



MENTORING FOR PREVENTING AND REDUCING SUBSTANCE USE AND ASSOCIATED RISKS AMONG YOUTH

National Mentoring Resource Center Outcome Review

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Summary

January 2020

This review examines research on youth mentoring as a strategy for preventing and reducing adolescent substance use, including opioids. The review is organized around four questions:

1. What are the effects of mentoring on substance use and associated risks to personal health and well-being among youth?
2. What factors condition or shape the effects of mentoring on substance use and associated risks for youth?
3. What intervening processes are most important for linking mentoring to beneficial effects on substance use and associated risks for youth?
4. To what extent have efforts to provide mentoring to youth with substance use prevention and intervention as priority outcomes reached and engaged the intended youth, been implemented with high quality, and been adopted and sustained by host organizations and settings?

Overall, there were few studies that focused primarily on the impact of youth mentoring on adolescent substance use prevention, and the studies mostly followed either a primary prevention (addressing problems before they occur; targeted to a broad population of youth) or a secondary prevention framework (focusing efforts on at-risk youth). The review found that the studies assessed more commonly used substances (e.g., alcohol and marijuana), with less attention paid to the impact

of mentoring on preventing the initiation of hard drug use, including opiates. Therefore, the limited evidence that is available shows tentative promise for mentoring to have a positive effect on the prevention and reduction of substance use among youth. The review identified only two studies that utilized mentoring as an add-on intervention to an evidence-based substance abuse treatment. This is possibly due to the limited focus on the role of mentoring in tertiary prevention efforts (intervention or treatment to prevent harm among youth already abusing substances). The ways in which mentors can promote the recovery process of substance-misusing youth remains unexplored. Of note, studies of natural mentoring showed significant positive effects more frequently than did studies of the impact of programmatic mentoring. It seems that building on youth's existing social resources and the presence of adult role models may play a meaningful role in preventing adolescent substance use.

The review suggests several take-home messages for mentoring researchers and practitioners. At intake, practitioners can incorporate a more thorough assessment of youth alcohol and illicit drug use and/or exposure to substance use in peer, school, and family contexts. Identifying youth's risks and needs at early stages of the intervention will prepare mentors to be better equipped to support youth. Given the promising findings on the role of natural mentors, substance use preventative programs can also employ the Youth Initiated Mentoring practice where youth nominate mentors from their own social network. Such an approach may help to promote resilience among youth to resist substance use and associated problems. Finally, future research could explore how mentoring programs can be implemented from secondary and tertiary prevention frameworks. Outreach programs, in particular, can utilize mentoring components to engage and sustain youth in treatment programs.

INTRODUCTION

Adolescence is a time for experimentation, sorting through problems with school and peers, and growing independence. Adolescents are neurologically wired to seek new experiences and take risks while they work to form their individual identities. These factors often put young people at risk for engaging in unhealthy behaviors, including substance use, that can have serious long-term consequences.

People are most likely to try and may begin abusing various substances—including tobacco, alcohol, marijuana, prescription, and illegal drugs—during adolescence. By the senior year of high school, almost 70 percent of students in the United States will have tasted alcohol, about half will have taken an illegal drug, and more than 20 percent will have used a prescription drug for a nonprescribed purpose.

Opioid use is also of concern for youth, as 3.6 percent of adolescents ages 12–17 in the United States reported misusing opioids (primarily in the form of prescriptions) over the past year. While rates of opioid misuse have decreased in recent decades among youth because such pills are harder to obtain, deaths from overdose among adolescents is increasing.

Individual factors such as genetic vulnerability; a lack of impulse control; susceptibility to peer pressure; high sensation seeking; the presence of mental health conditions including depression, anxiety, or ADHD; or positive attitudes toward drugs influence whether a young person will initiate substance use. Social factors also heavily influence whether an adolescent uses substances, including the availability of drugs within their school or community, whether they have friends who use drugs, a history of being exposed to violence, experience of physical or emotional abuse, the presence of mental illness in the family, drug use in the household, and level of parental monitoring.

Those who work with youth often speculate about the positive impact a mentor can have on preventing the initiation of substance use, reducing use, or assisting a young person with a substance use disorder in getting treatment. This review takes stock of the research that addresses the potential for mentoring to serve as a strategy for preventing and reducing substance use (as defined below) and the negative effects on personal health and well-being that may stem from this behavior. We were particularly interested in the prevention and intervention of use of opioids among youth, as this is a priority for the U.S. government, including the Office of Juvenile Justice and Delinquency Prevention (OJJDP) and the National Institutes of Health (NIH). The review focuses on the following four questions:

1. What are the effects of mentoring on substance use and associated risks to personal health and well-being among youth?
2. What factors condition or shape the effects of mentoring on substance use and associated risks for youth?

By the senior year of high school, almost, **70%** of students in the United States will have **tasted alcohol**, about **half** will have taken an **illegal drug** and more than **20%** will have used a **prescription drug** for a nonprescribed purpose.²

3. What intervening processes are most important for linking mentoring to beneficial effects on substance use and associated risks for youth?
 4. To what extent have efforts to provide mentoring to youth with substance use prevention and intervention as priority outcomes reached and engaged the intended youth, been implemented with high quality, and been adopted and sustained by host organizations and settings?
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The scope of the present review was limited to mentoring as defined by the National Mentoring Resource Center (i.e., relationships and activities that take place between youth [i.e., mentees] and older or more experienced persons [i.e., mentors] who are acting in a nonprofessional helping capacity — whether through a program or more informally — to provide support that has its aim or realistic potential benefitting one or more areas of the young person’s development; for further details, see [What is Mentoring?](#)). This definition excludes services and supports that are offered in formal professional roles by those with advanced education or training (e.g., social work, counseling) as well as those that are exclusively or predominantly didactic in orientation (e.g., structured curriculum).

The review’s scope was further limited to studies examining mentoring in relation to substance use, defined as the use of alcohol and/or drugs (licit and illicit) that have the potential to lead to dependence, overuse/abuse, and associated psychological, social, academic, relational, and physical health problems. In considering prevention and reduction, the review follows a public health framework of levels of prevention: primary prevention (prevention of problems before they occur; targeted to a broad audience), secondary prevention (early intervention to prevent development of more serious substance abuse problems; targeted to a more focused audience with identified risk factors or showing early signs of substance abuse), and tertiary prevention (intervention or treatment to prevent significant risks to health and well-being for those already abusing substances). Likewise, some efforts may be focused on reducing more significant levels of substance use and thus fall outside of a prevention framework.

Using these definitions, a systematic literature search was conducted to identify journal articles, book chapters, and other types of documents that reported findings pertinent to one or more of the review’s four organizing questions. Search strategies included (a) using a set of relevant keywords to search PubMed, Proquest Dissertations and Theses, PsycINFO, and Google Scholar literature databases; (b) outreach to a listserv on youth mentoring research and practice as well as members of the National Mentoring Resource Center (NMRC) Research Board; and c) examination of research referenced in broader treatments of mentoring and delinquent behavior, such as chapters on this topic in multiple editions of the *Handbook of Youth Mentoring*, a recent synthesis of OJJDP-sponsored research on mentoring, and meta-analyses and systematic reviews of youth mentoring programs. Of the 50 youth mentoring studies with substance use as an outcome, a total of 19 studies met criteria for inclusion in the review; 13 studies were primarily or exclusively quantitative, and the remaining 6 were mixed methods (i.e., combination of quantitative and qualitative data). Below we summarize these studies in regard to the four questions. It should be noted that this review, while focused on mentoring and substance use research, is intended for a broad audience—both researchers and

research-minded practitioners. As such, we attempt to describe the studies without getting too deep into the details of their methodologies, statistical analyses, or design limitations. Many of these details are summarized in Table 1 at the end of this review.

1. What Is the Effectiveness of Mentoring for Preventing or Reducing Substance Use and Associated Risks to Personal Health and Well-being among Youth?

BACKGROUND

Adolescent Substance Use and Associated Risks

With adolescence being a time of experimentation, it is also the time when initiation of substance use typically occurs, and this can happen as early as 10 or 12 years old. Many adolescents occasionally use substances, and a smaller number do so regularly. But by twelfth grade, about half of adolescents have misused an illicit drug at least once. There are several factors that contribute to a greater likelihood that adolescents will stay drug free: strong, positive connections with parents, other family members, their school environment, and religious institutions; having parents that monitor them consistently and with clear limits and consequences; and reduced access to illegal substances in the home, as well as legal substances that may have the potential for abuse, such as prescription medications, glues, and aerosols. Children in foster care, those with mental health concerns, those from low socioeconomic situations, and homeless youth are at particular risk for substance use. Specifically for opioids, risk factors for adolescent misuse include acute and chronic pain, physical health problems, a history of mental illness, and other substance use or misuse. Youth who have witnessed someone in their family overdose or whose peers misuse prescription painkillers are also at increased risk for opioid use.

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Adolescents who **experiment with substances** early in life are **more likely** to develop a **substance use disorder** as an adult.^{18,19}
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There are many potential additional negative outcomes that have been shown to be predicted by substance use during adolescence. Adolescents who experiment with substances early in life are more likely to develop a substance use disorder as an adult. Adolescents who use substances, including alcohol, marijuana, and prescription drugs, have shown significantly higher rates of unprotected sex, multiple sexual partners, sex with intravenous drug users, inconsistent condom use, and sex in conjunction with use. Among male adolescents, use has been associated with aggression perpetration and victimization, including physical, psychological, and electronic aggression, and sexual coercion. Alcohol and marijuana use have been shown to predict physical aggression among high school students across racial backgrounds, while hard drug use has been found to be a predictor of sexual aggression in adolescents ages 14 to 17. Early substance use also predicts future perpetration of teen dating violence, even when controlling for other factors.

Mentoring to Prevent and Reduce Substance Use

Mentoring has been cited by the Institute of Medicine as an example of a secondary preventive intervention, whereby prevention efforts focus on adolescents who are deemed “at-risk” for substance use but do not yet present behavioral health issues. However, the science of mentoring as prevention and its effects on adolescent health outcomes, including substance use, is still developing. Some mentoring programs have assessed their impact on substance use,³² but they are rarely empirically tested, leaving a gap in the literature as to the processes by which mentoring’s interpersonal nature can serve as an effective prevention tool. Big Brothers Big Sisters (BBBS) is a widely cited example of a successful large-scale mentoring program with evidence of effectiveness. Child participation was shown in one of the most widely reported studies of BBBS to be associated with a 46 percent lower likelihood of illicit drug use initiation, suggesting the potential value of mentoring as a primary prevention strategy. Furthermore, findings revealed in several controlled evaluations of other mentoring programs allow for cautious optimism about potential viability of mentoring interventions, but more rigorous evaluations with a focus on effect sizes are needed. In addition, little research specifically mentions the impact of mentoring on opioid misuse.

In general, evaluations of mentoring programs and their impact on child and adolescent substance use vary in their designs and how substance use is measured: the studies define substance use in inconsistent ways, tend to use psychometrically weak instruments, have high attrition, often do not include a control or comparison group, have inconsistent sampling procedures, and data collection is often cross-sectional.³³ With approximately 3 million youth in formal mentoring relationships in the United States,³³ and the potential number of additional mentors available, the conceivable impact of evidence-based mentoring on substance use is significant. While the research to date may be inconclusive, it is in the best interest of researchers, practitioners, and youth themselves to continue to improve on the rigor of the research evaluating the effectiveness of mentoring on youth substance use and to particularly focus on the impact of mentoring on opioid misuse. While OJJDP has focused its attention on opioid affected youth and their families, and the National Institutes of Health are interested in research that addresses curbing use in youth through the HEAL (Helping to End Addiction Long-term) Initiative, results from these initiatives are still forthcoming.

RESEARCH

Nineteen articles reported findings that address the effectiveness of mentoring for preventing or reducing substance use among youth, with mixed results. Only four studies focused on substance use as a primary outcome;³⁴ it was much more common for substance use to be included as one of a set of “risk behavior” outcomes relevant to young people.

The studies varied in how they defined “substance use”—some used a composite measure where they asked youth about their use of alcohol, tobacco, and illicit drugs; others looked at illicit drug use alone; while others differentiated between *ever* using a substance and using a substance within a given time frame (such as the past two weeks or one month). This makes it nearly impossible to compare the effectiveness of various mentoring models on substance use, as the outcomes, while all substance-focused, are so varied. For those that did assess substance use as a primary outcome, they tended to be divided into studies that looked at reduction in alcohol use, marijuana use, illicit

substance use, and substance use defined more broadly (often lumping together alcohol, tobacco, and other substances). There was also a fairly even split between studies that looked at the effect of natural mentoring and those that looked at programmatic mentoring. However, no studies compared the two types of mentoring.

In summarizing these studies, we chose to divide them by the type of outcome they assessed, specifically the type of substance. Some of these studies evaluated the impact on more than one substance, so they appear in more than one section below. Of note, no studies to date specifically evaluated the effectiveness of mentoring on opioid use.

Effects of Mentoring on Alcohol Use

Seven studies assessed the impact of mentoring on alcohol initiation or use. Four^{32, 36, 38,} of these studies found a significant effect, whereby mentoring was associated with delayed initiation or reduction in use. The other three studies found no significant effect of mentoring on youth drinking.

One study of note³⁶ assessed alcohol and marijuana use (along with other outcomes) in a sample of Massachusetts public-school students in sixth grade assigned to one of three conditions in the Across Ages program: a mentor, a curriculum (life-skills training and community service activities), or a control group. Those students in the mentor and curriculum groups showed significantly lower levels of alcohol use compared to those in the control group. This study did not find significant differences by group for marijuana use.

Effects of Mentoring on Marijuana Use

A total of four studies looked at the impact of mentoring on marijuana use.^{36, 38, 40, 43} Two of these studies^{40, 43} found that having a natural mentor (as opposed to a formal mentor through a program) was associated with lower levels of marijuana use. The first natural mentoring study⁴⁰ was a secondary analysis of data from a convenience sample of 65 high schools from 8 states who were part of a larger trial of Project Towards No Drug Abuse (TND), an evidence-based substance abuse prevention program. The authors of this secondary analysis reported the impact of having a natural mentoring relationship on substance use prevention, but all children were part of this larger prevention program. They found that having a natural mentor was associated with a lower likelihood of marijuana use compared to youth who did not report having a natural mentor.

The second natural mentoring study⁴³ also assessed the impact on marijuana use. This study included 770 adolescents from a longitudinal study of school dropout and drug use rates. The authors of a subset analysis concluded that youth who reported having a supportive nonrelative adult in their life (i.e., a natural mentor) tended to have lower levels of marijuana use. This study also showed that having a natural mentor was predictive of less “problem behavior,” which was a composite measure of alcohol and marijuana use and both violent and nonviolent delinquency behavior.

The other two studies^{36, 38} focused on the impact of mentoring on marijuana use assessed youth in formal programs but saw no significant effects of the program on this outcome. It is notable that both studies of natural mentoring that assessed marijuana use did show positive effects, but neither of the two programmatic mentoring studies reported positive effects; however, because none of these studies compared the effects of natural mentoring to those of formal mentoring programs,

it is unknown whether natural mentoring is a better way of preventing marijuana use than formal mentoring programs or if the positive effects of mentoring in the two studies described above are unique findings.

Effects of Mentoring on General Substance Use

Most studies (10 of the 19 reporting on the effectiveness of mentoring on substance use) looked at the effect of mentoring on substance use more generally, either by asking youth broadly whether they had used drugs or by compiling responses to several individual substance use items into one substance use score. Of the 10 studies assessing general substance use, 4 reported a positive effect of mentoring, such as a decrease in the number of days of substance use, a protective effect regarding substance use concerns,³⁷ less use in the past month,⁴² or general reduction in use. The remaining six studies did not show a relationship between mentoring and substance use generally defined.

One study⁴⁵ looked at a sample of 90 homeless adolescents randomized to either a community reinforcement approach (CRA) plus mentoring or treatment as usual at a drop-in center. For those who received CRA and a mentor, the percentage of substance use days in the past three months decreased over time. However, the number of mentoring sessions did not predict the variance of change in substance use, so it is unknown how many mentoring sessions were needed to see this meaningful decrease. The number of mentoring sessions did predict a decrease in problem consequences of substance use, such that attending more mentoring sessions was associated with greater decreases in problem consequences.

Effects of Mentoring on Illicit Substance Use

Four studies looked at the effect of mentoring on what they defined as “hard drugs” or “illicit substance use.”^{32, 40, 41} Three of the four studies reported a significant effect of mentoring, such that having a mentor predicted a reduction in illicit substance use⁴⁷ or a lower likelihood of initiating use.^{32, 40} One study of natural mentoring⁴⁷ looked at youth recruited from a health clinic who identified as having a “significant adult” in their lives with those who did not, or the effect of natural mentoring. Results showed a significant effect of having a mentor on reported illicit drug use in the past 30 days. It should be noted that none of these four studies specifically looked at the effect of mentoring on opioid use, although it is possible youth who reported using “hard” or “illicit” drugs may have been reporting opioid painkiller or heroin use.

CONCLUSIONS

1. There is promising evidence that natural mentoring may contribute to reductions in marijuana and illicit drug use, although without studies comparing the effects of natural to programmatic mentoring, it is difficult to draw firm conclusions.
2. It is possible that programmatic mentoring may be more useful for primary prevention, where the goal is to delay substance use initiation or to reduce the use of substances until a young person is of legal age. Natural mentoring may be more useful for youth engaged in illicit drug

use, although more research is needed to test these hypotheses.

3. Due to the varied definitions of “substance use” in research to date and variations in the timeframe for when it is measured, it is difficult to compare the results of mentoring on substance use across multiple studies.
4. Studies that ask youth more generally about substance use, particularly “illicit substance use” or hard drugs as one overarching variable, tend to show a positive impact from mentoring more consistently than do studies that ask about individual substances.
5. While there is some support for the direct effects of formal and informal mentoring on adolescent substance use prevention, no research was found specifically reporting the effect of mentoring on opioid misuse.

2. What Factors Influence the Effectiveness of Mentoring for Preventing or Reducing Substance Use among Youth?

BACKGROUND

Conceptually, mentee characteristics and mentoring components or practices may have an impact on the extent to which formal or informal mentoring programs are effective in preventing adolescent substance use. Meta-analytical studies suggest some evidence that youth mentoring may be more effective for boys and youth who have been involved in problem behaviors.⁴⁸ Other demographic characteristics, such as age and ethnicity/race, have also been widely researched, but findings vary by special populations of youth as well as program setting and goals. Programs that serve youth with greater levels of individual and environmental risk and match youth and mentors based on similarity of interests have also shown more beneficial outcomes for youth.⁴⁸

The existing literature also points to higher estimated effects of mentoring programs when mentors endorse an advocacy role and have a helping profession background.⁴⁹ Another key process that attenuates the effects of mentoring programs on adolescent delinquency, substance use, and related problem behavior is the program’s emphasis on providing emotional support (rather than teaching, modeling, and identification) for at-risk youth.

RESEARCH

There were 11 studies that examined factors attenuating the effects of youth mentoring on adolescent substance use. The majority of the studies were focused on the evaluation of formal mentoring programs at community and school settings, while two studies^{37, 43} utilized large adolescent samples to examine the role of natural mentors in preventing or reducing substance use among adolescents. The samples tended to include adolescents who are deemed “high-risk,” such as homeless adolescents,⁴⁵ foster youth with ongoing child maltreatment investigations,³⁷ those with a

history of early drug use and delinquency,³⁸ and adolescents who dropped out of high school or were suspended. There were, however, some studies that took a primary prevention approach, such that they targeted low-risk urban youth who lacked adult role models⁴¹ or had some form of economic or social disadvantage.^{32, 43.} The moderators primarily examined included mentee characteristics (mainly demographics and risk factors) as well as program components and processes pertaining to match duration, program attendance, and intensity of the intervention.

Mentee Demographics

A study exploring the impact of the BBBS community-based mentoring program on prevention of alcohol and illicit drug use found that estimated effects of the program varied by mentee gender and ethnicity.³² While the overall program evaluation revealed longer delay of initiation of illicit drug use for the mentored youth at the 18-month follow-up, further evaluation of subgroups revealed that boys and youth of color benefited from the program more than girls or Caucasian youth. For instance, youth of color were 70 percent less likely to have started using drugs. The results were mixed for Caucasian mentees; the overall impact of the program was relatively low for Caucasian boys (37.6 percent less likelihood to initiate drug use), but the risk of initiation of illicit drug use increased for Caucasian mentored girls. The effects were marginally significant for prevention of alcohol use.

The moderating effects of ethnicity and gender were also examined in a sample of high school students in an urban setting.⁴³ The study found benefits of natural mentoring relationships to reduce only marijuana use, but not alcohol. The results were consistent across subgroups (boys and girls as well as youth of color and Caucasian youth) with no moderating effects. Similarly, an outcome evaluation of BBBS's school-based mentoring found no differences in substance use outcomes in regards to mentee demographic characteristics (gender, race/ethnicity, and age).

Mixed effects of age were found in an evaluation of a multicomponent program with group mentoring, parenting sessions, and individual counseling components targeting African-American adolescents at risk of deviance.³⁸ The findings indicated that estimated program effects in reducing alcohol use were larger for younger mentees as compared to the older mentees, but there was no interaction of treatment group and mentee age for marijuana use. In a study with homeless youth,⁴⁵ the estimated effect of a multicomponent program (community reinforcement approach + mentoring through a drop-in center) on substance use in the past three months was not associated with youth age; however, the mentored subsample was too small to capture variability among youth.

Environmental and Individual Risks for Adolescents

Differences in program effects on substance use were examined for youth exposed to varying levels of risk. Mentoring programs that enrolled youth who lacked natural mentors had lower estimated favorable effects on substance use outcomes than those that did not.⁵³ In an evaluation of seven separate trials of youth mentoring programs,⁵³ the authors noted there is no strong evidence that mentoring benefited youth differently based on their risk profile or other background characteristics; however, mental health screening was recommended to identify any unique needs of mentees during the enrollment phase.

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Other characteristics of the samples of participating youth considered whether the protective role of adult relationships compensate for the risks to which adolescents are exposed and result in reduced substance use. Foster youth with adverse childhood experiences self-reported less frequent substance use when they endorsed more protective adult relationships.³⁷ Of note, protective adults were a composite of both parents and natural mentors, making it difficult to tease out the unique protective role of natural mentors for foster youth in that study. The benefits of natural mentors were noted in a study with an urban sample of low-risk adolescents,⁴³ having a natural mentor alleviated the negative effects of friends' problem behaviors as well as adolescents' problem behavior norms and reduced adolescent substance use. Yet the link between natural mentoring and peer deviance and norms with adolescent marijuana or alcohol use were unclear, as the study utilized composite measures for substance use.

Match Duration in Formal Mentoring Programs

In research on the BBBS mentoring program with 10- to 16-year-old mentees from low-income backgrounds, findings indicated stronger favorable effects of the program on substance use among youth matched with mentors for 12 or more months.⁵² Another study examining the impact of the National Guard Youth Challenge Program did not find differences in binge drinking or marijuana outcomes as a function of match length.⁵¹ There were no differences between youth who were matched for less than 21 months, 21 to 38 months, or more than 38 months.

Program Dose, Attendance, and Mentoring Quality

Mixed effects were identified regarding the program intensity and youth outcomes in two different studies. An evaluation of the Across Ages intergenerational mentoring program found no differences between middle school students assigned to the mentoring and parenting intervention in their overall frequency of substance use in the past two months, as compared to the students in the parenting intervention only — and the results did not vary across groups by session attendance or intensity.³⁹ However, further subgroup analysis revealed that although mentor relationship quality was not related to substance use on its own, adolescents whose mentors were assessed by program staff as more involved with youth and showed high fidelity to the program components attended more sessions in the program and reported significantly more knowledge on substance use.³⁹

Finally, the aforementioned study with homeless youth⁴⁵ found no interaction between program intensity and attendance for estimated effects on overall frequency of substance use. However, attending more sessions of CRA and mentoring moderated the effects of the intervention and intensity of the treatment was associated with higher reductions in problems related to substance use.

CONCLUSIONS

1. The review indicates some support for moderating effects of gender, age, and ethnicity/race in mentoring program outcomes. In particular, boys, youth of color, and younger youth were more likely to benefit from mentoring programs, but research is too limited to be able to draw firm conclusions.
2. Natural mentoring relationships seem to be protective against substance use among a variety of subgroups (boys and girls as well as youth of color and Caucasian youth). These findings, although preliminary, illustrate that the presence of positive adult role models may compensate for the individual and environmental risks associated with adolescent substance use.
3. There are some promising findings associated with a mentor's level of involvement and adherence to the program. When program staff rated mentors as highly involved and loyal to the program implementation, there were some effects toward substance use knowledge, but not necessarily a link to substance use behavior.

3. What Pathways Are Important in Linking Mentoring to Prevention or Reduction of Substance Use among Youth?

BACKGROUND

A variety of theoretical approaches have focused on the processes through which informal and formal mentoring relationships promote positive youth developmental outcomes and prevent problem behavior. Rhodes' Developmental Model³⁰ and Keller's Systemic Model point to the role of mentors to foster youth's connection to parents, teachers, and prosocial peers. Consistent with those conceptual models, studies exploring risk and protective factors related to adolescent substance use also emphasize the role of social context with particular attention to adolescents' interactions with their peers and parents. For instance, a large body of research has focused on adolescents' deviant peer associations and perceptions of peer substance use and found links to an increase in substance use.⁵⁷ Indeed, peer substance use is considered to be one of the strongest predictors of adolescent substance use, and longitudinal studies suggest that such negative effects of peers are stable through early adulthood.⁵⁸ These findings hold true across different adolescent substance use patterns, including alcohol and marijuana use. It appears that affiliation with substance-using peers is a context of socialization for adolescents who are reinforced to use alcohol or drugs and/or endorse related delinquent norms and activities to "fit in" with the peer group.

Adolescents' interactions with their parents also play a role in their substance use initiation or use patterns. Exposure to adverse family environments including parental drug use, poor and inconsistent parenting, and negative communication patterns have been linked to adolescent drug use. Prospective studies have shown that adolescents who grew up in highly conflictual families had a greater risk for developing substance use disorders in late adolescence and emerging adulthood. Childhood maltreatment, including physical abuse, violence, and neglect, has been linked to increased risk for adolescent substance use. Family risk factors are also associated with illicit drug

use; youth whose parents have an attitude that favors substance use, have a history of addiction, or youth who witnessed a family member's overdose are at higher risk of misusing opioids and other illicit drugs.¹⁷

Parents may be also protective agents for adolescent substance use. Studies document direct and indirect links of parental warmth, parental support, and family cohesion in reducing the risk of substance use. Presence of close and trusting relationships

with parents may mitigate the risks of affiliation with substance-using peers and decrease the risk for alcohol and drug use. When adolescents have quality relations with their parents, they may be more open to hearing parental advice on peer relationships.⁵² The Centers for Disease Control and Prevention (CDC) reports that aforementioned factors are also protective against illicit drug misuse, including opioids; parental engagement, monitoring, and support buffer the effects of risks associated with adolescent substance misuse.⁶⁹

In sum, interventions that aim to improve parent-adolescent relationships and overall family functioning may be promising to reduce the risk of substance use among adolescents. Rhodes and colleagues⁵² argue that mentoring can provide a safe context for at-risk adolescents to step out of those relationships, develop new skills to navigate peer pressure, and negotiate problems that arise from conflicts with parents. An evaluation of the BBBS mentoring program has supported that claim, showing that mentoring was associated with improvements in parent-child relationships which, in turn, promote better youth developmental outcomes. Taken together, connections to positive adult models, outside of one's peer group and family, may function as a corrective experience for adolescents and reduce the risk of substance use.

RESEARCH

There is limited research that tests the processes that link youth mentoring to adolescent alcohol and drug use. An analysis of data from 3,320 high school students⁴⁰ found that school attachment mediated the longitudinal relationship between school-based natural mentoring and a wide range of substance use outcomes (any alcohol, marijuana, or hard-drug use; ever getting drunk in the past 30 days; having a binge-drinking episode in the past two weeks). However, the aforementioned indirect effect of having natural mentors was small. In another study, there were also indirect longitudinal effects of natural mentors for 770 high school students.⁴³ The reported presence of a natural mentor predicted lower adolescent and peer problem behavior and norms, which, in turn, were associated with lower overall adolescent substance use (composite of alcohol and marijuana use).

The review found only one study that examined the mechanisms of change in formal youth mentoring programs to prevent substance use.⁵² The researchers found empirical support for the benefits of parent-child relationship quality in a BBBS program. Specifically, mentee reports of their communication, level of trust, and (reverse coded) alienation to primary caregiver mediated the effects of mentoring on alcohol and drug use frequency, but only for those matched for more than 12 months. Interestingly, in that study positive and negative peer relationships and perceived self-worth were not significant paths to reduce substance use among mentees.

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Exposure to **adverse family environments** including **parental drug use, poor inconsistent parenting, and negative communication patterns** have been linked to **adolescent drug use**.^{64, 65}
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Of note, some studies reported secondary effects of formal mentoring programs to promote resiliency and socioemotional competence among at-risk youth. Unfortunately, those secondary outcomes, each of which has been found in other research to be related to lower levels of substance use, were not investigated further as potential pathways to reduce substance use. For example, a randomized controlled trial examining the effects of the Across Ages Mentoring program³⁶ over three years in a sample of ethnically diverse, low-income adolescents found improvements in self-control, self-confidence, and family bonding among mentored adolescents, but did not link any of these outcomes to substance use.

CONCLUSIONS

1. Research has demonstrated limited but promising positive effects of mentoring on school, peer, and parent attachment. Because these factors have been found in previous research to be related to reductions in substance use, mentoring programs that are specifically designed to prevent adolescent substance use may incorporate components to target those contextual and relational processes.
2. The review lends some support for the benefits of natural mentoring relationships to alleviate peer and adolescent problem behaviors which, in turn, may reduce adolescent substance use.

4. To What Extent Have Mentoring Initiatives with Potential to Prevent or Reduce Substance Use Reached Youth Most Likely to Benefit, Been Implemented with High Quality, and Been Adopted and Sustained?

BACKGROUND

Successful implementation of mentoring programs requires a careful evaluation of the targeted youth's characteristics and risk profiles.⁵³ Youth who have already experimented with alcohol and drugs (as compared to those who report no use), and those who are affiliated with substance-using peers and have ongoing conflictual family relationships may be more vulnerable to having substance abuse issues.⁵⁸ Those youth may present additional needs for further services and could be more challenging to recruit and retain in mentoring programs. Other challenges may include difficulties in securing primary caregiver approval for the participation of their children in the mentoring programs and facilitating regular and consistent contact with the mentee. Meta-analytical studies have pointed to the critical importance of training and supporting mentors to increase the likelihood that the relationship lasts for at least one year.^{48, 49}

RESEARCH

The review identified one large scale feasibility study of Project Amp,⁴⁶ in which trained staff across six sites (three school-based and three health clinics) and mentors screened 1,192 adolescents in

their substance use patterns and referred those who were at low to moderate risk of substance use to a preventative mentoring program. Qualitative interviews with the participating staff and mentors suggested high levels of staff buy-in to the utility of the program to reach adolescents at risk as well as high satisfaction with the training and program objectives. Mentors reported good adherence to the program curriculum and met the majority of session goals set out in the intervention, but they recommended adding more mentoring sessions to the program. There were, however, several issues related to sustainability of the screening, referral, and overall mentoring program implementation procedures. Mentors found it challenging to obtain parental consent to recruit adolescents, commute to the mentoring sites, and handle scheduling conflicts. Staff raised concerns over a lack of funding and resources to continue the program. Taken together, the findings were promising that the Project Amp was feasible and acceptable for mentors and staff to screen, refer, and intervene with adolescents at moderate risk of substance use.

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Mentee recruitment and engagement were common issues raised in mentoring programs and were also linked to program fidelity and adherence.^{41, 51,} Difficulties in engagement were reflected in treatment completion rates, which were as low as 51 percent in one study⁴¹ where authors mentioned the program was not implemented as intended. However, mentoring relationship quality among program completers was high, suggesting some promising evidence that building strong connections with the mentees is one of the first steps to sustain mentoring relationships throughout the program. Additionally, one strategy to address aforementioned recruitment issues was to utilize after-school programs as potential contexts of engaging at-risk youth in mentoring programs.⁷² This strategy was discussed in a mentoring program targeting girls of color and appears to be important to explore further in future research. We did not identify any studies that empirically tested the role of recruitment setting in participant engagement and program completion.

Adherence to the program and links to sustainability were further discussed in an evaluation of the National Guard Youth Challenge Program.^{51, 73} While fidelity to the program core elements was relatively high across sites, the last phase (which included a Youth Initiated Mentoring phase) had lower fidelity to the program.⁷³ Sites differed from one another in terms of training, support, and other resources they offered the mentors. Qualitative interviews with participating youth showed that mentors' encouragement and support to continue the program motivated youth to persevere despite the challenges they faced during the residential phase. Authors also underscored the utility of engaging and training natural mentors in formal mentoring programs as a means of catalyzing their ongoing connection with youth. For instance, the Youth Initiated Mentoring practice was associated with longer match length and higher likelihood of maintaining the relationship at the completion of the program, even after controlling for mentee demographic characteristics and risk factors (school suspension, conviction, or drug/alcohol use).

CONCLUSIONS

1. Integrating a substance use screening and referral process to the mentee recruitment phase of mentoring programs could be promising to reach substance misusing adolescents.
2. Ongoing support of mentors throughout the program and providing needed resources are necessary for sustainability of mentoring programs for adolescent substance use.
3. While the empirical research is still growing, Youth Initiated Mentoring appears to be a promising practice to promote long-lasting mentoring relationships.

IMPLICATIONS FOR PRACTICE

(Mike Garringer, MENTOR: The National Mentoring Partnership)

While one certainly wishes that there was more direct research from which to draw regarding mentoring and substance use prevention and recovery (particularly around opioids given the critical importance of that topic to the nation's health at this time), there is some empirical evidence available to suggest mentors can play a meaningful role in preventing the onset of use in adolescents and reducing the harm once they have started on a path toward misuse. Indeed, there is a long history of using mentor-like roles in recovery programs (e.g., the "sponsor" in Alcoholics Anonymous and its variants) and one might expect that the emotional and moral support of a mentor might really boost resiliency and keep youth from turning to substances to deal with the stressors of the world. Given that mentors can also play a role in supporting youth alongside a more clinical provider's role (for example, see the [NMRC review of mentoring for youth with mental health needs](#)) it is similarly easy to see roles for mentors in helping youth stick to treatment plans or in processing trauma and negative experiences from their youth.

But what exactly is the right role for mentors on this topic? Unfortunately, there is little evidence in the preceding pages about whether mentors are better deployed purely in service of primary prevention or whether their role is better positioned in reducing harm once use has begun. We certainly need more research about the specific actions and types of support mentors might offer at these various stages. It is also unclear whether mentors can be effective against specific substance misuse issues, such as opioids, which may operate via unique processes as compared to other substances and respond better to different treatment paths.

But the reality is that the nation's mentors are being asked to support youth in both prevention and interventions for misuse. A 2017 MENTOR study found that about 3 percent of the nation's mentoring programs listed this as a top four focus for their matches, but it is clear that substance misuse can potentially impact the youth in 100 percent of programs, either directly or through misuse in the home.

So what should mentoring programs keep in mind, since they are diving into these waters anyway? There are several hints at good practice recommendations in the evidence review offered here:

1. CONSIDER SCREENING FOR OPIOID USE AND/OR RISK DURING YOUTH INTAKE.

It can be challenging to deploy mentors in a prevention or intervention capacity if it is unclear how many youth in the program are struggling with misuse issues (either themselves, in the home, or among their peer group). There are many valid and reliable scales available to programs that assess youth exposure to and consumption of drugs and alcohol, and a simple Google search will identify hundreds of options of varying value. One shortcut for mentoring programs is to consult the National Mentoring Resource Center's Measurement Guidance Toolkit, which offers several tools that might be helpful in this assessment: [a general assessment](#) of drug and alcohol use and potential for use, as well as two opioid-specific scales just added this year—one focused on youths' direct use of opioids and one assessing their risk for misuse based on a number of factors research suggests facilitate access to and misuse of

opioids. Of course, youth may not always be willing disclosers of this information, but these tools can help identify youth who are likely to need substance misuse support from their mentor, especially if included as part of a broader assessment that looks at individual and environmental risk. The characteristics discussed in relation to Question 2 in the review can help practitioners clarify what to look for in terms of elevated risk factors.

2. LEAN ON NATURAL MENTORS, EVEN IN PROGRAMMATIC CONTEXTS.

If there is a clear thread in much of the research covered in the main review here, it is that natural mentors can have as much impact, if not more so, on youth substance use than programmatic mentors. This might be for a number of reasons: informal mentors might be more available during critical moments, might be able to keep a closer eye on a youth's behavior and activities, and might be able to relate better to stressors in the child's life. It might also be that programmatic mentors are often asked to focus on other things (remember, only 3 percent of programs had substance use as a top four area of emphasis). But whatever the reasons, it seems that natural mentors are key players in supporting youth around this issue.

That means mentoring programs should consider ways of involving natural mentors in their work. One obvious way of doing this is tasking program-provided mentors with doing some additional relationship mapping with youth so that they can identify other supportive adults that they can turn to if they feel like they are struggling with issues related to substance misuse. These individuals can enhance the mentoring provided through the program and provide support in situations where the formal mentor is unavailable. Some programs may even arrange for their mentors to meet with this broader support team so that they can share information and ideas about the young person's challenges and progress.

The other way of bringing natural mentors into programs is to explore [Youth-Initiated Mentoring models](#) where youth nominate someone from their existing circles to step up into a more formal mentor role through a program. This can strengthen an existing relationship and may provide the youth with a mentor who is more familiar, available, and knowledgeable about the challenges they are facing.

But really, when it comes to addressing issues of substance misuse and chemical dependency, especially with substances that are as immediately deadly as newer variants of opioids, it is "all hands on deck," and programs should maximize the mentoring youth receive both through their program services and by rallying other community adults who can support the young person.

3. TRAIN MENTORS ON WHAT TO LOOK FOR AND HOW TO RESPOND.

Unless they are volunteering in a program that is recovery-focused for youth who are trying to break cycles of misuse, the reality is that most mentors hope they never have to deal with issues related to their mentee's use or misuse of drugs and alcohol. While all mentors expect

some ups and downs and challenges their mentee will have to overcome, it is safe to say that most mentors would rather avoid something as complicated and scary as substance abuse. But, this is a challenge for today's young people, and the best way for mentors to be helpful around this issue is to be knowledgeable and know how to respond to warning signs. There are hundreds of websites offering guidance for parents and other caring adults on how to recognize substance misuse in adolescents, but [this guide from the National Institute on Drug Abuse](#) offers an excellent starting point for programs and mentors. Mentor training should include role plays and scenarios where mentors respond to a number of scenarios about youth and substance use, ranging from a mentee expressing interest in drugs or recent peer pressure all the way to disclosures of serious misuse.

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It is up to programs to determine how they want mentors to respond to these scenarios based on the goals and support offered by the program. But programs should not leave mentors to figure out these things on their own in stressful situations. In fact, one of the most critical aspects of this training is getting mentors to recognize where their role ends with regards to substance abuse and when the services of more experienced professionals and evidence-based interventions are needed. Mentors may struggle to understand the limitations of their role and those subjective "handoff points," perhaps even downplaying youth admissions of substance use as a way of avoiding breaking confidentiality with the youth or not wanting to overreact to what can be normal adolescent experimentation. But programs must ensure that mentors are prepared for whatever their mentee may bring forward around this critical topic and know when the potential for harm is great enough that they should seek support from the program or the youth's parents/guardians. This preparation is critical — no one has ever been helped with a substance misuse issue by pretending it did not exist.

4. **CONSISTENT MENTORING EXPERIENCES CAN KEEP RESILIENCY HIGH.**

Noted mentoring researcher Jean Rhodes once said, "Mentoring is like a vitamin, not an inoculation . . . it works while you are taking it. . . ." That sentiment applies here to the resiliency needed over the long journey through childhood and adolescence if youth are to avoid imitation of substance use or the descent into misuse. It is not like having a great mentor in fifth grade will inherently pay off when offered drugs at a party in tenth grade. The reality is a really caring mentor might not be able to make much difference to a youth who is deep into opioid misuse by the time they enter their life. This means that we need to keep youth's lives full of mentors the whole way through if we are to win this long-term struggle. Mentoring programs should think carefully about how they transition youth out of their programs and into their next mentoring relationship. Ensuring that there are handoffs — to natural mentors, to other programs, to extended family or religious leaders or coaches — can

help extend the impact of programmatic mentors when those relationships inevitably come to an end. Practitioners should think about who can help keep resiliency high once their mentors have built it up.

RESOURCES AND ADDITIONAL READING

Practitioners can learn more about this topic by accessing the following NMRC resources:

- [Mentoring Youth Impacted by Opioids](#) (webinar featuring several real-life examples of this work in action)
- [Mentoring Youth Impacted by Opioid Use and Misuse](#)

REFERENCES

1. National Institute on Drug Abuse (n.d.). Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide. Retrieved from <https://www.drugabuse.gov/publications/principles-adolescent-substance-use-disorder-treatment-research-based-guide/introduction>
2. Johnston, L. D., O'Malley, P. M., Miech, R. A., Bachman, J. G., & Schulenberg, J. E. (2014). *Monitoring the future national results on adolescent drug use: Overview of key findings, 2013*. Ann Arbor, MI: Institute for Social Research, The University of Michigan.
3. Substance Abuse and Mental Health Services Administration. (2017). *Key substance use and mental health indicators in the United States: Results from the 2016 National Survey on Drug Use and Health* (HHS Publication No. SMA 17-5044). Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from <https://www.samhsa.gov/data>
4. Curtin S. C., Tejada-Vera B., Warner M. Drug overdose deaths among adolescents aged 15–19 in the United States: 1999–2015. NCHS data brief, no 282. Hyattsville, MD: National Center for Health Statistics. 2017. Retrieved from <https://www.cdc.gov/nchs/products/databriefs/db282.htm>
5. Sussman, S., Skara, S., & Ames, S. L. (2008). Substance abuse among adolescents. *Substance Use & Misuse*, 43, 1802–1828. <http://dx.doi.org/10.1080/10826080802297302>
6. Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. (July 17, 2014). *The TEDS Report: Age of Substance Use Initiation among Treatment Admissions Aged 18 to 30*. Rockville, MD. Retrieved from https://www.samhsa.gov/data/sites/default/files/WebFiles_TEDS_SR142_AgeatInit_07-10-14/TEDS-SR142-AgeatInit-2014.pdf
7. Jordan, C. J., & Andersen, S. L. (2017). Sensitive periods of substance abuse: Early risk for the transition to dependence. *Developmental Cognitive Neuroscience*, 25, 29–44. <http://dx.doi.org/10.1016/j.dcn.2016.10.004>
8. Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E. & Patrick, M.E. (2018). *Monitoring the future national survey results on drug use, 1975–2017: Overview, key findings on adolescent drug use*. Ann Arbor, MI: Institute for Social Research, The University of Michigan. Retrieved from <http://www.monitoringthefuture.org/pubs/monographs/mtf-overview2017.pdf> - PDF
9. U.S. Department of Health & Human Services (n.d.). *Drug Use in Adolescence*. Retrieved from <https://www.hhs.gov/ash/oah/adolescent-development/substance-use/drugs/index.html>
10. Robertson, E. B., David, S. L., & Rao, S. A. (2003). *Preventing Drug Use Among Children and Adolescents: A Research-Based Guide for Parents, Educators, and Community Leaders* (2nd ed.). Washington, DC: National Institutes of Health, National Institute on Drug Abuse. NIH publication 04-4212(A). Retrieved from https://www.drugabuse.gov/sites/default/files/preventingdruguse_2.pdf
11. Braciszewski, J. M., Moore, R. S., & Stout, R. L. (2014). Rationale for a new direction in foster youth substance use disorder prevention. *Journal of Substance Use*, 19, 108–111. <http://dx.doi.org/10.3109/14659891.2012.750693>
12. Keller, T. E., Salazar, A. M., & Courtney, M. E. (2010). Prevalence and timing of diagnosable mental health, alcohol, and substance use problems among older adolescents in the child welfare system. *Children and Youth Services Review*, 32, 626–634. <https://doi.org/10.1016/j.childyouth.2009.12.010>
13. Schwinn, T. M., Schinke, S. P., & Trent, D. N. (2010). Substance use among late adolescent urban youths: Mental health and gender influences. *Addictive Behaviors*, 35, 30–34. <http://dx.doi.org/10.1016/j.addbeh.2009.08.005>
14. Finch, K. A., Ramo, D. E., Delucchi, K. L., Liu, H., & Prochaska, J. J. (2013). Subjective social status and substance use severity in a young adult sample. *Psychology of Addictive Behaviors*, 27, 901–908. <http://dx.doi.org/10.1037/a0032900>
15. Kendler, K. S., Gardner, C. O., Hickman, M., Heron, J., Macleod, J., Lewis, G., & Dick, D. M. (2014). Socioeconomic status and alcohol-related behaviors in mid to late adolescence in the Avon longitudinal study of parents and children. *Journal of Studies on Alcohol and Drugs*, 75, 541–545. <http://dx.doi.org/10.15288/jsad.2014.75.541>
16. Johnson, K. D., Whitbeck, L. B., & Hoyt, D. R. (2005). Substance abuse disorders among homeless and runaway adolescents. *Journal of Drug Issues*, 35, 799–816. <http://dx.doi.org/10.1177/002204260503500407>

17. U.S. Department of Health and Human Services, Office of Adolescent Health (2019). *Opioids and Adolescents*. Retrieved from <https://www.hhs.gov/ash/oah/adolescent-development/substance-use/drugs/opioids/index.html#>
18. Arteaga, I., Chen, C. C., & Reynolds, A. J. (2010). Childhood Predictors of Adult Substance Abuse. *Children and Youth Services Review, 32*(8), 1108–1120. <http://dx.doi.org/10.1016/j.chilyouth.2010.04.025>
19. Merline, A. C., O'Malley, P. M., Schulenberg, J. E., Bachman, J. G., & Johnston, L. D. (2004). Substance use among adults 35 years of age: prevalence, adulthood predictors, and impact of adolescent substance use. *American Journal of Public Health, 94*, 96–102. <http://dx.doi.org/10.2105/ajph.94.1.96>
20. Ritchwood, T. D., Ford, H., DeCoster, J., Lochman, J. E., Sutton, M., & Lochman, J. E. (2015). Risky sexual behavior and substance use among adolescents: A meta-analysis. *Children and Youth Services Review, 52*, 74–88. <http://dx.doi.org/10.1016/j.chilyouth.2015.03.005>
21. Bonar, E. E., Cunningham, R. M., Chermack, S. T., Blow, F. C., Barry, K. L., Booth, B. M., & Walton, M. A. (2014). Prescription drug misuse and sexual risk behaviors among adolescents and emerging adults. *Journal of Studies on Alcohol and Drugs, 75*, 259–268. <http://dx.doi.org/10.15288/jsad.2014.75.259>
22. Margolin, G., Ramos, M. C., Baucom, B. R., Bennett, D. C., & Guran, E. L. (2013). Substance use, aggression perpetration, and victimization: temporal co-occurrence in college males and females. *Journal of Interpersonal Violence, 28*, 2849–2872. <http://dx.doi.org/10.1177/0886260513488683>
23. Mercado-Crespo, M. C., & Mbah, A. K. (2013). Race and ethnicity, substance use, and physical aggression among U.S. high school students. *Journal of Interpersonal Violence, 28*, 1367–1384. <http://dx.doi.org/10.1177/0886260512468234>
24. Yeater, E. A., Lenberg, K. L., & Bryan, A. D. (2012). Predictors of sexual aggression among male juvenile offenders. *Journal of Interpersonal Violence, 27*, 1242–1258. <http://dx.doi.org/10.1177/0886260511425243>
25. Temple, J. R., Shorey, R. C., Fite, P., Stuart, G. L., & Le, V. D. (2013). Substance use as a longitudinal predictor of the perpetration of teen dating violence. *Journal of Youth and Adolescence, 42*, 596–606. <http://dx.doi.org/10.1007/s10964-012-9877-1>
26. Hawkins, J. D., Jenson, J. M., Catalano, R., Fraser, M. W., Botvin, G. J., Shapiro, V., . . . Stone, S. (2015). Unleashing the Power of Prevention. *NAM Perspectives*. Discussion Paper, National Academy of Medicine, Washington, DC. <https://doi.org/10.31478/201506c>
27. Cavell, T. A., & Elledge, C. (2014). Mentoring and prevention science. In D. L. Dubois & M. J. Karcher (Eds.), *Handbook of Youth Mentoring* (2nd ed., pp. 29–42). Los Angeles, CA: SAGE.
28. DuBois, D. L., Doolittle, F., Yates, B. T., Silverthorn, N., & Tebes, J. K. (2006). Research methodology and youth mentoring. *Journal of Community Psychology, 34*, 657–676. <http://dx.doi.org/10.1002/jcop.20122>
29. Rhodes, J. E. (2002). *Stand by me: The risks and rewards of mentoring today's youth*. Cambridge, MA: Harvard University Press; 2002.
30. Rhodes, J. E. (2005). A model of youth mentoring. In D. L. DuBois & M. J. Karcher (Eds.), *Handbook of Youth Mentoring* (pp. 30–43). Thousand Oaks, CA: SAGE Publications.
31. DuBois, D. L., Neville, H. A., Parra, G. R., & Pugh-Lilly, A. O. (2002). Testing a new model of mentoring. *New Directions in Youth Development, 93*, 21–57. <https://doi.org/10.1002/ymd.23320029305>
32. Grossman, J. B., & Tierney, J. P. (1998). Does mentoring work? An impact study of the Big Brothers Big Sisters Program. *Evaluation Review, 22*, 403–426. <http://dx.doi.org/10.1177/0193841X9802200304>
33. Rhodes, J. E., & Lowe, S. R. (2009). Mentoring in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of Adolescent Psychology* (pp. 152–190). Hoboken, NJ: John Wiley & Sons.
34. U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention (2019). OJJDP FY 2019 Opioid Affected Youth Initiative FY 2019 Competitive Grant Solicitation. Retrieved from <https://www.ojjdp.gov/grants/solicitations/FY2019/Opioid.pdf>
35. U. S. Department of Health and Human Services, National Institutes of Health (n.d.). About the HEAL Initiative. Retrieved from <https://www.nih.gov/research-training/medical-research-initiatives/heal-initiative>

36. Aseltine, R. H., Dupre, M., & Lamlein, P. (2000). Mentoring as a drug prevention strategy: An evaluation of Across Ages. *Adolescent & Family Health, 1*, 11–20.
37. Brown, S. M., & Shillington, A. M. (2017). Childhood adversity and the risk of substance use and delinquency: The role of protective adult relationships. *Child Abuse & Neglect, 63*, 211–221. <http://dx.doi.org/10.1016/j.chiabu.2016.11.006>
38. Hanlon, T. E., Bateman, R. W., Simon, B. D., O'Grady, K. E., & Carswell, S. B. (2002). An early community-based intervention for the prevention of substance abuse and other delinquent behavior. *Journal of Youth and Adolescence, 31*, 459–471. <http://dx.doi.org/10.1023/A:1020215204844>
39. LoSciuto, L., Rajala, A. K., Townswend, T. N., & Taylor, A. S. (1996). An outcome evaluation of Across Ages: An intergenerational mentoring approach to drug prevention. *Journal of Adolescent Research, 11*, 116–129. <http://dx.doi.org/10.1177/0743554896111007>
40. Black, D. S., Grenard, J. L., Sussman, S., & Rohrbach, L. A. (2010). The influence of school-based natural mentoring relationships on school attachment and subsequent adolescent risk behaviors. *Health Education Research, 25*, 892–902. <http://dx.doi.org/doi:10.1093/her/cyq040>
41. Bodin, M., & Leifman, H. (2011). A randomized effectiveness trial of an adult-to-youth mentoring program in Sweden. *Addiction Research and Theory, 19*, 438–447. <http://dx.doi.org/10.3109/16066359.2011.562620>
42. DuBois, D. L., & Silverthorn, N. (2005b). Natural mentoring relationships and adolescent health: Evidence from a national study. *American Journal of Public Health, 95*, 518–524. <http://dx.doi.org/10.2105/AJPH.2003.031476>
43. Zimmerman, M. A., Bingenheimer, J. B., & Notaro, P. C. (2002). Natural mentors and adolescent resiliency: A study with urban youth. *American Journal of Community Psychology, 30*, 221–243. <http://dx.doi.org/10.1023/A:1014632911622>
44. Rohrbach, L. A., Gunning, M., Sun, P., & Sussman, S. (2010). The Project Towards No Drug Abuse (TND) dissemination trial: Implementation fidelity and immediate outcomes. *Prevention Science, 11*, 77–88. <https://doi.org/10.1007/s11121-009-0151-z>
45. Bartle-Haring, S., Slesnick, N., Collins, J., Erdem, G., & Buettner, C. (2012) The Utility of Mentoring Homeless Adolescents: A Pilot Study. *The American Journal of Drug and Alcohol Abuse, 38*, 350–358. <http://dx.doi.org/10.3109/0952990.2011.643985>
46. Winn, L. A. P., Paquette, K. L., Donegan, L. R. W., Wilkey, C. M., & Ferreira, K. N. (2019). Enhancing adolescent SBIRT with a peer-delivered intervention: An implementation study. *Journal of Substance Abuse Treatment, 103*, 14–22. <http://dx.doi.org/10.1016/j.jsat.2019.05.009>
47. Beier, S. R., Rosenfeld, W. D., Spitalny, K. C., Zansky, S. M., & Bontempo, A. N. (2000). The potential role of an adult mentor in influencing high-risk behavior in adolescents. *Archives of Pediatrics and Adolescent Medicine, 154*, 328–331. <http://dx.doi.org/10.1001/archpedi.154.4.327>
48. DuBois, D. L., Portillo, N., Rhodes, J. E., Silverthorn, N., & Valentine, J. C. (2011). How effective are mentoring programs for youth? A systematic assessment of the evidence. *Psychological Science in the Public Interest, 12*, 57–91. <http://dx.doi.org/10.1177/1529100611414806>
49. Raposa, E. B., Rhodes, J., Stams, G. J. J., Card, N., Burton, S., Schwartz, S., . . . & Hussain, S. (2019). The effects of youth mentoring programs: A meta-analysis of outcome studies. *Journal of Youth and Adolescence, 48*, 423–443. <http://dx.doi.org/10.1007/s10964-019-00982-8>
50. Tolan, P. H., Henry, D. B., Schoeny, M. S., Lovegrove, P., & Nichols, E. (2014). Mentoring programs to affect delinquency and associated outcomes of youth at risk: A comprehensive meta-analytic review. *Journal of Experimental Criminology, 10*, 179–206. <http://dx.doi.org/10.1007/s11292-013-9181-4>
51. Schwartz, S. E., Rhodes, J. E., Spencer, R., & Grossman, J. B. (2013). Youth Initiated Mentoring: Investigating a new approach to working with vulnerable adolescents. *American Journal of Community Psychology, 52*, 155–169. <http://dx.doi.org/10.1007/s10464-013-9585-3>
52. Rhodes, J. E., Reddy, R., & Grossman, J. B. (2005). The protective influence of mentoring on adolescents' substance use: Direct and indirect pathways. *Applied Developmental Science, 9*, 31–47. http://dx.doi.org/10.1207/s1532480xads0901_4

53. Herrera, C., DuBois, D. L., & Grossman, J. B. (2013). *The Role of Risk: Mentoring Experiences and Outcomes for Youth with Varying Risk Profiles*. New York, NY: A Public/Private Ventures project distributed by MDRC.
54. Herrera, C., Grossman, J. B., Kauh, T. J., & McMaken, J. (2011). Mentoring in schools: an impact study of Big Brothers Big Sisters school-based mentoring. *Child Development, 82*, 346–361. <http://dx.doi.org/10.1111/j.1467-8624.2010.01559.x>
55. Keller, T. E. (2005). A systemic model of the youth mentoring intervention. *The Journal of Primary Prevention, 26*, 169–188. <http://dx.doi.org/10.1007/s10935-005-1850-2>
56. Henry, K. L. (2008). Low prosocial attachment, involvement with drug-using peers, and adolescent drug use: A longitudinal examination of mediational mechanisms. *Psychology of Addictive Behaviors, 22*(2), 302–308. <http://dx.doi.org/10.1037/0893-164X.22.2.302>
57. Sussman, S., Pokhrel, P., Ashmore, R. D., & Brown, B. B. (2007). Adolescent peer group identification and characteristics: a review of the literature. *Addictive behaviors, 32*(8), 1602–1627. <http://dx.doi.org/10.1016/j.addbeh.2006.11.018>
58. Van Ryzin, M. J., Fosco, G. M., & Dishion, T. J. (2012). Family and peer predictors of substance use from early adolescence to early adulthood: An 11-year prospective analysis. *Addictive Behaviors, 37*, 1314–1324. <http://dx.doi.org/10.1016/j.addbeh.2012.06.020>
59. Jamison, J., & Myers, L. B. (2008). Peer-group and price influence students drinking along with planned behaviour. *Alcohol and Alcoholism, 43*, 492–497. <https://doi.org/10.1093/alcalc/agn033>
60. Aseltine, R. H. (1995). A reconsideration of parental and peer influences on adolescent deviance. *Journal of Health and Social Behavior, 36*, 103–121. <http://dx.doi.org/10.2307/2137219>
61. Rose, R. L., Bearden, W. O., & Teel, J. E. (1992). An attributional analysis of resistance to group pressure regarding illicit drug and alcohol consumption. *Journal of Consumer Research, 19*, 1–13. <http://dx.doi.org/10.1086/209281>
62. Dishion, T. J., & Owen, L. D. (2002). A longitudinal analysis of friendships and substance use: Bidirectional influence from adolescence to adulthood. *Developmental Psychology, 38*, 480–491. <http://dx.doi.org/10.1037/0012-1649.38.4.480>
63. Patterson, G. R., Dishion, T. J., & Yoerger, K. (2000). Adolescent growth in new forms of problem behavior: Macro- and micro-peer dynamics. *Prevention Science, 1*, 3–13. <http://dx.doi.org/10.1023/A:1010019915400>
64. Vakalahi, H. F. (2001). Adolescent Substance Use and Family-Based Risk and Protective Factors: A Literature Review. *Journal of Drug Education, 31*, 29–46. <http://dx.doi.org/10.2190/QP75-P9AR-NUVJ-FJCB>
65. Madu, S. N., & Matla, M. P. (2003). Illicit drug use, cigarette smoking and alcohol drinking behaviour among a sample of high school adolescents in the Pietersburg area of the Northern Province, South Africa. *Journal of Adolescence, 26*, 121–136. [http://dx.doi.org/10.1016/S0140-1971\(02\)00120-3](http://dx.doi.org/10.1016/S0140-1971(02)00120-3)
66. Skeer, M., McCormick, M. C., Normand, S. L. T., Buka, S. L., & Gilman, S. E. (2009). A prospective study of familial conflict, psychological stress, and the development of substance use disorders in adolescence. *Drug and Alcohol Dependence, 104*, 65–72. <http://dx.doi.org/10.1016/j.drugalcdep.2009.03.017>
67. Wall, A. E., & Kohl, P. L. (2007). Substance use in maltreated youth: Findings from the National Survey of Child and Adolescent Well-Being. *Child Maltreatment, 12*, 20–30. <https://doi.org/10.1177/1077559506296316>
68. Singh, VA. S., Thornton, T., & Tonmyr, L. (2011). Determinants of substance abuse in a population of children and adolescents involved with the child welfare system. *International Journal of Mental Health and Addiction, 9*, 382–397. <https://doi.org/10.1007/s11469-011-9320-y>
69. Centers for Disease Control and Prevention. (2019). High-Risk Substance Use Among Youth. Atlanta, GA: US Department of Health and Human Services. Retrieved from <https://www.cdc.gov/healthyyouth/substance-use/index.htm>
70. Dishion, T. J., Nelson, S. E., & Bullock, B. M. (2004). Premature adolescent autonomy: Parent disengagement and deviant peer process in the amplification of problem behavior. *Journal of Adolescence, 27*, 515–530. <http://dx.doi.org/10.1016/j.adolescence.2004.06.005>

71. Rhodes, J. E., Grossman, J. B., & Resch, N. L. (2000). Agents of change: pathways through which mentoring relationships influence adolescents' academic adjustment. *Child Development, 71*, 1662–71. <http://dx.doi.org/10.1111/1467-8624.00256>
72. Kuperminc, G. P., Thomason, J., DiMeo, M., & Broomfield-Massey, K. (2011). Cool Girls, Inc.: Promoting the positive development of urban preadolescent and early adolescent girls. *The Journal of Primary Prevention, 32*, 171–183. <http://dx.doi.org/10.1007/s10935-011-0243-y>
73. Millenky, M. Bloom, D., Muller-Ravett, S., & Broadus, J. (2011). Staying on Course: Three-Year Results of the National Guard Youth Challenge Evaluation. MDRC Paper. <http://dx.doi.org/10.2139/ssrn.2019770>
74. Garringer, M., McQuillin, S., & McDaniel, H. (2017). *Examining youth mentoring services across America: Findings from the 2016 Mentoring Program Survey*. Boston, MA: MENTOR: The National Mentoring Partnership.

TABLE 1: SUBSTANCE ABUSE AND ASSOCIATED RISKS (SAR)

Note: Goal of the program is primary prevention, unless noted otherwise

Outcome key: + Favorable effect – Unfavorable effect x No effect or nonsignificant interaction term
 MEN = formal mentoring program or naturally occurring mentoring relationship

Other abbreviations: RCT = randomized controlled trial

Type of Mentoring			Evaluation			
Program Name (Authors)	Structure	Processes/Activities	Methodology	Question 1: What is the effect of mentoring on SAR?	Question 2: What factors condition or influence the strength and/or direction of mentoring effects on SAR?	Question 3: What are the processes through which mentoring influences SAR?
Across Ages (Aseltine et al., 2000)	<p>Goal: Increase resiliency and social competence of at-risk middle school youth; program built on a Positive Youth Development framework</p> <p>Setting: Community or School</p> <p>Duration: Varies, mentoring component lasts 1 year</p> <p>Format: One-to-one</p> <p>Mentors: Adults ages 55+</p> <p>Mentees: Youth ages 10–13</p>	<p>Mentoring: Mentoring meetings 4+ hours a week over a year; activities: schoolwork or attending events.</p> <p>Community Service: Focused on interactions with frail elders (biweekly visits to nursing home residents). Youth record experiences in journals and share in class.</p> <p>Classroom Curriculum: Teaches life and resistance skills through didactic instruction, videotapes, journals, role-playing, and homework assignments.</p> <p>Parent Workshops: Events for parents, youth, and mentors on weekends.</p>	<ul style="list-style-type: none"> • Evaluation over 3-year period with ethnically diverse youth from low-income families; recruited from 10 sixth-grade public school classes • Students randomly assigned to 1 of 3 conditions: Across Ages (mentoring + life skills curriculum + community service; n=85), curriculum (life skills curriculum + community service; n=135), and control (no intervention; n=138) • Assessed alcohol, marijuana use (along with other outcomes) 	<p>+ Alcohol use (for both mentor and curriculum groups vs. control)</p> <p>x Marijuana use</p>		<p>+ Less positive attitudes toward drug use (Across Ages mentor group vs curriculum) although mediation not tested statistically</p>

<p>Across Ages (LoSciuto et al., 1996)</p>	<p><i>See previous entry</i></p>	<p><i>See previous entry</i></p>	<ul style="list-style-type: none"> • RCT pre/post-test design with 562 sixth-grade students • Groups: Across Ages mentoring + Parenting Session (MPS; n=180), Parenting Session (PS; n=193), and Control (n=189) 	<p>x Overall frequency of substance use in past 2 months (MPS vs PS)</p>	<p>x MEN x Quality (Exceptional vs Average Mentoring) → Substance use</p> <p>+ MEN x Quality (Exceptional vs Average Mentoring) → Substance use knowledge</p> <p>x MEN x Dosage → Substance use</p>	
<p>Big Brothers Big Sisters Community-Based Mentoring (BBBS CBM) (Grossman & Tierney, 1998)</p>	<p>Goal: Positive youth development Setting: Community Duration: 1 year Format: One-to-one Mentors: Adult volunteers Mentees: 10-to-16-year-old youth</p>	<ul style="list-style-type: none"> • Community-Based Mentoring (CBM) model requires mentors and youth to meet 2x/month for minimum of 1 year • Program focus is development of supportive relationship between youth and mentor • Agency provides boundaries regarding relationships but otherwise matches choose activities 	<ul style="list-style-type: none"> • n=1138 randomly assigned to BBBS vs control, total n=959 in analysis sample • Outcomes: Initiation of alcohol and illegal drug use; 18-month follow-up assessment 	<p>+ Youth in BBBS group 27.4% less likely to start using alcohol than those in control</p> <p>+ Youth in BBBS group 45.8% less likely to start using illegal drugs than those in control</p>	<p>+ MEN x gender (significant effect of mentoring on drug use for boys, but not girls)</p> <p>+ MEN x race (significant effect on drug use for minority youth)</p> <p>+ MEN x gender x race (significant impact for drug use of minority girls and boys)</p> <p>+ MEN x gender x race (increased risk of substance abuse in white girls in mentoring group)</p> <p>+ MEN x gender x race (significant effects on alcohol use, only for minority girls)</p>	

<p>BBBS CBM (Rhodes et al., 2005)</p>	<p><i>See previous entry</i></p>	<p><i>See previous entry</i></p>	<ul style="list-style-type: none"> • n=928 adolescents in BBBS Program (581 non-matched; 158 matched <12 months; 189 matched >12 months) • Past month alcohol/ drug use assessed with single item 	<p>x Reported frequency of alcohol and drug use in the past month</p>	<p>+ MEN x match length → alcohol and drug use (youth matched for >12 months reported lower frequency of alcohol and drug use)</p>	<p>+ MEN →Parent relations → Frequency of drug and alcohol use (only for youth matched >12 months)</p>
<p>BBBS CBM programs and 2 CBM mentoring programs in Washington State (Herrera et al., 2013)</p>	<p>Goal: Provide mentoring support to at-risk youth Setting: Community Duration: Program expectation of 12 months Format: One-to-One Mentors: Adult volunteers Mentees: Youth aged 8–15 years</p>	<ul style="list-style-type: none"> • Programs targeted “high-risk youth” [experiencing either environmental risk (e.g., poverty) or individual risk (e.g., academic challenges)] • Program expectations for match meetings at least twice monthly for 4+ hours • Programs provided general parameters for meetings but matches chose activities 	<ul style="list-style-type: none"> • n = 1,310 at-risk youth across seven CBM programs (5 of which were BBBS) • Three groups: Randomized to mentoring (n=308) or control (n=321) or nonrandomized comparison group (n=615) • Assessment 13 months after enrollment • Assessed substance use as dichotomous variable (use of alcohol/drugs in past 3 months); included range of other outcomes 	<p>x Substance use at 13 months (both random assignment and quasi-experimental tests)</p>	<p>x MEN x levels of risk → misconduct (including substance use)</p>	
<p>BBBS School-Based Mentoring (Herrera et al., 2011)</p>	<p>Goal: Positive youth development Setting: School Duration: School year Format: One-to-one Mentors: Adult and high school student volunteers Mentees: 9-to-16-year-old students</p>	<ul style="list-style-type: none"> • Meetings occurred during and/or after school • All programs involved some structure (e.g., activity choices) • Activities included academic (e.g., homework help), creative activities (e.g., crafts), or games and discussions 	<ul style="list-style-type: none"> • Sample (n=1139) youth in fourth to ninth grades in BBBS agencies • Assigned to mentoring (n=565) or wait list control (n=574) • Followed for 1.5 school years 	<p>x Composite measure of prior 3-month’s substance use (alcohol, tobacco, other drugs) assessed at 9 months after program start</p>	<p>– MEN x special adult → substance use at 9 months (mentees who lacked special adult prior to program participation more likely than non-mentored peers to have used substances)</p>	

<p>Cool Girls (Kuperminc et al., 2011)</p>	<p>Goal: Positive youth development Setting: School and community Duration: Academic year Format: One-to-one (Cool Girls program component) Mentors: Adult volunteers Mentees: Girls in grades 4–8 (ages 9–15 years)</p>	<ul style="list-style-type: none"> • Core components: Girls Club (life skills curriculum) and Cool Scholars (homework assistance, tutoring) • Cool Sisters: one-to-one mentoring; girls eligible to be matched with mentor after 1 year of participation • Meetings at school after hours • Mentors make minimum 1-year commitment and meet at least monthly with mentee 	<ul style="list-style-type: none"> • Quasi-experimental study (N=175) • Groups: Cool Girls intervention (n=86) vs. comparison (n=89) • Assessed substance use with 5 items (cigarettes, alcohol, marijuana, cocaine, inhalants) rated for prior 6 months on 3-point scale (0 = never to 2 = several times) 	<p>x Any drug use (dichotomous yes/no item)</p>		<p>Cool Girls with mentors 4.4x more likely to report “expecting to avoid drug use” in the future vs. comparisons and Cool Girls who were not eligible for being matched with a mentor (first year in program).</p>
<p>Community Reinforcement Approach (CRA) + Mentoring (Bartle-Haring et al., 2012) [Tertiary prevention]</p>	<p>Goal: Enhance effects of an evidence-based substance abuse treatment program (CRA) Setting: Drop-in center and community Duration: 3–6 months Format: One-to-one Mentors: Adult mentors paired with youth based on gender, ethnicity, sexual identity Mentees: Substance-abusing homeless youth (ages 14–22)</p>	<ul style="list-style-type: none"> • 12 weekly mentoring sessions, completed in maximum of 6 months, structured in 4 phases: rapport building and goal-setting, social stability, competing reinforcers, termination • Mentoring included assistance with problem-solving (e.g., housing, finances), advice on developing hobbies • CRA sessions: 12 weekly behavioral counseling and case management up to 6 months 	<ul style="list-style-type: none"> • Sample (n=90) youth experiencing homelessness and meet substance abuse disorder criteria; n=48 randomly assigned to substance use treatment and mentoring • Assessed prior 90-day drug/alcohol use and problem consequences associated with drug use (POSIT instrument); internalizing/externalizing problems 	<p>x Number of mentoring sessions did not predict variance of change in substance use</p> <p>+ Number of mentoring sessions predicted decrease in problem consequences of substance use (POSIT scores)</p>	<p>x Interaction of number of CRA and mentoring sessions on frequency of substance use.</p> <p>+ Interaction of number of CRA and mentoring sessions for POSIT score (youth who attended highest # CRA and mentoring sessions showed highest decrease in POSIT scores)</p>	

Mentor Sweden (Bodin & Leifman, 2010)	<p>Goal: Prevent substance use in low-risk youth via safe and supportive relationships</p> <p>Setting: Community</p> <p>Duration: 1 academic year</p> <p>Format: One-to-one</p> <p>Mentors: Paid adult volunteers</p> <p>Mentees: 13-to-17-year-old adolescents recruited through schools</p>	<ul style="list-style-type: none"> • Targets youth who self-identify as needing more adult contacts • Mentor-mentee meetings at least every second week for 2–4 hours outside of school time • Mentors given list of activity suggestions, but activities chosen by mentor and youth 	<ul style="list-style-type: none"> • Randomized controlled trial; 14-year-old youth assigned to mentoring condition (n=65) or control (n=63) • Assessment at baseline and 12-month follow-up 	<ul style="list-style-type: none"> x Annual alcohol use x Ever been drunk during past month x Abstinence/no use of alcohol x Any illicit drug use x Tobacco use 		
Meta-analysis/ systematic review (DuBois et al., 2011)	<p>Goal: Varied</p> <p>Setting: Varied</p> <p>Duration: Varied</p> <p>Format: Varied</p> <p>Mentors: Adults</p> <p>Mentees: Youth (<18 years)</p>		<ul style="list-style-type: none"> • Studies of youth mentoring 1999–2010; substance use outcomes aggregated across 6 different samples 	<ul style="list-style-type: none"> x Substance use 		
Meta-analysis/ systematic review (Raposa et al., 2019)	<p>Goal: Varied</p> <p>Setting: Varied</p> <p>Duration: Varied</p> <p>Format: Varied</p> <p>Mentors: Varied</p> <p>Mentees: Youth (<18 years)</p>		<ul style="list-style-type: none"> • Outcome studies of intergenerational, one-to-one youth mentoring programs 1975–2017 (n=70 studies) • 11 studies had substance use outcomes 	<ul style="list-style-type: none"> x Substance use 	<ul style="list-style-type: none"> + MEN x male mentee + MEN x male mentor + MEN x mentor from helping profession + MEN x brief meeting duration (NOTE: overall moderator analyses, did not examine moderator effects on substance use separately) 	

<p>Meta-analysis/ systematic review (Tolan et al., 2014)</p>	<p>Goal: Varied Setting: Varied Duration: Varied Format: Varied Mentors: Adults Mentees: Youth</p>		<ul style="list-style-type: none"> • 46 studies published 1970–2011, using random assignment or strong quasi-experimental design • <i>Criteria:</i> sample defined at risk for delinquency due to individual behavior (e.g., aggression) or environmental characteristics (e.g., residence in high-crime communities) • 6 studies assessed drug use outcome 	<p>x Drug use (average effect size $d = .16$)</p>	<p>+ MEN x mentor motive to volunteer for professional development</p> <p>+ MEN x mentor advocacy as a key program component</p> <p>+ MEN x mentor provides emotional support as a key program process (NOTE: overall moderator analyses, did not examine drug use separately)</p>	
<p>National Guard Youth Challenge Program (ChalleNGe) (Millenky et al., 2011) [Secondary prevention]</p>	<p>Goal: Build skills and promote positive development in out-of-school youth Setting: Community/military Duration: 1 year Format: One-to-one Mentors: Adults Mentees: Adolescents</p>	<ul style="list-style-type: none"> • Youth-Initiated Mentoring: mentors nominated by youth • Program incorporates 2-week assessment and Orientation Phase, 20-week Residential Phase, and 1-year Post-residential Phase • During assessment/orientation and residency youth live at program site • Students arrange post-residential placement (e.g., employment, education, or military service); mentoring takes place during post-residency 	<ul style="list-style-type: none"> • Sample of 1,173 adolescents who dropped out or were expelled from high school and completed 36-month assessment • Randomized to ChalleNGe (n=722) or Control (n=451) • Substance use assessed: (1) binge drinking in past 14 days, (2) frequent marijuana use in past 12 months, (3) ever used other illegal drugs, (4) frequent illegal drug use in past 12 months 	<p>x Self-reported frequency of binge drinking, marijuana use, and other illegal drugs at 36-month follow-up</p> <p>– Ever used illicit drugs (besides marijuana)</p>		

National Guard Youth Challenge Program (Chal-leNGe) (Schwartz et al., 2013) [Secondary prevention]	<i>See previous entry</i>	<i>See previous entry</i>	<i>See previous entry</i>	x Binge drinking or frequent marijuana use	x MEN x match length (no difference in binge drinking and marijuana use for youth with < 21 months of mentoring, 21–38 months or >38 months)	
Natural mentoring (Beier et al., 2000)	Goal: Reduce adolescent risk behavior Setting: Community Duration: Unspecified Format: Unspecified Mentors: Natural, identified by adolescents Mentees: Adolescents receiving routine outpatient medical care	<ul style="list-style-type: none"> • Mentors identified in response to question “Is there an adult in your life you can usually turn to for help and advice?” and relationship of the identified person to youth 	<ul style="list-style-type: none"> • n=294 adolescents recruited from outpatient health clinics • 201 reported having a mentor • Self-reported risk behavior in 5 areas (including substance use) • Control variables: age, sex, race/ ethnicity, family constellation 	+ Less illicit drug use reported in past 30 days x Alcohol use (≥3 alcoholic beverages in past 30 days)		
Natural mentoring (Black et al., 2010)	Goal: Reduce adolescent risk behavior Setting: School Duration: Unspecified Format: Unspecified Mentors: Teachers or other adults at school Mentees: High school students	<ul style="list-style-type: none"> • School-based natural mentoring (SBM) score created as mean of 5 items about relationships with teachers or other adults at school; higher scores indicating greater perception of SBM 	<ul style="list-style-type: none"> • Secondary analysis of program evaluation using baseline and one-year follow-up data • n = 3,320 students from 65 schools • Analyses examined correlations between SBM and problem behavior (including substance use) and tested mediation effects of school attachment 	+ Past month any alcohol use + Past month getting drunk + Past 2 weeks binge drinking + Past month marijuana use + Past month hard-drug use (cocaine, hallucinogens, stimulants, inhalants, ecstasy, etc.) Effects significant at both baseline, 1-year follow-up		+ MEN → School attachment → All substance use outcomes

<p>Natural mentoring & supportive adult relationships (Brown & Shillington, 2017)</p>	<p>Goal: Reduce risk behavior among adolescents with history of abuse Setting: Community/child welfare Duration: Unspecified Format: Unspecified Mentors: Adults Mentees: 11-to-17-year-old adolescents</p>	<ul style="list-style-type: none"> • Protective adult relationships measured as sum of scores from 5 items from resiliency scale administered as part of the Longitudinal Studies of Child Abuse and Neglect (LongSCAN) • Youth indicated whether or not they had reliable relationships with parents and other adults (e.g., “Is there an adult you can turn to for help if you have a serious problem?”) 	<ul style="list-style-type: none"> • National Survey of Child and Adolescent Well-Being Study, first wave data • n=1054 youth with child maltreatment investigations • Substance use assessed with 6-item youth self-report questionnaire; higher summed scores representing greater substance use • Total score of 2+ strongly correlated with substance-related diagnosis and need for treatment. 	<p>+ Protective adult relationships distinguished between youth with/ without substance use concerns (scores > 2 vs. lower)</p>	<p>+ MEN x Adverse childhood experiences were more strongly associated with substance use when youth reported lower levels of protective adult relationships</p>	
<p>Natural mentoring (DuBois & Silverthorn, 2005)</p>	<p>Goal: Examine protective role of natural mentoring Setting: Unspecified Duration: Unspecified Format: Unspecified Mentors: Adults Mentees: Youth</p>	<ul style="list-style-type: none"> • Young adults who identified having mentoring relationship (parent mentors excluded) 	<ul style="list-style-type: none"> • Used subset of Add Health data set (n=3187 youth); at Wave 3, 72.9% identified having a natural mentor • Compared youth with/without natural mentor • Assessed binge drinking in previous 12 months, smoking/ drug use in previous month 	<p>x Binge drinking x Drug use x Smoking</p>		

<p>Natural mentoring (Zimmerman et al., 2002)</p>	<p>Goal: N/A Setting: Varied Duration: Open-ended Format: N/A Mentors: Adults Mentees: Adolescents</p>	<ul style="list-style-type: none"> • Participants identified nonparental adults they considered a mentor (e.g., source of support and guidance) and relationship to them 	<ul style="list-style-type: none"> • High school students (n=770) • Secondary analysis of fourth wave data from larger longitudinal study • Substance use measured by sum of last year and last month use on 7-point Likert scale (1 = 0 times; 7 = 40+ times); 2 substance use items, plus delinquent and violent behavior used to create problem behavior composite 	<p>x Alcohol use + Marijuana use</p>	<p>x MEN x race x gender → alcohol and marijuana use + MEN x friend problem behavior → youth problem behavior + MEN x problem behavior norms → youth problem behavior</p> <p><i>Note:</i> outcome aggregated; Problem behavior and non-substance use items included</p>	<p>+ MEN → friend problem behaviors → lower overall problem behavior + MEN → problem behavior norms → lower overall problem behavior (i.e., mentoring associated with less negative peer influences)</p>
<p>Project Amp (Winn et al., 2019) [Secondary prevention]</p>	<p>Goal: Implement adolescent substance use screening and refer adolescents at moderate risk for substance use to preventative services Setting: Varied (schools and health clinics) Duration: 1–2 months Format: Group Mentors: Young adults (18–28) currently in substance use recovery Mentees: 13-to-17-year-old adolescents at moderate risk of substance use (either used any alcohol, marijuana or other substances or ever drove with a friend under the influence)</p>	<ul style="list-style-type: none"> • Enhancement of Screening, Brief Intervention, and Referral to Treatment (SBIRT) by addition of mentoring component • Mentors meet with youth 4 times over 1-to-2-month period • Sessions focus on interests and goals, social supports and influences, wellness, and community support 	<ul style="list-style-type: none"> • Feasibility study in 6 sites (3 school-based, 3 health clinics); 71 practitioners (trained in SBIRT) and 30 mentors • 1,192 adolescents screened for substance use risk by CRAFFT, resulting in sample of 139 eligible youth (moderate risk of substance use) • Subset assigned to Project Amp (n=51); 56-month follow-up data from 20 youth 	<p>x Substance use risk</p>		

<p>Untitled (Hanlon et al., 2002) [Secondary prevention]</p>	<p>Goal: Reduce youth risky behavior Setting: Community-based Duration: Approx. 1 year Format: Group Mentors: African-American college student volunteers Mentees: Youth aged 9–17 at risk for the development of a deviant lifestyle Inclusion criteria: Need to meet at least one of the following: 1) early experimentation with alcohol or drugs; 2) history of delinquency or other deviant behavior, including criminal activity, and/or 3) expulsion from school or other indications of problematic school behavior</p>	<ul style="list-style-type: none"> • Mentors provided individual help with school-based problems • Around 20 group mentoring sessions delivered 4-to-5 times per week, structured activities and presentations on coping skills, cultural heritage, self-esteem, conflict resolution, substance use avoidance, access to community health and recreational resources 	<ul style="list-style-type: none"> • Quasi-experimental study of 428 youth at risk of deviance • Intervention (n=235) included individual counseling + group mentoring + parenting sessions; Treatment as usual (n=193) included standard individual counseling 	<p>+ Less frequent alcohol use x Marijuana use</p>	<p>+ MEN x Age → Alcohol use (more beneficial treatment effect for younger participants)</p>	
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Note: Effects are noted if significant at $p < .05$, 2-tailed.



This project was supported by the Office of Juvenile Justice and Delinquency Prevention (OJJDP), Office of Justice Programs (OJP), U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect those of the U.S. Department of Justice.