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# Marijuana Best Practices Literature Review

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Prepared for the County of San Diego  
Health and Human Services Agency  
Behavioral Health Services, Alcohol and Drug Services  
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## Table of Contents

<b>I. Introduction .....</b>	<b>ii</b>
Themes of Successful Strategies.....	ii
<b>II. Marijuana - Literature Review of Best Practices .....</b>	<b>1</b>
Community-Based Prevention Approaches.....	1
Media Campaign Approaches.....	<b>Error! Bookmark not defined.</b>
Life Skills Focused Approaches .....	8
School-Based Prevention Approaches.....	11
<b>III. References.....</b>	<b>14</b>

## Marijuana Best Practices Literature Review

### I. Introduction

This is the third literature review in a series of three, prepared for the County of San Diego, Health and Human Services Agency - Alcohol and Drug Services, which provided funding for this document. The articles described herein are categorized in a format consistent with the types of research-based evidence available, and as such, are grouped into four key areas: (1) community-based prevention approaches; (2) media campaign approaches; (3) life skills focused approaches; and (4) school-based prevention approaches.

### Themes of Successful Strategies

#### Interactive/Resistance Building Programs

In conducting an extensive review of the available literature, several themes emerged. For instance as shown in the literature review matrix in the next section, prevention programs that incorporate an interactive component in addition to a lecture-based component about the dangers of marijuana use seem to be more effective than programs that are designed in a lecture only format. Additionally, programs that offer resistance skill development, such as the Life Skills Training (LST) program, appear to help adolescents become less susceptible to peer pressure and more apt to decline marijuana when it is offered to them.

The Office of Juvenile Justice and Delinquency Prevention (OJJDP), on their website, <http://www.ojjdp.gov/mpg/progTypesAlcoholDrugPrev.aspx>, identify various strategies and components of programs that appear to effectively prevent drug use among adolescents. One of these strategies is family training, which can be effective for parents during their children's transitional years from childhood to adolescence. Effective elements of these programs include: clarifying youth substance use rates; providing accurate information about drugs and alcohol; providing the family with support in creating and enforcing a family policy on substance use; and encouraging participation of parents and youth in social resistance training.

#### Community-Level Interventions

Additionally, several articles and agencies identify and recommend community-level interventions as a means to address and reduce drug use and related harm. While research specific to marijuana is extremely limited, and most references to community-level interventions provide prevention efforts targeting various substances, it is believed that community-based prevention can have successful effects in reducing marijuana use. For instance, The Department of Health and Human Services, in a report developed in 1999, suggests that prevention efforts can be addressed through environmental factors and community-wide policies that can help to reduce the initiation of substance use and the progression to substance abuse. However, the majority of research in this area exists for alcohol and tobacco prevention, as these substances are legal and can be more easily addressed through policy development and enforcement. The 1999 report also identifies development of protective factors such as neighborhoods with clear anti-substance norms and bonding with the community as promising strategies to reduce the risks of engaging in substance abuse. Furthermore, the Federal Government is in support for and is implementing community-wide multi sector marijuana prevention (e.g., the Drug Free Communities (DFC) program; the Screening, Brief Intervention, and Referral to Treatment (SBIRT) model; and the National Youth Anti-Drug Media Campaign) as described in a the 2010 *Marijuana: Know the Facts* fact sheet developed by the Office of National Drug Control Policy.

The OJJDP website also describes community awareness and policy norms as potentially effective drug prevention strategies. Although the research is primarily based on effective strategies to prevent alcohol and

tobacco use, it is thought that these strategies may be effective in preventing marijuana use. One community-focused program that is featured on the OJJDP website is PACT360: the Partnership at Drugfree.org which is composed of research-based community education programs aimed at addressing prevention at a local/community level. PACT360 contains five key sub-programs/components: Meth360, Parents360, Youth360, Latino360, and Padres360. Each of these programs can be adapted and customized to fit unique community needs.

As it was not feasible to list all effective programs in this literature review, a comprehensive detailed review of exemplary programs that have been shown to be effective along with their design can be found on the OJJDP website at the following link: <http://www.ojjdp.gov/mpg/progTypesAlcoholDrugPrev.aspx>

## II. Marijuana Literature Review of Best Practices

Article Title	Description	Key Finding/Limitations	Age Group
<b>Community-Based Prevention Approaches</b>			
Implementing research-based substance abuse Prevention in communities: Effects of a coalition-based prevention initiative in Vermont (Flewelling et al., 2005)	The <b>researchers examined whether Vermont’s <i>New Directions</i> community coalition-based prevention effort significantly reduced youth substance abuse.</b> Under <i>New Directions</i> , the Vermont state government funded 23 community coalitions to implement research-based drug prevention programs and activities.. Students across Vermont answered a variety of drug-related questions on the national Youth Risk and Behavior Survey (YRBS). Researchers compared survey results from students in <i>New Directions</i> communities to students in non- <i>New Directions</i> communities.	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>Both past-30 day cigarette and marijuana use were significantly lower among students in <i>New Directions</i> communities than those in non-<i>New Directions</i> communities from 1999-2001.</li> <li>Researchers concluded that adequately supported community-based coalitions, with paid coordinator positions, facilitate effective planning, implementation, and evaluation of research-based prevention programs.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>Vermont communities are more rural and ethnically homogenous than those of many other states. Results may not be generalizable across other states.</li> <li>The study did not distinguish between the effects of the prevention program and the community coalition itself. It is uncertain whether <i>New Directions’</i> effectiveness stemmed from its coalition-based implementation structure.</li> </ul>	Middle School- High School
Combining in-school and community-based media efforts: Reducing marijuana and alcohol uptake among younger adolescents (Slater et al., 2005)	<p>A two-year longitudinal, control group study conducted in 16 U.S. cities <b>investigating the impact of in-school anti-substance use communication in conjunction with community-based media</b> on marijuana, alcohol, and tobacco use.</p> <p>Study conditions were as follows:</p> <ol style="list-style-type: none"> <li>8 media treatment communities and 8 control communities <ol style="list-style-type: none"> <li>Within the media treatment communities, one school received a research-based prevention curriculum and one school did not.</li> </ol> </li> </ol>	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>A manipulation check revealed that the media campaign efforts were successful in reaching youth, as students in the control condition were more likely to recognize selected campaign messages.</li> <li>The media campaign had successful effects on influencing beliefs about multiple substances (specifically, alcohol and marijuana).</li> <li>At the first year post-test, treatment communities had fewer youth using marijuana compared to the control communities.</li> <li>Results from the study revealed that appropriately designed media programs can positively impact</li> </ul>	Middle School

Article Title	Description	Key Finding/Limitations	Age Group
<b>Community-Based Prevention Approaches (Continued)</b>			
Combining in-school and community-based media efforts: Reducing marijuana and alcohol uptake among younger adolescents (Slater et al., 2005) - Continued	<p>b. Within the 8 control communities, one school received a research-based prevention curriculum and one school did not.</p> <p>2. Media campaigns were designed using social marketing principles. Campaign materials included print materials, posters, and promotional items. Images thought to impact high-sensation seeking youth were incorporated into the campaign materials.</p> <p>3. Community-based intervention components included community readiness workshops, strategy recommendations based on the community's level of readiness, and training sessions regarding community media. <b>The intention was for the community efforts to reinforce school efforts by fostering anti-drug community norms.</b></p> <p>4. The school intervention component consisted of a research-based cross-substance prevention curriculum (All Stars) that focused on non-use norms, commitment not to use substances, and school bonding.</p>	<p>substance use deterrence.</p> <ul style="list-style-type: none"> <li>• Researchers indicate that successful community-based efforts do not depend on the existence of a school-based prevention program and vice versa; however the strongest effects were seen in the combined conditions.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• A national anti-drug media campaign was co-occurring at the time of the intervention that could have contributed to the effects of the intervention.</li> <li>• Amount of exposure to media campaigns may be a factor in impacting youth anti-drug behaviors, indicating that higher levels of exposure to anti-drug media campaigns may be more impactful than less frequent campaigns.</li> </ul>	Middle School
A multi-community trial for primary prevention of adolescent drug abuse (Pentz et al., 1989)	First year study of the impact of the Midwestern Prevention Project, a longitudinal trial for the prevention of tobacco, alcohol, and marijuana. The prevention project included <b>mass media programming, school-based educational programs, parent education and organization, and health policy components</b> that are introduced to the community over six years. The study was implemented across 15 communities that make up the Kansas City metropolitan area.	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>• After the first year of implementation, the intervention condition showed a decrease in the prevalence use rates for all three drugs (tobacco, alcohol, and marijuana). Specifically, the reported marijuana use in the last 30 days was 7% in the experimental condition compared to 10% in the control condition.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• Nonequivalent size of the experimental and control groups.</li> </ul>	Middle School

Article Title	Description	Key Finding/Limitations	Age Group
<b>Community-Based Prevention Approaches (Continued)</b>			
Policing and cannabis use in Australia (Tresidder & Shaddock, 2008)	A news bulletin developed by the National Cannabis Prevention and Information Center (NCPIC) <b>describing what policies would be most effective in cannabis prevention.</b> Although the news bulletin is addressing marijuana use and strategies to address the issue in Australia, this information may be relevant/applicable to prevention efforts in San Diego County.	Favorable Results: <ul style="list-style-type: none"> <li>• A review of research indicated that problem-oriented policing and geographically-focused interventions, in addition to cooperative partnerships with third parties and community-wide interventions, can have a positive impact on cannabis use.</li> <li>• Collaboration between law enforcement and community groups is identified as a key to successful cannabis reduction efforts.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>• Specific limitations not described.</li> </ul>	General population
Substance-use outcomes at 18 months past baseline: The PROSPER community-university partnership trial (Spoth et al., 2007)	The PROSPER (PROmoting School-community-university Partnerships to Enhance Resilience) program <b>mobilizes and sustains community-based teams that implement universal family and school substance abuse prevention programs.</b> Researchers examine whether PROSPER significantly reduced past-month, past-year, and lifetime alcohol, tobacco, marijuana, and other illicit drug use among students in 28 Iowa and Pennsylvania school districts.	Favorable Results <ul style="list-style-type: none"> <li>• Compared to a control group, students in the PROSPER intervention group had lower new-user rates of marijuana, methamphetamine, ecstasy, and inhalant use.</li> <li>• Past-year marijuana and inhalant use was lower among the PROSPER intervention group.</li> <li>• PROSPER's effects were similar across both high and low-risk samples, suggesting that community-based universal strategies may benefit high-risk students.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>• The study examines PROSPER's effects in rural and small-community school districts. Results may not be generalizable to large metropolitan areas.</li> <li>• Substance use measures are based on self-reporting, which may introduce some bias.</li> </ul>	Middle School
Community interventions and effective prevention (Wandersman & Florin, 2003)*	Provides a review of <b>various community-focused intervention studies.</b>	Favorable Results: <ul style="list-style-type: none"> <li>• Community-level interventions that showed positive outcomes tended to be multi-component interventions that included school, policy, parent, and media programs.</li> <li>• Authors conclude that findings from various studies suggest collaborative partnerships can contribute to</li> </ul>	General population

Article Title	Description	Key Finding/Limitations	Age Group
<b>Community-Based Prevention Approaches (Continued)</b>			
Community interventions and effective prevention (Wandersman & Florin, 2003)* - Continued	Provides a review of <b>various community-focused intervention studies.</b>	changes in health behaviors. Limitations: <ul style="list-style-type: none"> <li>• Several reviews of evaluations conducted on community coalitions did not always show success.</li> <li>• Difficulty assessing outcomes from community-level interventions due to lack of a control group.</li> </ul>	General population
Early effects of Communities That Care on targeted risks and initiation of delinquent behavior and substance use (Hawkins et al., 2008)*	The 5-year Community Youth Development Study (CYDS) randomized trial of the Communities That Care (CTC) prevention system was conducted in 24 communities across 7 states in the U.S. CTC is designed to reduce levels of adolescent delinquency and substance use through the selection of effective prevention strategies targeting risk and protective factors. The CTC system is <b>designed to train and mobilize community leaders and a community prevention coalition to select and implement tested prevention interventions to address and reduce risk factors making youth susceptible to substance use.</b>	Favorable Results: <ul style="list-style-type: none"> <li>• Risk levels were lower for youth in the CTC condition compared to youth in the control communities.</li> <li>• Results also showed that youth in the control communities were more likely to engage in delinquent behaviors compared to youth in the CTC conditions.</li> <li>• While significant impacts on substance use were not seen, researchers indicate that the early impacts on delinquent behaviors is a positive sign that the CTC prevention program will likely impact substance use given that the longitudinal National Youth Survey showed initiation of delinquent behavior precedes and predicts initiation of substance use.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>• Youth self-reported risk behaviors.</li> <li>• The cities included in the study are small to moderate-sized; results may not be similar in larger cities.</li> <li>• Longer follow-up studies need to be conducted to determine long-term effects and effects on substance use.</li> </ul>	Middle School – High School

\* Not specific to marijuana; however, it is hypothesized that results of these studies may be applicable to marijuana prevention.

Article Title	Description	Key Finding/Limitations	Age Group
<b>Media Campaign Approaches</b>			
<p>Assessing media campaigns linking marijuana non-use with autonomy and aspirations: “Be Under Your Own Influence” and ONDCP’s “Above the Influence” (Slater et al., 2011)</p>	<p>The Office of National Drug Control Policy’s (ONDCP) recent media campaign, <i>Above the Influence</i>, uses print, radio, and television media to <b>link substance abuse to threats against young people’s autonomy and aspirations</b>. The ONDCP’s campaign was based on the <i>Be Under Your Own Influence</i> campaign, a school/community-based trial intervention strategy that positioned non-use as supporting the goals of autonomy or achievement. The study evaluated the effectiveness of the <i>Above the Influence</i> campaign using surveys that questioned youth about their exposure to the campaign, attitudes toward the campaign’s messages, and illegal substance abuse. It also examined whether the <i>Be Under Your Own Influence</i> campaign maintained its effectiveness when youth were simultaneously exposed to the <i>Above the Influence</i> national campaign.</p>	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>• The <i>Above the Influence</i> campaign significantly reduced lifetime marijuana use among youth through its aspiration and autonomy messages.</li> <li>• Although the <i>Be Under Your Own Influence</i> campaign proved effective in prior studies, it did not maintain its effectiveness when youth were simultaneously exposed to the <i>Above the Influence</i> campaign. Researchers suggest that the findings emphasize the relative power of national cable and broadcast advertising.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• The sample was biased toward smaller towns and suburbs, and therefore the results may not be generalizable to large metropolitan areas. Larger communities may have richer media environments, which may cause greater competition among campaign messages.</li> </ul>	<p>Middle School</p>
<p>Predictors of exposure from an anti-marijuana media campaign: Outcome research assessing sensation seeking targeting (Stephenson et al., 2001)</p>	<p>Participants consisted of adolescents in 7<sup>th</sup> through 12<sup>th</sup> grade in a Southeastern metropolitan city. In-person interviews were conducted in which participants were asked about sensation seeking behaviors, marijuana usage behaviors, intentions to experiment with marijuana, attitudes, normative beliefs, risks and protective factors, TV viewing time and exposure to anti-marijuana Public Service Announcements (PSA). <b>The PSAs were modeled to follow the Sensation Seeking Targeting (SENTAR) prevention framework, an approach in which the content presented is designed to target/appeal to high sensation seekers (HSS).</b></p>	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>• Results support the notion that targeted and strategic campaign designs can successfully reach HSS (the target audience) youth compared to low sensation seeking youth.</li> <li>• A reduction in 30-day reported marijuana use was seen among HSS following the media campaign.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• Authors state that due to the small effect size, results should be interpreted with caution.</li> <li>• The results of the study do not concretely provide evidence that changes in behavior occurred as a result of the PSA, only that campaigns were effective in reaching HSS.</li> </ul>	<p>Middle School - High School</p>

Article Title	Description	Key Finding/Limitations	Age Group
<b>Media Campaign Approaches (Continued)</b>			
Television campaigns and adolescent marijuana use: Tests of sensation seeking targeting (Palmgreen et al., 2001)	This study researched the effects of the <b>SENTAR Prevention Approach</b> to determine if this type of program can reduce marijuana use among high-sensation seeking youth. The study methodology consisted of a controlled interrupted time-series design in two matched communities where one community received two televised anti-marijuana campaigns, and the other county received only one anti-marijuana campaign. The SENTAR prevention approach includes four principles: (1) use sensation seeking youth as a target variable; (2) conduct formative research with target audience members; (3) design high-sensation-value prevention messages; and (4) place messages in high sensation value contexts.	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>All of the campaigns assessed were associated with significant reductions in marijuana use in high sensation seeking youth.</li> <li>Authors conclude that carefully targeted campaigns that are frequent and reach a large number of people can play a role in future drug prevention efforts.</li> <li>Behavior changes are likely to occur as a result of targeted, high frequency and reach, and audience-specific messages.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>Effects were specific to marijuana use and did not impact other substance use such as alcohol, tobacco, inhalants, cocaine, or hallucinogens. As such, results cannot be specifically generalized to all substances.</li> </ul>	Middle School – High School
Reaching at risk populations in a mass media drug abuse prevention campaign: Sensation seeking as a targeting variable (Palmgreen et al., 1995)	Authors researched the impact of a <b>5-month PSA campaign targeted at high sensations seeking youth</b> . The PSA campaign consisted of drug prevention messages.	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>Data revealed that placement of the PSA in programming that is appealing to HSS youth was effective in motivating youth to call a hotline featuring alternatives to drug abuse.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>Specific limitations not described.</li> </ul>	Youth; age/grade level not specified
Prevention of cigarette smoking through mass media intervention and school programs (Flynn et al., 1992)*	During a 4-year period, students in one pair of communities received <b>media interventions and school programs that had common smoking prevention educational objectives</b> . Students in a matched pair of communities received only the school programs. The combined cohort was surveyed at baseline in 4 <sup>th</sup> , 5 <sup>th</sup> , and 6 <sup>th</sup> grade. Students were followed up on annually for 4 years.	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>Significant reductions were reported in smoking.</li> <li>Results provide evidence that mass media interventions are effective in preventing cigarette smoking when they are carefully targeted at high-risk youths and share educational objectives with school programs.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>Low generalizability; sample size was not diverse.</li> </ul>	Elementary School - Middle School

\* Not specific to marijuana; however, it is hypothesized that results of these studies may be applicable to marijuana prevention.

Article Title	Description	Article Title	Description
<b>Media Campaign Approaches (Continued)</b>			
A 10-year retrospective of research in health mass media campaigns: Where do we go from here? (Noar, 2006)*	A review of <b>multiple mass media campaigns</b> used to promote public health.	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>• Authors concluded that the literature shows evidence that targeted, well-executed health mass media campaigns can have small to moderate effects not only on health, knowledge, beliefs, and attitudes, but on behaviors as well.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• Specific limitations not provided.</li> </ul>	Not provided
Media use and perceived risk as predictors of marijuana use (Beaudoin and Hong, 2012)	Using survey data from 750 young adults, the researchers examined how <b>perceived personal and societal risk, as well as drug-related media campaigns and news, affect young adult marijuana use, intentions to use marijuana, and attitudes toward marijuana use.</b>	<p>Favorable Results</p> <ul style="list-style-type: none"> <li>• Perceived personal and societal risks of marijuana use were associated with lower levels of past-year marijuana use and intention to use marijuana.</li> <li>• Perceived personal risk was associated with lower levels of past-year marijuana use than perceived societal risk.</li> <li>• Exposure to anti-drug media campaigns was associated with both perceived personal and societal risk, while using drug-related news was only associated with perceived societal risk.</li> <li>• Although both media campaigns and drug-related news may indirectly affect marijuana use by increasing the perceived risks, only anti-drug media campaign exposure showed a direct effect on unfavorable attitudes toward marijuana use.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• Results are based on self-report surveys, which may be prone to interviewer or response bias.</li> <li>• The study used Structural Equation Modeling (SEM) of cross-sectional data, which precludes inferences about causality.</li> </ul>	Young adults; 18-24 years old

\* Not specific to marijuana; however, it is hypothesized that results of these studies may be applicable to marijuana prevention.

Article Title	Description	Key Finding/Limitations	Age Group
<b>Media Campaign Approaches (Continued)</b>			
The impact of an anti-smoking media campaign on progression to established smoking: Results of a longitudinal youth study (Siegel & Biener, 2000)*	A 4-year longitudinal survey of Massachusetts youth, 12-15 years old at the baseline in 1993. Researchers examined the effect of baseline <b>exposure to television, radio, and outdoor anti-smoking advertisements</b> on progression to established smoking (having smoked 100 or more cigarettes).	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>Younger adolescents (12-14 years old), who reported baseline exposure to television anti-smoking advertisements were significantly less likely to progress to established smoking.</li> <li>The television component may have reduced the rate of progression to established smoking among young adolescents.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>Exposure to anti-smoking advertisements had no effect on progression to established smoking among older adolescents.</li> </ul>	Youth; 12-15 years old
<b>Life Skills Focused Approaches</b>			
Life Skills Training: Empirical findings and future directions (Botvin et al., 2004)	The article discusses findings from various evaluations of the Life Skills Training (LST) program from the past 20 years. LST is a <b>primary prevention program for adolescent drug abuse that addresses risk and protective factors associated with drug use initiation</b> . The program also teaches social resistance skills and attempts to enhance social and personal competence.	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>Studies have demonstrated positive behavioral effects of the LST program on marijuana use, smoking, alcohol, and the use of multiple substances.</li> <li>Prevention effects have been shown to last through the end of high school.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>Further research is needed to understand the mediating mechanisms.</li> <li>Additional knowledge is needed on how to widely disseminate research-based programs into schools.</li> </ul>	Adolescents
Effectiveness of a universal drug abuse prevention approach for youth at high risk for substance use initiation (Griffin et al., 2003)	A <b>school based prevention program that taught drug refusal skills, anti-drug norms, personal self-management skills, and general social skills</b> was studied to determine its effectiveness on youth identified as at risk for substance use. Students in the experimental group received the curriculum in 7 <sup>th</sup> grade followed by a booster session in 8 <sup>th</sup> grade. The control condition received the standard school curriculum.	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>At risk youth reported less smoking, drinking, inhalant use, and poly drug-use.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>Significant reductions in marijuana use alone were not seen, in part due to the low reported use of marijuana at baseline.</li> <li>The long-term impact of the program was not researched. Results reflect short-term effects.</li> </ul>	Middle School

\* Not specific to marijuana; however, it is hypothesized that results of these studies may be applicable to marijuana prevention.

Article Title	Description	Key Findings/Limitations	Age Group
<b>Life Skills Focused Approaches (Continued)</b>			
School-based drug abuse prevention with inner-city minority youth (Botvin et al., 1997)	The authors studied the effectiveness of a drug abuse prevention intervention with a predominantly minority group sample of 7 <sup>th</sup> grade students in 7 urban schools in New York City. The <b>drug abuse prevention program curriculum teaches social resistance skills within the context of a broader intervention promoting general personal and social competence</b> and is implemented by regular classroom teachers.	Favorable Results: <ul style="list-style-type: none"> <li>This approach showed reductions in poly-drug use and intent for future drug use.</li> <li>There is evidence of mediating factors of this type of intervention for normative expectations and refusal skills.</li> <li>Findings provide support for the generalizability to a minority inner-city youth population.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>Considered a small-scale study.</li> </ul>	Middle School
Long-term follow-up results of a randomized drug abuse prevention trial in a white middle-class population (Botvin, et al., 1995)	This longitudinal study was comprised of 56 public schools that were in one of the following three conditions: (1) prevention program with consultation; (2) prevention program with videotaped training and no consultation; or (3) the control group. <b>The prevention program consisted of 15 initial class sessions taught in 7<sup>th</sup> grade, 10 booster (reinforcement) sessions in 8<sup>th</sup> grade, and five booster sessions in 9<sup>th</sup> grade. The focus of the prevention program was on teaching students cognitive behavioral skills in order to develop characteristics associated with decreased risk for drug use.</b> Skills taught included building self-esteem, resisting advertising pressure, managing anxiety, effective communication skills, development of personal relationships, and the right kind of assertion. Participating students were then surveyed in the 12 <sup>th</sup> grade regarding their tobacco, alcohol, and marijuana use.	Favorable Results: <ul style="list-style-type: none"> <li>Participants in both drug abuse prevention program conditions had significantly lower prevalence rates for <i>weekly</i> marijuana use compared to the control condition.</li> <li>Both prevention groups had significantly lower prevalence of <i>monthly</i> and <i>weekly</i> cigarette smoking and marijuana use compared to the control condition.</li> <li>The prevalence of <i>monthly</i> smoking and drinking was lower in both treatment groups compared to the control condition.</li> <li><i>Weekly</i> cigarette, marijuana and alcohol use was lower among adolescents in the treatment conditions.</li> <li>Authors conclude that drug abuse prevention programs conducted during junior high school can produce meaningful and durable reduction in tobacco, alcohol, marijuana use. If they:               <ol style="list-style-type: none"> <li>Are taught with a combination of social resistance skills and general life skills.</li> <li>Are properly implemented.</li> <li>Include at least 2 years of booster sessions.</li> </ol> </li> </ul> Limitations: <ul style="list-style-type: none"> <li>May not be directly applicable to inner city youth or differing ethnicities.</li> </ul>	Middle School – High School

Article Title	Description	Key Findings/Limitations	Age Group
<b>Life Skills Focused Approaches (Continued)</b>			
<p>Evaluating the Lions-Quest “Skills for Adolescence” drug education program second-year behavior outcomes (Eisen et al., 2002)</p>	<p>The Skills for Adolescence (SFA), a widely used multi-component life skills training program with a dedicated drug education unit, was evaluated across 34 middle schools from four school districts in three major metropolitan areas during the fall and winter of 1997-1998. The evaluation assessed whether SFA was effective. <b>The SFA program teaches youth the facts about drug use and related consequences; communication, assertion, resistance, and decision making skills; and, it aims to build self-esteem and personal responsibility.</b></p>	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>• Results of the post-test revealed that lifetime marijuana use and past 30 day use were lower in SFA schools compared to the control schools, controlling for demographic and psychosocial variables.</li> <li>• An increased sense of self-efficacy about being able to refuse offers of marijuana was also found among those students in the SFA condition compared to the students in the control condition.</li> <li>• Baseline drinkers in the SFA schools were less likely to report recent binge drinking at the end of the eighth grade compared to the control schools.</li> <li>• The authors conclude that these results support the belief that the life skills based prevention program are an effective prevention tool.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• Authors describe various limitations that include:               <ol style="list-style-type: none"> <li>1. Similarity cannot be assumed between students whose parents allowed them to participate in the study and those whose parents did not;</li> <li>2. Attrition from 6<sup>th</sup> to 8<sup>th</sup> grade was not random, it was associated with 6<sup>th</sup> grade marijuana use;</li> <li>3. While assignment of schools was random, schools had to volunteer to be part of the study; and,</li> <li>4. In the past, many well-designed prevention programs have shown promising results in the first few years after implementation but effects tapered off as time passed.</li> </ol> </li> </ul>	<p>Middle School</p>

Article Title	Description	Key Findings/Limitations	Age Group
<b>School-Based Prevention Approaches</b>			
<p>Preventing adolescent drug use: Long-term results of a junior high program (Ellickson et al., 1993)</p>	<p>A longitudinal multi-site randomized trial study of Project ALERT was conducted over a 6-year period. The 11-lesson curriculum was studied in 30 schools across eight highly diverse West Coast communities in Oregon and California. The focus was on <b>helping 7th and 8th grade students develop the motivation and skills to resist drugs</b>. Schools were randomly assigned into one of the two treatment groups or into the control condition. In one half of the treatment schools, health educators presented the curriculum to the students, while in the other half of the treatment schools, older teens assisted adult teachers in presenting the curriculum to students. About 4,000 students were assessed in 7<sup>th</sup> grade and six times thereafter through grade 12.</p>	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>• Researchers found that social influence approach programs can have immediate effects in hindering cigarette and marijuana use, as results were seen in 7<sup>th</sup> and 8<sup>th</sup> grade. The best results were seen among students who had not used cigarettes or marijuana prior to participation in the study, suggesting that prevention programs may work best for youth who had limited or no experience with cigarettes and/or marijuana use.</li> <li>• Having older teens assist teachers with the prevention lessons led to larger reductions in pro-drug beliefs, but not in behavior.</li> <li>• Additionally, these results were seen across all schools including those with high minority student populations and among high-and low-risk youth indicating that results can be generalized to multiple populations.</li> <li>• Effects on cognitive risk factors persisted for a longer time (many through grade 10), but were not sufficient to produce corresponding reductions in use.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• Results indicate that early prevention gains are difficult to maintain without additional prevention efforts throughout high school.</li> <li>• Future research is needed to develop and test such efforts. Once the lessons stopped, the program's effects on drug use also stopped.</li> </ul>	<p>Middle School</p>

Article Title	Description	Key Finding/Limitations	Age Group
<b>School-Based Prevention Approaches (Continued)</b>			
School-based adolescent drug prevention programs: 1998 meta-analysis (Tobler et al., 1998)	Meta-analysis of 207 <b>universal school-based drug prevention programs</b> that compared the self-reported drug use of youth in a treatment group to youth in the control group. Further information about the treatment and control groups is limited. Programs were classified into Interactive and Non-Interactive groups based on the combination of content and delivery method.	Favorable Results: <ul style="list-style-type: none"> <li>• Program size and type are found to predict effectiveness. Interactive programs that develop interpersonal skills show significantly greater effects that decrease with large-scale implementations.</li> <li>• Smaller group size is better for effective implementation.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>• Non-interactive lecture programs that stress drug knowledge or affective development show small effects.</li> </ul>	Adolescents; age/grade level not specified
Effectiveness of school-based drug prevention programs for marijuana use (Tobler et al., 1999)	Thirty-seven evaluations of <b>universal drug use prevention programs implemented in American schools</b> between grades 6 and 12 were quantitatively reviewed by coding program characteristics and calculating weighted effect sizes (WES) for marijuana use. Programs were classified as Interactive or Non-interactive.	Favorable Results: <ul style="list-style-type: none"> <li>• Interactive programs that fostered the development of social competencies showed greater reductions in marijuana use.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>• Larger implementations of both program types showed substantial decreases in effectiveness, although the larger Interactive programs yielded more positive results compared to the larger Non-interactive ones.</li> </ul>	Middle School - High School
Student drug testing in the context of positive and negative school climates: Results from a national survey (James-Burdumy et al., 2012)	The authors examined <b>whether mandatory-random student drug testing (MRSDT) is effective in reducing illegal drug use</b> among high school youth. Their sample included 36 high schools and more than 4,700 9 <sup>th</sup> through 12 <sup>th</sup> graders.	Favorable Results: <ul style="list-style-type: none"> <li>• Students subjected to MRSDT reported less substance use in the past 30 days than students whose schools did not implement MRSDT.</li> </ul> Limitations: <ul style="list-style-type: none"> <li>• The study estimated MRSDT's effect after one year and cannot be used to estimate MRSDT's effect in the long-term.</li> <li>• Student consent rates for the study were &lt; 60%, and it is possible that students who denied consent were at greater risk for substance abuse. The study could not estimate MRSDT's effectiveness on these at-risk students.</li> </ul>	High School

Article Title	Description	Key Findings/Limitations	Age Group
<b>School-Based Prevention Approaches (Continued)</b>			
<p>Testing the generalizability of intervening mechanism theories: Understanding the effects of adolescent drug use prevention interventions (Donaldson et al., 1994)</p>	<p>Evaluation of intervening mechanism theories of two program models for <b>preventing the onset of adolescent drug use</b>. Analyses based on a total of 3,077 fifth graders participating in the Adolescent Alcohol Prevention Trial.</p>	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>The effect was found to be the same across gender, sex, ethnicity, public vs. private school students, drug type (alcohol, tobacco and marijuana), and levels of risk.</li> <li>Findings suggest that successful social influence-based prevention programs may be effective primarily due to their ability to develop social norms that reduce adolescents' social motivation to begin using alcohol, cigarettes and marijuana.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>While beliefs about prevalence and acceptability mediated the effects of normative education on subsequent adolescent drug use, resistance skills did not significantly predict subsequent drug use.</li> </ul>	<p>Elementary School</p>
<p>A systematic review of school-based marijuana and alcohol prevention programs targeting adolescents aged 10–15 (Lemstra et al., 2010)</p>	<p>Authors reviewed school-based alcohol and marijuana prevention programs to <b>compare the effectiveness of “knowledge only” versus comprehensive prevention programs</b>.</p>	<p>Favorable Results:</p> <ul style="list-style-type: none"> <li>Comprehensive programs that conveyed anti-drug information combined with refusal skills, self-management skills, and social skills training were more effective in reducing alcohol and marijuana use than “knowledge only” programs.</li> </ul> <p>Limitations:</p> <ul style="list-style-type: none"> <li>Although comprehensive prevention programs reduced the frequency of marijuana use, few studies exist on the effects of “knowledge only” marijuana prevention programs. Therefore, the authors were unable to compare the effectiveness of “knowledge-only” and comprehensive marijuana prevention programs.</li> </ul>	<p>Adolescents; 10-15 years old</p>

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