

Parental Monitoring: Can It Continue to Be Protective Among High-Risk Adolescents?

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ABSTRACT. Adolescence is a developmental period during which many youth experiment with risk practices. This paper examined the association of parental monitoring with a range of alcohol and other drug (AOD) use behaviors among high-risk youth, while controlling for other

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demographic and environmental variables previously found to be associated with AOD use. Participants were recruited as part of a longitudinal evaluation study of four youth drop-in centers located in Southern California. These centers served at-risk youth, including Hispanic, Lesbian/Gay/Bisexual/Questioning (LGBQ), and homeless and runaway youth. Participants were aged 14 to 24 and were new attendees at the drop-in centers. Results from logistic regression analyses revealed that while controlling for demographic and environmental variables, adolescents who reported less parental monitoring were more likely to report lifetime use of cigarettes, marijuana, and methamphetamine, and in the past three months, use of alcohol and binge drinking. The findings thus indicate that, even among high-risk youth, those who reported low parental monitoring were significantly more likely to use a variety of substances. Implications of these findings are discussed as they pertain to AOD prevention and interventions for children and their families. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2005 by The Haworth Press, Inc. All rights reserved.]

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INTRODUCTION

Adolescence is a developmental period during which many youth experiment with risk practices. Many of these practices, such as substance use, sexual risk-taking and violence, carry potential risks for adverse health outcomes. This paper focuses on alcohol and other drug (AOD) use among a high-risk population in order to identify the degree to which youth-reported parental monitoring is associated with AOD use.

The Epidemiology of Adolescent Substance Use

For adolescent populations, alcohol and marijuana tend to be the most frequently reported substances used. Several studies have documented the epidemiology of marijuana use among high school students. Using a longitudinal national sample, Johnston, O'Malley, and Bachman (2002) reported that the lifetime marijuana prevalence rate for high school seniors is 49.0%, the annual prevalence rate is 37.0%, and the thirty-day

rate is 22.4%. They also found that the annual prevalence rate for marijuana use among high school seniors increased steadily during the 1990s, and has hovered around 49% since 1997. In addition, data from the 2001 Monitoring the Future Report (Johnston et al., 2002) indicate that 61% of high school seniors reported lifetime cigarette use, 6.9% reported lifetime methamphetamine use, and 11.7% reported lifetime ecstasy use.

Alcohol use is even more prevalent than is marijuana use among adolescents. For example, the 2001 Monitoring the Future data indicate that the lifetime prevalence of alcohol use is nearly 80% for high school seniors, with about 30% of those seniors reporting binge drinking (drinking five or more drinks in one setting) during the prior 2 weeks. The annual prevalence rate for alcohol use among seniors dropped slightly to 73.3%, while the annual prevalence rate of drunkenness in the past year was 53.2%. Demographic variables associated with adolescent alcohol use include gender, age, and race/ethnicity. Alcohol use has been found to increase with age across the adolescent years, with males drinking more than females (Windle, 1991). In terms of ethnicity, several studies have shown that Caucasian adolescents drink more than their African American and Hispanic counterparts (Vega et al., 1993; Warheit et al., 1996; Windle, 1991). With respect to heavy drinking, Johnston and associates (2002) found that more male high school seniors reported heavy drinking (38%) compared to their female counterparts (24%) and the frequency of heavy drinking increased with age.

A number of published studies have found support for associations between various family environmental variables and risk taking (Luster et al., 1994; Patterson et al., 1992). Others have found that the influence of peers predicts these (Brook et al., 1997; Downs, 1987; Vega et al., 1993), and still others have found support for the influence of both family and peers (e.g., Shillington & Clapp, 2001).

Family Environment and Parental Monitoring

Family environment has been conceptualized as being made up of multiple constructs. Some aspects of the family environment that have been explored empirically include: family conflict (Patterson, Reid, & Dishion, 1992); connectedness/attachment (Grotevant, 1998; Silverberg et al., 1992); communication (Hauser, 1991); parenting style (Baumrind, 1991); family structure (Buchanan, Maccoby, & Dornbusch, 1996); family economic status (Conger, Ge, Elder, Lorenz, & Simons, 1994); and parental employment (Bronfenbrenner & Crouter, 1982).

Parental monitoring is one family context variable that has received much attention in the literature concerning adolescent risk behavior (DiClemente et al., 2001; Steinberg et al., 1994). Studies have found that compared to youth who perceive themselves to have more parental monitoring, those who perceive less monitoring are more likely to be involved in various risk behaviors. Such risk behaviors include: (a) having multiple sex partners (DiClemente et al., 2001; Luster et al., 1994); (b) having unsafe sex partners (DiClemente et al., 2001; Jacobson et al., 2000); (c) smoking cigarettes (Biglan et al., 1995; DiClemente et al., 2001); (d) consuming alcoholic beverages (DiClemente et al., 2001); (e) using marijuana (DiClemente et al., 2001); and (f) drug trafficking and violent behavior (DiClemente et al., 2001; Li et al., 2000a). For each of these parental monitoring was found to be protective for the individual risk behaviors.

Although the definition of parental monitoring varies, three common components of this construct are: (1) parents have knowledge of the friends with whom their children spend time; (2) parents have knowledge of their children's whereabouts when they are away from home; and (3) parents know what their children do with their free time (DiClemente et al., 2001; Li et al., 2000a; Li et al., 2000b; Stanton et al., 2000; Steinberg et al., 1994).

Parental monitoring has been conceptualized as serving both primary and secondary prevention functions. Primary prevention may be achieved by avoiding or delaying the onset of risk behaviors. Secondary prevention may be realized by reducing the classes of risk behaviors in which youth become involved as well as the frequency of risky behaviors in which youth are already involved (Stanton et al., 2000; Steinberg et al., 1994). In a 6-year longitudinal study examining alcohol use among adolescents, Barnes, Reifman, Farrell, and Dintcheff (2000) applied a growth-curve model to the data and found that parental practices (including parental monitoring) predicted initial drinking levels as well as increases in drinking behaviors across time. Chassin, Curran, Hussong, and Colder (1996) found that greater levels of parental monitoring corresponded with lower levels of adolescent substance use.

In a separate study, Duncan, Duncan, and Stoolmiller (1994) found that lower levels of parental monitoring predicted greater rates of increased alcohol use among adolescents. In a longitudinal study, Steinberg and colleagues reported that parental monitoring discouraged adolescents from beginning drug use and that for those adolescents who started drug use, high levels of monitoring was associated with a decrease in "heavy use" by boys and a decrease from experimental use to no use among girls (Steinberg, Fletcher, & Darling, 1994).

Prior research has examined the impact of parental monitoring on adolescent risk behavior predominantly for white middle-class samples (e.g., Luster et al., 1994; Stanton et al., 2000). A few parental monitoring studies have examined families of other ethnic or SES groups, such as African Americans or low-income families (DiClemente et al., 2001; Li et al., 2000a; Li et al., 2000b; Stanton et al., 2000). Studies have also focused on specific subgroups, including African American females (DiClemente et al., 2001), African American and Caucasian seventh graders (Barrera, Biglan, Ary, & Li, 2001), and Caucasian adolescents (Jacobson & Crockett, 2000). One study found parental monitoring associated with a decrease in substance use among American Indian and Hispanic youth (Barrera, Biglan, Ary, & Li, 2001). Many of the studies in the parental monitoring literature have used general household surveys (Barnes et al., 2000; Barrera et al., 2001; Jacobson et al., 2000). Other studies have examined higher risk youth, such as those coming to medical clinics (DiClemente et al., 2001) and those living in public housing communities (Li et al., 2000a; Li et al., 2000b).

The purpose of this study was to add to the literature regarding the prevalence of substance use behaviors for high-risk youth attending neighborhood drop-in centers. This study also was designed to determine associations between parental monitoring and use of specific substances among high-risk youth, rather than the common practice of measuring substance use as a cumulative variable across a variety of substances. Finally, we controlled for a number of factors known to co-vary with substance use, such as age, ethnicity, and education level, and controlled for other variables associated with AOD use, including: religiosity (Donovan et al., 1999; Wallace Jr. et al., 1995), peer risks (Brook et al., 1997; Donovan et al., 1999), school problems (Brook, Balka, & Whitman, 1999), and neighborhood problems. The analyses presented here provide a stronger examination of the association of parental monitoring independent of demographic and environmental factors.

METHODS

Participants

Participants were recruited as part of the Centers for Adolescent Risk Reduction Evaluation (CARRE) Project, a longitudinal evaluation study of four youth drop-in centers located in Southern California that serve at-risk youth (i.e., *Hispanic youth*, *GLBT youth*, and *homeless and run-*

away youth). Youth were recruited by referral from the drop-in center staff, by other youth already attending the drop-in centers, or by a CARRE project research assistant. Youth ages 14 to 24 years, who had not attended the drop-in center more than two times and for whom consent was obtained, met inclusion criteria.

Survey Procedures

The surveys were administered using state-of-the-art audio-computer assisted survey instrument (A-CASI) technology. A-CASI technology was chosen as a data collection mechanism in the current study for a number of reasons. First, A-CASI has been shown to improve reporting accuracy among high-risk populations (Des Jarlais et al., 1999; Turner et al., 1998; Webb et al., 1999). Second, this method of interviewing is likely to improve the accuracy of data by limiting social desirability bias, and other biases associated with interviewer-respondent interaction. Third, ranges and validity checks can be set for specific questions to reduce error associated with invalid responses. Last, A-CASI eliminates data entry problems associated with keystroke errors.

Each interviewer was trained in the use of A-CASI in order to start the program and handle any participant questions that may arise. Each participant completed a survey on a laptop computer, which on average took about 30 minutes. Participants were able to listen to and read the survey questions and respond by using the computer mouse or keyboard. To enhance privacy, headphones were used. The interviewer was present in the area in which the interview took place in case the youth had any questions or needed clarifications.

Measures

Substance Use. Substance use was the dependent variables for the present analyses. Lifetime use of cigarettes, marijuana, alcohol, methamphetamine, ecstasy, and inhalants were queried. For each substance, responses were coded with 0 (*never used*) and 1 (*ever used*). Current use was ascertained by asking about alcohol, cigarette, and marijuana use during the past 3 months, with 0 (*No*) and 1 (*Yes*). We also collected data on the frequency of use of each substance and age at onset. Current use of other substances was queried but there were not enough youth reporting use of these substances to warrant inclusion in analyses.

Parental Monitoring. Parental monitoring was the primary independent variable for the present analyses. Participants were asked to indicate on a 3-point scale (i.e., *never, sometimes, always*) how often their parents, stepparents, or other guardians knew where they were, who they were with, and what they were doing. Analyses were first conducted with parental monitoring as a three-level variable; parental monitoring was then dichotomized with codes of 0 (*never and sometimes*) and 1 (*always*). Results using the two methods indicated essentially the same strength of association with parental monitoring; the dichotomous variables were retained for final analyses.

Demographics. Demographic variables included ethnicity, age, education level, religiosity, peer risk, school problems, neighborhood problems, and the number of adults living in the home. These were entered in the analyses as covariates. (a) *Ethnicity.* For these analyses, ethnicity was dummy coded with *Whites* coded as 1 and *all others* coded as 0. This was done because White youth reported significantly higher rates of use for those substances where use differed by ethnicity. (b) *Age.* Age was included as a continuous variable, which ranged from 14 to 24 years. (c) *Educational Level.* Participants were asked to indicate the highest year of school that they had completed. (d) *Religiosity.* Two items assessed participants' degree of religiosity. First, youth were asked to indicate on a 5-point scale how frequently they had attended religious services in the past 3 months. Response choices ranged from 0 (*not at all*) to 4 (*more than once a week*). For all analyses, responses were dummy coded with 0 (*no attendance*) and 1 (*attendance*) (monthly or more). Second, youth were asked to indicate on a 5-point scale how religious they were. Response choices ranged from 1 (*not at all religious*) to 5 (*very religious*). Responses were dummy coded with 0 (*not at all or a little religious*), and 1 (*somewhat, quite, or very religious*).

Ecological Variables. (a) *Peer risk behavior.* Peer risk behavior was measured using a 4-item scale. Participants were asked to indicate whether any of their friends tried to get them to (1) drink alcohol, and/or (2) use drugs when they did not want to in the last 3 months, and to indicate whether any of their close friends had (3) carried any weapons, or (4) spent any time in a correctional facility, in the last 3 months. Responses (0 = *No*, 1 = *Yes*) were summed; a higher number indicated a greater degree of peer risk (Range = 0-4, $M = 1.0$, $SD = 1.0$). Cronbach's alpha for this scale was .65. (b) *School suspensions.* Participants were asked to indicate the number of times they had ever been suspended from school and the number of times they had ever been expelled from school. Items were combined and recoded with 0 (*never*

suspended or expelled), 1 (*ever suspended*), and 2 (*ever expelled*). Thus, a higher score reflected a greater degree of school problems. (c) *Neighborhood safety*. To assess neighborhood safety, an 8-question scale was used and participants were asked to indicate the degree to which neighborhood factors (e.g., crime and violence, gangs, not enough police protection) were a problem in their neighborhood in the last 3 months. Response choices ranged from 1 (*not a problem*) to 3 (*a big problem*). Responses were summed across items such that a higher score reflected a more negative neighborhood climate. Internal reliability for the scale was good (Cronbach's alpha = .82). (d) *Number of adults living in the home*. Finally, the number of adults living with the youth was included in multivariate analyses.

Statistical Analyses

Baseline data collected between November 2001 and September 2002 from two of the four CARRE project drop-in centers were pooled. Prior to pooling, the data were first compared for significant differences by site on all key characteristics such as parental monitoring, substance use, and demographics; the only significant difference identified between the two centers was age of participants. Age was used as a control variable in multivariate analyses. Bivariate analyses were conducted using Chi-squares and Analyses of Variance. All ordinal variables were dichotomized. Multivariate analyses were conducted using logistic regression models. All statistical tests were conducted using SPSS 10.1.3.

RESULTS

Participant Characteristics

A total of 187 youth completed the survey. The average age of participants was 17.3 years (Range = 14-24; $SD = 2.52$) and approximately 60% were male ($n = 112$). With respect to ethnicity, 41.7% were Hispanic/Latino, 29.9% were Caucasian, 10.7% were African American, and 17.7% were Other. On average, the highest year of school completed was 10th grade ($SD = 1.77$, Range = 2-16). It was found that approximately 2/3 of the youth (66.3%) reported that they were currently in school. On average, participants attended religious services once a month ($M = .98$, $SD = 1.28$); 29% reported attending at least monthly with 42% of youth reporting that they were somewhat to very religious.

Over half of participants had been suspended (53.8%), with a mean number of 4 suspensions reported (Range = 0-50, $SD = 9.35$). Twenty percent of the participants had ever been expelled (Range = 0-7, $M = .41$, $SD = 1.03$). (Range = 8-21, $M = 11.7$, $SD = 3.46$). With regards to parental monitoring, 37% of youth reported that their parents *always* knew where they were and what they were doing and with whom.

Table 1 shows the reported rates of *lifetime* and *past 3-month substance use*, as well as the odds ratios, 95% confidence intervals, and *p*-values for the associations between each substance use variable and parental monitoring. The lifetime rates of use range from 17.3% for ecstasy to 75.4% for alcohol use. Percentages for past 3-month use include only those who reported lifetime use of each substance. Regarding substance use during the past 3 months among those with lifetime use, 74% reported alcohol use, nearly 66% reported binge drinking, 71% reported marijuana use, and 62% reported cigarette use.

Chi-square tests indicated that parental monitoring was negatively associated with lifetime use of cigarettes (81% vs. 55.1%), alcohol (87.9 vs. 75.4), marijuana (73.3% vs. 49.3%), methamphetamine (34.5% vs. 11.6%), and ecstasy (22.4 vs. 8.7). Similarly, the low parental monitoring group reported significantly more alcohol use, binge drinking, and cigarette use in the past 3 months than the high parental monitoring group.

Logistic regression results indicated that after controlling for the selected covariates (i.e., ethnicity, age, gender, religiosity, school difficulties, neighborhood climate, and having peers involved in risky behaviors), compared to youth reporting parental monitoring, youth who reported no parental monitoring were significantly more likely to report lifetime use of cigarettes, marijuana, and methamphetamine, and alcohol use and binge drinking in the past 3 months (see Table 1).

DISCUSSION

Similar to other studies (Barnes et al., 2000; Chassin et al., 1996), we found that higher levels of parental monitoring as reported by adolescents were associated with lower AOD use rates. The confirmation of this association is especially notable given the high-risk status of the youth in our sample. It is quite important to note for purposes of intervention design that, in a population reporting a high incidence of substance use, perceived levels of greater parental monitoring remained a significant protective factor for some categories of substance use even

TABLE 1. Relationships Between Parental Monitoring and Lifetime and Past 3-Month Substance Use: Chi-Square and Logistic Regression Results

DESCRIPTIVE VARIABLES	n = 185 n (%)	Parental Monitoring		Chi-square Value	p Value	Logistic Regression Analyses O.R. (95% C.I.)	p Value
		None/Some n (%)	Always n (%)				
Males	111 (60.0)	74 (63.8)	37 (53.6)	ns			
ETHNICITY							
White	56 (30.3)	38 (32.8)	18 (26.1)	ns			
Other	129 (69.7)	78 (67.2)	51 (73.9)				
Substance Use-Lifetime							
Cigarettes	132 (71.4)	94 (81.0)	38 (55.1)	14.27***	3.15 (1.58-6.29)	.001	
Alcohol	154 (75.4)	102 (87.9)	52 (75.4)	4.09*	ns		
Marijuana	119 (64.3)	85 (73.3)	34 (49.3)	10.86***	2.74 (1.31-5.24)	.006	
Methamphetamine	48 (25.9)	40 (34.5)	8 (11.6)	11.80***	2.48 (0.99-6.17)	.05	
Ecstasy	32 (17.3)	26 (22.4)	6 (8.7)	5.70**	ns		
Substance Use-Past 3 Months							
Cigarettes	82 (62.1)	64 (68.1)	18 (47.4)	4.94*	ns		
Alcohol	114 (74.0)	83 (81.4)	31 (59.6)	8.48**	2.73 (1.22-6.11)	.01	
Binge drinking (5 plus in a single setting)	73 (65.8)	59 (72.8)	14 (46.7)	6.66**	2.73 (2.34-14.46)	.04	
Marijuana	85 (71.4)	62 (72.9)	23 (67.6)	ns			

ns = not statistically significant. *p < .05. **p < .01. ***p < .001.

after accounting for other important substance use predictors. The youth participating in the present study are clearly much more involved in AOD use than adolescents represented in national data sets such as Monitoring the Future (Johnston et al., 2002). Despite this, higher levels of perceived parental monitoring remain protective in terms of lifetime cigarette use, binge drinking, marijuana use, and methamphetamine use, and current alcohol use.

However, the protective effects of perceived parental monitoring only held for specific psychoactive substances rather than all substances and, in contrast to earlier studies (Barnes et al., 2000; Steinberg et al., 1994), parental monitoring was unrelated to age of onset of use. It is unclear whether this finding is related to the unique population studied here, or is a function of other factors. For instance, it is possible that independent of parental monitoring, high-risk youth initiate AOD use earlier than lower risk youth. In the present study, the protective effect of perceived parental monitoring was only found for respondents who reported that their parents *always* monitored their behavior, and not for those who perceived that monitoring occurred only sometimes. This has important implications for interventions targeting parents who are inconsistent in their monitoring behaviors. It is possible that actual parental monitoring and perceptions of parental monitoring vary within participants across time, and that actual monitoring and the way adolescents perceive it fluctuate in important ways. Moreover, adolescents might process their perceptions of parental monitoring through a series of complex mediators including their parents' own AOD use and attitudes toward specific substances. Our finding that lifetime alcohol use appears to be unrelated to parental monitoring, while more proximal behaviors—binge drinking and 3-month prevalence of use—were related to perceived monitoring, may be a function of such relationships. That is, parents might use alcohol or other drugs while simultaneously prohibiting their children from doing so. In such cases, although parental use of a given substance may tacitly endorse future use of that substance by the adolescent, actual or perceived parental monitoring might mediate such use. Future research is needed to further examine these issues.

Limitations

The degree of parental monitoring was measured indirectly through the adolescents' report, and not through direct observation. The present study was therefore only able to assess associations of adolescent substance use with perceptions of monitoring. It is unclear how actual de-

degrees of parental monitoring relate to the adolescents' perceptions of monitoring and what other factors may need to be considered when assessing the association between perceived parental monitoring and adolescent risk behaviors.

The combination of actual monitoring and perceptions of monitoring as well as how such perceptions are developed and maintained might have important prevention implications. Future intervention studies would benefit from further analysis of this issue.

It is also important to note that we used a relatively simple measure of perceived parental monitoring. The three conceptual domains underlying the construct of parental monitoring—parents' knowledge of where their children are, whom their children are with, and what they are doing—were combined into a single indicator in the present study. It is unclear if all of these domains are equally important or necessary, and if they are sufficient to produce a protective effect. Similarly, the 3-point scale was not time specific, and does not take into account changes in parental monitoring over time and potential relationships to lifetime vs. current substance use. Future studies should utilize more specific measures of perceived parental monitoring that take into account potential changes in parental monitoring over time, and the relative importance of each component of the parental monitoring construct.

The direction of the relationship is another key area that remains to be studied. With a cross-sectional design, temporal order is not certain. Future studies should include longitudinal designs to confirm temporal order and potential causal relationships.

Strengths and Implications

Despite the above limitations, the present study has some important implications for substance use prevention efforts targeting high-risk youth. The results of the present study suggest that prevention and intervention work with adolescents should consider the modification of family factors to shape healthier adolescent behaviors. The social context of the family includes multiple factors grounded in a complex and dynamic system of relationships. Parental monitoring might prove to be an amenable and cost efficient factor to employ in prevention efforts.

Family interventions that increase parental skill levels as they pertain to parental monitoring and enhance parent-child communication may lead to closer relationships and reduced risk behaviors. However, it would be important to begin this process while the child is still young, prior to adolescence. Putting consistent monitoring behaviors in place

during adolescence, when previously absent, may be thought of as more of a punishment and other difficulties may arise when you try to impose parental monitoring too late in the game. As DiClemente et al. (2001) notes, a key to family interventions would be to help parents share their own values related to AOD use and other risk behaviors, with the ultimate goal of youth becoming independent in their ability to make healthy choices. One potential confounder might be the parents' own views. Future research should assess parental AOD use and parental monitoring. Parents who have their own alcohol or drug use problems may monitor their children differently than those without such problems and interventions that include monitoring might want to take this into account. Results from this study indicate that parental monitoring holds promise in future adolescent AOD use prevention.

REFERENCES

- Barnes, G. M., Reifman, A. S., Farrell, M. P., & Dintcheff, B. A. (2000). The effects of parenting on the development of adolescent alcohol misuse: A six-wave latent growth model. *Journal of Marriage and the Family*, *62*, 175-186.
- Barrera, M. J., Biglan, A., Ary, D., & Li, F. (2001). Replication of a problem behavior model with American Indian, Hispanic, and Caucasian youth. *Journal of Early Adolescence*, *21*, 133-157.
- Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence*, *11*, 56-95.
- Biglan, A., Duncan, T. E., Ary, D. V., & Smolkowski, K. (1995). Peer and parental influences on adolescent tobacco use. *Journal of Behavioral Medicine*, *18*, 315-330.
- Bronfenbrenner, U. & Crouter, A. (1982). Work and family through time and space. In S. Kammerman & C. Hayes (Eds.), *Families that work: Children in a changing world* (pp. 39-83). Washington D.C.: National Academy of Sciences.
- Brook, J. S., Balka, E. B., Gursen, M. D., Brook, D. W., Shapiro, J., & Cohen, P. (1997). Young adults' drug use: A 17-year longitudinal inquiry of antecedents. *Psychological Reports*, *80*, 1235-1251.
- Brook, J. S., Balka, E. B., & Whiteman, M. (1999). The risks for late adolescence of early adolescent marijuana use. *American Journal of Public Health*, *89*, 1549-1554.
- Buchanan, C. M., Maccoby, E. E., & Dornbusch, S. M. (1996). *Adolescents after divorce*. Cambridge, MA: Harvard University Press.
- Chassin, L., Curran, P. J., Hussong, A. M., & Colder, C. R. (1996). The relation of parent alcoholism to adolescent substance use: A longitudinal follow-up study. *Journal of Abnormal Psychology*, *105*, 70-80.
- Conger, R. D., Ge, X., Elder, G. H., Jr., Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process, and developmental problems of adolescents. *Journal of Abnormal Psychology*, *65*, 541-561.

- Des Jarlais, D. C., Paone, D., Milliken, J., Turner, C. F., Miller, H., Gribble, J. et al. (1999). Audio-computer interviewing to measure risk behaviour for HIV among injecting drug users: A quasi-randomised trial. *The Lancet*, *353*, 1657-1661.
- DiClemente, R. J., Wingood, G. M., Crosby, R., Sionean, C., Cobb, B. K., Harrington, K. et al. (2001). Parental monitoring: Association with adolescents' risk behaviors. *Pediatrics*, *107*, 1363-1368.
- Donovan, J. E., Jessor, R., & Costa, F. M. (1999). Adolescent problem drinking: Stability of psychosocial and behavioral correlates across a generation. *Journal of Studies on Alcohol*, *60*, 352-361.
- Downs, W. R. (1987). A panel study of normative structure, adolescent alcohol use and peer alcohol use. *Journal of Studies on Alcohol*, *48*, 167-175.
- Duncan, T. E., Duncan, S. C., & Stoolmiller, M. (1994). Modeling Developmental Processes Using Latent Growth Structural Equation Methodology. *Applied Psychological Measurement*, *18*, 343-354.
- Grotevant, H. D. (1998). Adolescent development in family contexts. In N. Eisenberg (Ed.), *Handbook of child psychology* (5th ed., pp. 1097-1149). New York: Wiley.
- Hauser, S. T. (1991). *Adolescents and their families: Paths of ego development*. New York, NY: Free Press.
- Jacobson, K. C. & Crockett, L. J. (2000). Parental monitoring and adolescent adjustment: An ecological perspective. *Journal of Research on Adolescence*, *10*, 65-97.
- Johnston, L. D., O'Malley, P. M., & Bachman, J. G. (2002). *Monitoring the future: National results on adolescent drug use. Overview of key findings, 2001*. Bethesda, Maryland: National Institute on Drug Abuse.
- Li, X., Feigelman, S., & Stanton, B. (2000a). Perceived parental monitoring and health risk behaviors among urban low-income African-American children and adolescents. *Journal of Adolescent Health*, *27*, 43-48.
- Li, X., Stanton, B., & Feigelman, S. (2000b). Impact of perceived parental monitoring on adolescent risk behavior over 4 years. *Journal of Adolescent Health*, *27*, 49-56.
- Luster, T. & Small, S. A. (1994). Factors associated with sexual risk-taking behaviors among adolescents. *Journal of Marriage and the Family*, *56*, 622-632.
- Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys. A social interactional approach*. (vol. 4) Eugene, OR: Castalia Publishing Company.
- Shillington, A. M. & Clapp, J. D. (2000). Kicking the camel: Adolescent smoking behaviors after two years. *Journal of Child & Adolescent Substance Abuse*, *10*, 53-80.
- Silverberg, S. B., Tennenbaum, D. L., & Jacob, T. (1992). Adolescence and family interaction. In V.B. Van Hasselt & M. Hersen (Eds.), *Handbook of social development: A lifespan perspective. Perspectives in developmental psychology*. (pp. 347-370). New York, NY: Plenum Press.
- Stanton, B. F., Li, X., Galbraith, J., Cornick, G., Feigelman, S., Kaljee, L. et al. (2000). Parental underestimates of adolescent risk behavior: A randomized, controlled trial of a parental monitoring intervention. *Journal of Adolescent Health*, *26*, 18-26.
- Steinberg, L., Fletcher, A., & Darling, N. (1994). Parental monitoring and peer influences on adolescent substance use. *Pediatrics*, *93*, 1060-1064.
- Turner, C. F., Ku, L., Rogers, S. M., Lindberg, L. D., Pleck, J. H., & Sonenstein, F. L. (1998). Adolescent sexual behavior, drug use, and violence: Increased reporting with computer survey technology. *Science*, *280*, 867-873.

- Vega, W. A., Zimmerman, R. S., Warheit, G. J., Apospori, E., & Gil, A. G. (1993). Risk factors for early adolescent drug use in four ethnic and racial groups. *American Journal of Public Health, 83*, 185-189.
- Wallace Jr., J. M., Bachman, J. G., O'Malley, P. M., & Johnston, L. D. (1995). Racial/ethnic differences in adolescent drug use. In G. J. Botvin, S. P. Schinke, & M. A. Orlandi (Eds.), *Drug abuse prevention and multiethnic youth* (pp. 59-80). Thousand Oaks, CA: Sage Pub, Inc.
- Warheit, G. J., Vega, W. A., Khoury, E. L., Gil, A. A., & Effenbein, P. H. (1996). A comparative analysis of cigarette, alcohol, and illicit drug use among an ethnically diverse sample of Hispanic, African American, and non-Hispanic white adolescents. *Journal of Drug Issues, 26*, 901-922.
- Webb, P. M., Zimet, G. D., Fortenberry, J. D., & Blythe, M. J. (1999). Comparability of a computer-assisted versus written method for collecting health behavior information from adolescent patients. *Journal of Adolescent Health, 24*, 383-388.
- Windle, M. (1991). Alcohol use and abuse: Some findings from the National Adolescent Student Health Survey. *Alcohol Health & Research World, 15*, 5-10.

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