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Adolescent Substance Use Prevention Interventions Outside of Classroom Settings

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Abstract Substance use prevention programs empowering individual adolescents to resist substance use through education and skills training are crucial to reducing substance use within this population. However, existing programs of this type are designed primarily for classroom use, and may not meet the needs of social workers intervening with adolescents outside classroom settings. A literature review identified six programs that have demonstrated statistically significant reductions in substance use when implemented outside the classroom. The current study describes these programs, identifies their common characteristics, and draws on additional prevention research to outline recommendations for practitioners seeking to apply the field's most current knowledge base in community settings.

Keywords Adolescent · Substance use · Prevention · Community-based

Over the last three decades, practitioners and researchers have devoted a great deal of time and attention to identifying effective ways to prevent or reduce substance use among adolescents. Prevention efforts have been directed at all levels of adolescents' social systems. The four most commonly utilized prevention interventions are education and skills training with adolescents and their families, media campaigns, community policies and laws reducing substance availability, and school policies reducing substance availability (Paglia and Room 1999). Only the first of these types of intervention actively addresses the psychosocial factors influencing an adolescent's ability to resist substance use.

Since alcohol, tobacco, and other drugs will always be available in our society, interventions directed at reducing substance availability are limited in their potential to prevent substance use among adolescents. Consequently, programs empowering

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individual adolescents to resist substance use through education and skills training are crucial to prevention. To date, the majority of such programs have been designed for and implemented in the classroom.

There is a need for education and skills training to resist substance use over and above what is provided in the classroom. Indeed, research indicates that adolescents benefit from participation in multiple prevention programs, exhibiting additional reductions in substance use for each prevention activity in which they engage (Donnermeyer and Davis 1998). The impact of prevention programs is also maintained longer when adolescents have the opportunity to continue participating in prevention interventions over time (Pentz 2003). Social workers who work with adolescents are well placed to meet this need by implementing small group prevention programs designed to improve individual adolescents' ability to resist substance use.

Many social workers who work directly with adolescents do so in settings whose structure and norms differ significantly from those of classrooms. For example, attendance may be voluntary, and lectures, presentations, and homework assignments may be out of place. Since few prevention models have been developed and tested for use outside of classrooms, there is a dearth of evidence-based resources appropriate for implementation in the contexts in which social workers function. The current study set out to identify individual-level interventions implemented outside the classroom that have undergone rigorous testing and resulted in a statistically significant reduction in substance use. These interventions would form the basis for evidence-based practice in non-classroom substance use prevention.

However, a literature review found few published studies of interventions implemented outside the classroom, and no interventions that have undergone large-scale testing with replication by independent investigators. The absence of such studies indicates that the field of substance use prevention outside the classroom is not well developed enough to begin establishing guidelines for evidence-based practice. Instead, there remains a need for the development, implementation, and evaluation of interventions appropriate for social workers to utilize in such settings. Consequently, the purposes of the current study are to describe existing individual-level interventions that have been effective when implemented outside the classroom, and to present general findings about the characteristics of effective prevention programs. It is hoped that this information will lay the foundation for the development of prevention interventions in the myriad settings in which social workers and adolescents meet.

Theories Behind Individual-Level Prevention Interventions

To adequately explore interventions intended to prevent adolescent substance use by changing individual-level variables, one must be aware of the theories upon which these interventions have been based. Early prevention efforts typically focused on providing facts about substances and the consequences of their use, and/or fostering personal emotional and social development (Forgey et al. 1997). These interventions were occasionally found to alter individual factors associated with substance use, but did not affect substance use behavior (Forgey et al. 1997).

As these early approaches to substance use prevention fell out of favor, researchers turned to psychosocial theories as a foundation for program development. Two models of prevention resulted: the social influence model and the competence enhancement model (Botvin 2000; Botvin and Griffin 2004; Pentz 2003). The social influence model draws on social learning theory (Bandura 1977) and the theory of reasoned action (Azjen and Fishbein 1980). It postulates that social modeling and self-efficacy interact with psychological factors, including perceived norms, expected consequences, values, attitudes, and intentions, to make substance use more or less likely (Graham et al. 1991). Prevention programs based on the social influence model intervene by reinforcing anti-drug norms, teaching adolescents how to recognize and resist social pressure, and helping adolescents plan for high-risk situations (Graham et al. 1991). These programs have been demonstrated to decrease substance use in the short term, though their effects can decay over time (Skiba et al. 2004; Botvin 2000).

A second psychosocial theory applied to substance use is the competence enhancement model. Along with social learning theory (Bandura 1977), this model draws on problem behavior theory (Jessor and Jessor 1977). According to problem behavior theory, people engage in what society sees as problem behaviors because these behaviors help them cope with negative emotions and achieve personal goals, such as social acceptance (Forgey et al. 1997). Thus, the competence enhancement model sees substance use as a behavior that is both learned and functional (Botvin and Griffin 2004). It posits that adolescents are more likely to engage in substance use if they do not have adequate personal, social, and coping skills. Consequently, programs based on the social competence model teach these general competence skills, along with specific skills for resisting substance use (Skiba et al. 2004). Evidence also exists for the efficacy of the social competence approach, though as with the social influence model, effect size declines over time (Botvin 2000).

Both the social influence and competence enhancement models describe ways in which individual risk factors may interact with social influences and substance availability to influence the likelihood of substance use. Thus, both are consistent with social work's unique emphasis on the person-in-environment (Skiba et al. 2004). The two approaches can also be used together to target the host of psychosocial variables suspected to influence adolescent substance use.

Method

To locate prevention interventions targeting individual-level mediators of substance use implemented outside of classroom settings, a literature review was conducted using five electronic databases: PubMed, PsychINFO, Social Work Abstracts, Educational Resource Information Center (ERIC), and Health Reference Center Academic. These databases were selected because they target the literature of the primary professional groups interested in the prevention of adolescent substance use. A keyword search of each database was conducted using the search string: [(substance use or drug use or alcohol use) and (prevention or prevention program) and adolescen*]. Studies published between 1997 and 2007 were included for

review if they met the following criteria based on their titles and abstracts: (1) The study described a prevention intervention targeting individual-level changes with adolescents in grades six through twelve. (2) The intervention was not implemented in a classroom setting. (3) The intervention utilized a primary prevention approach to target adolescents who did not have existing problems related to substance use. (4) The study provided evidence for the intervention's effectiveness in the form of statistically significant reductions in substance use. (5) The intervention targeted the use of more than one substance. (6) The intervention was implemented in the United States, and (7) the intervention was designed to be universally applicable across diverse populations.

Six interventions meeting these criteria were identified; key characteristics of each intervention appear in Table 1. Two are popular school-based prevention programs originally designed for classroom use that have been adapted and implemented in other contexts: Life Skills Training (Botvin 2000; Botvin and Griffin 2004) and All Stars (Hansen 2001; McNeal et al. 2004). One program, Adolescent Decision-Making for the Positive Youth Development Collaborative, combined two classroom-based programs and adapted them for use in an after-school program (Tebes et al. 2007). The remaining three programs, the SAM (solution, action, mentorship) program (Froeschle et al. 2007), the Adolescent Social Action Program (Velarde et al. 2002), and Project CHOICE (D'Amico and Edelen 2007), were originally designed for non-classroom use but implemented primarily within school environments. All six programs resulted in statistically significant reductions in substance use when compared to control groups. No interventions completely separated from the school context could be found.

Life Skills Training

Life Skills Training (LST) (Botvin 1998; Botvin 2000; Botvin and Griffin 2004) is an education and skills training program that has received considerable attention in the literature. Based on both the social influence and competence enhancement models of prevention, it is designed to be implemented during the 3 years of middle or junior high school. The core intervention, implemented in the first year, is composed of 15 sessions of 45 min each. Booster interventions are implemented during the following 2 years, with 10 sessions in the second year and five in the third (Botvin 1998; Botvin and Griffin 2004). Curriculum materials, including guides for teachers and students, are available for each year of the program (Botvin 1998; Botvin and Griffin 2004).

LST includes three components teaching different skill-sets (Botvin 1998; Botvin and Griffin 2004). The self-management component teaches skills for coping with negative emotions, decision-making, problem solving, and methods of changing personal behaviors for self-improvement (Botvin 1998). The social skills component targets skills related to social interactions, including conversation and communication skills, assertiveness, giving complements, and skills for dating relationships (Botvin 1998; Botvin and Griffin 2004). Finally, the substance use resistance component addresses the consequences of use, norms and prevalence of

Table 1 Characteristics of non-classroom prevention interventions

	LST	All Stars	ADM-PYDC	SAM	ASAP	PC
Program type	Classroom curriculum adapted for non-classroom use	Classroom curriculum adapted for non-classroom use	2 classroom curricula adapted and combined for afterschool program use	Non-classroom school-based counseling group	Small group experiential multi-site intervention	Curriculum-based afterschool group
Theoretical basis	Social influence; Competence enhancement	Social influence	Competence enhancement; Positive youth development	Social influence; Competence enhancement; Identity formation	Competence enhancement; Identity formation; Empowerment	Social learning; Self-efficacy; Decision-making
Grade level	Middle school	Middle school	Middle and high school	Middle school	Middle school	Middle school
Intervention components	Group curriculum (15 sessions, 45 min each)	Group curriculum (sessions vary by version); Subgroups of peer leaders; Student–teacher meetings	Group curriculum (18 sessions)	Group curriculum combining mentoring and action learning; Group therapy (16 sessions, 30 min per component)	Group curriculum (6 sessions); Patient interviews; Panel discussion; Social action project	Group curriculum (5 sessions, 30 min each)
Booster program	Yes	Yes	No	No	No	No
Tested across:						
Population density	Yes	Unreported	No	No	No	No
Region	Yes	Unreported	No	No	No	No
Gender	Yes	Yes	Yes	No	Yes	Yes
Race/Ethnicity	Yes	Yes	Yes	Yes	Yes	Yes

use among adults and adolescents, sources of pressure and how to resist them (Botvin 1998; Botvin and Griffin 2004). LST is taught primarily using group discussion and cognitive-behavioral skills training, which includes explaining and demonstrating new skills, supervising skill rehearsal, and providing feedback and reinforcement (Botvin 1998).

Outcome studies conducted by LST's developers have consistently demonstrated rates of tobacco, alcohol, and marijuana use reduced 50% or more in program participants when compared to control subjects (Botvin and Griffin 2004). Significant effects have also been measured for variables hypothesized to influence substance use, including perceived norms, refusal skills, assertiveness, problem solving, decision-making, and risk-taking (Botvin and Griffin 2004). LST's effectiveness was maintained when the program was implemented by peer leaders, and when sessions were presented more frequently over a shorter time period (Botvin 1998). Research on the mechanisms by which LST achieves its results indicates that the program prevents substance use by increasing refusal assertiveness, reducing positive expectancies associated with substance use, and increasing psychological well-being (Botvin and Griffin 2004).

Outcome studies by independent researchers offer moderate support for LST's effectiveness. Spoth et al. (2002) found that LST participants in a rural Midwestern sample initiated alcohol and marijuana use at a significantly lower rate than a control group, both when LST was the only intervention, and when it was paired with a family intervention. After the booster intervention 1 year later, LST participants continued to exhibit a significantly slower rate of substance use initiation (Trudeau et al. 2003). The only additional study by independent researchers did not include a control group, and found no significant change from pre-test to post-test on substance use or intention to use, though some change occurred in suspected mediators of use (MacKillop et al. 2006).

LST may be appropriate for implementation in non-classroom settings, such as housing developments and community centers (Botvin 1998). One study conducted between 1997 and 2007 tested the applicability of LST with a universal population in such a setting by implementing an adaptation of the program at a transitional living center (Shelton et al. 2005). Children aged 9–16 were recruited from the center and a pediatric health clinic. The intervention was implemented in 3-h sessions over the course of six Saturdays by seven trained adult volunteers. Six topics from the LST curriculum were selected for inclusion and modified to fit into the time available: self-esteem and self-improvement; decision-making; media literacy; managing anxiety; communication skills; and conflict resolution (Shelton et al. 2005). The sessions followed a consistent format. Children gathered together to be introduced to the day's topic and divided into small groups by age and gender. Two or more facilitators then met with each small group for 2 h of instruction. Everyone came together for lunch during the third hour to share what they learned. Facilitators also met with parents to summarize the material presented to the children and to suggest strategies for reinforcing the children's learning. Researchers reported that children were open to information about resisting tobacco and marijuana, but less so regarding alcohol. Continued ambivalence among participants at post-test regarding the use of alcohol and other drugs led researchers to

recommend that future interventions utilize the full LST curriculum to strengthen preventive effects.

The LST curriculum can be a valuable resource for social workers planning non-classroom interventions. It has been carefully developed and tested, with demonstrated effectiveness for a range of populations, including rural, urban, and ethnic minority groups (Botvin and Griffin 2004). It is a relatively well-known intervention, has been recognized by the Substance Use and Mental Health Services Administration (SAMHSA), National Institute of Drug Abuse (NIDA), and Department of Education (DoE), and is used in school districts nationwide. It also includes a specific curriculum and guidelines for implementation fidelity, allowing practitioners to make informed decisions when considering program adaptations. LST's primary weakness for application outside the classrooms is that its highly-structured curriculum relies heavily on classroom norms, including expectations regarding attending to teachers' presentations and completing homework assignments. A second weakness is the relatively rapid decay of intervention effects seen in studies of LST, especially in the absence of booster interventions (Botvin and Griffin 2004).

All Stars

All Stars (Hansen 2001; McNeal et al. 2004) is an intervention for middle school students based on the social influence model. It is the result of an extended process of development, research and adaptation, and had several precursors, the most recent of which was Project STAR, the school-based component of the Midwest Prevention Project (Hansen 2001). All Stars seeks to reduce substance use and sexual activity by targeting four psychosocial variables: normative beliefs, lifestyle incongruence, commitment to abstinence, and bonding to school or community (McNeal et al. 2004). The standard All Stars curriculum is implemented in classrooms and includes 14 sessions attended by the entire class, four small group sessions with students chosen as peer leaders; and one-on-one meetings between teachers and socially isolated students to help them integrate into the school (McNeal et al. 2004). The core program has also been supplemented by booster programs for elementary and high school students, a parent program, and homework assignments that encourage discussion between parents and teens (Hansen 2001).

All Stars participants were found to use alcohol, cigarettes, and inhalants at a significantly lower rate than control subjects, and marijuana at a rate that was reduced but not statistically significant (McNeal et al. 2004). All Stars participants also had a lower rate of initiation for all substances, and experienced significant changes in commitment and lifestyle incongruence (McNeal et al. 2004). However, All Star's results decayed over time (Hansen 2001), and were modest in size, suggesting that a more effective intervention could be developed (McNeal et al. 2004).

All Stars is unique in that it includes an alternative 15-session program designed specifically for implementation outside the classroom (Hansen 2001). No studies of this version of the curriculum have been published. However, developers report that

when pilot tested in a community setting, All Stars resulted in significant changes to community bonding, commitment to avoiding risky behaviors, and parental attentiveness when compared with control groups (Hansen 2001). A potential weakness is the large variability in results between community intervention groups reported by program developers; somewhat better outcomes were observed when groups were smaller and contained primarily adolescents from minority racial and ethnic groups (Hansen 2001).

All Stars consists primarily of group discussion among students and interactive activities, including games, role-plays, and debates (McNeal et al. 2004). The All Stars curriculum does not outline session plans and teacher interventions as thoroughly as does LST. Instead, teachers are trained to focus on the concepts meant to be conveyed, and adapt the intervention to target their specific classes. Training also addresses the facilitation of group discussion, teaching providers to ask questions soliciting normative responses, indirectly reinforce prosocial responses, and react skillfully to expressions of deviant opinions. The formal training process includes a 30-h program, continuing education, and technical support (Hansen 2001).

The flexibility of the curriculum and its emphasis on adapting activities and materials to the intervention context make All Stars particularly promising for use by social workers in non-classroom settings. Social workers are likely to have success implementing the curriculum because they are trained in many of the skills considered central to program effectiveness, such as facilitating group processes and asking questions skillfully to elicit thoughtful responses and avoid expressions of deviance. All Stars' weaknesses include its focus on suspected mediators of substance use rather than on actual use behavior, and the absence of clear measures of implementation fidelity.

Adolescent Decision-Making for the Positive Youth Development Collaborative

Adolescent Decision-Making for the Positive Youth Development Collaborative (ADM-PYDC) (Tebes et al. 2007) is an education and skill development program combining two programs that have been demonstrated to be effective in school settings: the Yale Adolescent Decision-Making Program, and the Positive Youth Development Program. The former is a skill development curriculum, while the latter is a strengths-based intervention targeting resilience. Materials from these interventions were adapted to be less formal and fit the structure of a comprehensive afterschool program. Information on the cultural heritage of African-American and Hispanic adolescents was also added. The final product is an 18-session intervention covering stress, decision-making, information about drug use, and individual application of the decision-making process. At 1 year post-baseline, participants demonstrated significantly less substance use than a control group, and were significantly more likely to consider drugs harmful. The effectiveness of ADM-PYDC supports the adaptation of school-based classroom interventions for use in afterschool programs (Tebes et al. 2007).

ADM-PYDC is a model for how social workers might adapt existing school-based interventions for use in non-classroom settings by adjusting curriculum,

timing, format and behavioral expectations. It also makes use of group work and psychoeducational methods in which many social workers are skilled. However, although the results of the initial study are promising, a single trial is insufficient to determine intervention effectiveness. The study also fails to describe how participants were selected and retained in the program; this information would facilitate replication, and potentially expand our knowledge of effective and ineffective strategies for securing participation, an important issue in any voluntary intervention.

SAM

The SAM program (Froeschle et al. 2007) is named for its components: solution-focused brief therapy, action learning, and mentorship. The intervention was designed for implementation by a school counselor, and studied with a population of eighth grade girls. It is based on both the social influence and competence enhancement models, along with Erikson's (1968) theory of identity formation. All three intervention components are included in each of 16 weekly 1-h sessions that make up the core of the intervention. Two meetings are also held with parents, before and after the implementation of the intervention.

High school students and adults from the community serve as mentors and lead the first part of each session, which includes action learning activities and games, guest speakers, and group discussion. These activities are used to address topics related to identity formation, goal setting, decision-making, relationships, substance use, and resisting peer pressure. To prepare them for their role in the intervention, adult mentors attend a 2-session training, while high school students attend a 3-session training.

Mentors leave for the second half of each session, during which the counselor engages the intervention group in solution-focused brief therapy. Group members are free to introduce any questions or concerns, allowing the intervention to be targeted for each participant (Froeschle et al. 2007). The counselor then responds utilizing techniques from solution-focused brief therapy, including scaling, finding exceptions, and the miracle question. The latter technique elicits a hypothetical description of how life would be different if a problem was miraculously solved, to identify goals and impart the expectation for change (De Shazer 1988). Results demonstrated decreased substance use, more negative attitudes toward substance use, and increased awareness of the consequences of substance use.

This intervention is also a promising model for a social work intervention outside the classroom. It represents the creative combination of diverse modalities, and offers significant flexibility, making it transportable to a variety of community settings. Designed to be conducted by a mental health professional, the SAM program draws on a range of skills familiar to social workers, including solution-focused brief therapy, group work, and the facilitation of mentoring relationships. The program's primary weaknesses are its time and staffing requirements: due to the prominent role mentors play in the SAM program, recruiting, training and retaining volunteers become part of the group facilitator's responsibilities, in addition to finding and retaining participants and facilitating sessions. The program was also

implemented in a small, gender-specific group, making conclusions about its generalizability impossible.

Adolescent Social Action Program

The Adolescent Social Action Program (ASAP) is a primary prevention program utilizing experiential group interventions with middle school students (Velarde et al. 2002). It includes social skills training drawing on the social competence model, but also utilizes Erikson's (1968) theory of identity development and Freire's (1970) model of empowering education. ASAP groups address identity formation by discussing factors such as gender, race, and ethnicity, and by exploring adult roles and responsibilities through participation in a social action activity. The groups follow Freire's approach to empowerment through psychosocial dialog, which progresses in a sequence from listening to dialog to social action (Velarde et al. 2002).

The ASAP intervention includes a 6-session curriculum, followed by a health-related social action activity chosen by the group. Participants are recruited through their schools, where the first and last sessions of the program also meet, but none of the sessions occurs in a classroom context. The first session focuses on team building. The second session meets in a local hospital, where group members learn communication skills and have the opportunity to interview patients who have substance-related problems. The third session also takes place in the hospital; participants continue patient interviews, and learn decision-making and drug refusal skills. The fourth session occurs in a detention center, where group members interview a panel of four residents about the social and legal consequences of substance use. At the end of the second through fourth sessions, group members discuss how what they learned relates to them and their communities. (Velarde et al. 2002). Participants return to the hospital for session five, where they discuss community involvement and media literacy, and begin planning their social action activity. Finally, the sixth session is a potluck meal at the participants' school, where planning of the social action activity continues.

After the completion of the formal curriculum, participants work as a group to implement the social action activity they planned. Groups have engaged in a range of activities including forming student-led clubs in their schools, and educating others about substance use and other health issues through diverse means. When compared with control and peer education groups, participants in the ASAP intervention demonstrated significantly less alcohol use, but no difference in tobacco use. Results were more pronounced for males than females.

Though additional research is necessary to verify the program's effectiveness, ASAP is of special interest to social workers due to its emphasis on empowerment, one of the profession's abiding themes. The experiential nature of the ASAP program also makes it unique among existing prevention interventions. However, as such, it is more difficult to implement than other identified programs. It requires the cooperation of several community institutions, willingness of people affected by substance use to share their experiences with participants, transportation to each site, and resources for youth to complete a social action project.

Project CHOICE

Project CHOICE (PC) (D'Amico and Edelen 2007; D'Amico et al. 2005) is a voluntary intervention for middle school students developed utilizing a community-based participatory approach (Hohmann and Shear 2002). Focus groups were conducted with employees, students, and parents at two middle schools to identify the priorities and perspectives of community stakeholders. Information from these focus groups, along with student feedback from a pilot test conducted in classroom settings, influenced curriculum style and content, the timing and location of sessions, and the marketing of the program (D'Amico et al. 2005).

Five 30-min sessions are offered in a repeating cycle over the course of an academic year as an afterschool program in the school building (E. D'Amico, personal communication, June 24, 2008). Students are free to attend anywhere from 1 to 5 sessions, receiving a snack at the beginning of each session and a $5 gift certificate if they complete all five sessions (D'Amico and Edelen 2007). In a pilot test of the intervention, about 13% of students chose to attend at least one session, with 47% of participants attending three or more sessions. Compared to the school population, those who chose to participate were more ethnically diverse and contained a slightly higher proportion of males (D'Amico and Edelen 2007).

PC's curriculum draws on social learning theory (Bandura 1977), decision-making theory (Kahneman and Taversky 2000), and self-efficacy theory (Bandura 1997). Sessions are conducted using a group format and a motivational interviewing approach (Miller and Rollnick 2002). Topics addressed include substance use norms, unrealistic positive substance use expectancies, resistance skills, costs and benefits of substance use, and coping strategies for high-risk situations (D'Amico et al. 2005). Participants reported less past-month alcohol use and lower perceptions of alcohol and marijuana use among peers than the school population. As a whole, the school population in which PC was implemented also reported less alcohol and marijuana use and lower perceptions of peers' alcohol and marijuana use than a control school (D'Amico and Edelen 2007).

Although evidence for the effectiveness of PC currently exists only at the pilot test level, and the potential mechanisms of its effectiveness remain unclear, two of its key characteristics recommend it as a model for social work interventions outside the classroom. First, PC identifies a means of collaborating with stakeholders that can increase the relevance of the intervention for the target population, and facilitate community investment in the program. It also explores ways to encourage the voluntary participation of youth, as is often necessary in non-classroom settings. Although retention of participants in the pilot test was less than may have been hoped, PC represents important research for non-mandatory prevention interventions.

Key Characteristics of Effective Prevention Interventions

The commonalities among the programs reviewed above highlight key characteristics that are important to include in prevention interventions. Perhaps most

importantly, prevention programs need to reach young adolescents. Substance use typically begins in early adolescence, and its prevalence increases with every year of middle and high school (Johnston et al. 2006). Early use is associated with escalation to more harmful substances, more regular use, and risk of abuse and dependence. Preventing or delaying the initiation of substance use reduces each of these risks (Newcomb and Bentler 1988).

Prevention programs should also target the substances most frequently used by early adolescents: alcohol, tobacco, and marijuana (Johnston et al. 2006). While some interventions target only one of these substances, it may be more effective to target multiple substances (Pentz 2003). The latter approach is based on the belief that effective psychosocial interventions impact the use of all substances (Vander-Waal et al. 2005), and that an intervention targeting a single substance may overlook some paths to initiation and escalation of use (Botvin and Griffin 2004).

Finally, to be effective, prevention programs should target risk and/or protective factors associated with substance use (National Institute on Drug Abuse [NIDA] 2003; Pentz 2003). Epidemiological studies have identified at least 19 risk and protective factors linked to adolescent substance use. Risk factors include perceived norms regarding substance use, peer pressure, beliefs about the consequences of use, and peer or family use. Protective factors include bonding to family and/or school, positive relationships with parents, decision-making and other life skills, and substance refusal skills (Pentz 2003). Effective prevention interventions target several of these factors to increase their potential impact on adolescent substance use.

Recommendations for Social Workers

Beyond these general characteristics of effective prevention interventions, several recommendations can be made for social workers considering intervening with their adolescent clients to prevent substance use. Indeed, the first such recommendation is to implement prevention interventions wherever adolescents spend time. Given the ubiquity of substance use among adolescents, and bearing in mind that use declines with each successive preventive intervention (Donnermeyer and Davis 1998), every step should be taken to ensure that each adolescent is reached by at least one prevention program targeting individual-level variables.

Social workers are in many ways ideally placed to implement such interventions, given their training and expertise. Indeed, in a meta-analysis of prevention programs, Tobler (1992) found that interventions conducted by mental health professionals had a larger effect size than interventions with other types of leaders. Social workers are trained in building respectful and empathic relationships that may increase adolescents' willingness to honestly discuss their concerns, and ultimately facilitate their internalization of prevention messages. Social group work skills embody the interactive and peer-focused methods research suggests are crucial to program effectiveness (Sussman et al. 2003). Lastly, social workers' expertise in both social and psychological interventions prepares them to address the range of intrapersonal risk factors and interpersonal influences impacting substance use.

Second, the programs used should have empirical support and draw on the field's most current knowledge. According to the best existing theories and research, individual-level interventions should target drug expectancies, resistance skills, self-management, and social skills (Botvin and Griffin 2004; Montoya et al. 2003; Tobler 1992). Within this general framework, workers should select prevention strategies that are appropriate for their client population. Existing prevention programs are typically developmentally appropriate only for the age group they target. Some programs may not have been studied in rural, suburban and urban areas, or across regions, and their effectiveness therefore may not be established for all locations. Adolescents at high-risk for substance use may require more intensive or different prevention strategies. However, there is some evidence that universal approaches can benefit high-risk adolescents and are therefore appropriate in populations where risk level is mixed (Ghosh-Dastidar et al. 2004).

Programs also may not be effective with all racial and ethnic groups. The literature is divided on the best approach to cultural diversity. Some researchers contend that, as with risk levels, universal programs are applicable across racial and ethnic groups. The assumption is that the etiology of substance use is more similar than different, regardless of culture (Botvin 1998). Consequently, interventions should be designed to be culturally sensitive, relevant and acceptable for multicultural populations. LST adheres to this approach, and has been shown to be effective with adolescents from different population areas, socioeconomic backgrounds and racial and ethnic identities (Botvin and Griffin 2004). Furthermore, culturally tailored and generic versions of LST were found to be equally effective with African-American and Hispanic adolescents (Botvin 1998).

Cultural tailoring is an alternative approach in which interventions are designed for specific racial, cultural and ethnic groups, based on the assumption that etiological factors can differ among different populations (Forgey et al. 1997). Material specific to the cultural group, including folk stories, values, and symbols, is incorporated alongside material addressing social influences and competence skills (Forgey et al. 1997). There may be some benefits to this approach. In a study comparing LST with an intervention culturally tailored for three Native American tribes, the two groups saw equal reduction in substance use compared to a control group immediately after the intervention. However, at a 2-year follow up, participants in the culturally tailored intervention demonstrated significantly less alcohol use and intention to use than LST participants (Forgey et al. 1997). Cultural tailoring is also associated with higher rates of program adoption and sustainability (Ringwalt and Bliss 2006).

Third, interventions should be adapted to adhere to the structure, values, and norms of the setting in which they will be implemented. Classroom-based interventions are predicated on expectations regarding normative classroom behavior and requirements. However, many non-classroom settings would struggle to get adolescents to attend every session, sit and listen to a presentation, and complete homework assignments. The length of sessions, the specific activities, or other factors may need to be adjusted to meet each setting's unique needs. The non-classroom programs reviewed above offer several creative solutions to the dilemmas that community settings may face. These and other prevention options need further development and study to meet the needs of adolescents being served in such contexts.

Finally, social workers providing individual-level prevention interventions with adolescents should collaborate with other providers of prevention services in their communities. Social work's person-in-environment emphasis reminds us of the importance of targeting the entire client system rather than just the individual (Skiba et al. 2004). Prevention research sends a similar message: individual-level interventions are more effective when implemented in combination with other prevention strategies (Pentz 2003). Additional strategies that can be used to supplement programs for individual adolescents include parenting programs, advocacy efforts directed at policies and laws regulating substances, and media campaigns (Montoya et al. 2003). Multicomponent interventions targeting several of these levels are often built around individual-level interventions such as school-based programs (Stigler et al. 2006). Social workers should support or participate in the additional interventions that best address their clients' unique risk and protective factors (Montoya et al. 2003).

Conclusions

The many settings in which social workers interact with adolescents represent an untapped opportunity for substance use prevention. Some innovative programs have been introduced, but more research is needed to determine what is effective in these settings. Enough is known about preventing adolescent substance use to lay the foundation for new and creative interventions to be developed by practitioners. As researchers continue to move forward in identifying the factors affecting change in existing evidence-based programs, this information can also be applied to intervene in new settings in new ways. Research has shown that prevention effectively decreases and delays adolescent substance use, and that these results are stronger and longer-lasting when adolescents are exposed to multiple preventive interventions. If practitioners working with adolescents on a regular basis contribute to this effort with support from researchers and policy-makers, real progress can be made to limit the significant health impact of substance use.

Resources

Life Skills Training

Manuals, training, and up-to-date research on Life Skills Training are available at www.lifeskillstraining.com, or by writing to National Health Promotion Associates, 711 Westchester Avenue, White Plains, NY 10604.

All Stars

Manuals, training and assistance for implementing All Stars are available through www.allstarsprevention.com, or by contacting Tanglewood Research, Inc., 420 Gallimore Dairy Road, Suite A, Greensboro, NC 27409. Telephone: 336-662-0090.

Adolescent Decision-Making for the Positive Youth Development Collaborative

Information about the ADM-PYDC intervention can be found in Tebes et al. (2007), and from this article's corresponding author, Jacob Kraemer Tebes, Ph.D., Division of Prevention and Community Research and The Consultation Center, Yale University School of Medicine, 389 Whitney Avenue, New Haven, CT 06511.

SAM

The SAM program is described in Froeschle et al. (2007), with further information available from the first author, Janet G. Froeschle, at jefroeschle@msn.com.

Adolescent Social Action Program

For more information on ASAP, see Velarde et al. (2002), or contact Lily Dow, Adolescent Social Action Program, Family Practice Building, Third Floor, 2400 Tucker NE., Albuquerque, NM 87131. Telephone: 888-738-2940.

Project CHOICE

The Project CHOICE intervention is described in D'Amico and Edelen (2007), with further information available from the first author, Elizabeth J. D'Amico, at RAND Corporation, 1776 Main Street, P·O. Box 2138, Santa Monica, CA 90407. Email: elizabeth_d'amico@rand.org.

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References

Azjen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Botvin, G. J. (1998). Preventing adolescent drug abuse through life skills training: Theory, methods, and effectiveness. In J. Crane (Ed.), *Social programs that work* (pp. 225–257). New York, NY: Russell Sage Foundation.

Botvin, G. J. (2000). Preventing drug abuse in schools: Social and competence enhancement approaches targeting individual-level etiologic factors. *Addictive Behaviors, 25*(6), 887–897. doi:10.1016/S0306-4603(00)00119-2.

Botvin, G. J., & Griffin, K. W. (2004). Life skills training: Empirical findings and future directions. *The Journal of Primary Prevention, 25*(2), 211–232. doi:10.1023/B:JOPP.0000042391.58573.5b.

D'Amico, E. J., & Edelen, M. O. (2007). Pilot test of Project CHOICE: A voluntary afterschool intervention for middle school youth. *Psychology of Addictive Behaviors, 21*(4), 592–598. doi:10.1037/0893-164X.21.4.592.

D'Amico, E. J., Ellickson, P. L., Wagner, E. F., Turrisi, R., Fromme, K., Ghosh-Dastidar, B., et al. (2005). Developmental considerations for substance use interventions from middle school through college. *Alcoholism, Clinical and Experimental Research, 29*(3), 474–483. doi:10.1097/01.ALC.0000156081.04560.78.

De Shazer, S. (1998). *Clues: Investigating solutions in brief therapy*. New York: Norton.
Donnermeyer, J. F., & Davis, R. R. (1998). Cumulative effects of prevention education on substance use among 11th grade students in Ohio. *The Journal of School Health, 68*(4), 151–158.
Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: W. W. Norton.
Forgey, M. A., Schinke, S., & Cole, K. (1997). School-based interventions to prevent substance use among inner-city minority adolescents. In D. K. Wilson, J. R. Rodriguez & W. C. Taylor (Eds.), *Health-promoting and health-compromising behaviors among minority adolescents: Application and practice in health psychology* (pp. 251–267). Washington, DC: American Psychological Association.
Freire, P. (1970). *Pedagogy of the oppressed*. New York: Seabury Press.
Froeschle, J. G., Smith, R. L., & Richard, R. (2007). The efficacy of a systematic substance abuse program for adolescent females. *Professional School Counseling, 10*(5), 498–505.
Ghosh-Dastidar, B., Longshore, D. L., Ellickson, P. L., & McCaffrey, D. F. (2004). Modifying pro-drug risk factors in adolescents: Results from Project ALERT. *Health Education & Behavior, 31*(3), 318–334. doi:10.1177/1090198104263333.
Graham, J. W., Marks, G., & Hansen, W. B. (1991). Social influence processes affecting adolescent substance use. *The Journal of Applied Psychology, 76*(2), 291–298. doi:10.1037/0021-9010.76.2.291.
Hansen, W. B. (2001). All stars: Problem behavior prevention programming for schools and community groups. In E. F. Wagner & H. B. Waldron (Eds.), *Innovations in adolescent substance abuse interventions* (pp. 85–108). Amsterdam, Netherlands: Pergamon/Elsevier Science Inc.
Hohmann, A. A., & Shear, M. K. (2002). Community-based intervention research: A meta-analysis of 85 longitudinally followed cohorts. *Evaluation Review, 14*, 677–685.
Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2006). *Monitoring the future national survey results on drug use, 1975–2005: Vol. 1. Secondary school students*. Bethesda, MD: National Institute on Drug Abuse.
Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York: Academic Press.
Kahneman, D., & Taversky, A. (2000). *Choices, values, and frames*. New York: Cambridge University Press.
MacKillop, J., Ryabchenko, K. A., & Lisman, S. (2006). Life skills training outcomes and potential mechanisms in a community implementation: A preliminary investigation. *Substance Use and Misuse, 41*, 1921–1935. doi:10.1080/10826080601025862.
McNeal, R. B., Jr., Hansen, W. B., Harrington, N. G., & Giles, S. M. (2004). How all stars works: An examination of program effects on mediating variables. *Health Education & Behavior, 31*(2), 165–178. doi:10.1177/1090198103259852.
Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change* (2nd ed.). New York: Guilford Press.
Montoya, I. D., Atkinson, J., & McFaden, W. C. (2003). Best characteristics of adolescent gateway drug prevention programs. *Journal of Addictions Nursing, 14*(2), 75–83.
National Institute on Drug Abuse. (2003) *Preventing drug abuse among children and adolescents: A research-based guide for parents, educators, and community leaders (2nd ed.)* U.S. Department of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse.
Newcomb, M. D., & Bentler, P. M. (1988). *Consequences of adolescent drug use: Impact on the lives of young adults*. New York: Sage.
Paglia, A., & Room, R. (1999). Preventing substance use problems among youth: A literature review and recommendations. *The Journal of Primary Prevention, 20*, 3–50. doi:10.1023/A:1021302302085.
Pentz, M. A. (2003). Evidence-based prevention: Characteristics, impact, and future direction. *Journal of Psychoactive Drugs, 35*(Suppl 1), 143–152.
Ringwalt, C., & Bliss, K. (2006). The cultural tailoring of a substance use prevention curriculum for American Indian youth. *Journal of Drug Education, 36*(2), 159–177. doi:10.2190/369L-9JJ9-81FG-VUGV.
Shelton, A., Harvin, S., & White, J. (2005). Substance abuse prevention program for children and adolescents in a community-based clinic. *Substance Abuse, 26*(3–4), 21–25.
Skiba, D., Monroe, J., & Wodarski, J. S. (2004). Adolescent substance use: Reviewing the effectiveness of prevention strategies. *Social Work, 49*(3), 343–354.

Spoth, R. L., Redmond, C., Trudeau, L., & Shin, C. (2002). Longitudinal substance initiation outcomes for a universal preventive intervention combining family and school programs. *Psychology of Addictive Behaviors, 16*, 129–134. doi:10.1037/0893-164X.16.2.129.

Stigler, M. H., Perry, C. L., Komro, K. A., Cudeck, R., & Williams, C. L. (2006). Teasing apart a multiple component approach to adolescent alcohol prevention: What worked in project northland? *Prevention Science, 7*(3), 269–280. doi:10.1007/s11121-006-0040-7.

Sussman, S., Rohrbach, L. A., Patel, R., & Holiday, K. (2003). A look at an interactive classroom-based drug abuse prevention program: Interactive contents and suggestions for research. *Journal of Drug Education, 33*(4), 355–368. doi:10.2190/H04H-KGQN-HW9X-6R60.

Tebes, J. K., Feinn, R., Vanderploeg, J. J., Chinman, M. J., Shepard, J., Brabham, T., et al. (2007). Impact of a positive youth development program in urban after-school settings on the prevention of adolescent substance use. *The Journal of Adolescent Health, 41*(3), 239–247. doi:10.1016/j.jadohealth.2007.02.016.

Tobler, N. S. (1992). Drug prevention programs can work: Research findings. *Journal of Addictive Diseases, 11*(3), 1–28. doi:10.1300/J069v11n03_01.

Trudeau, L., Spoth, R., Lillehoj, C., Redmond, C., & Wickrama, K. A. S. (2003). Effects of a preventive intervention on adolescent substance use initiation, expectancies, and refusal intentions. *Prevention Science, 4*(2), 109–122. doi:10.1023/A:1022926332514.

VanderWaal, C. J., Powell, L. M., Terry-McElrath, Y. M., Bao, Y., & Flay, B. R. (2005). Community and school drug prevention strategy prevalence: Differential effects by setting and substance. *The Journal of Primary Prevention, 26*(4), 299–320. doi:10.1007/s10935-005-5390-6.

Velarde, L. D., Starling, R. G., & Wallerstein, N. B. (2002). Identity in early adolescence via social change activities: Experience of the adolescent social action program. In T. M. Brinthaupt & R. P. Lipka (Eds.), *Understanding early adolescent self and identity: Applications and interventions* (pp. 267–291). Albany, NY: State University of New York Press.