



Published in final edited form as:

J Youth Adolesc. 2018 December ; 47(12): 2596–2607. doi:10.1007/s10964-018-0879-5.

Do Parent-Adolescent Discrepancies Predict Deviant Peer Affiliation and Subsequent Substance Use?

Wendy Klierer¹, David W. Sosnowski¹, Sawyer Wilkins¹, Katlyn Garr¹, Carolyn Booth¹, Kristina McGuire¹, Anna W. Wright¹

¹Department of Psychology, College of Humanities and Sciences, Virginia Commonwealth University, Richmond, VA, USA

Abstract

Recent evidence suggests parent-adolescent discrepancies regarding adolescent disclosure can provide insight into parent-child relations and adolescent adjustment. However, pathways linking discrepancies to adjustment are not well known. We tested a model linking parent-adolescent discrepancies in disclosure to adolescent substance use through affiliation with deviant peers. Using three annual waves of data from a community-based study ($N = 357$; 91% African American; 53% female; $M_{\text{age}} = 13.13$ years, $SD = 1.62$ years at baseline), findings revealed that adolescent-reported secrecy and deviant peer affiliation were positively associated with substance use one and two years later, respectively, but there was no evidence of mediation. The results highlight associations of adolescent secrecy and adjustment, and the role peers play in adolescent substance use behaviors.

Keywords

Discrepancies; Secrecy; Peers; Substance use; Adolescent; Parenting

[✉] Wendy Klierer, wklierer@vcu.edu.

Authors' Contributions W.K. conceived of the study, performed some of the statistical analysis, and drafted portions of the manuscript. D.W. S. participated in the study design, conducted some statistical analyses, and drafted portions of the manuscript; S.W. participated in the study design, performed some statistical analyses, and drafted portions of the manuscript; K.G. participated in the study design and drafted portions of the manuscript; C.B. participated in the study design and drafted portions of the manuscript; K.M. participated in the study design and drafted portions of the manuscript; A.W.W. participated in the study design and drafted portions of the manuscript. All authors read and approved the final manuscript.

Conflict of Interest The authors declare that they have no conflict of interest. All procedures performed in this study were in accordance with the ethical standards of Virginia Commonwealth University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study was approved by the Institutional Review Board at Virginia Commonwealth University (VCU).

Compliance with Ethical Standards

Data Sharing and Declaration This manuscript's data will not be deposited.

Ethical Approval All procedures performed in this study were in accordance with the ethical standards of Virginia Commonwealth University and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study was approved by the Institutional Review Board at Virginia Commonwealth University (VCU).

Informed Consent Written informed consent was provided by the maternal caregiver and assent was provided by the adolescent prior to initiating the data collection.

Introduction

After a period of significant declines, rates of illicit drug use were on the rise in 2017, driven largely by marijuana consumption (Johnston et al. 2018). Moreover, adolescents' use of drugs and alcohol, and the consequences they experience, is not equally distributed across race. In 2017, African American students in the 8th and 10th grades reported more marijuana use than White students, but less alcohol use (Johnston et al. 2018). Although African American youth engage in less alcohol use than White youth (Johnston et al. 2018), their rates of alcohol-related problems are higher than those of White youth (Zapolski et al. 2014), and African Americans are more likely to be diagnosed with a substance use disorder in adulthood (e.g., Evans et al. 2017). Given the rise in marijuana use by African American youth, and the consequences associated with substance use for African Americans, it is important to understand factors contributing to substance use in this population, as this knowledge can inform prevention and intervention efforts.

Multiple factors are associated with adolescent substance use, but one factor that has received relatively less research attention, particularly in studies with African American youth, is discrepancies in parent-adolescent communication. Recent evidence suggests that discrepancies in parent and adolescent reports of adolescent behavior predict later substance use (e.g., Abar et al. 2015), but the pathway(s) through which discrepancies lead to substance use are less well known. One potential pathway linking parent-adolescent discrepancies and substance use is deviant peer affiliation, which often is associated with substance use during adolescence (e.g., Lobato et al. 2017). The goal of the current study was to determine if discrepancies in parent and adolescent reports of adolescent behavior predicted deviant peer affiliation one year later, which in turn predicted substance use behaviors (i.e., alcohol use, marijuana use, cigarette use, and drug use severity) in the following year. Assuming a link between parent-adolescent discrepancies and substance use, the primary goal of the present study was to understand the extent to which affiliation with deviant peers mediated, or accounted for, this association. By understanding the role of parent-adolescent discrepancies in disclosure of adolescent behavior on deviant peer affiliation and subsequent substance use behaviors, researchers can more effectively tailor programs to prevent the negative consequences of substance use among African American (and all) adolescents.

Parent-Adolescent Discrepancies

Much of the early research studying informant discrepancies relied on correlations of parent and adolescent reports of the same construct, often revealing low to moderate agreement between informants (i.e., Pearson r 's ranging, on average, from .20–.40; De Los Reyes and Ohannessian 2016). Initially, these discrepancies were overlooked as mere measurement error; however, recent theory and research suggests that valuable information can be gleaned from informant discrepancies. For example, discrepancies in parent-adolescent communication may reveal evidence of family conflict or some other relevant domain of adolescent development. That is, discrepancies in knowledge may indicate a poor parent-adolescent relationship or a natural push for autonomy that corresponds with adolescence (Korelitz and Garber 2016). Second, evidence suggests that adolescent disclosure of

behavior is the most effective way for parents to become aware of and monitor their children's behavior, and is associated with more positive adjustment compared to parent tracking and surveillance (e.g., Kerr and Stattin 2000). Finding ways to decrease parent-adolescent discrepancies may serve to protect adolescents from negative health behaviors.

In their introduction to a special issue on discrepancies in adolescent-parent perceptions of the family and adolescent adjustment, De Los Reyes and Ohannessian (2016) discussed the Operations Triad Model (De Los Reyes et al. 2013), modified to apply to parents' and adolescents' reports of family functioning. De Los Reyes and Ohannessian discussed four possible patterns associated with parents' and adolescents' reports of various constructs and what these reflect: (1) convergence of reporters on relatively high levels of protective factors; (2) convergence of reporters on relatively high levels of risk factors; (3) divergence of reporters reflecting adaptive family processes; and (4) divergence of reporters reflecting maladaptive family processes. With respect to divergence in perspectives reflecting maladaptive family processes, De Los Reyes and Ohannessian suggest this may be the case if the divergence in perspectives reflects a lack of awareness on the part of the parent regarding the adolescent's life. This lack of awareness, in turn, may decrease the parent's ability to protect the adolescent from harm, or may increase the adolescent's latitude to engage in problem behavior if constraints are not established by the parent. The present study is best represented by the notion of divergence of perspectives reflecting maladaptive processes.

Previous research has shown that parent-adolescent discrepancies, including discrepancies regarding parental monitoring and adolescent disclosure, are linked prospectively to externalizing behaviors such as delinquency (Augenstein et al. 2016; De Los Reyes et al. 2010) and substance use (Abar et al. 2015; Donaldson et al. 2015). A recent study by Hou and colleagues (2018) found that adolescents who reported lower levels of positive parenting (e.g., monitoring, reasoning, warmth) relative to their parents had significantly worse outcomes across several domains (academic, behavioral, physical, psychological) compared to adolescents who reported similar levels as their parents. Similarly, Reynolds and colleagues (2011) examined the relationship between discrepancies in maternal knowledge and adolescent engagement in risky behavior, noting that increases in discrepancies—specifically mothers reporting greater knowledge than adolescents—predicted adolescent risky behavior (i.e., delinquency, substance use) one year later, above and beyond main effects of individual (i.e., parent or child) reports of knowledge and control variables. Together, these results suggest that adolescent disclosure plays an important role in the parent-child relationship and predicts both positive and negative behavioral and psychological outcomes.

Peer Deviance and Adolescent Substance Use

One potential explanation for how parent-adolescent discrepancies relate to substance use is through affiliation with deviant peers. Chan and colleagues (2015) suggest that although adolescents often disclose basic information to their parents, they tend to refrain from revealing specifics about their activities with peers. Youth may choose to not share this detailed information about their peer relationships due to their parents' disapproval, fear of

restriction of leisure time with peers, or to maintain a peer's trust (Chan et al. 2015). Further, adolescents may be disclosing false information to their parents in order to avoid confrontation or punishment regarding inappropriate behaviors (Laird and LaFleur 2016). Along these lines, peer deviance has been identified as a key predictor of adolescent substance use (Dynes et al. 2015; Kiesner et al. 2010). A recent study by Lobato and colleagues (2017) found that adolescents who had a close friend who used marijuana were eight times more likely to use marijuana compared to adolescents who did not have a close friend who used marijuana. Moreover, as adolescents get older they spend more time with friends outside of the family context, which provides more opportunities to engage in deviant behavior, enabling the mutual reinforcement of inappropriate behaviors (Frijns et al. 2010). For example, Frijns and colleagues (2010) showed over a four-year period that adolescents who revealed less to their parents were more likely to be deviant, and friendships with peers often encouraged more secrecy and more deviance, perpetuating this cycle. As peer relationships become increasingly salient during adolescence, it is not surprising that substance use and affiliation with deviant peers are correlated. Indeed, several studies have found positive associations between affiliation with deviant peers and adolescent substance use (e.g., Duncan et al. 1998; Keijsers et al. 2012). Further, Duncan and colleagues (1998) found that while an increase in affiliation with deviant peers accelerated the onset of substance use during adolescence, males had a higher rate of increase in substance use over time compared to females. Because substance use varies by gender during adolescence (Young et al. 2002), gender was included as a control in all analyses.

Research with urban, low-income African American youth have echoed many of the findings reported in the broader literature. In a study of 541 African American youth living in high poverty urban communities, Marotta and Voisin (2017) tested a path model that included parental monitoring, risky peer norms, and future orientation predicting adolescent drug use and delinquency. The authors found that a greater perceived risky peer norm was the strongest correlate of drug use in this study, controlling for age, socioeconomic status, and sexual orientation. Another study by Nebbitt and colleagues (2012) sampled 663 African American adolescents living in public housing and found that deviant peer affiliation was positively associated with substance use in a model that controlled for age, gender, PTSD, delinquency, violence exposure, and social cohesion. However, no studies, to date, have examined the mediating role of deviant peer affiliation in the association between parent-adolescent disclosure discrepancies and adolescent substance use.

Measurement of Disclosure of Adolescent Activities

If researchers hypothesize that discrepancies between parents' and adolescents' reports of adolescents' disclosure of their activities is linked to adolescents' affiliation with deviant peers, then how disclosure is assessed becomes critical. Frijns et al. (2010) argued that a common operationalization of adolescent disclosure muddles two separate concepts: secrecy and disclosure. These constructs are based on distinct cognitive processes and were differentially associated with adjustment outcomes. Specifically, secrecy, but not disclosure, was linked to higher levels of depression and delinquency. Jaggi et al. (2016) attempted to replicate Frijns et al.'s findings in a low-income African American sample. Although

confirmatory factor analyses indicated that secrecy and disclosure should be treated as separate constructs, predictive models in Jaggi et al.'s study only partially replicated Frijns et al.'s (2010) findings. Jaggi et al. (2016) did find that in no case did disclosure predict delinquency, whereas secrecy did predict delinquency in one of the three possible pathways tested. For both theoretical and empirical reasons, the present analysis consists of discrepancies about secrecy rather than general disclosure.

The Current Study

Although previous research has examined links between parent-adolescent disclosure and peer deviance (Chan et al. 2015), as well as peer deviance and substance use (Marschall-Lévesque et al. 2014), researchers have neglected to examine the relationships between disclosure discrepancies, peer deviance, and substance use in a comprehensive model, particularly with African American youth. Further, parent-adolescent discrepancies often are assessed using methods (e.g., standardized difference scores, correlations; De Los Reyes et al. 2010, De Los Reyes et al. 2011, Ferdinand et al. 2004, Pelton and Forehand 2001) that do not accurately capture disclosure discrepancies. The current study aims to address this gap in several ways. First, the role of parent-adolescent disclosure discrepancies, specifically differences in reports of the extent to which adolescents keep secrets and hide information from parents, on affiliation with deviant peers and substance use is examined. Theoretically, discrepancies in secrecy, versus disclosure *per se*, should be associated with deviant peer affiliation and substance use. Second, the effects of parent-adolescent discrepancies on peer deviance and substance use are tested using polynomial regression (Laird and De Los Reyes 2013), which is a more accurate and comprehensive method for testing the effects of informant discrepancies compared to the traditional “difference scores” method. Third, affiliation with deviant peers is tested as a mediator of linkages between parent-adolescent disclosure discrepancies and substance use. Although researchers have examined associations between parent-adolescent disclosure discrepancies and *adolescent* delinquency, no study to date has examined associations between parent-adolescent disclosure discrepancies and *peers' delinquency*. Fourth, our hypothesis is tested using data from a community-based study with low-income, predominantly African American families. It was hypothesized that the discrepancy between parents and adolescents regarding reports of the extent to which teens keep secrets and hide information from parents would predict adolescents' affiliation with deviant peers and subsequent substance use, controlling for age, gender, family structure, and prior deviant peer affiliation, and prior substance use. More specifically, it was hypothesized that discrepancies indicating that parents' underestimation of disclosures from their teens would be positively associated with their teen's affiliation with deviant peers, which then would be positively linked to subsequent substance use, and that affiliation with deviant peers would partially explain the association between parent-adolescent discrepancies and substance use.

Method

Participants

Participants were drawn from a longitudinal study with four annual assessments examining the effects of violence exposure on adolescent substance use and related adjustment outcomes. Data collection began in late December 2004 and ended mid-June 2009. The present analytic sample includes 357 of the original study's sample of 358 fifth- and eighth-grade adolescents ($M_{\text{age}} = 12.13$ years, $SD = 1.62$ years at Time 1) and their primary female caregivers (hereafter referred to as mothers or parents) in a midsized southeastern city in the United States. The sample was predominately African American (91%), and an approximately even split between males (47%) and females (53%). Median weekly household income was \$401–500. Based on household size and federal poverty guidelines at the time of baseline data collection, 52% of the sample had household incomes below the poverty line. Twenty-three percent of participating mothers had no high school diploma, 31.2% had a high school diploma or General Education Diploma (GED), 23.6% had some college experience but no degree, 12.9% had an Associate's or Vocational degree, 7.3% had a Bachelor's degree and 2.0% of participating mothers had a college or advanced degree (i.e., MS, PhD). Approximately 90% of participating youth lived with their biological mother as their primary caregiver; 20% had a biological father living in the home; and 38% of households were classified as a single-parent household (i.e., no other adults besides the mother living in the household). Data for the current analyses were drawn from Timepoints two, three, and four due to the availability of key constructs at those measurement periods.

Procedure

The ethics review board at Virginia Commonwealth University approved the study. Researchers used flyers, door-to-door canvassing, and advertising through community agencies and events to recruit participants from target neighborhoods. Target neighborhoods in the area demonstrated high levels of poverty based on the 2000 census. Consistent with similarly designed studies (cf. Luthar and Goldstein 2004), 63% of eligible participants consented to participate in the study. Parents provided written informed consent and adolescents provided assent prior to completing any measures. A Certificate of Confidentiality was obtained from the National Institutes of Health (NIH) to protect participants' responses to questionnaires. Parents and adolescents completed self-report surveys at each time point. Questionnaires were completed in separate rooms in the participants' homes, and questions were read aloud while participants followed along with visual aids and research assistants recorded responses. A small portion of the adolescent interview with sensitive questions (e.g., questions about substance use) was completed independently. Unless otherwise requested, questionnaires were administered annually in the participant's homes to ensure that the adolescents and mothers were comfortable while being interviewed. Each interview lasted approximately 2.5 hours and families were compensated with \$50 in gift cards at each time point. Interviewers were thoroughly trained prior to interacting with participants. Required training consisted of assignments related to research ethics, protocols, and interview techniques, as well as training, practice sessions, and feedback from research staff. A subsample of families provided feedback via phone interview at two weeks post-interview to assess whether interviewers were professional and

adhered to the protocol throughout the study. Interviewers were both men and women between the ages of 20 and 55, approximately 50% African American, and the majority had a bachelor's or master's degree.

Measures

Adolescent secrecy—Adolescent secrecy was assessed at Time 2 using the two secrecy items from the disclosure subscale of the 24-item Parenting Practices Scale (PPS; Stattin and Kerr 2000). The Parenting Practices Scale is a child- and parent-report measure comprised of four subscales: (1) child disclosure, (2) parental control, (3) parental knowledge, and (4) parental solicitation. Adolescents and their primary caregivers completed all four subscales, rating items on a scale of 1 (*no, never*) to 5 (*yes, always*), but only the secrecy items were used in the analyses. Item wording was similar across respondents, with slight changes based on who was responding to the questionnaire (i.e., parent, adolescent). Previous confirmatory factor analyses using these data support a two-factor solution for the 5-item disclosure subscale (Jaggi et al. 2016), with secrecy and disclosure components. The child-reported secrecy items used in the current study were: (1) “Do you keep a lot of secrets from your parents about what you do during your free time?” and (2) “Do you hide a lot from your parents about what you do during nights and weekends?” The secrecy items were correlated .69 for the parent and .78 for the adolescent.

Affiliation with deviant peers—Affiliation with deviant peers was assessed at Time 2 and Time 3 using a 15-item scale (Loeber et al. 1998) measuring youth self-reports of friends' involvement in deviant activity over the past year. Youth were asked how many of their friends had been involved in different deviant activities (e.g., violence, substance use, delinquency). Responses ranged from 0 (*none of them*) to 4 (*all of them*). Items were summed to create a total score, with higher scores indicating greater affiliation with deviant peers. This measure demonstrated good reliability within the current sample ($\alpha = .89$ at Time 2; $\alpha = .90$ at Time 3).

Adolescent substance use—Adolescent substance use was measured at Time 3 and Time 4 via a manifest and latent variable, respectively, comprised of several sets of items from the Personal Experience Inventory (PEI; Winters and Henly 1989). The PEI is a self-report measure that documents the onset, nature, degree, and duration of substance use in 12-year-old to 18-year-old individuals, and identifies personal risk factors that may precipitate or sustain substance abuse. Studies examining the psychometric properties of the PEI revealed adequate internal consistency with alphas of .75 (Winters and Henly 1989). For the current study, a latent variable was created for substance use at Time 4 using four unique indicators: Past-year alcohol and marijuana use, which were assessed via 1-item indicators on a 7-point response scale ranging from 0 (*never*) to 6 (*40 or more times*); past 30-day cigarette use, which was assessed via 1-item on a 7-point response scale ranging from 1 (*not at all*) to 7 (*two packs or more a day*); and drug use severity, which was assessed using an 18-item measure with response options ranging from 0 (*never*) to 3 (*often*). To construct the Time 3 substance use variable, the four substance use indicators were standardized and factor loadings from a confirmatory factor analysis (CFA) ($N = 271$, $\chi^2(2) = .23$, $p = .89$; CFI = 1.00; RMSEA < .001, 90% CI [.00–.06]; SRMR = .004) were used to weight the

variables in constructing the index. Standardized factor loadings were .74 for alcohol use, .98 for marijuana use, .57 for cigarette use, and .81 for drug use severity and supported a one-factor solution. The CFA for Time 4 substance use also revealed a model with good fit ($N = 247$, $\chi^2(2) = 2.51$, $p = .28$; CFI = .99; RMSEA = .03, 90% CI [.00–.14]; SRMR = .02). Standardized factor loadings for alcohol use (.67), marijuana use (.79), cigarette use (.43), and drug use severity (.77) also supported a one-factor solution.

Control variables—Adolescent age, gender, and family structure (i.e., single-parent household) were controlled for in all analyses to account for potential differences across each of the hypothesized variables, particularly substance use (e.g., Young et al. 2002). Prior levels of affiliation with deviant peers and substance use also were controlled for in all analyses.

Analytic Strategy

All analyses were conducted using *Mplus* version 6.11 (Muthén and Muthén 1998–2011) to test the primary hypothesis that parent-adolescent discrepancies in reports of adolescent secrecy at Time 2 would be positively associated with substance use at Time 4 through affiliation with deviant peers at Time 3, controlling for prior adolescent substance use, prior deviant peer affiliation, age, gender, and family structure.

The associations of parent-adolescent discrepancies with affiliation with deviant peers and substance use were tested using polynomial regression (Laird and De Los Reyes 2013). Briefly, polynomial regression entails creating a regression equation that contains (a) linear main effects of parent and adolescent reports of disclosure, (b) quadratic effects of parent and adolescent reports of disclosure, and (c) the interaction of the linear effects of parent and adolescent reports of disclosure. The quadratic terms are encouraged to be included in the model (but not required) in order to account for potentially complex associations (Edwards 1994); however, effects were neither expected, nor hypothesized, so these terms were not included in our final analyses. The interaction term provides the key test of whether the association between an outcome and reports of disclosure by one informant vary as a function of reports by the other informant (Laird and De Los Reyes 2013).

Missing data on all variables were handled using full information maximum likelihood (FIML) estimation, and bootstrap standard errors and confidence intervals were obtained for all parameter estimates, using 10,000 draws. Following the recommendations of Hu and Bentler (1999), several goodness-of-fit indices were used to evaluate model fit, including comparative fit index (CFI; Bentler 1992), the root mean square error of approximation (RMSEA; Browne and Cudeck 1993), and the standardized root mean square residual (SRMR; Hu and Bentler 1999). Models with a CFI value at or above .95, a RMSEA value at or below .05 (Jackson et al. 2009), and a SRMR value at or below .08 (Hu and Bentler 1999) were considered to have good fit.

Results

Attrition analyses

Sixty-nine percent of the sample was retained across the four annual assessments. Youth who had data at all four time points ($N = 247$) were compared with youth who were missing data at Time 4 ($N = 110$) on adolescent gender and family structure using chi square analysis, and on adolescent age at Time 1 using t -tests. Chi square analyses [$\chi^2(1) = 4.44, p = .04$] indicated that females were more likely to remain in the study than were males, but that attrition did not differ by family structure [$\chi^2(1) = .38, p = .54$]. T -tests indicated that youth who were younger were more likely to remain in the study than older youth, $t(355) = 2.45, p = .02$ ($M_{\text{older}} = 12.44, SD_{\text{older}} = 1.71; M_{\text{younger}} = 11.98, SD_{\text{younger}} = 1.57$). These two groups also were compared on deviant peer affiliation, and parent-reported and adolescent-reported secrecy at Time 2, as well as on each of the four indicators of substance use at Time 3 using t -tests. Regarding deviant peer affiliation, Levine's test for equality of variances was violated ($F = 11.52, p = .001$), and there were significant differences between groups, $t(91.39) = 2.12, p = .04$, such that those youth who did not participate at Time 4 reported higher levels of deviant peer affiliation ($M = 6.85, SD = 7.01$) compared to youth who participated at all Time points ($M = 4.94, SD = 5.18$). There were no significant differences between groups for adolescent-reported secrecy [$t(312) = .32, p = .75$] or parent-reported secrecy [$t(317) = -.45, p = .65$] at Time 2. Regarding the substance use indicators at Time 3, Levine's test for equality of variances was violated for alcohol use ($F = 27.32, p < .001$), marijuana use ($F = 22.74, p < .001$), cigarette use ($F = 9.68, p = .002$), and drug use severity ($F = 7.39, p = .007$). There were no significant differences, however, between groups on alcohol use [$t(26.07) = 1.65, p = .11$], marijuana use [$t(26.44) = 1.73, p = .10$], cigarette use [$t(27.57) = 1.42, p = .17$], or drug use severity [$t(27.48) = 1.21, p = .24$].

Descriptive Statistics and Correlations among Core Study Variables

Descriptive information on and correlations among core study variables can be seen in Table 1. There were small but significant gender differences in adolescent reports of adolescent secrecy at Time 2, such that males reported more secrecy than females. As expected, older adolescents reported more marijuana, cigarette, and drug use severity compared to younger youth; however, there was no difference in alcohol use between older and younger adolescents. Older youth also reported more peer deviance and secrecy, as did their parents.

Hypothesized Model

Figure 1 displays the results of the path model testing the study hypothesis. The data fit the model adequately ($N = 357, \chi^2(34) = 79.29, p < .001; CFI = .91; RMSEA = .06, 90\% CI [.04-.08]; SRMR = .04$), and accounted for 43.5% of the variance in substance use at Time 4. As seen in Fig. 1, adolescent-reported secrecy at Time 2 and adolescent-reported affiliation with deviant peers at Time 3 were positively associated with substance use at Time 4. No main effects were detected among other core study variables, and there was no evidence for an indirect effect of discrepancies at Time 2 on substance use at Time 4, through affiliation with deviant peers at Time 3 ($\beta = .01, p = .54$). Parent-adolescent discrepancies in adolescent secrecy was marginally associated with adolescent substance use at Time 4 (using a two-tailed significance test). In order to explore trends in these data, the

relationship between adolescent-reported secrecy and subsequent substance use was plotted at low (-1 *SD*), medium (*M*), and high ($+1$ *SD*) levels of parent-reported adolescent secrecy (see Fig. 2). As can be seen in Fig. 2, as adolescents reported higher levels of secrecy, while their parents reported lower levels of secrecy, adolescents tended to report higher levels of substance use.

Discussion

Although substance use rates have been declining over the past decade, recently there has been an increase in illicit drug use, particularly marijuana, among African American adolescents. Although investigators have hypothesized various reasons for problematic substance use (and associated outcomes) among African American adolescents, few studies have examined the role of parent-adolescent discrepancies in adolescents' reports of their own behavior. Further, potential pathways linking parent-adolescent discrepancies and substance use behaviors are not well known. This study sought to fill a gap in the literature by testing a comprehensive model linking discrepancies in parent-adolescent reports of adolescent secrecy regarding adolescent activities, adolescents' affiliation with deviant peers, and subsequent substance use within a sample of low-income, African American youth living in an urban setting. This research question was driven, in part, by the calls for and efficacy of alcohol and drug prevention efforts that involve both parent and peer targets (Newton et al. 2017; Reifman et al. 1998).

Overall, the present findings provide partial support for the hypothesized model. Using an empirically strong method for testing informant discrepancies, results revealed that adolescents who were more secretive reported higher rates of substance use two years later, and adolescents who reported more affiliations with deviant peers reported higher rates of substance use one year later. Further, there was a marginal effect of parent-adolescent discrepancies on adolescent substance use two years later. Exploration of this marginal effect revealed that those adolescents who reported the highest levels of secrecy—and whose parents reported the lowest levels of adolescent secrecy—reported the highest levels of substance use. There was not, however, evidence for a mediating role of deviant peer affiliation. Overall, the findings build on the robust body of research linking parent-adolescent discrepancies to poor mental health, delinquency, and substance use (Ohannessian and De Los Reyes 2014; Augenstein et al. 2016; Abar et al. 2015). Specifically, they highlight the long-term effects of secrecy on substance use, as well as the role that peers can play in substance use behaviors during adolescence.

Implications

The present findings have several implications for research and intervention efforts moving forward. The finding that adolescent-reported secrecy predicted substance use two years later supports prior work on discrepancies in adolescent disclosure predicting delinquency (i.e., substance use) among African American youth. Further, the use of secrecy as our primary measure of disclosure builds upon work by Frijns and colleagues (2010), and Jaggi and colleagues (2016), which suggest that secrecy is a distinct component of adolescent disclosure and is uniquely predictive of adolescent adjustment. A useful next step for future

research will be to explore how secrecy is differentially associated with various forms of adolescent adjustment compared to traditional measures of disclosure. It is possible that secrecy is associated with substance use during adolescence because of the potential legal ramifications for underage use, whereas secrecy may not have any significant bearing on the development and maintenance of internalizing symptoms (e.g., Jaggi et al. 2016). It also will be useful to determine factors that predict parent-adolescent discrepancies in adolescent disclosure, such as parent-child relationship quality (e.g., Tilton-Weaver 2014). It is likely that how close an adolescent feels with their parent will influence their disclosure patterns, which may then mitigate deviant peer affiliation and/or substance use.

The finding that deviant peer affiliation predicted substance use one year later supports recent research that suggests that peers play an integral part in influencing delinquent behavior among adolescents (e.g., Lobato et al. 2017). Specifically, peers can play an integral role in access to illicit substances, as well as the pressure to consume substances. There are currently several intervention programs that could aid in mitigating the negative effects of deviant peer affiliation on adolescent substance use. For example, the Communities That Care (CTC) PLUS program takes a prevention approach to teen substance use by engaging community leaders and local stakeholders in identifying and prioritizing risk and protective factors within communities to prevent adolescents from either engaging with deviant peers, or avoiding substance use when interacting with deviant peers. Results from this program have been promising, with adolescents being 25% less likely to initiate delinquent behavior, and 32% less likely to initiate alcohol or cigarette use (Communities That Care PLUS 2018). This is particularly promising based upon research suggesting that initiation of substance use (specifically alcohol use) earlier in adolescence is most strongly associated with increased risk of problematic use throughout adolescence and young adulthood (e.g., Aiken et al. 2017).

Another approach to curb the negative consequences of deviant peer affiliation is to target the at-risk peers themselves. The Adventure Trial is a substance use intervention program initiated by Conrod and colleagues (2013), whereby researchers use a measure of various personality factors (e.g., hopelessness, sensation-seeking) that often undergird substance use behaviors to identify adolescents who are most at risk for substance use behaviors. The intervention entails providing these at-risk youth with a training session on how to use their abilities and tendencies (e.g., sensation-seeking) to accomplish various goals in their day-to-day lives. This program limits its focus on substance use and its associated risk factors or consequences, but instead focuses on the positive development of the youth. Results from their initial trial revealed significant decreases in binge-drinking and other alcohol use behaviors among the high-risk adolescents and their low-risk peers, compared to control schools. The authors suggest that these programs are having a “herd effect” whereby decreases in alcohol use behaviors among the high-risk adolescents subsequently lessen alcohol use among low-risk students. This program has been extended to other illicit substances (i.e., marijuana; Mahu et al. 2015) with similar results. These programs emphasize the role that peers can play in substance use behaviors, and how various approaches (e.g., prevention, strength-based) can be used to effectively mitigate substance use among adolescents.

Further, the results from the marginal effect of parent-adolescent discrepancies on adolescent substance use provides partial support for the notion of divergence of perspectives reflecting maladaptive processes in De Los Reyes and colleagues' (2013) modified Operations Triad Model. That is, results suggested that adolescents who reported higher levels of secrecy, while their parents reported low levels of secrecy, reported more substance use. Although the effect did not meet our threshold for significance, the trends in the data provide insight into how informant discrepancies can shed light on maladaptive family processes. A necessary next step for researchers will be to identify multi-level risk and protective factors predicting informant discrepancies. As previously mentioned, parent-child relationship quality likely plays an integral role in what adolescents disclose/keep from their parents. Thinking across levels and/or domains, it is possible that societal and/or neighborhood factors influence informant discrepancies. For example, youth may not want to be labeled as a "snitch" for revealing behaviors of themselves or their friends out of fear of being excluded from friend groups. In a similar vein, it is possible that deviant peer affiliation affects adolescent secrecy, perpetuating informant discrepancies. Use of cross-lagged models to examine bi-directional associations will be helpful in identifying how informant discrepancies change throughout development.

Strengths and Limitations

The current study had several strengths, which made it well suited to test the main hypothesis. The most significant strength is the longitudinal design, which allowed us to detect patterns between parent-adolescent discrepancies, affiliation with deviant peers, and adolescent substance use over a three-year period. Additionally, the substance use variable was a latent construct comprised of reports of alcohol, cigarette, and marijuana use, as well as severity of drug use. Including multiple substances is important because alcohol use rates are typically lower among African American adolescents compared to other racial/ethnic adolescent populations (e.g., Caucasian); however, marijuana use is higher among African American youth compared to the general population (Johnston et al. 2018). Further, the assessment of severity of use was important, as frequency of use alone often does not predict problematic substance use behaviors. Lastly, the use of polynomial regression allowed us to more effectively capture the effects of parent-adolescent discrepancies in secrecy compared to other techniques (e.g., difference scores).

Despite these strengths, this study is not without limitations. First, all substance use variables were assessed by self-report measures, which could have led to reporter bias. Corroborating reports with peers or other trusted sources might be a strategy to reduce this bias. Second, all parental information was provided by female caregivers. Due to limitations in funding we did not collect information from other individuals in the home who were serving in a parenting role (e.g., fathers, aunts, uncles). This would have provided additional perspectives, and perhaps different levels of disclosure depending on the adult. Another limitation of our study is that we employed a design that utilized annual assessments. Although this allowed us to track adolescents through a significant developmental period, it also meant that we lost the opportunity to capture changes in parent and peer relationships that occurred over a shorter period of time. Our community-based recruitment strategy, which did target eligible neighborhoods but not include a random sampling strategy, likely

yielded a sample that was not representative of the population, limiting the generalizability of the findings. Lastly, although we sought to examine parent-adolescent discrepancies and deviant peer affiliation among African American adolescents, the specificity of the sample also limits the generalizability of these findings. Future studies should attempt to replicate the hypothesized model using different racial and ethnic groups to determine if the hypothesized pathways vary across groups.

Conclusion

The present study contributes to our understanding of how discrepancies in adolescents' secrecy with their parents relates to deviant peer affiliation and subsequent substance use. This is particularly important to understand among African American youth, as this is often overlooked, and the consequences of substance use are more detrimental for these adolescents. Although we did not find evidence for a mediating effect of deviant peer affiliation, the current findings emphasize the main effects of secrecy and deviant peer affiliation on substance use during adolescence. The present study contributes to the growing body of researchers and interventionists who see the merit in targeting both peer and parental influences in prevention and intervention efforts designed to curb adolescent substance use. Including parent-adolescent discrepancies in communication as one indicator of family dynamics may enrich this work and provide unique predictive information about adolescent substance use.

Acknowledgements

We thank the families who participated in this study and the research staff who supported this work.

Funding This research was supported by National Institute on Drug Abuse Grants K01 DA015442 01A1 and R21 DA 020086-02 awarded to Wendy Kliewer.

Biography

Wendy Kliewer is Professor and Chair of the Department of Psychology at Virginia Commonwealth University. Dr. Kliewer's research centers on the broad theme of risk and resilience, with specific attention to cumulative stressors, their impacts on a broad array of functioning, and protective factors that mitigate risk. She has long-standing interests in interdisciplinary, cross-cultural research, and is committed to training the next generation of scholars to continue to do research that matters. Dr. Kliewer earned her Ph.D. in Social Ecology from the University of California, Irvine, and completed post doctoral training in prevention science at Arizona State University.

David W. Sosnowski is a doctoral candidate in Developmental Psychology at Virginia Commonwealth University. David's research interests center on understanding the biopsychosocial mechanisms linking early life stress to various health and behavior outcomes throughout the lifespan. David earned his B.S. in Psychology from The Pennsylvania State University and his M.S. in Psychology from Virginia Commonwealth University.

Sawyer Wilkins earned his B.S. in Psychology and a minor in Business from Virginia Commonwealth University. He is interested in understanding what factors impact stress and coping mechanisms and their relative success. He is an advocate for diversity in psychological research, and also is interested in how issues of race, gender, and privilege influence professionals.

Katlyn Garr earned her B.S. in Psychology from Virginia Commonwealth University and currently is enrolled in a doctoral program in clinical psychology at the University of Cincinnati. Her research interests are centered on pediatric psychology, specifically child adjustment to cancer.

Carolyn Booth earned her B.S. in Psychology from Virginia Commonwealth University and currently is enrolled in the Master of Public Health program at Columbia University. Carolyn has a passion for research and the health sciences, and plans to do work that translates knowledge to the benefit of society.

Kristina McGuire is a doctoral student in Developmental Psychology at Virginia Commonwealth University. Her research interests center on risk and resilience of incarcerated youth. Kristina earned her B.S. in Psychology from the University of Utah and her M.S. in Psychology from Virginia Commonwealth University.

Anna W. Wright is a doctoral student in the Clinical Psychology Program—child and adolescent concentration at Virginia Commonwealth University. Her research interests include risk and resilience in youth who have experienced early adversity or trauma, particularly youth residing in institutional or foster care settings. Anna earned her B.A. in Psychology from the University of Vermont and her M.S. in Psychology from Virginia Commonwealth University.

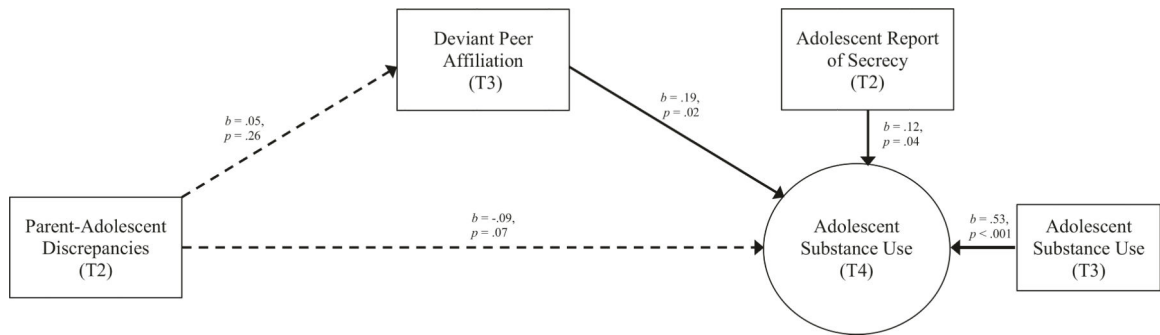
References

- Abar C, Jackson K, Colby S, & Barnett N (2015). Parent-child discrepancies in reports of parental monitoring and their relationship to adolescent alcohol-related behaviors. *Journal of Youth and Adolescence*, 44, 1688–1701. 10.1007/s10964-014-0143-6. [PubMed: 24964878]
- Aiken A, Clare PJ, Wadolowski M, Hutchinson D, Najman JM, Slade T, & Mattick RP (2017). Age of alcohol initiation and progression to binge drinking in adolescence: a prospective cohort study. *Alcoholism, Clinical and Experimental Research*, 42, 100–110. 10.1111/acer.13525.
- Augenstein TM, Thomas SA, Ehrlich KB, Daruwala S, Reyes SM, & Chrabaszcz JS, et al. (2016). Comparing multi-informant assessment measures of parental monitoring and their links with adolescent delinquent behavior. *Parenting*, 16, 164–186. 10.1080/15295192.2016.1158600. [PubMed: 27482171]
- Bentler PM (1992). On the fit of models to covariances and methodology to the *Bulletin*. *Psychological Bulletin*, 112, 400–404. 10.1037/0033-2909.112.3.400. [PubMed: 1438635]
- Browne MW, & Cudeck R (1993). Alternative ways of assessing model fit In Bollen KA & Long JS (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Chan H-Y, Brown BB, & Von Bank H (2015). Adolescent disclosure of information about peers: the mediating role of perceptions of parents' right to know. *Journal of Youth and Adolescence*, 44, 1048–1065. 10.1007/s10964-015-0261-9. [PubMed: 25707343]
- Communities That Care PLUS. (2018). Research and Results. <https://www.communitiesthatcare.net/how-ctc-works/>

- Conrod PJ, O'Leary-Barrett M, Newton N, Topper L, Castellanos-Ryan N, Mackie C, & Girard A (2013). Effectiveness of a selective, personality-targeted prevention program for adolescent alcohol use and misuse: a cluster randomized controlled trial. *JAMA Psychiatry*, 70, 334–342. 10.1001/jamapsychiatry.2013.651. [PubMed: 23344135]
- De Los Reyes A, Goodman KL, Kliewer W, & Reid-Quiñones K (2010). The longitudinal consistency of mother-child reporting discrepancies of parental monitoring and their ability to predict child delinquent behaviors two years later. *Journal of Youth and Adolescence*, 39, 1417–1430. 10.1007/s10964-009-9496-7. [PubMed: 20020188]
- De Los Reyes A, & Ohannessian CM (2016). Introduction to the special issue: discrepancies in adolescent-parent perceptions of the family and adolescent adjustment. *Journal of Youth and Adolescence*, 45, 1957–1972. 10.1007/s10964-016-0533-z. [PubMed: 27384957]
- De Los Reyes A, Thomas SA, Goodman KL, & Kundery SMA (2013). Principles underlying the use of multiple informants' reports. *Annual Review of Clinical Psychology*, 9, 123–149. 10.1146/annurev-clinpsy-050212-185617.
- De Los Reyes A, Youngstrom EA, Pabón SC, Youngstrom JK, Feeny NC, & Findling RL (2011). Internal consistency and associated characteristics of informant discrepancies in clinic referred youths age 11 to 17 years. *Journal of Clinical Child and Adolescent Psychology*, 40, 36–53. 10.1080/15374416.2011.533402. [PubMed: 21229442]
- Donaldson CD, Nakawaki B, & Crano WD (2015). Variations in parental monitoring and predictions of adolescent prescription opioid and stimulant misuse. *Addictive Behaviors*, 45, 14–21. 10.1016/j.addbeh.2015.01.022. [PubMed: 25622102]
- Duncan SC, Duncan TE, Biglan A, & Ary D (1998). Contributions of the social context to the development of adolescent substance use: a multivariate latent growth modeling approach. *Drug and Alcohol Dependence*, 50, 57–71. 10.1016/S0376-8716(98)00006-4. [PubMed: 9589273]
- Dynes ME, Domoff SE, Hassan S, Tompsett CJ, & Amrhein KE (2015). The influence of co-offending within a moderated mediation model of parent and peer predictors of delinquency. *Journal of Child and Family Studies*, 24, 3516–3525. 10.1007/s10826-015-0153-3.
- Edwards JR (1994). The study of congruence in organizational behavior research: critique and a proposed alternative. *Organizational Behavior and Human Decision Processes*, 58, 51–100. 10.1006/obhd.1994.1029.
- Evans EA, Grella CE, Washington DL, & Upchurch DM (2017). Gender and race/ethnic differences in the persistence of alcohol, drug, and poly-substance use disorders. *Drug and Alcohol Dependence*, 174, 128–136. 10.1016/j.drugalcdep.2017.01.021. [PubMed: 28324815]
- Ferdinand RF, van der Ende J, & Verhulst FC (2004). Parent adolescent disagreement regarding psychopathology in adolescents from the general population as a risk factor for adverse outcome. *Journal of Abnormal Psychology*, 113, 198–206. 10.1037/0021-843X.113.2.198. [PubMed: 15122940]
- Frijns T, Keijsers L, Branje S, & Meeus W (2010). What parents don't know and how it may affect their children: Qualifying the disclosure-adjustment link. *Journal of Adolescence*, 33, 261–270. 10.1007/s10826-015-0153-3. [PubMed: 19573902]
- Hou Y, Kim SY, & Benner AD (2018). Parent-adolescent discrepancies in reports of parenting and adolescent outcomes in Mexican immigrant families. *Journal of Youth and Adolescence*, 47, 430–444. 10.1007/s10964-017-0717-1. [PubMed: 28689348]
- Hu L, & Bentler PM (1999). Cutoff criteria for fit indices in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. 10.1080/10705519909540118.
- Jackson DL, Gillaspay JA Jr., & Purc-Stephenson R (2009). Reporting practices in confirmatory factor analysis: an overview and some recommendations. *Psychological Methods*, 14, 6–23. 10.1037/a0014694. [PubMed: 19271845]
- Jaggi L, Drazdowski T, & Kliewer W (2016). What parents don't know: disclosure and secrecy in a sample of urban adolescents. *Journal of Adolescence*, 53, 64–74. 10.1016/j.adolescence.2016.08.016. [PubMed: 27639590]

- Johnston LD, Miech RA, O'Malley PM, Bachman JG, Schulenberg JE, & Patrick ME (2018). Monitoring the Future national survey results on drug use: 1975–2017: overview, key findings on adolescent drug use. Ann Arbor: Institute for Social Research, The University of Michigan.
- Keijsers L, Branje S, Hawk ST, Schwartz SJ, Frijns T, & Koot HM, et al. (2012). Forbidden friends as forbidden fruit: parental supervision of friendships, contact with deviant peers, and adolescent delinquency. *Child Development*, 83, 651–666. 10.1111/j.1467-8624.2011.01701.x. [PubMed: 22181711]
- Kerr M, & Stattin H (2000). What parents know, how they know it, and several forms of adolescent adjustment: further support for a reinterpretation of monitoring. *Developmental Psychology*, 36, 366–380. 10.1037//012-1649.36.3.366. [PubMed: 10830980]
- Kiesner J, Poulin F, & Dishion TJ (2010). Adolescent substance use with friends: moderating and mediating effects of parental monitoring and peer activity contexts. *Merrill-Palmer Quarterly*, 56, 529–556. [PubMed: 21165170]
- Korelitz KE, & Garber J (2016). Congruence of parents' and children's perceptions of parenting: a meta-analysis. *Journal of Youth and Adolescence*, 45, 1973–1995. 10.1007/s10964-016-0524-0. [PubMed: 27380467]
- Laird RD, & De Los Reyes A (2013). Testing informant discrepancies as predictors of early adolescent psychopathology: why difference scores cannot tell you what you want to know and how polynomial regression may. *Journal of Abnormal Child Psychology*, 41, 1–14. 10.1007/s10802-012-9659-y. [PubMed: 22773360]
- Laird RD, & LaFleur LK (2016). Disclosure and monitoring as predictors of mother-adolescent agreement in reports of early adolescent rule-breaking behavior. *Journal of Clinical Child and Adolescent Psychology*, 45, 188–200. 10.1080/15374416.2014.963856. [PubMed: 25470114]
- Lobato M, Sanderman R, Pizarro E, & Hagedoorn M (2017). Marijuana use and dependence in Chilean adolescents and its association with family and peer marijuana use. *International Journal of Behavioral Medicine*, 24, 144–152. 10.1007/s12529-016-9595-2. [PubMed: 27699626]
- Loeber R, Farrington DP, Stouthamer-Loeber M, & Van Kammen WB (1998). *Antisocial behavior and mental health problems: Explanatory factors in childhood and adolescence*. Mahwah, NJ: Lawrence Erlbaum.
- Luthar SS, & Goldstein A (2004). Moderators of children's exposure to community violence: a commentary. *Journal of Clinical Child and Adolescent Psychology*, 33, 499–505. [PubMed: 15271607]
- Mahu IT, Doucet C, O'Leary-Barrett M, & Conrod PJ (2015). Can cannabis use be prevented by targeting personality risk in schools? Twenty-four-month outcome of the adventure trial on cannabis use: a cluster-randomized controlled trial. *Addiction*, 110, 1625–1633. 10.1111/add.12991. [PubMed: 26011508]
- Marotta PL, & Voisin DR (2017). Testing three pathways to substance use and delinquency among low-income African American adolescents. *Children and Youth Services Review*, 75, 7–14. 10.1016/j.childyouth.2017.02.009. [PubMed: 28974824]
- Marschall-Lévesque S, Castellanos-Ryan N, Vitaro F, & Séguin JR (2014). Moderators of the association between peer and target adolescent substance use. *Addictive Behaviors*, 39, 48–70. 10.1016/j.addbeh.2013.09.025. [PubMed: 24183303]
- Muthén BO, & Muthén LK (1998). *Mplus*. Eighth Edition Los Angeles, CA: Muthén & Muthén 2017.
- Nebbitt VE, Lombe M, Yu M, Vaughn MG, & Stokes C (2012). Ecological correlates of substance use in African American adolescents living in public housing communities: assessing the moderating effects of social cohesion. *Children and Youth Services Review*, 34, 338–347. 10.1016/j.childyouth.2011.11.003.
- Newton NC, Chamption KE, Slade T, Chapman C, Stapinski L, & Koning I, et al. (2017). A systematic review of combined student-and parent-based programs to prevent alcohol and other drug use among adolescent. *Drug and Alcohol Review*, 36, 337–551. 10.1111/dar.12497. [PubMed: 28334456]
- Ohannessian CM, & De Los Reyes A (2014). Discrepancies in adolescents' and their mothers' perceptions of the family and adolescent anxiety symptomatology. *Parenting, Science, and Practice*, 14, 1–18. 10.1080/15295192.2014.870009.

- Pelton J., & Forehand R. (2001). Discrepancy between mother and child perceptions of their relationship: I. Consequences for adolescents considered within the context of parental divorce. *Journal of Family Violence*, 16, 1–15. <https://doi.org/10.1023A:1026527008239>.
- Reifman A, Barnes GM, Dintcheff BA, Farrell MP, & Uhteg L (1998). Parental and peer influences on the onset of heavier drinking among adolescents. *Journal of Studies on Alcohol and Drugs*, 59, 311–317. 10.15288/jsa.1998.59.311.
- Reynolds EK, MacPherson L, Matusiewicz AK, Schreiber WM, & Lejuez CW (2011). Discrepancy between mother and child reports of parental knowledge and the relation to risk behavior engagement. *Journal of Clinical Child and Adolescent Psychology*, 40, 67–79. 10.1080/15374416.2011.533406. [PubMed: 21229444]
- Stattin H., & Kerr M. (2000). Parental monitoring: a reinterpretation. *Child Development*, 71, 1072–1085. <https://doi.org/0009/2000/71040023>. [PubMed: 11016567]
- Tilton-Weaver LC (2014). Adolescents' information management: comparing ideas about why adolescents disclose to or keep secrets from their parents. *Journal of Youth and Adolescence*, 43, 803–813. 10.1007/s10964-013-0008-4. [PubMed: 24002679]
- Winters KC, & Henly GA (1989). *Personal Experience Inventory (PEI) Test and Manual*. Los Angeles, CA: Western Psychological Services.
- Young SE, Corley RP, Stallings MC, Rhee SH, Crowley TJ, & Hewitt JK (2002). Substance use, abuse, and dependence in adolescence: prevalence, symptom profiles and correlates. *Drug and Alcohol Dependence*, 68, 309–322. 10.1016/S0376-8716(02)00225-9. [PubMed: 12393225]
- Zapolski TC, Pedersen SL, McCarthy DM, & Smith GT (2014). Less drinking, yet more problems: understanding African American drinking and related problems. *Psychological Bulletin*, 140, 188–199. 10.1037/a0032113. [PubMed: 23477449]
- Zimmerman GM, & Farrell C (2017). Parents, peers, perceived risk of harm, and the neighborhood: contextualizing key influences on adolescent substance use. *Journal of Youth and Adolescence*, 46, 228–247. 10.1007/s10964-016-0475-5. [PubMed: 27016218]

**Fig. 1.**

Structural equation model of relationships among discrepancies between parent and adolescent reports of adolescent secrecy, affiliation with deviant peers, and adolescent substance use, controlling for adolescent age, gender, family structure, and prior levels of core constructs. Only the core mediation and significant individual pathways are presented. Adolescent substance use was indicated by past-year reports of alcohol and marijuana use, past 30-day cigarette use, and past-year drug use severity. Parent-adolescent discrepancies reflect the interaction between parent- and adolescent-reported secrecy. Standardized estimates are presented in the model. ($N = 357, \chi^2(34) = 79.29, p < .001$; CFI = .91; RMSEA = .06, 90% CI [.04-.08]; SRMR = .04).

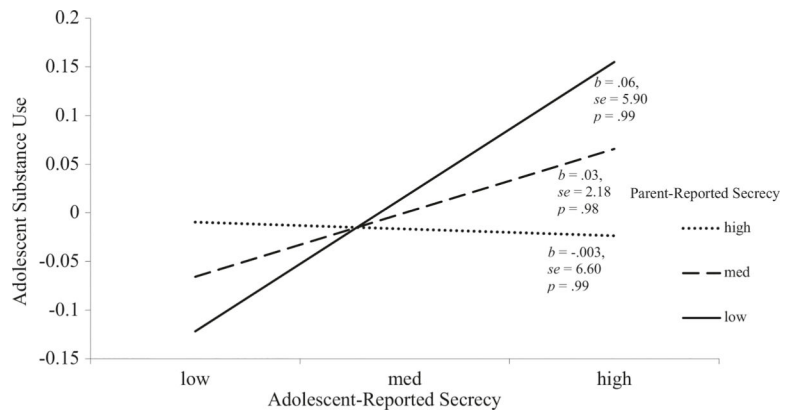


Fig. 2. Plot of the interaction between parent-reported adolescent secrecy, and adolescent-reported secrecy, predicting adolescent substance use. Although the effect of the interaction on substance use was only marginally significant ($p = .07$), it was plotted to analyze trends in the data. Estimates from the simple slopes analyses are presented in the graph

Table 1

Descriptive information on and correlations among core study variables

Variable	1	2	3	4	5	6	7	8	9
1. T2 parent secrecy	–								
2. T2 adolescent secrecy	.19**	–							
3. T3 peer deviance	.16*	.20**	–						
4. T4 alcohol use	.05	.11	.27**	–					
5. T4 marijuana use	.08	.22**	.23**	.52**	–				
6. T4 cigarette use	.14*	.10	.27**	.34**	.34**	–			
7. T4 drug use severity	.07	.18**	.30**	.52**	.62**	.30**	–		
8. Age	.19**	.17**	.17**	.12	.23**	.20**	.14*	–	
9. Gender	.06	.12*	.02	–.03	.01	.02	.20	–.03	–
Mean	3.47	3.89	6.18	0.38	0.32	1.21	1.95		
SD	1.66	2.19	6.03	0.96	0.96	0.65	4.59		
Range	1–10	2–10	0–29	0–6	0–6	1–5	0–30		

Note. Parent secrecy refers to parent-report of adolescent secrecy. Gender was coded as female = 0 and male = 1

Range refers to the minimum and maximum values in the data, not the full potential range based on the measure

* $p < .05$

** $p < .01$