11-6-2017

Pathways to Delinquency and Substance Use among African American Youth: Does Future Orientation Mediate the Effects of Peer Norms and Parental Monitoring?

Dexter R. Voisin
Case Western Reserve University, drv22@case.edu

Author(s) ORCID Identifier:

Dexter R. Voisin

Recommended Citation

Marotta PL, Voisin DR. Pathways to delinquency and substance use among African American youth: Does future orientation mediate the effects of peer norms and parental monitoring? J Health Psychol. 2020 May;25(6):840-852. doi: 10.1177/1359105317736912. Epub 2017 Nov 6. PMID: 29105490; PMCID: PMC5879022.

HHS Public Access

Author manuscript

J Health Psychol. Author manuscript; available in PMC 2021 May 01.

Published in final edited form as:

J Health Psychol. 2020 May ; 25(6): 840–852. doi:10.1177/1359105317736912.

Pathways to delinquency and substance use among African American youth: Does future orientation mediate the effects of peer norms and parental monitoring?

Phillip L Marotta[1], **Dexter R Voisin**[2]

[1]Columbia University, USA

[2]The University of Chicago, USA

Abstract

The following study assessed whether future orientation mediated the effects of peer norms and parental monitoring on delinquency and substance use among 549 African American adolescents. Structural equation modeling computed direct and indirect (meditational) relationships between parental monitoring and peer norms through future orientation. Parental monitoring significantly correlated with lower delinquency through future orientation ($B = -.05$, standard deviation = .01, $p < .01$). Future orientation mediated more than quarter (27.70%) of the total effect of parental monitoring on delinquency. Overall findings underscore the importance of strengthening resilience factors for African American youth, especially those who live in low-income communities.

Keywords

adolescence; drinking behavior; health behavior; race; risk reduction; self-efficacy; social network; social support; sociodemographic variables; wellbeing

Introduction

African American youth report similar rates of delinquency (McCord et al., 2001; Piquero and Brame, 2008) and substance use (Welty et al., 2016) as their White peers, yet they endure much greater rates of arrest, civil and legal sanctions, and detention (Davis and Sorensen, 2013; Fader et al., 2014; Stevens and Morash, 2015). In 2013, 19.2 percent of African American adolescents aged 12–17 years reported using an illicit substance and 18.7 percent engaged in binge drinking in the past year compared to 17.0 and 26.7 percent of white youth, respectively (Substance Abuse and Mental Health Services Administration, 2011). In 2014, more than 35 percent of youth who came into contact with the juvenile

Corresponding author: Phillip L Marotta, School of Social Work, Columbia University, 1255 Amsterdam Avenue, New York, NY 10027, USA. plm2113@columbia.edu.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Supplementary Material

Supplementary material is available for this article online.

justice system were African American despite accounting for less than 13 percent of the general population (Hockenberry and Puzzanchera, 2015). The influence of peer norms and parental monitoring on reducing delinquency and substance use among adolescents is widely supported by extant literature (Bogenschneider et al., 1998; Hoeve et al., 2009; Pettit and Laird, 2002; Reynolds and Crea, 2015; Rhodes et al., 2014). Disproportionate minority contact with the juvenile justice system disrupts protective factors including peer and family relationships that are integral to building resilience throughout adolescent development (Steinberg et al., 2004; Sweeten, 2006).

Adolescent development is often characterized by increasing effects of peer norms on behavioral health (Kambam and Thompson, 2009) and the growth of future orientation, a developmental asset shown to protect against the emergence of substance use and delinquency (Sun and Lau, 2006). Prior studies have shown that poor parental monitoring, negative peer influences, and low future orientation are independently associated with higher rates of delinquency and substance use among adolescents (Agnew and Loving, 1999; Andrews et al., 2002; Brooks-Russell et al., 2014; Griffin et al., 2000; Miller and Brickman, 2004; Stoddard et al., 2011; Tobler and Komro, 2010). Whether future orientation mediates the direct relationship between parental monitoring and peer norms to youth substance use and delinquency remains understudied particularly among African American adolescents in the United States who bear a substantial over-representation in the juvenile justice system.

Parental monitoring and youth substance use and delinquency

Parental knowledge and awareness of children's activities embody an important dimension of parent–child relationships. Knowledge of child activities comes from regulating curfew times on school nights and weekend nights, tracking social relationships, supervision of activities, and maintaining rules around communication when children are outside of the home (Barnes et al., 2006; Bogenschneider et al., 1998; Pettit and Laird, 2002; Steinberg et al., 1992). A meta-analysis by Hoeve et al. (2009) found parental monitoring through knowledge of child activities and direct supervision was the best and most reliable measure of parent–child relationships in assessing predictors of adolescent problem behaviors. Voisin et al. (2012) found that knowledge of children's activities moderated the impact of exposure to community violence on drug use and risky sex among 550 adolescents, who were detained in regional facilities in Georgia. Parental monitoring may limit the exposure of youth to messages and reinforcement of antisocial problem behaviors such as delinquency and substance abuse (Kelly et al., 2002; Pettit and Laird, 2002; Racz and McMahon, 2011). Active involvement by parents shape how youth make meaning of messages and reinforcement of prosocial or problematic behaviors thereby fostering positive and high future orientation. Studies examining pathways to delinquency and substance use among adolescents focus primarily on White youth despite disproportionate exposure to risk factors for delinquency and substance abuse including trauma and poverty among African American adolescents compared to other racial and ethnic groups in the United States.

Peer norms and youth substance use and delinquency

The influence of peer relationships emerges in adolescence and shapes the development of multiple problem behaviors including delinquency, aggression, binge drinking, substance

use, and bullying (Eisenberg et al., 2014; Reynolds and Crea, 2015; Rhodes et al., 2014). Exposure to peers who engage in delinquency and substance use provides learning opportunities for observing and modeling problem behaviors as well as receiving reinforcement through endorsement by peers (Bandura, 1977; D'Amico and McCarthy, 2006). Descriptive peer norms defined as perceptions of the number of peers engaged in problem behaviors are hypothesized to increase frequency of outcome expectancies in drug use and delinquency (Brooks-Russell et al., 2014; Monahan et al., 2013). Eisenberg et al. (2014) found that descriptive peer norms favorable to substance use predicted subsequent use of alcohol, tobacco, and marijuana in a sample of high school students in the United States and Australia. Youth who perceive peers as engaging in delinquency, substance use, and drinking may feel compelled to conform to such behaviors in order to maintain a sense of belonging and maintain the positive rewards offered by group membership (Monahan et al., 2014).

Future orientation and youth substance use and delinquency

Future orientation is defined as one's capacity to weigh long-term risks against immediate rewards, problem solving, planning, and delaying gratification and is defined qualitatively as poor, positive, high, and low (Agnew and Loving, 1999; Miller and Brickman, 2004; Nurmi, 1991; So et al., 2016; Stoddard et al., 2011; Trommsdorff, 1983). Poor and low orientation to the future, defined as a pessimistic outlook that accepts negative outcomes as inevitable and positive outcomes as unachievable, may increase delinquency, substance use, sexual risk, and other problem behaviors among adolescents (Chen and Vazsonyi, 2013; Miller and Brickman, 2004; Peters et al., 2005; Robbins and Bryan, 2004; Rothspan and Read, 1996; Trommsdorff, 1983). Conversly, positive and high future orientation is associated with promoting behavioral health and reducing risky youth behaviors (Jackman and MacPhee, 2015; Stoddard et al., 2011). In a sample of students in grades 7–12 in Texas, adolescents who were positively and highly oriented to the future were less likely to report lifetime and recent substance use (Peters et al., 2005). Prior analyses have also shown that high future orientation is associated with significant reductions in delinquency and youth substance use (e.g. Jackman and MacPhee, 2015; Peters et al., 2005; Stoddard et al., 2011) among low-income African American youth (So et al., 2016).

Contributions of this study

Few studies jointly consider parental monitoring and peer norms in the same models to estimate the magnitude of their relative effects on substance use and delinquency. A small number of prior studies suggest peer norms are a stronger correlate than parental monitoring of substance use and delinquency (Marotta and Voisin, 2017; Rai et al., 2003), but few studies examine mediators of these relationships. African American youth residing in poorly resourced communities are disproportionately exposed to many risk factors for substance use and delinquency, yet these relationships are understudied in this population. Research to inform delinquency and substance use prevention interventions among youth must provide opportunities for alternatives to incarceration and excessive juvenile justice involvement. Identifying aspects of parenting, peer norms, and future orientation that can act on these pathways to prevent substance use and delinquency could provide community-based alternatives for youth that ameliorate overreliance on the juvenile justice system to resolve

child behavioral problems particularly among African American youth. This is an important gap in the literature and could shed important insights into the development of future prevention interventions with African American adolescents in the United States.

Conceptual model of youth substance use and delinquency

Bronfenbrenner's (1986) ecological model provides a conceptual framework to investigate how distal and proximal risk factors influence cognitive processes such as future orientation and the occurrence of delinquency and substance use among adolescents. Prior studies suggest that distal factors influence behavioral health (e.g. substance use, delinquency, and sexual risk behaviors) through proximal factors among adolescents (Krug et al., 2002; Higgins et al., 2009). Although exposure to community violence is directly associated with adolescent sexual risk and drug use behaviors, these relationships are mediated by more proximal factors such as psychological distress and social relationships (e.g. teachers, peers, and parents) (Voisin et al., 2008, 2012). Conceptualized within the ecological model, peer and parental influences exist at relatively the same level of the microsystem and are influenced by more distal factors of the mesosystem including community violence and poverty. Based on Broffenbrenner's ecological model, the following hypotheses were tested:

Hypothesis 1. Perceived parental monitoring will be associated with greater youth future orientation (Direct Effects).

Hypothesis 2. Descriptive peer norms will be associated with less future orientation (Direct Effects).

Hypothesis 3. Future orientation will mediate direct relationships by increasing protective effects of parental monitoring on reducing risk of delinquency and substance use.

Hypothesis 4. Future orientation will mediate direct relationships by diminishing the effects of descriptive peer norms on increasing substance use and delinquency.

Notably, African American youth are exposed to higher rates of exposures to community violence relative to their other race/ethnic peers. Rates of homicides are 10 times higher among African American adolescent males than their White male counterpart and 9 and 26 times higher than African American and White female adolescents, respectively (Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control, 2015). Poverty and gender are intersecting environmental factors that partly account for such disparities (CDC, National Center for Injury Prevention and Control, 2015). These factors are important to control for when exploring the interrelationships between parental monitoring, perceived peer norms, and future orientation with regard to youth delinquency and substance use. Figure 1 provides a conceptual representation of the ecological model and significant variables used in this study at multiple levels of the social environment.

Methods

Data from this study come from the Resilience Project, a study examining risk and protective factors related to sexual behaviors of African American adolescents living in urban neighborhoods of concentrated poverty in Chicago. Youth were recruited from three

high schools, one youth church group, two community youth programs, and four public venues (e.g. fast food restaurants, movie theaters, and coffee shops). An overall response rate of 87 percent was achieved based on the number of persons who were invited to enroll into the study and those who agreed to participate. These participants were recruited from low-income communities consisting predominantly of African American residents, where the average annual median income ranged from US$24,049 to US$35,946, below the Chicago city average of US$43,628. The percentage of single-mother households in these areas ranged from 28.9 to 32.3 percent, with the city average being 13.9 percent (City of Chicago Open Data Portal, City Data, 2015).

To recruit adolescent participants, flyers with information regarding the study were posted at schools, community programs, and churches, where the school principals as well as leaders of church groups and youth programs had given permission to recruit participants for the study. Each participant was required to have both active parental consent and youth assent to participate in the study. Trained research assistants introduced the study to all potential participants, recruited from aforementioned locations with a detailed letter describing the study along with parental consent forms. Youth who returned consent forms signed by a parent or guardian and provided assent were enrolled in the study. Youth recruited in public venues were only asked to participate if a parent was present to provide consent and they provided assent.

Participants recruited from schools, community programs, and churches were administered a questionnaire at those respective locations. Individuals who were recruited in public venues (e.g. parks and fast food venues) were given questionnaires in quiet spaces at or near those venues. In such instances, questionnaires were only administered to youth if a parent was present to provide consent and the questionnaire could be immediately administered. The questionnaire took approximately 45 minutes to complete, after which, the youth participant was given a US$10 cash compensation. The University Institutional Review Board approved the study.

Measures

Endogenous mediators

Descriptive peer norms: A scale using 12 question items developed and validated by DiClemente et al. (2001) asked participants to rate the number of friends they believed engaged in risky behaviors. Items included how many of their 10 friends drank alcohol, skipped school or class, smoked cigarettes, got into fights, carry guns, use weapons, and other behaviors related to delinquency and substance use (α = .90). Participants rated answers as none, a few (1–3), about half (4–5), many (6–8), and most (9–10). Item responses were summed for each participant to provide a measure of descriptive peer norms. Greater scores indicated perceptions of more peers engaged in delinquency and substance use.

Parental monitoring: The Parental Monitoring Scale, a 10-item instrument (see Steinberg et al., 1992) provided a measure of the extent to which parents monitored their children using a 5-point Likert scale (not at all, very little, somewhat, quite a bit, very much).

Examples included "how well do your parents know … (1) where you are?" and (2) "how you spend money?" Greater scores indicated more parental monitoring (α = .87).

Future orientation: A modified scale used in prior research (Whitaker et al., 2000) containing 10 items from the Self-Esteem Inventory (Coopersmith, 1967) measured participants perceived control (i.e. "I have little control"), positive future outlook ("what happens to my future mostly depends on me"), and hopelessness (e.g. "Sometimes I feel there is nothing to look forward to in the future") (α = .74). The scale measured perceptions within the past 6 months and used a 3-point scale (1 = not true, 2 = somewhat/sometimes true, 3 = very true or often true). Questions were summed to create a scale in which higher scores reflected more future orientation. Prior research has validated scales using some of the items from the inventory and adapted for multiple populations (Robbins and Bryan, 2004)

Endogenous outcomes

Substance use: The frequency of participants' use of drugs (cigarettes, ecstasy, Krokodil (codeine), alcohol, marijuana, crack/cocaine) in the past 30 days was assessed through question items (codeine) measuring use with five categories of frequency (0, 1, 3–5, 6–9, 10–19 days). Each categorical variable received a numerical value between 1 and 5 and was summed to provide a cumulative indicator of frequency of use across the different drugs used in the study.

Delinquency: The frequency of delinquent behaviors was measured using 10 question items (i.e. stealing, fire-setting, threatening/coercion, physical harm, stealing, motor vehicle theft, theft of expensive motor vehicle parts) (α = .88). Question items assessed the frequency of delinquent behavior (0, 1–2, 3–5, 6–8, 9–11, >12). Each category received a numerical value between 1 and 6 and summed to provide a cumulative indicator of frequency of delinquency.

Exogenous control covariates included age, gender, poverty, and community violence. Participants were assessed on *gender* (1 = male, 2 = female), *age* (in years). A proxy variable measured *poverty* by asking respondents, "Are you receiving free or reduced lunch and/or SNAP benefits" (0 = no, 1 = yes). Food assistance programs are mean tested and therefore a reliable proxy indicator of poverty (Sirin, 2005). The Exposure to Violence Probe assessed respondents for lifetime exposure to *community violence* (Stein et al., 1997). This scale included 10 items measured on a scale from never (0) to very often (3) (avoid crowds or gatherings in my community, associate with family members who could protect me, avoid situations where violence may happen) (α = .89).

Statistical analyses

Characteristics of the sample were summarized through percentages and means, and correlations between variables were examined using Spearman rank coefficients (Zar, 1978). Relationships were elucidated between parental monitoring and peer norms mediated by future orientation after adjusting for age, gender, poverty level, and community violence. Path analysis is a robust statistical tool capable of estimating multiple mechanisms leading to more than one outcome while adjusting for potential confounders and is thus the best

statistical strategy to address the aims in this study (Kline, 2015). Endogenous outcomes included substance use and delinquency and endogenous mediators included parental monitoring, peer norms, and future orientation. All standard errors and confidence intervals for direct, indirect, and total effects were bootstrapped with 5000 replications and standardized coefficients were obtained for all paths estimated in the full model (Nevitt and Hancock, 2001). We correlated the errors of our two outcome variables in the structural equation model because prior literature suggests delinquency and substance use are strongly correlated. All analyses were performed using STATA version 14 (StataCorp, 14).

Direct, indirect, and total effects assessed mediating pathways between peer norms and delinquency through future orientation (Figure 2). Dividing the indirect effect by the total effect and multiplying by 100 to obtain a percent value calculated the proportion of relationships mediated by future orientation.

Goodness-of-fit statistics assessed whether the model fits the data well (Bollen and Stine, 1992). The likelihood ratio chi-squared statistic tested whether the covariance matrix of the model was either similar or different from the data. An insignificant test statistic indicates that the model fits the data well. Using the root mean squared error of approximation (RMSEA), a statistic <.05 with a range of .00 at the lower bound and a maximum upper bound of .15 indicates good model fit (Schermelleh-Engel et al., 2003). The Comparative Fit Index and Tucker Lewis Index (CFI) indicate goodness of fit with a test statistic >.95 (Marcoulides and Schumacker, 2013). Acceptable parameters for evaluating model fit include meeting the criteria of good model fit for two or more goodness of fit statistics (Schermelleh-Engel et al., 2003). In preliminary model fitting, the likelihood ratio chi-squared statistic (2.23, $p = .14$) indicated that the model successfully reproduced the covariance matrix for our variables. Analysis of goodness of fit using RMSEA (.04, lower bound, upper bound, .13) and the CFI (.99) indicates that the model fits the data well.

Results

Table 1 provides overall descriptive characteristics of the 549 African American adolescents who participated in the study. Spearman rank correlation coefficients between exogenous control covariates, endogenous mediators, and outcome variables are provided in Supplemental Table 2.

Future orientation mediating parental monitoring and peer norms on delinquency and drug use

Unstandardized and standardized path coefficients, bootstrapped standardized error estimates, and statistical tests of significance for direct, indirect, and total paths included in the structural equation model are presented in Table 2. Standardized path coefficients are provided in the text.

Direct effects with future orientation—After adjusting for potential confounders, more parental monitoring reported by adolescents significantly correlated with less drug use ($B = -.24$, SD = .03, $p < .001$) and delinquency ($B = -.13$, SD = .03, $p < .05$). Greater descriptive

peer norms were associated with more delinquency ($B = .17$, SE = .04, $p < .05$) and drug use ($B = .25$, SD = .02, $p < 001$):

Hypothesis 1. Parental monitoring exerted a significant positive effect on future orientation ($B = .22$, SD = .02, $p < .001$). Descriptive peer norms were correlated with less future orientation ($B = -.10$, SD = .02, $p < .05$).

Hypothesis 2. Peer norms were not significantly associated with future orientation after adjusting for potential confounders. The path model detected a significant relationship between future orientation and less delinquency ($B = -.22$, SD = .07, $p < .001$) and drug use ($B = -.08$, SD = .03, $p < .05$).

Indirect effects

Hypothesis 3. Parental monitoring significantly correlated with lower delinquency through future orientation ($B = -.05$, SD = .01, $p < .01$). Future orientation mediated more than quarter (27.7%) of the total effect of parental monitoring on delinquency and a small proportion of the effects on drug use (8.0%).

Hypothesis 4. The indirect effects were insignificant and therefore future orientation did not mediate the effects of descriptive peer norms on increasing substance use and delinquency. The proportion of the total effects of peer norms on delinquency mediated by future orientation was 10.50 and 2.8 percent on drug use.

Discussion

This study explored whether future orientation mediated the relationship between parental monitoring and peer norms and dependent variables of substance use and delinquency. We found support for our hypotheses that adolescents who reported more parental monitoring were more positively oriented to the future. Parental monitoring may increase adolescents' capacity to plan for the future, delay immediate gratification, anticipate consequences of behaviors, and increase hope for the future. We did not find support for future orientation mediating the effects of peer norms on substance use. Future orientation may mature prior to the increasing importance of peers and parental monitoring may play a greater role in the growth of cognitive processes during adolescence than peers. Additional research using longitudinal data is necessary to identify developmental stages where cognitive processes are most sensitive to influences from the social environment. Future orientation provides critical building blocks for cognitive reasoning and problem solving required for healthy transition from adolescence to adulthood.

Interventions to increase future orientation among youth may enhance the positive effects of parental monitoring on delinquency and substance use. The demands of monitoring youth in unsupervised social contexts during adolescence create additional stress to parents who are responsible for shaping healthy adolescent development. Identifying mechanisms that can improve these pathways are integral to promoting family relationships and reducing risk behavior among adolescent youth. Future research must investigate if increased future orientation may relieve parenting stress, thus causing a feedback loop that could help sustain health-promoting behaviors in youth.

Health promotion and behavior change interventions for adolescents rest upon teaching that potential negative long-term outcomes including arrest, school discipline, and poor health outweigh immediate positive rewards of delinquency and substance abuse including physical pleasure and positive reinforcement from peer groups (Nurmi, 1991, 2005; Robbins and Bryan, 2004). Evidence-based interventions including “Healthy Futures” and “possible selves” are promising for increasing positive school outcomes, self-regulation, physical health and fitness, and other outcomes among youth populations (Alm and Låftman, 2016; Hoyle and Sherrill, 2006; Lindstrom et al., 2015; Murru and Ginis, 2010; Oyserman and Fryberg, 2006). Extracurricular activities for youth in afterschool programming promote the development of positive future orientation by exposing youth to peer and mentorship relationships that build problem-solving skills (Hanham and Tracey, 2017).

In addition to future orientation, interventions that incorporate evidence-based family-management practices such as the Family Check-up (Dishion et al., 2003) are promising to improve parental monitoring and reduce delinquency and substance use. Knowledge of who children spend time with, where they spend money, afterschool activities, and problems in school create opportunities for parents to intervene, teach, and shape the development of adolescent problem behaviors. Strengthening parental monitoring may increase the socialization of youth to future orientation, indirectly decreasing substance use and delinquency. Incorporating parental monitoring and descriptive peer norms into evidence-based interventions that target future orientation may reduce substance use and delinquency among adolescent youth.

Findings from this study generate implications for ameliorating overreliance on the juvenile justice system to address child behavior problems of delinquency and substance abuse. Given that African American youth are disproportionately exposed to risk factors for criminal justice involvement including community violence and poverty (Voisin et al., 2012), interventions to increase the cognitive mechanisms involved in resiliency could reduce the emergence of behaviors that lead to disproportionate involvement in the juvenile justice system among African Amerian adolescents. Diversion of African American youth who come into contact with law enforcement and the juvenile justice system into programs to increase future orientation and enable parental monitoring could provide a viable alternative to the correctional supervision of youth.

There are several limitations. The cross-sectional data preclude causal inference from parameter estimates in the structural equation models. The sample comprises African American youth in an urban environment, thus restricting generalizability of findings to these settings. The school setting was not examined, which is likely a robust influence on the development of future orientation. Future research must examine the extent to which the school environment mediates or moderates the influence of parental monitoring, peer norms, and future orientation in a single model. Additionally, the outcome variable of substance use consisted of an additive scale that treated all substances equally. Future research must examine how parental influences, peer relationships, and future orientation influence the use of different kinds of drugs as well as delinquency.

Limitations notwithstanding, this study generated important insights into substance use and delinquency prevention interventions for African American youth who are disproportionately engaged in the criminal justice system. The design of evidence-based programs must integrate future orientation into interventions with youth who engage in delinquency. Building a positive outlook and planning for future events may reduce recidivism and other negative outcomes among African American youth.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This article was supported by the University of Chicago Center for Health Administration Studies and the STI/HIV Intervention Network awarded to principal investigator Dexter Voisin. This article was also partially supported by a T-32 Training Grant by the National Institute on Drug Abuse, Grant #: 1T32DA037801-01 awarded to Phillip L. Marotta.

References

Agnew CR, Loving TJ. 1999; Future time orientation and condom use attitudes, intentions, and behavior. Journal of Social Behavior and Personality. 13:755–764.

Alm S, Låftman SB. 2016; Future orientation climate in the school class: Relations to adolescent delinquency, heavy alcohol use, and internalizing problems. Children and Youth Services Review. 70:324–331.

Andrews JA, Tildesley E, Hops H, et al. 2002; The influence of peers on young adult substance use. Health Psychology. 21(4):349–357. [PubMed: 12090677]

Bandura, A. Social Learning Theory. Englewood Cliffs, NJ: Prentice-Hall; 1977.

Barnes GM, Hoffman JH, Welte JW, et al. 2006; Effects of parental monitoring and peer deviance on substance use and delinquency. Journal of Marriage and Family. 68(4):1084–1104.

Bogenschneider K, Wu MY, Raffaelli M, et al. 1998; Parent influences on adolescent peer orientation and substance use: The interface of parenting practices and values. Child Development. 69(6):1672–1688. [PubMed: 9914646]

Bollen KA, Stine RA. 1992; Bootstrapping goodness-of-fit measures in structural equation models. Sociological Methods & Research. 21(2):205–229.

Bronfenbrenner U. 1986; Ecology of the family as a context for human development: Research perspectives. Developmental Psychology. 22(6):723–742.

Brooks-Russell A, Simons-Morton B, Haynie D, et al. 2014; Longitudinal relationship between drinking with peers, descriptive norms, and adolescent alcohol use. Prevention Science. 15(4):497–505. [PubMed: 23564529]

Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS). 2015. Apr, Available at: http://www.cdc.gov/injury/wisqars

Chen P, Vazsonyi AT. 2013; Future orientation, school contexts, and problem behaviors: A multilevel study. Journal of Youth and Adolescence. 42(1):67–81. [PubMed: 22760994]

City of Chicago Open Data Portal. 2015Dataset.

Coopersmith, S. The Antecedents of Self-Esteem. Palo Alto, CA: Consulting Psychologists Press; 1967.

D'Amico EJ, McCarthy DM. 2006; Escalation and initiation of younger adolescents' substance use: The impact of perceived peer use. Journal of Adolescent Health. 39(4):481–487. [PubMed: 16982381]

Davis J, Sorensen JR. 2013; Disproportionate minority confinement of juveniles: A national examination of Black–White disparity in placements, 1997–2006. Crime & Delinquency. 59(1):115–139.

DiClemente RJ, Wingood GM, Crosby R, et al. 2001; Parental monitoring: Association with adolescents' risk behaviors. Pediatrics. 107(6):1363–1368. [PubMed: 11389258]

Dishion TJ, Nelson SE, Kavanagh K. 2003; The family check-up with high-risk young adolescents: Preventing early-onset substance use by parent monitoring. Behavior Therapy. 34(4):553–571.

Eisenberg ME, Toumbourou JW, Catalano RF, et al. 2014; Social norms in the development of adolescent substance use: A longitudinal analysis of the international youth development study. Journal of Youth and Adolescence. 43(9):1486–1497. [PubMed: 24633850]

Fader JJ, Kurlychek MC, Morgan KA. 2014; The color of juvenile justice: Racial disparities in dispositional decisions. Social Science Research. 44:126–140. [PubMed: 24468439]

Griffin KW, Botvin GJ, Scheier LM, et al. 2000; Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. Psychology of Addictive Behaviors. 14(2):174–184. [PubMed: 10860116]

Hanham J, Tracey D. 2017; Evolution of mentoring relationships involving young male offenders transitioning from a juvenile justice centre to the community. Youth Justice. doi: 10.1177/1473225417699169

Higgins JW, Begoray D, MacDonald M. 2009; A social ecological conceptual framework for understanding adolescent health literacy in the health education classroom. American Journal of Community Psychology. 44(3–4):350–362. [PubMed: 19838790]

Hockenberry, S, Puzzanchera, C. Juvenile Court Statistics 2013. Pittsburgh, PA: National Center for Juvenile Justice; 2015.

Hoeve M, Dubas JS, Eichelsheim VI, et al. 2009; The relationship between parenting and delinquency: A meta-analysis. Journal of Abnormal Child Psychology. 37(6):749–775. [PubMed: 19263213]

Hoyle RH, Sherrill MR. 2006; Future orientation in the self-system: Possible selves, self-regulation, and behavior. Journal of Personality. 74(6):1673–1696. [PubMed: 17083662]

Jackman DM, MacPhee D. 2015; Self-esteem and future orientation predict adolescents' risk engagement. The Journal of Early Adolescence. doi: 10.1177/0272431615602756

Kambam P, Thompson C. 2009; The development of decision-making capacities in children and adolescents: Psychological and neurological perspectives and their implications for juvenile defendants. Behavioral Sciences & the Law. 27(2):173–190. [PubMed: 19266591]

Kelly KJ, Comello MLG, Hunn LC. 2002; Parent-child communication, perceived sanctions against drugs use, and youth drug involvement. Adolescence. 37(148):775–787. [PubMed: 12564828]

Kline, RB. Principles and Practice of Structural Equation Modeling. New York: Guilford Publications; 2015.

Krug EG, Mercy JA, Dahlberg LL, et al. 2002; The world report on violence and health. The Lancet. 360(9339):1083–1088.

Lindstrom JS, Jones V, Cheng TL. 2015; Promoting "Healthy Futures" to reduce risk behaviors in urban youth: A randomized controlled trial. American Journal of Community Psychology. 56(1–2):36–45. [PubMed: 26122751]

McCord, J, Widom, CS, Crowell, NA. Institute of Medicine and National Research Council, Juvenile Crime, Juvenile Justice. Washington, DC: The National Academies Press; 2001. Race, crime, and juvenile justice: The issue of racial disparity. Available at: .

Marcoulides, GA, Schumacker, RE. Advanced Structural Equation Modeling: Issues and Techniques. New York: Psychology Press; 2013.

Marotta P, Voisin D. 2017; Assessing three pathways to delinquency and drug use among low income African American adolescents in Chicago. Children and Youth Services Review. 75:7–14. [PubMed: 28974824]

Miller RB, Brickman SJ. 2004; A model of future-oriented motivation and self-regulation. Educational Psychology Review. 16(1):9–33.

Monahan KC, Rhew IC, Hawkins JD, et al. 2014; Adolescent pathways to co-occurring problem behavior: The effects of peer delinquency and peer substance use. Journal of Research on Adolescence. 24(4):630–645. [PubMed: 25506186]

Murru EC, Ginis KAM. 2010; Imagining the possibilities: The effects of a possible selves intervention on self-regulatory efficacy and exercise behavior. Journal of Sport & Exercise Psychology. 32(4):537–554. [PubMed: 20733212]

Nevitt J, Hancock GR. 2001; Performance of bootstrapping approaches to model test statistics and parameter standard error estimation in structural equation modeling. Structural Equation Modeling. 8(3):353–377.

Nurmi JE. 1987; Age, sex, social class, and quality of family interaction as determinants of adolescents' future orientation: A developmental task interpretation. Adolescence. 22(88):977–991. [PubMed: 3434411]

Nurmi JE. 1991; How do adolescents see their future? A review of the development of future orientation and planning. Developmental Review. 11(1):1–59.

Nurmi, JE. Thinking about and acting upon the future: Development of future orientation across the life span. In: Strathman, A, Joireman, J, editors. Understanding Behavior in the Context of Time: Theory, Research, and Application. Mahwah, NJ: Lawrence Erlbaum Associates; 2005. 31–57.

Oyserman D, Fryberg S. 2006; The possible selves of diverse adolescents: Content and function across gender, race and national origin. Possible Selves: Theory, Research, and Applications. 2(4):17–39.

Peters RJ Jr, Tortolero SR, Johnson RJ, et al. 2005; The relationship between future orientation and street substance use among Texas alternative school students. American Journal on Addictions. 14(5):478–485. [PubMed: 16257885]

Pettit GS, Laird RD. 2002; Psychological control and monitoring in early adolescence: The role of parental involvement and earlier child adjustment. The Journal of Early Adolescence. 23(4):349–383.

Piquero AR, Brame RW. 2008; Assessing the race–crime and ethnicity–crime relationship in a sample of serious adolescent delinquents. Crime & Delinquency. 54(3):390–422. [PubMed: 19946564]

Racz SJ, McMahon RJ. 2011; The relationship between parental knowledge and monitoring and child and adolescent conduct problems: A 10-year update. Clinical Child and Family Psychology Review. 14(4):377–398. [PubMed: 22086648]

Rai AA, Stanton B, Wu Y, et al. 2003; Relative influences of perceived parental monitoring and perceived peer involvement on adolescent risk behaviors: An analysis of six cross-sectional data sets. Journal of Adolescent Health. 33(2):108–118. [PubMed: 12890602]

Reynolds AD, Crea TM. 2015; Peer influence processes for youth delinquency and depression. Journal of Adolescence. 43:83–95. [PubMed: 26066630]

Rhodes N, Ewoldsen DR, Shen L, et al. 2014; The accessibility of family and peer norms in young adolescent risk behavior. Communication Research. 41(1):3–26.

Robbins RN, Bryan A. 2004; Relationships between future orientation, impulsive sensation seeking, and risk behavior among adjudicated adolescents. Journal of Adolescent Research. 19(4):428–445. [PubMed: 16429605]

Rothspan S, Read SJ. 1996; Present versus future time perspective and HIV risk among heterosexual college students. Health Psychology. 15(2):131–134. [PubMed: 8681921]

Schermelleh-Engel K, Moosbrugger H, Müller H. 2003; Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. Methods of Psychological Research Online. 8(2):23–74.

Sirin SR. 2005; Socioeconomic status and academic achievement: A meta-analytic review of research. Review of Educational Research. 75(3):417–453.

So S, Voisin DR, Burnside A, et al. 2016; Future orientation and health related factors among African American adolescents. Children and Youth Services Review. 61:15–21.

Stein MB, Walker JR, Hazen AL, et al. 1997; Full and partial posttraumatic stress disorder: Findings from a community survey. American Journal of Psychiatry. 154(8):1114–1119. [PubMed: 9247398]

Steinberg L, Chung HL, Little M. 2004; Reentry of young offenders from the justice system: A developmental perspective. Youth Violence and Juvenile Justice. 2(1):21–38. [PubMed: 20119512]

Steinberg L, Lamborn SD, Dornbusch SM, et al. 1992; Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. Child Development. 63(5):1266–1281. [PubMed: 1446552]

Stevens T, Morash M. 2015; Racial/ethnic disparities in boys' probability of arrest and court actions in 1980 and 2000: The disproportionate impact of "getting tough" on crime. Youth Violence and Juvenile Justice. 13(1):77–95.

Stoddard SA, Zimmerman MA, Bauermeister JA. 2011; Thinking about the future as a way to succeed in the present: A longitudinal study of future orientation and violent behaviors among African American youth. American Journal of Community Psychology. 48(3–4):238–246. [PubMed: 21104432]

Substance Abuse and Mental Health Services Administration. Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2011.

Sun RC, Lau PS. 2006; Beliefs in the future as a positive youth development construct: Conceptual bases and implications for curriculum development. International Journal of Adolescent Medicine and Health. 18(3):409. [PubMed: 17068923]

Sweeten G. 2006; Who will graduate? Disruption of high school education by arrest and court involvement. Justice Quarterly. 23(4):462–480.

Tobler AL, Komro KA. 2010; Trajectories or parental monitoring and communication and effects on drug use among urban young adolescents. Journal of Adolescent Health. 46(6):560–568. [PubMed: 20472213]

Trommsdorff G. 1983; Future orientation and socialization. International Journal of Psychology. 18(1–4):381–406.

Voisin DR, Tan K, Tack AC, et al. 2012; Examining parental monitoring as a pathway from community violence exposure to drug use, risky sex, and recidivism among detained youth. Journal of Social Service Research. 38(5):699–711.

Voisin DR, Neilands TB, Salazar LF, et al. 2008; Pathways to drug and sexual risk behaviors among detained adolescents. Social Work Research. 32(3):147–157. [PubMed: 20228887]

Welty LJ, Harrison AJ, Abram KM, et al. 2016; Health disparities in drug-and alcohol-use disorders: A 12-year longitudinal study of youths after detention. American Journal of Public Health. 106(5):872–880. [PubMed: 26985602]

Whitaker DJ, Miller KS, Clark LF. 2000; Reconceptualizing adolescent sexual behavior: Beyond did they or didn't they? Family Planning Perspectives. 32:111–117. [PubMed: 10894256]

Zar JH. 1978; Approximations for the percentage points of the chi-squared distribution. Journal of the Royal Statistical Society, Series C: Applied Statistics. 27:280–290.

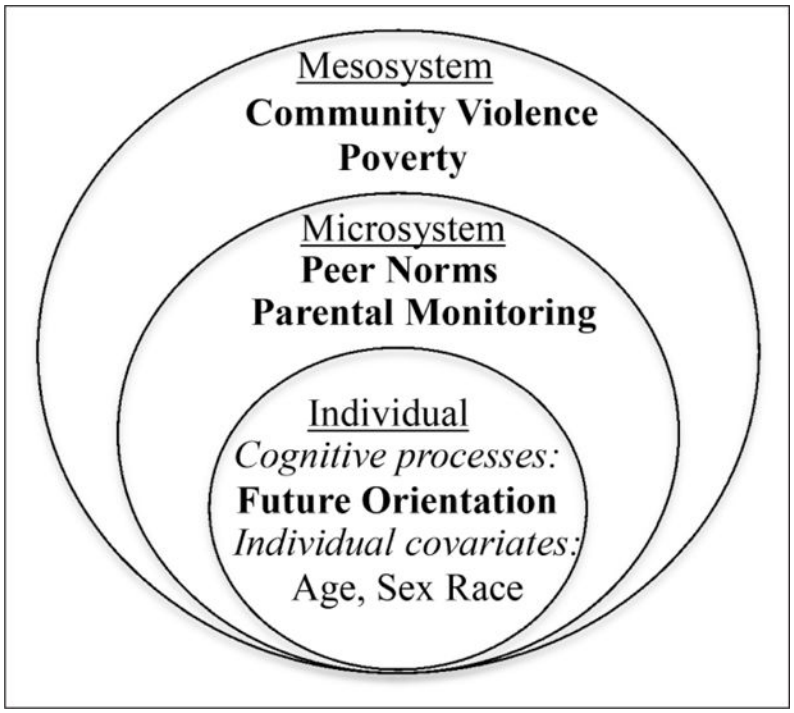

Figure 1.
Multi-level predictors of delinquency and substance use among adolescents using Bronfenbrenner's ecological model.

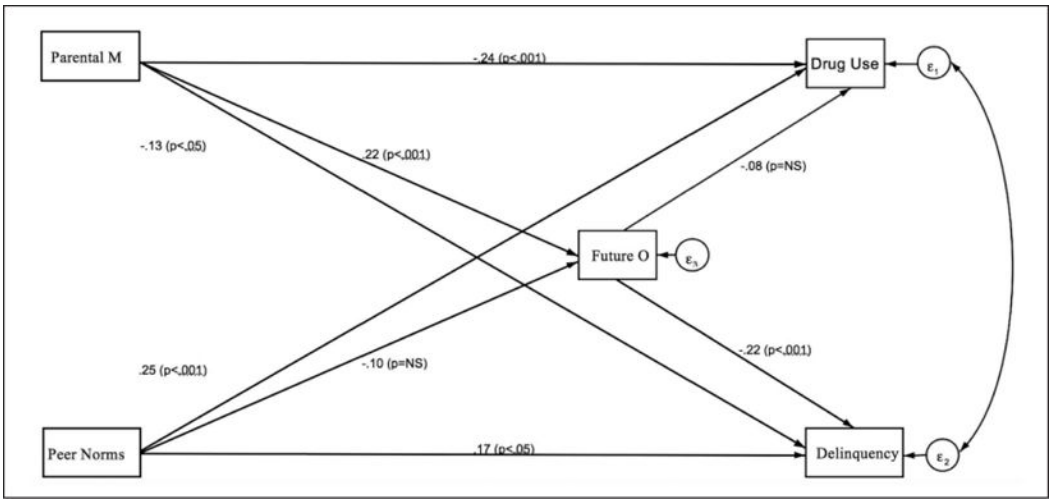

Figure 2.

Structural equation model of results for hypothesized direct and mediational pathways between endogenous mediators and outcome variables after adjusting for age, sex, community violence, and poverty.

Table 1

Descriptive characteristics ($n = 549$).

Dependent variables	
Drug use, mean (SD)	1.73 (0–20)
Delinquency, mean (SD)	2.4 (0–41)
Exogenous control variables	
Age, mean (SD)	15.83 (12–22)
Gender, % (*n*)	54.74 (300)
School lunch, % (*n*)	75.36 (413)
Community violence, mean (SD)	9.43 (0–42)
Endogenous mediators	
Parental monitoring, mean (SD)	38.70 (1–50)
Peer norms, mean (SD)	12.60 (0–48)
Future orientation, mean (SD)	24.47 (14–30)

SD: standard deviation.

Table 2

Results from structural equation model ($n = 549$).

		Unstd. Direct *B* (SE)	Std. Direct *B* (SE)	Std. Indirect *B* (SE)	Std. Total *B* (SE)
Endogenous mediators					
PM	Gender	.63	.04 (.75)	–	.04 (.75)
	Age	−.95***	−.15*** (.26)	–	−.15*** (.26)
	CV	−.09*	−.10* (.05)	–	−.10* (.05)
	SL	2.09*	.10* (.98)	–	.10* (.98)
PN	Gender	−2.72***	−.14*** (.74)	–	−.14*** (.74)
	SL	−.12	−.01 (.81)	–	−.01 (.81)
	Age	1.19***	.17*** (.27)	–	.17*** (.27)
	CV	.49***	.45*** (.04)	–	.45*** (.04)
FO	PM	.09***	.22*** (.02)	–	.22*** (.02)
	PN	−.04	−.10 (.02)	–	−.10* (.02)
	Gender	−.52	−.08 (.30)	.02 (.09)	.06 (.30)
	SL	−.33	−.04 (−.33)	.02 (.09)	−.05 (.11)
	Age	−.01	−.004 (.11)	−.05** (.04)	−.05 (.11)
	CV	−.01	−.03 (.02)	−.07** (.01)	−.09* (.02)
Outcome variable					
Delinquency	FO	−.32***	−.22*** (.07)	–	−.22*** (.07)
	PN	.09*	.17* (.04)	.02 (.01)	.19* (.04)
	PM	−.07*	−.13* (.03)	−.05** (.01)	−.18** (.04)
	Gender	−1.37***	−.13*** (.39)	−.02 (.18)	−.14*** (.42)
	SL	−.71*	−.06 (.)44)	−.01 (.18)	−.07 (.48)
	Age	−.20	−.05 (.15)	.06** (.07)	.01 (.14)
	CV	.10	.17 (.03)	.11** (.02)	.28*** (.03)
Drug use	FO	−.07*	−.08 (.03)	–	−.08* (.03)

J Health Psychol. Author manuscript; available in PMC 2021 May 01.

		Unstd. Direct *B* (SE)	Std. Direct *B* (SE)	Std. Indirect *B* (SE)	Std. Total *B* (SE)
	PN	.08***	.25***(.02)	.01 (.002)	.25***(.02)
	PM	−.08**	−.24***(.03)	−.02 (.003)	−.25***(.07)
	Gender	−.67**	−.11 (.24)	−.04*(.11)	−.15***(.26)
	SL	−.05	−.01 (.28)	−.02 (.11)	−.03 (.31)
	Age	.09	−.04 (.08)	.08 (.04)	.12**(.27)
	CV	.03*	.10*(.02)	.14***(.01)	.24***(.02)
Goodness-of-fit statistics					
CFI	TLI	SRMR	RMSEA	RMSEA UB	
.99	.95	.008	.04	.13	

Unstd. Direct: Unstandardized Direct Effects; Std. Direct: Standardized Direct Effects; Std. Indirect: Standardized Indirect; Std. Total: Standardized Total; SE: standard error; PM: parental monitoring; CV: community violence; SL: school lunch; PN: peer norms; FO: future orientation; CFI: Comparative Fit Index; TLI: Tucker Lewis Index; SRMR: standardized root mean squared residual; RMSEA: root mean square error of approximation; RMSEA UB: root mean square error of approximation upper bound.

*** $p < .001$;

** $p < .01$;

* $p < .05$.