% of mothers in two biological parent married families drank weekly (44% never drank) versus 21% (31% never drank) of mothers of adolescents in cohabiting stepfamilies. Again, mothers in married stepfamilies and single-mother families were in the middle with 14% drinking weekly (37% and 43%, respectively, never drank).

Multivariate Results

Table 2 shows the results of the logistic regression analyses that predict smoking, drinking, and the co-occurrence of smoking and drinking. Models 1a-3a were designed to examine whether there was significant family structure variation in adolescent risk behaviors. First, we expected that adolescents who reside with two biological married parents were least likely to smoke, drink, or both. Second, we anticipated that adolescents who live in cohabiting stepfamilies were more likely to smoke, drink, or both than those in any of the three other family structures. Models 1b-3b included maternal socialization and modeling measures as well as indicators of the family economic context to test the extent to which family processes accounted for family structure differences in adolescent risk behaviors. The table reports both the unstandardized coefficients and the odds ratios ((Exp(b)). Odds ratios less than one indicate a lower likelihood than the reference category whereas odds ratios greater than one signify a higher likelihood.

Adolescents outside of two biological married parent families were, on average, more likely to engage in smoking, drinking, or both behaviors. The odds that those in single-mother or married stepfamilies smoked were roughly 1.5 times higher than the odds for adolescents in two biological married parent families, as shown in Model 1a. In contrast, teens in cohabiting stepfamilies experienced odds that were 2.5 times greater than those in two biological married parent families. As expected, adolescents in cohabiting stepfamilies were significantly more likely to smoke than their counterparts in either married stepfamilies or single-mother families (denoted in the table by **bolded** coefficients).

An analogous pattern was obtained for adolescent drinking (Model 2a). Whereas the odds that adolescents in single-mother or married stepfamilies drank were about 1.4 and 1.5 times higher, respectively, than the odds for those in two biological married parent families, the odds ratio for adolescents in cohabiting stepfamilies was 2.2. As with smoking, teens in cohabiting stepfamilies were more likely to drink than their peers in married stepfamilies or single-mother families.

Consistent with the findings for smoking and drinking, the model (Model 3a) estimating co-occurrence of risk behaviors, i.e., engaging in both smoking and drinking, revealed that adolescents outside of two biological married parent families were more likely to both smoke and drink. For single-mother families, the odds ratio was about 1.4. Similarly, for married stepfamilies, the odds ratio was 1.5. For adolescents in cohabiting stepfamilies, the odds of engaging in both smoking and drinking were 2.2 times that of the odds for adolescents in two biological married parent families. Indeed, the odds that those who live in a cohabiting stepfamily both smoked and drank significantly exceeded those of all other adolescents.

Family processes accounted for some of the family structure variation in these risk behaviors, as shown in Models 1b-3b. Adolescents outside of two biological married families remained more likely to smoke, although the magnitude of the effects declined modestly (Model 1b). The odds of smoking were about 1.3 times higher for adolescents in married stepfamilies or single-mother families and roughly double for teens in cohabiting stepfamilies relative to those in two biological married parent families. Yet, the odds for those who live in a cohabiting stepfamily no longer differed from the odds for those who reside in either a married stepfamily or single-mother family, suggesting this effect was driven by poorer socialization, socioeconomic disadvantage, and maternal smoking (all three sets of factors were operating as controlling for each individually did not reduce the positive effect of cohabiting stepfamilies [result not shown]). Maternal support and control were both negatively associated with smoking, whereas maternal smoking was positively related to smoking. Adolescents whose mothers had a college degree were less likely to smoke.

Although the likelihood of drinking was still lowest in two biological married parent families, the gap between teens in cohabiting versus married stepfamilies reduced to nonsignificance (this reduction occurred by controlling for either maternal socialization or drinking [results not shown]) (Model 2b). Maternal support and control both reduced the likelihood of drinking. Maternal drinking was positively associated with adolescent drinking. Relative to occasional drinkers, mothers who never drank had an adolescent who was less likely to drink, too, whereas mothers who drank at least weekly also had a teenager who was more likely to drink. Despite controlling for these factors, the differential between adolescents in cohabiting stepfamilies versus single-mother families persisted.

The association between family structure and the co-occurrence of risk behaviors remained essentially unchanged with the inclusion of maternal socialization, modeling, and the economic context (Model 3b). That is, adolescents in two biological married parent families

were least likely to both smoke and drink and adolescents in cohabiting stepfamilies were the most likely. Maternal socialization was associated with lower odds of smoking and drinking whereas maternal smoking and drinking were positively related to the co-occurrence of these risk behaviors. Family economic context was not associated with both smoking and drinking.

We tested for interactions between family structure and maternal socialization, modeling, family economic context, and race-ethnicity, but none was significant. Also, maternal support did not buffer the effect of maternal modeling. Adolescent gender did not interact with maternal modeling in its effects on either smoking or drinking (or both).

Conclusion

Adolescent smoking and drinking differs across family structures. As expected, those in two biological married parent families are least likely to smoke or drink. The greater likelihoods of risky behaviors among those in single-mother families, married stepfamilies, and cohabiting stepfamilies are due in part to weaker maternal support and control, higher levels of maternal smoking and drinking, and socioeconomic disadvantage, which is consistent with our expectations. But these factors only account for some of the variation, suggesting there are other benefits of residing in a two biological parent family that were not identified here. Specifically, there may be additional family processes, such as paternal support and control, paternal modeling, or sibling behaviors, which may contribute to lower odds of smoking and drinking. These factors merit attention in future work.

This study has some limitations. First, we relied on limited measures of family processes. For instance, paternal support and control were excluded because they could not be ascertained for all family structures. Similarly, paternal modeling was not available. Second, the Add Health data are more than a decade old. Cohabitation continues to be a growing family form (Bumpass & Lu, 2000), making it possible that the composition of adolescents in cohabiting stepfamilies may have changed over time. Nonetheless, the findings documented here are consistent with those obtained in other research on family structure and adolescent well-being using different data (e.g., Brown, 2004). Third, this study relied on cross-sectional analyses, meaning that causal inferences cannot be drawn. It is possible, for instance, that an adolescent's risk behaviors influence parental socialization. Alternatively, unmeasured factors may be associated both with family structure and adolescent risk behaviors. Fourth, family structure was measured at one point in time and thus does not capture family instability. Although adolescents who reside with two biological parents presumably have been in this same family form throughout their lives, nearly all adolescents in other family forms have experienced family transitions, which are often negatively associated with well-being (DeLeire & Kalil, 2002). Indeed, children in cohabiting stepfamilies experience greater family instability, on average, than children in two biological married parent families, married stepfamilies, or single-mother families (Brown, 2006; Raley & Wildsmith, 2004). Hence, it is likely that the family structure variation in risk behaviors found here partially reflects underlying patterns of family instability (i.e., controls for prior family transitions would reduce the magnitudes of the family structure coefficients), but unfortunately we cannot test this assertion.

Despite these limitations, this study demonstrates that adolescents reside in diverse family forms which are uniquely associated with risk behaviors. Adolescents in cohabiting stepfamilies exhibit exceptionally high levels of smoking, drinking, or both of these risk behaviors. In contrast, adolescents in two biological married parent families are least likely to smoke, drink, or both, demonstrating that not all two parent families are alike. Since risk behaviors often co-occur and are linked with other negative outcomes (Igra & Irwin, 1996), this study's findings are suggestive of the possibly troubling consequences of cohabiting

stepfamilies as a family form for adolescents. Family structure is indicative of a unique set of family processes that impinge on adolescent risk behaviors, namely maternal socialization and modeling, two key aspects of the family environment. For this reason, future studies should distinguish among adolescents residing in two biological married parent, married stepfamilies, single-parent families, and cohabiting stepfamilies.

References

- Adalbjarnardottir S, Hafsteinsson LG. Adolescents' perceived parenting styles and their substance use: Concurrent and longitudinal analyses. *Journal of Research on Adolescence*. 2001; 11:401–423.
- Avenevoli S, Merikangas K. Familial influences on adolescent smoking. *Addiction*. 2003; 98(Suppl 1): 1–20. [PubMed: 12752359]
- Barnes GM, Farrell MP, Cairns A. Parental socialization factors & adolescent drinking behaviors. *Journal of Marriage and the Family*. 1986; 48:27–36.
- Bearman, Peter S.; Jones, Jo; Udry, JRichard. The National Longitudinal Survey of Adolescent Health: Research Design. 1997. <http://www.cpc.unc.edu/projects/addhealth/design.html>
- Bergman MM, Scott J. Young adolescents' wellbeing and health-risk behaviours: Gender and socio-economic differences. *Journal of Adolescence*. 2001; 24:183–197. [PubMed: 11437479]
- Blum RW, Beuhring T, Shew ML, Bearinger LH, Sieving RE, Resnick MD. The effects of race/ethnicity, income, and family structure on adolescent risk behaviors. *American Journal of Public Health*. 2000; 90:1879–1884. [PubMed: 11111260]
- Brown SL. Family structure transitions and adolescent well-being. *Demography*. 2006; 43:447–461. [PubMed: 17051822]
- Brown SL. Family structure and child well-being: The significance of parental cohabitation. *Journal of Marriage and Family*. 2004; 66:351–367.
- Brown, SL. Child well-being in cohabiting families. In: Booth, A.; Crouter, AC., editors. *Just Living Together: Implications of Cohabitation for Children, Families, and Social Policy*. Mahwah, NJ: Lawrence Erlbaum Associates; 2002. p. 173–187.
- Brown SL, Manning WD. Family boundary ambiguity and the measurement of family structure: The significance of cohabitation. *Demography*. in press.
- Bumpass LL, Lu H. Trends in cohabitation and implications for children's family contexts in the United States. *Population Studies*. 2000; 54:29–41.
- Centers for Disease Control and Prevention. Surveillance Summaries MMWR. Vol. 55. 2006. Youth Risk Behavior Surveillance–United States, 2005.
- Chen K, Kandel DB. The natural history of drug use from adolescence to mid-thirties in a general population sample. *American Journal of Public Health*. 1995; 85:41–47. [PubMed: 7832260]
- Clarkberg M, Stolzenberg RM, Waite LJ. Attitudes, values, and entrance into cohabitational versus marital unions. *Social Forces*. 1995; 74:609–634.
- Crockett LJ, Raffaelli M, Shen Y. Linking self-regulation and risk proneness to risky sexual behavior: Pathways through peer pressure an early substance use. *Journal of Research on Adolescence*. 2006; 16:503–525.
- Crosnoe R. The connection between academic failure and adolescent drinking in secondary school. *Sociology of Education*. 2006; 79:44–60. [PubMed: 20216913]
- Dawson DA. Family structure and children's health and well-being: Data from the 1988 national health interview survey on child health. *Journal of Marriage and the Family*. 1991; 53:573–584.
- DeLeire T, Kalil A. Good things come in threes: Single-parent multigenerational family structure and adolescent adjustment. *Demography*. 2002; 39:393–413. [PubMed: 12048958]
- Dunifon R, Kowaleski-Jones L. Who=s in the house? Race differences in cohabitation, single parenthood, and child development. *Child Development*. 2002; 73:1249–1264. [PubMed: 12146746]
- Flay BR, Hu FB, Siddiqui O, Day LE, Hedeker D, Petraitis J, Richardson J, Sussman S. Differential influence of parental smoking and friends' smoking on adolescent initiation and escalation and smoking. *Journal of Health and Social Behavior*. 1994; 35:248–265. [PubMed: 7983337]

- Flewelling RL, Bauman KE. Family structure as a predictor of initial substance use and sexual intercourse in early adolescence. *Journal of Marriage and the Family*. 1990; 52:171–181.
- Friestad C, Pirkis J, Biehl M, Irwin CE. Socioeconomic patterning of smoking, sedentary lifestyle, and overweight status among adolescents in Norway and the United States. *Journal of Adolescent Health*. 2003; 33:275–278. [PubMed: 14519569]
- Griesbach D, Amos A, Currie C. Adolescent smoking and family structure in Europe. *Social Science & Medicine*. 2003; 56:41–52. [PubMed: 12435550]
- Guilamo-Ramos V, Jaccard J, Turrissi R, Johansson M. Parental and school correlates of binge drinking among middle school students. *American Journal of Public Health*. 2005; 95:894–899. [PubMed: 15855471]
- Hao L, Xie G. The complexity and endogeneity of family structure in explaining children's misbehavior. *Social Science Research*. 2002; 31:1–28.
- Hu MC, Davies M, Kandel DB. Epidemiology and correlates of daily smoking and nicotine dependence among young adults in the United States. *American Journal of Public Health*. 2006; 96:299–308. [PubMed: 16380569]
- Igra, V.; Irwin, CE. Theories of adolescent risk-taking behavior. In: Clemente, RJ.; Hansen, WB.; Ponton, LE., editors. *Handbook of Adolescent Health Risk Behavior*. New York: Plenum Press; 1996. p. 35-51.
- Irwin CE. Tobacco use during adolescence and young adulthood: The battle is not over. *Journal of Adolescent Health*. 2004; 35:169–171. [PubMed: 15313497]
- Irwin, CE.; Millstein, SG. Risk-taking behaviors and biopsychosocial development during adolescence. In: Susman, EJ.; Feagans, LV.; Ray, WJ., editors. *Emotion, cognition, health, and development in children and adolescents*. Hillsdale, NJ: Erlbaum; 1992. p. 75-102.
- Kandel DB, Kiros GE, Schaffran C, Hu MC. Racial/ethnic differences in cigarette smoking initiation and progression to daily smoking: A multilevel analysis. *American Journal of Public Health*. 2004; 94:128–135. [PubMed: 14713710]
- Kirby JB. The influence of parental separation on smoking initiation in adolescents. *Journal of Health and Social Behavior*. 2002; 43:56–71. [PubMed: 11949197]
- Ludden AB, Eccles JS. Psychosocial, motivational, and contextual profiles of youth reporting different patterns of substance use during adolescence. *Journal of Research on Adolescence*. 2007; 17:51–88.
- Manning WD, Lamb KA. Adolescent well-being in cohabiting, married, and single-parent families. *Journal of Marriage and Family*. 2003; 65:876–893.
- McLanahan, SS.; Sandefur, G. *Growing up with a single parent: What hurts, what helps*. Cambridge, MA: Harvard University Press; 1994.
- Menning CL. Nonresident fathers' involvement and adolescents' smoking. *Journal of Health and Social Behavior*. 2006; 47:32–46. [PubMed: 16583774]
- Miller DC. Adolescent cigarette smoking: A longitudinal analysis through young adulthood. *National Center for Education Statistics: Statistics in Brief*. 2005; 333:1–20.
- Nichols TR, Graber JA, Brooks-Gunn J, Botvin GJ. Maternal influences on smoking initiation among urban adolescent girls. *Journal of Research on Adolescence*. 2004; 14:73–97.
- Omar RF, Vesely SK, Tolma E, Aspy CB, Rodine S, Marhsall L. Does family structure matter in the relationships between youth assets and youth alcohol, drug, and tobacco use? *Journal of Research on Adolescence*. 2007; 17:743–766.
- Rashad I, Kaestner R. Teenage sex, drugs and alcohol use: Problems identifying the cause of risky behaviors. *Journal of Health Economics*. 2004; 23:493–503. [PubMed: 15120467]
- Raley RK, Wildsmith E. Cohabitation and children's family instability. *Journal of Marriage and Family*. 2004; 66:210–219.
- Riala K, Hakko H, Isohanni M, Järvelin MR, Räsänen P. Teenage smoking and substance use as predictors of severe alcohol problems in late adolescence and in young adulthood. *Journal of Adolescent Health*. 2004; 35:245–254. [PubMed: 15313508]
- Scal P, Ireland M, Borowsky IW. Smoking among American adolescents: A risk and protective factor analysis. *Journal of Community Health*. 2003; 28:79–97. [PubMed: 12705311]

- Schulenberg, J.; Maggs, J.L.; Hurrelmann, K. Negotiating developmental transitions during adolescence and young adulthood: Health risks and opportunities. In: Schulenberg, J.; Maggs, J.L.; Hurrelmann, K., editors. *Health risks and developmental transitions during adolescence*. Cambridge, UK: Cambridge University Press; 1997. p. 1-22.
- Swahn MH, Hammig BJ. Prevalence of youth access to alcohol, guns, illegal drugs, or cigarettes in the home and association with health-risk behaviors. *Annals of Epidemiology*. 2000; 10:449–483.
- Swahn MH, Simon TR, Hammig BJ, Guerrero JL. Alcohol-consumption behaviors and risk for physical fighting and injuries among adolescent drinkers. *Addictive Behaviors*. 2004; 29:959–963. [PubMed: 15219342]
- Sweeting H. Our family, whose perspective? An investigation of children's family life and health. *Journal of Adolescence*. 2001; 24:229–250. [PubMed: 11437482]
- Thomson E, Hanson TL, McLanahan SS. Family structure and child well-being: Economic resources vs. parental behaviors. *Social Forces*. 1994; 73:221–242.
- Thomson E, McLanahan SS, Curtain RB. Family structure, gender, and parental socialization. *Journal of Marriage and the Family*. 1992; 54:368–378.
- Urberg K, Goldstein MS, Toro PA. Supportive relationships as a moderator of the effects of parent and peer drinking on adolescent drinking. *Journal of Research on Adolescence*. 2005; 15:1–19.
- U. S. Bureau of the Census. *Profiles of General Demographic Characteristics*. 2001. 2000 Census of population and housing, United States.
- Van Den Bree MBM, Whitmer MD, Pickworth WB. Predictors of smoking development in a population-based sample of adolescents: A prospective study. *Journal of Adolescent Health*. 2004; 35:172–181. [PubMed: 15313498]
- Weisner M, Windle M. Young adult substance use and depression as a consequence of delinquency trajectories during middle adolescence. *Journal of Research on Adolescence*. 2006; 16:239–264.
- Wolfinger NH. The effects of parental divorce on adult tobacco and alcohol consumption. *Journal of Health and Social Behavior*. 1998; 39:254–269. [PubMed: 9785697]
- Zweig JM, Lindberg LD, McGinley KA. Adolescent health risk profiles: The co-occurrence of health risks among females and males. *Journal of Youth and Adolescence*. 2001; 30:707–727.
- Zweig JM, Phillips SD, Lindberg LD. Predicting adolescent profiles of risk: Looking beyond demographics. *Journal of Adolescent Health*. 2002; 31:343–353. [PubMed: 12359380]

Table 1
Weighted Means (standard errors) of Variables Used in the Analyses for the Total Sample and by Family Structure

Variables	Total Sample		Married Two Biological Family		Married Stepfamily		Single-Mother Family		Cohabiting Stepfamily	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
<i>Risk-Taking Behaviors</i>										
Smoking	0.261	0.012	0.241	0.013	0.311	0.019	0.274	0.016	0.393	0.042
Drinking	0.456	0.015	0.432	0.016	0.525	0.023	0.468	0.020	0.581	0.041
Smoking & Drinking	0.213	0.011	0.198	0.011	0.258	0.018	0.213	0.015	0.331	0.042
<i>Family Structure</i>										
Two Biological Married Family	0.617	0.012	-	-	-	-	-	-	-	-
Married Stepfamily	0.129	0.004	-	-	-	-	-	-	-	-
Single-Mother Family	0.228	0.012	-	-	-	-	-	-	-	-
Cohabiting Stepfamily	0.026	0.002	-	-	-	-	-	-	-	-
<i>Adolescent Characteristics</i>										
Age	15.336	0.120	15.328	0.120	15.369	0.130	15.362	0.151	15.122	0.194
Boy	0.494	0.007	0.505	0.010	0.485	0.015	0.465	0.012	0.540	0.040
NH White	0.696	0.028	0.758	0.027	0.721	0.026	0.523	0.035	0.643	0.049
NH Black	0.141	0.020	0.080	0.014	0.126	0.017	0.313	0.035	0.166	0.040
Hispanic	0.117	0.017	0.112	0.018	0.117	0.018	0.129	0.020	0.148	0.031
NH Other	0.045	0.007	0.051	0.009	0.035	0.007	0.035	0.007	0.042	0.015
<i>Family Economic Context</i>										
Mother's Education										
< High School	0.182	0.013	0.162	0.014	0.201	0.013	0.215	0.018	0.274	0.033
High School	0.376	0.012	0.371	0.015	0.383	0.015	0.383	0.016	0.389	0.039
Some College	0.195	0.007	0.186	0.009	0.216	0.012	0.210	0.012	0.187	0.031
College+	0.247	0.016	0.281	0.019	0.220	0.015	0.191	0.017	0.150	0.025
Family Income	3.576	0.034	3.788	0.032	3.636	0.036	3.012	0.034	3.192	0.055
Family Income Missing	0.117	0.006	0.122	0.007	0.089	0.009	0.108	0.008	0.108	0.008
<i>Maternal Socialization</i>										
Maternal Support	17.348	0.057	17.453	0.064	17.234	0.116	17.210	0.097	16.672	0.237
Maternal Control	1.919	0.055	1.941	0.057	1.969	0.077	1.843	0.073	1.805	0.108

Variables	Total Sample		Married Two Biological Family		Married Stepfamily		Single-Mother Family		Cohabiting Stepfamily	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
<i>Modeling</i>										
Mother Smokes	0.300	0.012	0.219	0.010	0.415	0.018	0.426	0.018	0.550	0.040
Mother Drinks										
Never	0.428	0.014	0.443	0.017	0.372	0.021	0.430	0.016	0.311	0.033
Rarely	0.442	0.011	0.437	0.013	0.484	0.021	0.427	0.015	0.480	0.042
Weekly	0.130	0.007	0.119	0.009	0.144	0.014	0.143	0.010	0.208	0.030
N	13282		8195		1714		3028		345	

Table 2

Logistic Regression Models Predicting Adolescent Smoking (Model 1), Drinking (Model 2), and Both Smoking & Drinking (Model 3) (unstandardized coefficients and odds ratios shown, N=13,282)

Variables	Model 1a		Model 2a		Model 3a		Model 1b		Model 2b		Model 3b	
	Smoking		Drinking		Smoking & Drinking		Smoking		Drinking		Smoking & Drinking	
	b	Odds Ratio	b	Odds Ratio	b	Odds Ratio	b	Odds Ratio	b	Odds Ratio	b	Odds Ratio
<i>Family Structure</i>												
Two Biological Married Family	Ref.	-	Ref.	-	Ref.	-	Ref.	-	Ref.	-	Ref.	-
Married Stepfamily	0.401 ***	1.493	0.381 ***	1.464	0.399 ***	1.490	0.294 ***	1.342	0.316 ***	1.372	0.288 **	1.334
Single-Mother Family	0.430 ***	1.537	0.324 ***	1.383	0.358 ***	1.430	0.297 ***	1.346	0.304 ***	1.355	0.249 **	1.283
Cohabiting Stepfamily	0.922 ***	2.514	0.782 ***	2.187	0.926 ***	2.524	0.679 ***	1.972	0.658 ***	1.930	0.685 ***	1.984
<i>Adolescent Characteristics</i>												
Age	0.238 ***	1.269	0.323 ***	1.382	0.280 ***	1.323	0.194 ***	1.214	0.318 ***	1.374	0.237 ***	1.267
Boy	-0.057	0.945	-0.094	0.910	-0.133 *	0.875	0.014	1.014	-0.036	0.965	-0.056	0.946
NH White	Ref.	-	Ref.	-	Ref.	-	Ref.	-	Ref.	-	Ref.	-
NH Black	-1.276 ***	0.279	-0.841 ***	0.431	-1.406 ***	0.245	-0.102 ***	0.903	-0.679 ***	0.507	-1.290 ***	0.275
Hispanic	-0.622 ***	0.537	-0.302 **	0.740	-0.609 ***	0.544	-0.619 ***	0.538	-0.127	0.881	-0.483 ***	0.617
NH Other	-0.698 ***	0.498	-0.320 **	0.726	-0.626 ***	0.535	-0.671 ***	0.511	-0.151	0.860	-0.492 **	0.611
<i>Family Economic Context</i>												
Mother's Education												
<High School					0.081	1.084	0.081	1.084	0.013	1.013	0.055	1.057
High School					Ref.	-	Ref.	-	Ref.	-	Ref.	-
Some College					-0.059	0.943	-0.059	0.943	0.123	1.131	0.048	1.049
College +					-0.165 *	0.848	-0.165 *	0.848	-0.081	0.922	-0.084	0.919
Family Income					0.000	1.000	0.000	1.000	0.109 **	1.115	0.059	1.061
Family Income Missing					-0.018	0.982	-0.018	0.982	-0.205 *	0.815	-0.084	0.919

Variables	Model 1a		Model 2a		Model 3a		Model 1b		Model 2b		Model 3b	
	Smoking		Drinking		Smoking & Drinking		Smoking		Drinking		Smoking & Drinking	
	b	Odds Ratio	b	Odds Ratio	b	Odds Ratio	b	Odds Ratio	b	Odds Ratio	b	Odds Ratio
<i>Maternal Socialization</i>												
Maternal Support							-0.098 ***	0.907	-0.095 ***	0.909	-0.103 ***	0.902
Maternal Control							-0.097 ***	0.908	-0.061 ***	0.941	-0.115 ***	0.891
<i>Modeling</i>												
Mother Smokes							0.396 ***	1.486			0.305 ***	1.357
Mother Never Drinks									-0.544 ***	0.581	-0.307 ***	0.736
Mother Rarely Drinks									Ref.	-	Ref.	-
Mother Often Drinks									0.269 ***	1.309	0.189	1.208
F	50.28		38.93		48.18		32.59		47.59		28.54	
(df)	(8,121)		(8,121)		(8,121)		(16,113)		(10,119)		(18,111)	

Analyses have been corrected for the complex sampling design.

* p<.05

** p<.01

*** p<.001

Bolded coefficients significantly different than cohabiting stepfamily, p<.05.