Substance Use Prevention Programming for Adolescents and Young Adults: A Mixed-Method Examination of Substance Use Perceptions and Use of Prevention Services

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Abstract

Although substance use problems are highly prevalent among adolescents and emerging adults, this population does not regularly receive substance use prevention programming in their communities. Low perceived risk of substance use, which is linked to actual behavior, may contribute to low rates of engagement in community prevention efforts for substance use. To examine this, the current study used a mixed methods approach to: (1) examine the relationship between engagement in prevention education and substance use; and, (2) analyze qualitative data on education programs offered in the community to help identify strengths and gaps in prevention resources. Findings revealed several gaps in resources identified by adolescents and young adults that are needed to adequately address substance use, which provide important next steps for substance use prevention among youth.

Keywords

substance use; adolescents; mixed methods; prevention and education programs

1. Introduction

High substance use rates among adolescents and emerging young adults highlight that adolescence and young adulthood is a developmental period where risk-taking behaviors emerge. Importantly, although alcohol use is legal for emerging adults over age 21, excessive substance use during adolescence and emerging adulthood serve as precursors for problematic substance use across the lifespan (Chassin, Flora, & King, 2004; Chassin, Pitts,

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& Prost, 2002; Newcomb & Locke, 2005). Approximately 27% of 12–17 year old youth and 47% of 16–17 year old youth report lifetime alcohol use, while 15% of 12–17 year old youth and 33% of 17 year old youth report lifetime cannabis use (Center for Behavioral Health Statistics and Quality, 2018). Results from a nationally representative sample of adolescents demonstrated that 25.2% of respondents met criteria for alcohol abuse, 11.2% for drug abuse, and 7.4% for abuse of both substances (Danielson et al., 2010). High rates of substance use are particularly troublesome because early initiation is strongly linked with subsequent development of substance use disorders (SUDs) in both adolescence and adulthood (e.g., Anthony & Petronis, 1995; Clark & Bukstein, 1998; Grant & Dawson, 1998; Kilpatrick et al., 2000). Approximately half of lifetime cases of substance use disorder begin prior to the age of 14 and 75% by the age of 25 (McGorry, Purcell, Goldstone, & Amminger, 2011). Additionally, the risk for negative sequelae related to early substance use initiation in adolescents (e.g., education and employment failure, unintended parenthood, criminal justice system involvement, mental and physical health problems) continues into one's adult years (e.g., Brook et al., 2004; Chatterji, 2006; DuRant, Smith, Kreiter, & Krowchuk, 1999), highlighting the public health impact of *adolescent* substance use. Therefore, adolescence is a critical period to prevent substance misuse in order to reduce the likelihood of long-term development of substance use disorder.

Exposure to community substance use prevention efforts

Despite the noteworthy prevalence of substance use disorders among youth, adolescents aged 12 to 17 do not regularly receive substance use prevention and education in their communities. Data from the National Survey on Drug Use and Health showed that in 2017, although 71.6% of youth age 12–17 heard alcohol or drug prevention messages from sources outside school, only 10.6% participated in a prevention group outside of school in 2017, and that prevention programming did not extend beyond age 17 (Center for Behavioral Health Statistics and Quality, 2018). Further, only 35% of schools offer evidence-based substance use prevention programming, and even fewer (14%) rely on evidence-based approaches as their primary programming (Hanley et al., 2010). Therefore, research is needed to understand what factors are associated with exposure to and receipt of substance use prevention programming in order to improve their efforts. Well-established literature supports the efficacy and effectiveness of early substance use prevention programming in addressing target risk factors as the individual, family, and community levels; as well as subsequent substance use and craving (Catalano et al., 2012; Chiesa & Serretti, 2014; Griffin & Botvin, 2010). While effective substance use treatment programs have been identified, research to date has not yet examined what factors are associated with exposure to and participation in substance use prevention programs. It is possible that adolescents and emerging adults who engage in substance use are more likely to be engaged in programs for parental or judicial reasons, or it may be possible that adolescents and emerging adults that do not engage in substance use might be more engaged in these programs. Currently, the research is unclear and more work is needed to understand who is receiving substance use prevention programs. Importantly, this can inform public messaging campaigns and school policies to encourage this at risk age group to receive evidence-based prevention programs to prevent the development of substance use disorders.

Perceived risk of substance use among adolescents and young adults

Perceived risk of substance abuse is one factor that may be associated with youth's likelihood of receiving prevention programs or education in community settings. Perceived risk of substance abuse can drive the motivation to resist and/or disengage from substance using behaviors and peer groups. Risk perceptions are linked to actual behavior (Albarracin, Johnson, Fishbein & Muellerleile, 2001), with empirical evidence showing that higher risk perception is linked to decreased substance use among young adults (Bachman, Johnston, & O'Malley, 1991; Grevenstein, Nagy, & Kroeninger-Jungaberle, 2015; Harris Abadi, Shamblen, Thompson, Collins, & Johnson, 2011). For example, an examination of risk perceptions among adolescents indicated that higher perception of risk was related to less substance use, and changes in risk perception translated to changes in substance use (Grevenstein, Nagy, & Kroeninger-Jungaberle, 2015). Given that there are established associations between perceived risk of substances and substance use among youth (Arthur, Hawkins Pollard, Catalano, & Baglioni, 2002; Lipari, 2013; Wambeam, Canen, Linkenbach, Otto, 2014), perceived risk of substance use may be associated with engagement in community prevention efforts for substance use.

Not surprisingly, the noted association between increased risk perception and lower substance use has been implemented in several education programs. For example, in Project SUCCESS, the intervention is designed to address concepts such as myths, norms, support, and coping (Clark, Ringwalk, Shamblen, Hanley, 2011; Griffin, Botvin, Nichols, & Doyle, 2003) and indeed led to a significant increase in students' perceptions of harm resulting from alcohol and cannabis use. However, perception of prevalence and acceptability of substance use was still positive for cannabis use (negative effects for alcohol; Clark et al. 2011). It is intuitive that perceived risk of substances would be associated with engagement in community prevention programs for substance use. It would be expected that adolescents and young adults who have higher perception of risk of substances may be more likely to engage in prevention programs; however, to date, the association between perceived risk and prevention program engagement has not yet been examined. While many evidence-based programs for substance use prevention exist, access and availability of programs remains less clear. In other words, are youth aware of these programs and motivated to engage in these prevention efforts? And are substance use and perceived risk of substances associated with engagement in these prevention efforts?

Current study

Although evidence-based programming exists to prevent adolescent and young adult substance use, it has not yet reached the majority of individuals in need of the programming (e.g., Hanley et al., 2010). Therefore, it is essential to gain a better understanding of the perceptions of available prevention programming from adolescents and young adults using qualitative methodologies. Qualitative methodologies can allow for a more in depth understanding of the prevention programming currently available to youth, and to understand what gaps youth identify in current prevention programming. Understanding youth perceptions of prevention programming can help improve current programs by identifying mechanisms to extend their reach.

The current study used a mixed methods approach to examine the association of perceived risk of substance use and substance use prevalence with engagement in community prevention programs. This study is part of a larger community outreach project that also had the opportunity to provide educational programs to youth that maximized youth engagement and acceptability. The aims of the current study were to: (1) examine the relationship between engagement in prevention education and substance use and (2) analyze qualitative data on education programs offered in the community to help identify strengths and gaps in preventative resources.

2. Method

2.1 Overview

Quantitative and qualitative data were collected from adolescents (age 13–18) and young adults (age 19–25) living in the Southeast, recruited from local schools and community events to participate in a preventive intervention focused on prevention of HIV, substance use, and other risky behaviors. Prior to engagement in this intervention, self-report questionnaires were completed by adolescents assessing: substance use, perceived risk, and engagement in substance use education classes.

Focus groups were also conducted with adolescents recruited from a local high school and young adults recruited from local colleges to obtain additional information about engagement in education programs. Participants for focus groups were recruited through flyers and information about the groups being shared with local high schools and colleges; we also contacted our collaborators at these sites, who informed students about the focus groups. Prior to completion of the self-report questionnaires and focus group participation, informed consent and parental consent (under age 18) was obtained. Two facilitators lead each focus group by asking initial open-ended questions and probes for additional information when needed. Focus groups each took approximately 2 hours and were recorded. Recordings were then transcribed using a professional service. Demographic information was not collected from participants, as a way to keep information confidential and ensure honest feedback during the focus groups.

Participants did not complete both the questionnaire and focus group. Participants were compensated with gift cards following completion of self-report questionnaires ($25) and focus groups ($25).

2.2 Participants

Participants who completed the self-report questionnaires (n = 145) were adolescents who identified as Black/African American (72%), Caucasian (16%), Other (7%), Biracial (4%), or American Indian (1%). Participants were 46% female and mean age was 14.78 (SD = 1.38, range = 13–18). Participants reported their sexual orientation as straight or heterosexual (80%), bisexual (14%), gay or lesbian (4%), or unsure (2%). Regarding living arrangements, 81% of participants lived with their parents, 9% lived with another relative, 9% lived with a foster family or another non-relative, and 1% lived alone or with a roommate.

Four focus groups were conducted with adolescents and young adults at a single high school setting (n = 6 participants) and three college settings (n = 6–9 participants at each focus group). Demographic data was not collected as part of the focus groups (n = 27 total participants), although all participants were female and ranged in age from 15 to 20 years old.

2.2 Measures

2.2.1 Substance Use—
To assess substance use, items asked individuals the number of days in the past month they (1) drank at least one alcoholic drink, (2) drank at least five alcoholic drinks, and (3) used cannabis. In addition, age of first alcohol and cannabis use was reported. These questions are typically used in clinical interviews to obtain information about substance use and frequency.

Separate continuous variables were created to measure frequency of alcohol and cannabis use. Separate dichotomous variables were also created to measure *any* cannabis and alcohol use (0=*no past month use*, 1=*at least one day reported*). Interaction terms represented dual cannabis and alcohol use: (1) mean-centered cannabis x alcohol use frequency and (2) dichotomous cannabis x alcohol use. Dual use refers to individuals who reported using both cannabis and alcohol in the past month, not simultaneous use specifically.

2.2.2 Risk Perceptions—
Two items asked, "How much do people risk harming themselves when they… (1) have 5 or more drinks of alcohol once or twice a week," and (2) "…smoke marijuana once or twice a week." Responses ranged from 1 (*no risk*) to 4 (*great risk*). The risk perception measures were developed by the Substance Abuse and Mental Health Association (funding agency) as standard reporting information.

2.2.3 Prevention Education—
One item asked "In the past 12 months, do you recall hearing, reading, or watching an advertisement about prevention of substance use" to assess community prevention education, and one item asked "In the past 30 days, have you been in any classes or programs where they talked about prevention of drug and alcohol use?" to assess individual prevention programs. Participants answered yes, no, or don't remember. The risk perception measures were developed by the Substance Abuse and Mental Health Association (funding agency) as standard reporting information.

2.3 Statistical Analyses

2.3.1 Quantitative Analyses—
Quantitative descriptive analyses were conducted in SPSS 24.0 to examine substance use patterns, perceived risk of substance use, and engagement in prevention education programs.

Qualitative Analyses—
Focus groups were implemented based upon semi-structured questions, with key questions and prompts based upon the participants responses. Focus groups lasted approximately 90 minutes and were audio-recorded and transcribed. NVivo 11.1 software was used for data management and analysis. Analyses of the focus group data consisted of qualitative content analysis (Boyatzis, 1998) informed by grounded theory (Glaser & Strauss, 1967). Grounded Theory explores participants' unique perspectives via

the identification of themes/patterns that naturally emerge from the data and the systematic classification of these themes (Elo & Kyngäs, 2008). Specifically, a three-step inductive approach was utilized, in which the focus group responses (i.e., raw data) were carefully examined to develop a comprehensive codebook to capture all possible themes emerging from the data. The codebook was then used by two independent coders to code and analyze each participant's responses to the interview questions (Boyatzis, 1998; DeCuir-Gunby, Marshall, & McCulloch, 2011). Coders were able to apply more than one code to participant responses if applicable. Inter-rater discrepancies were discussed and resolved by the two independent coders. Finally, themes were refined, merged, and/or subdivided into sub-themes via collaborative discussion in multiple in-person meetings.

3. Results

3.1 Quantitative Results

Results from descriptive analyses indicated that 8% of adolescents drank at least one alcoholic drink in the past 30 days and 4% drank five or more alcoholic drinks in one day over the past month. Mean age of first alcoholic drink was 11.63 (SD = 3.31, range = 5 to 16). Regarding cannabis, 16% of adolescents used cannabis in the past 30 days and 11% reported weekly use. Mean age of first cannabis use was 12.39 (SD = 2.17, range = 5 to 16). Regarding perceived risk, 71.8% of adolescents reported moderate to great risk in having five or more drinks once or twice a week and 43% of adolescents reported moderate to great risk in smoking cannabis once or twice a week. Forty-four percent of adolescents had talked to one of their parents about the dangers of tobacco, alcohol, or drug use in the past year. Further, 18% of adolescents had been to a class or program on prevention of alcohol and other drug abuse in the past month and 50.7% had heard, read, or watched an advertisement about prevention of substance use in the past year.

3.2 Qualitative Results

Eight overarching themes, each with its own sub-themes, emerged from the participant's responses during the focus groups. Each is described below with representative quotes provided throughout for illustrative purposes.

3.2.1 Methods of education delivery.—Discussion about methods of education delivery that are effective for adolescents and young adults occurred on 71 occasions throughout the focus groups (35.0% of all content), which included social media, use of videos or memes, text messaging, email, website, or other apps. Participants also mentioned the importance of making the methods short and concise.

3.2.2 Prevention methods that work and/or suggestions for programs.— Discussion of prevention methods that work occurred on 59 occasions throughout the focus groups (29.1%). Some perceived effective methods that participants reported included education about biological impact, including short term and long-term consequences of substance use; and education about substance use standards and prevalence, including a standard drink, prevalence of substance use among peers, statistics on use and consequences, and impact of mixing alcohol and drugs.

In addition, participants mentioned that some other methods that worked in changing behavior included receiving education about substance use consequences, programs that incorporated sexual assault prevention, or education about safety such as drinking and driving or walking alone. Participants also mentioned education on recognizing when someone has abused substances, including when someone is intoxicated or using drugs, when substance use is interfering in a friend's life, or how to approach someone with concern. Participants commented that visuals worked in changing behavior, including videos, the beer goggles demonstration, lists of consequences, or a driving simulator. Risk reduction techniques were described as working to change behavior, as well as hearing personal stories such as true story videos/testimonials, personal stories shared by people they knew, or personal stories from celebrities. Finally, participants stated the importance of making education personalized and relatable, including making it specific to place and location and personalized to age. Specific comments that participants made about methods that work included:

- "I think realistic videos, like true story videos have way more of an impact on me than scenario videos. The ones that we have to watch that are true stories - like this really happened - like a hundred times more of an impact of a acting scenario video."

- "I think having a realistic perspective that we are going to [use substances], so kinda like steering away from abstinence-only education. We know it doesn't work. We know that they are going to do it, so let's take that information and make it better for them."

- "One thing I liked was that they told you how to recognize someone that had been drinking too much, alcohol poisoning and whatnot, and then what to do if you did recognize that. Which was something I had never, ever been taught before."

3.2.3   Prevention methods that do not work.—Conversation on prevention methods that do not work occurred on 21 occasions throughout the interviews (10.3% of all content). Opinions about prevention methods that do not work including scare tactics, programs that incorporate shame and guilt, abstinence only programs, underage abstinence only programs, and unhelpful information such as redundancy, too many videos, or programs that are too long in length. Specific comments made regarding programs that do not work included:

- "With the scare tactics, I feel like the scenarios they give are so extreme sometimes that kids feel like that's not gonna happen to you."

- "I think they come sometimes with guilt…if you do these things you're a bad person. It's very black and white in that way. It creates shame and guilt and alienates friendships in a lot of ways."

3.2.4   Where substance use knowledge was received.—Discussion of where substance use knowledge was received occurred on 19 occasions throughout the focus groups (9.4% of content). Overall, of the times when this was discussed, participants stated that substance use knowledge was primarily received during a health class offered in middle

or high school, a program offered in middle or high school, or a course offered in college. Some comments made about where substance use knowledge was received included:

- "Public safety [in college] put on a health fair…they have stuff like beer goggles and that makes it fun."

- "If you want to come into [this college] you have to take *AlcoholEdu* - it's like a four-hour long process that nobody can pay attention to for four hours. People just click through everything."

- "You had to take a alcohol and other drug abuse course called DARE when you were in fifth grade. I feel like, and that has stayed with me. We were given it very young. I think that helped us inform our decisions in middle and high school."

3.2.5 Prevention information that has been received.—Mention of the prevention information that has been received occurred on 14 occasions (6.9% of overall content). The main type of prevention information discussed was personal experience or watching others use substances, including seeing the impact of parents using alcohol or drugs. In addition, participants reported receiving information on drinking and driving, education about biological impact of substance use, description of different substances, or abstinence only education. Specific comments on the type of education received included:

- "My mom and dad were crackheads, so yeah, I'm not doing no type of drug."

- "Most of the education was centered around abstinence only and then of course, when you are in high school, it's illegal to do everything. Most of the education that I received was like, this is this and this is bad."

3.2.6 Barriers to engagement in substance use prevention programs.—
Discussion about barriers to engagement in substance use prevention programs among adolescents and young adults occurred on 9 occasions throughout the focus groups (4.4% of overall content). Comments described stigma or unsupportive environment, time constraints or not seeing the program as a priority, the need to babysit younger siblings, school-related responsibilities after school such as homework or evening classes, job responsibilities. Specific comments made regarding barriers included:

- "I think people are afraid of being judged, like, if they had a class on it, they would be afraid that people would think that they were the ones doing the drugs."

- "I honestly don't think people would be interested unless they already had a problem themselves."

3.2.7 Engagement techniques.—Discussion about engagement techniques that may be effective with adolescents and young adults for recruiting them into substance use prevention programs occurred on 5 occasions (2.5% of overall responses). Some effective techniques mentioned included incentives such as food or vouchers for activities, monetary incentives such as cash or gift cards, course/class credit, or incorporate social aspects including encouraging friends to attend the program together or implement the program as

part of a social setting. Specific comments made by participants regarding effective incentives included:

- "Free pizza, door prizes, or something. I feel like more people would show up to that than log in online and do it."

- "If a teacher was like, you can have extra credit if you go to this."

3.2.8 Where would you go to receive substance use information.—Discussion regarding where adolescents and young adults would go to receive substance use information occurred on 5 occasions throughout the focus groups (2.4% of overall content). Responses included the school counseling center, online, or from a private organization or program. Examples of statements about where the participants would go to receive information included:

- "I'd probably go to the counseling center because they have lots of pamphlets and they have a lot of people there that can help with situations like that."

- "I would say Google."

4. Discussion

The current study extends the literature by examining the factors associated with the receipt of substance use prevention and education programs among adolescents and young adults and providing qualitative examination of their experience of these programs. Findings revealed several gaps identified in resources by adolescents and young adults that are needed to adequately address substance use. Combined, these findings provide important next steps for substance use prevention among youth.

Substance use prevention and education programming was overwhelmingly received in school settings. The youth in the current study did not identify locations outside of school where substance use prevention and education were received. The youth also identified several potential barriers to attending voluntary substance use prevention programming outside of a mandated school requirement including stigma, time constraints, and unwillingness to prioritize with other school, job, and familial demands. Although mandated school-based substance use prevention programming is useful, literature suggests that only 35% of schools offer evidence-based programming and only 14% rely primarily on evidence-based approaches (Hanley et al., 2010). Thus, more efforts should be made to extend evidence-based prevention and intervention programming in school settings, as well as to community organizations and pediatric settings. This would not only provide the message that substance use prevention is important to communities and physical health, it would also allow for youth to receive consistent messaging from all angles without requiring them to voluntarily seek the information out. Some examples of substance use prevention programs that could be delivered in school-based settings and address the themes described in this study include *Botvin LifeSkills Training Middle School Program* (Botvin & Griffin, 2004) and the *Too Good for Drugs* prevention program (Hall, Bacon, & Ferron, 2014). The youth in the current study also identified strategies to increase engagement like providing food or payment or engaging an entire social group. Given that perceived peer norms drive

substance use among youth (Bachman, Johnston, & O'Malley, 1991; Grevenstein, Nagy, & Kroeninger-Jungaberle, 2015; Harris Abadi, Shamblen, Thompson, Collins, & Johnson, 2011; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007), it would be important to provide substance use prevention and education to a social group to directly address both perceived substance use norms and provide intervention.

Youth also identified social media and online resources as a method of delivery for substance use prevention and education programming. Adolescents and young adults indicated that they would be likely to search for information regarding substance use online and on social media platforms, therefore, evidence-based prevention and education programs targeting perceived norms and perceived harm of substance use could be adapted to these platforms for youth to access. Future work on youth substance use prevention and education programming may consider including social media outlets, as well as information about how to identify medically accurate information when searching for online programs.

Although there are several strengths of this study, including use of mixed methods, a recruitment of a diverse sample, a focus on both adolescent and young adult substance use, and generalizability of descriptive information, limitations also should be noted. The current study was conducted primarily as a community needs assessment, therefore, the measures were very brief and included single item assessments rather than gold standard, multi-item assessments of substance abuse behavior. Further, all substance use data were self-reported and not corroborated with more objective measures. Nonetheless, the youth identified gaps in substance use prevention and education programs that could be used to improve prevention programming among this at-risk age group. Finally, the descriptive information describes participants who completed the quantitative measures, but not the participants that were included in the focus groups. Although the samples were very similar to one another in terms of demographics, the study is limited by not providing descriptive information on focus group participants.

To our knowledge, this is the first study to examine associations between substance use and likelihood of receiving substance use prevention or education programs, with youth identifying several gaps in substance use prevention and education programs. More applied clinical research is needed on developing and evaluating innovative strategies to engage at-risk youth in prevention programming. Establishing best practices in this domain, particularly using methods perceived as helpful by youth (e.g., videos and personal stories on social media) could strengthen impact on public health.

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Table 1.

Themes and Subthemes

Methods of education delivery	35%
Social media	54%[a]
Use of videos or memes	17%[a]
Text messaging	11%[a]
Email	3%[a]
Website	4%[a]
Other apps	9%[a]
Prevention methods that work	29.1%
Educational and biological impact	7%[a]
Education about substance use standards and prevalence	10%[a]
Education about substance use consequences	5%[a]
Programs that incorporated sexual assault prevention	3%[a]
Education about safety	5%[a]
Recognizing when someone has abused substances	8%[a]
Visuals focused on changing behavior	8%[a]
Risk reduction techniques	17%[a]
Hearing personal stories	20%[a]
Make education personal and relatable	15%[a]
Prevention methods that do not work	10%
Scare tactics	57%[a]
Programs that incorporate shame or guilt	14%[a]
Abstinence only programs	5%[a]
Underage abstinence only programs	5%[a]
Unhelpful information	19%[a]
Where substance use knowledge was received	9.4%
During a health class offered in middle or high school	32%[a]
Program offered in middle or high school	37%[a]
Course offered in college	32%[a]
Prevention information that has been received	6.9%
Personal experience or watching others use substances	50%[a]
Information on drinking and driving	21%[a]
Biological impact of substance use	14%[a]
Description of different substances	7%[a]
Abstinence only education	7%[a]
Barriers to engagement in substance use prevention programs	4.4%
Stigma or unsupportive environment	33%[a]

Time constraints or not seeing program as a priority	33%[a]
Need to babysit younger siblings	11%[a]
Job responsibilities	11%[a]
Engagement techniques	2.5%
Food or vouchers for activities	40%[a]
Monetary incentives (e.g., cash or gift cards)	20%[a]
Course/class credit	20%[a]
Incorporate social aspects	20%[a]
Where would you go to receive substance use information	2.4%
School counseling center	40%[a]
Online	40%[a]
From a private organization or program	20%[a]

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