CAPT Decision Support Tools

Preventing Youth Marijuana Use: An Annotated Bibliography

Using Prevention Research to Guide Prevention Practice

SAMHSA's Center for the Application of Prevention Technologies
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Introduction and Purpose

This annotated bibliography was developed for use by substance abuse prevention practitioners charged with providing guidance or technical assistance to grantee communities seeking to address youth marijuana use in their communities. It provides the abstracts for the research articles included in these documents:

- *Prevention Programs that Address Youth Marijuana Use*
- *Strategies and Interventions to Prevent Youth Marijuana: An At-a-Glance Resource Tool*
- *Risk and Protective Factors Associated with Youth Marijuana Use*

Where available, we have provided links to the article abstract. We have provided available abstracts under 250 words, as is allowable under copyright laws. For abstracts longer than 250 words, we have provided links to the article abstract.

Please refer to these documents for detailed information on the search process used to identify these articles and our inclusion criteria.

Document Organization

This document is organized into four sections: individual studies, literature reviews, meta-analyses, and additional recommended reading. Articles are listed in alphabetical order by author.

INDIVIDUAL STUDIES

Ali, M.M., Amialchuk, A., & Dwyer, D. S. (2011). The social contagion effect of marijuana use among adolescents. *PLoS One*, 6(1), e16183.

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0016183

Amundsen, E. J., & Ravndal, E. (2010). Does successful school-based prevention of bullying influence substance use among 13- to 16-year-olds? *Drugs: Education, Prevention & Policy, 17*(1), 42-54.

Aim: To test whether the school-based Olweus prevention programme against bullying may have lasting effects on substance use, a hypothesis based on the characteristics of bullies having misconduct behaviour associated with substance use. *Methods:* The Olweus programme was introduced from grades 7 through 9 in four schools and monitored up to grade 10 in Oslo in 2001/02, with two schools serving as controls. Students responded to annual questionnaires about substance use. Three-level analyses were applied to check for increases in substance use over time. *Findings:* There was no significant difference in the frequency of alcohol use between the experimental schools and the control schools. Alcohol intoxication and cannabis use, and possibly smoking, were higher in the control schools than in the experiment schools. *Conclusion:* Elements of the Olweus programme characterized by positive interest and engagement on the part of adults, firm boundaries between acceptable/unacceptable behaviour, and the consistent application of non-physical, non-hostile consequences, in addition to the multi-modal and permanence of the approach, may be of interest for further studies of school-based programmes aimed at achieving lower levels of or at delaying the onset of substance use.

Battistich, V., Schaps, E., Watson, M., Solomon, D., & Lewis, C. (2000). Effects of the Child Development Project on students' drug use and other problem behaviors. *Journal of Primary Prevention*, *21*(1), 75-99.

Evaluated the Child Development Project, a comprehensive school reform program that helps elementary schools to develop environments characterized by supportive interpersonal relationships, shared goals, responsiveness to students' developmental and sociocultural needs, and emphasis on prosocial values and commitment to learning. The program includes classroom, schoolwide, and family involvement activities that are expected to foster students' positive development and resilience to risk. Following baseline assessments, the program was introduced in 12 schools from six school districts across the U.S. over three years. Twelve similar schools in the same districts served as a comparison group. Evaluation data indicate that when the program was implemented widely throughout a school, there were significant reductions in students' use of drugs and involvement in other problem behaviors.

Berridge, B. J., Hall, K., Dillon, P., Hides, L., & Lubman, D. I. (2011). MAKINGtheLINK: A school-based health promotion programme to increase help-seeking for cannabis and mental health issues among adolescents. *Early Intervention in Psychiatry, 5*(1), 81-88.

There is increasing concern regarding the use of cannabis among adolescents, especially given recent evidence highlighting its link with later mental disorders. Encouraging young people with mental health or drug issues to seek professional help is an important early intervention strategy; however, adolescents are typically reluctant to do so and instead turn to their peers for help. Peers may not have the skills or knowledge required to assist their friends to access professional help. This paper describes the development and evaluation of MAKINGtheLINK, a school-based health promotion programme that promotes help-seeking behaviour for mental health and cannabis use issues among young people. The MAKINGtheLINK programme was piloted with 182 Year 10 students at a secondary school in Melbourne, Australia. Forty teachers received the MAKINGtheLINK staff professional development session. The delivery of the MAKINGtheLINK programme was found to be both acceptable and feasible within a school setting. Students and teachers described it as a fun, engaging, helpful and important programme. Students reported increased confidence and awareness of how to seek help for themselves or a friend, and teachers indicated increased confidence and awareness of how to assist students to seek help for cannabis use and/or mental health problems. MAKINGtheLINK was successfully implemented within the school curriculum. We believe this is the first school-based programme that specifically focuses on facilitating professional help-seeking for cannabis use and mental health problems among young people, and demonstrates that utilizing peer models for help-seeking is a valuable resource for early intervention initiatives.

Bond, L., Thomas, L., Coffey, C., Glover, S., Butler, H., Carlin, J. B., & Patton, G. (2004). Long-Term impact of the Gatehouse Project on cannabis use of 16-year-olds in Australia. *Journal of School Health*, *74*(1), 23-29.

This study examined the impact of a school-based preventive intervention on cannabis use in adolescence, using a cluster-randomized trial of a multilevel intervention aimed at improving social relationships within schools by promoting change in school environment. Four waves of data were collected at baseline (1997, Year 8: mean age 13 years) and six, 18, and 30 months later (1999, Year 10: mean age 16 years). Self-reported substance use, school engagement, and sociodemographic data were collected using computer-administered questionnaires. Some 2.678 (74%) Year 8 students participated (wave 1) with minimal attrition (10% by wave 4). Adjusting for baseline use, weak evidence existed for an intervention effect on the prevalence of any use at Year 10 (OR 0.75, 95% CI 0.54, 1.05) and incident weekly use (OR 0.72, 95% CI 0.39, 1.33). These effects were reduced after adjusting for confounders. Moderate evidence suggested an interaction effect between intervention group and tobacco use ($p = 0.04$), suggesting the intervention was more effective for non-smokers at baseline (Adj. OR 0.50, 95% CI

0.26, 0.98). This study indicates that a multi-level school-based program may provide an innovative direction for sustainable school interventions with the potential to reduce substance use.

Botvin, G. J., Baker, E., Dusenbury, L., Botvin, E. M. & Diaz, T. (1995). Long-term follow-up results of a randomized drug abuse prevention trial in a White middle-class population. *Journal of the American Medical Association*, 273(14), 1106-1112.

http://www.ncbi.nlm.nih.gov/pubmed/7707598

Botvin, G. J., Baker, E., Dusenbury, L., Tortu, S., & Botvin, E. M. (1990). Preventing adolescent drug abuse through a multimodal cognitive-behavioral approach: Results of a three-year study. *Journal of Consulting and Clinical Psychology*, *58*, 437-446.

Students (N = 4,466) attending 56 schools in New York State were involved in a 3-year study testing the effectiveness of a cognitive-behavioral approach to substance abuse prevention. In a randomized block design, schools were assigned to receive (a) the prevention program with formal provider training and implementation feedback, (b) the prevention program with videotaped provider training and no feedback, or (c) no treatment. After pretest equivalence and comparability of conditions with respect to attrition were established, students who received at least 60% of the prevention program (N = 3,684) were included in analyses of program effectiveness. Significant prevention effects were found for cigarette smoking, marijuana use, and immoderate alcohol use. Prevention effects were also found for normative expectations and knowledge concerning substance use, interpersonal skills, and communication skills.

Brown, E. C., Catalano, R. F., Fleming, C. B., Haggerty, K. P., & Abbott, R. D. (2005). Adolescent substance use outcomes in the Raising Healthy Children project: A two-part latent growth curve analysis. *Journal of Consulting and Clinical Psychology, 73,* 699-710.

Raising Healthy Children (RHC) is a preventive intervention designed to promote positive youth development by targeting developmentally appropriate risk and protective factors. In this study, the authors tested the efficacy of the RHC intervention on reducing adolescent alcohol, marijuana, and cigarette use. Ten public schools, which comprised 959 1st- and 2nd-grade students (54% male students, 18% minority, 28% low socioeconomic status), were matched and assigned randomly to either intervention or control conditions. A two-part latent growth modeling strategy was used to examine change in both use-versus-nonuse and frequency-of-use outcomes while students were in Grades 6-10. Results indicated significant ($p < .05$) intervention effects in growth trajectories for frequency of alcohol and marijuana use but not for use versus nonuse. These findings provide support for preventive interventions that take a social development perspective in targeting empirically supported risk and protective factors and demonstrate the use of two-part models in adolescent substance use research.

Campbell, F.A., Ramey, C.T., Pungello, E., Sparling, J., & Miller-Johnson, S. (2002). Early childhood education: Young adult outcomes from the Abecedarian Project. *Applied Developmental Science*, *6*(1), 42-57.

The high-risk infants who initially enrolled in the Abecedarian Project, a longitudinal prospective study of the benefits of early childhood educational intervention within a child care setting, were followed up as young adults (age 21 years). One hundred-eleven infants were in the original sample; 104 took part in the follow up. Treatment was provided in 2 phases: during preschool and in the primary grades. Participants received either both phases, 1, but not both, or neither. Assignment to groups was random. Those in the preschool treatment group earned significantly higher scores on intellectual and academic measures as young adults, attained significantly more years of total education, were more likely to attend a 4-year college, and showed a reduction in teenaged pregnancy compared with preschool controls. Preschool treatment was associated with educationally meaningful effect sizes on reading and math skills that persisted into adulthood. School-age treatment served to maintain preschool benefits for reading, but by itself, the effects were generally weaker than those of the preschool program. Statistically significant differences in the attainment of full economic independence were not found at this stage, but would not be expected among young adults still attending school. The incidence of self-reported violence and law-breaking was not significantly reduced, although trends in the data favored the treated group. The reported incidence of marijuana use was significantly less among treated individuals. The positive findings with respect to academic skills and increased years of post-secondary education support policies favoring early childhood programs for poor children.

Carpenter, C. S., & Pechmann, C. (2011). Exposure to the Above the Influence antidrug advertisements and adolescent marijuana use in the United States, 2006-2008. *American Journal of Public Health*, *101*(5), 948-954.

Objectives: We examined the relationship between exposure to the Above the Influence antidrug campaign in 210 US media markets and adolescent marijuana and alcohol use from 2006 to 2008. *Methods:* We analyzed monthly advertising exposure (targeted rating points) data from the Office of National Drug Control Policy and drug use data from the Monitoring the Future study. We estimated multivariate logistic regression models of marijuana use for students in grades 8, 10, and 12, with controls for individual, family, and media market characteristics and year and regional fixed effects. *Results:* For eighth-grade adolescent girls, greater exposure to antidrug advertisements was associated with lower rates of past-month marijuana use (adjusted odds ratio [AOR]=0.67; 95% confidence interval [CI]=0.52, 0.87) and lower rates of lifetime marijuana use (AOR=0.76; 95% CI=0.62, 0.93), but not alcohol use (AOR=1.00; 95% CI=0.84, 1.19). Associations were not significant for adolescent boys or for students in grades 10 and 12. *Conclusions:* Antidrug advertising may be an effective way to dissuade eighth-grade adolescent girls from initiating marijuana use.

Carter, S. (with Letts, D., Tom, G., Tallant, A., Soce, B., Cleveland, R., et al.). (2005). *FY 2005 final evaluation progress narrative report on Project Venture Middle School*. Submitted to the New Mexico Department of Health Behavioral Health Services Division. Gallup, NM: National Indian Youth Leadership Project.

No abstract available.

Cervantes, R., Goldbach, J., & Santos, S. M. (2011). Familia Adelante: A multi-risk prevention intervention for Latino families. *Journal of Primary Prevention, 32*(3-4), 225-234.

A comprehensive approach for providing behavioral health services to youth is becoming increasingly emphasized. Latino youth are at increased risk for substance abuse, mental health concerns, unsafe sexual practices and HIV, and these outcomes have been empirically connected to individual, family and community-based stress. Despite this knowledge, there is a lack of evidence-based approaches that target these negative outcomes by reducing stress in Latino families in a culturally relevant manner. The current study examined the use of research-based strategies for reducing multiple risk behaviors in a predominantly Mexican-American sample of families. Through a modular approach, participants engaged in a psycho-educational curriculum to enhance communication and psychosocial coping, increase substance abuse and HIV knowledge and perception of harm, and improve school behavior. Over 12 sessions, the curriculum aimed to achieve these outcomes through an overall decrease in family and community-based stress by focusing on acculturative stress. Findings indicate that communication and perception of substance use harm were significantly enhanced, while social norms regarding sexual behavior, HIV anxiety and past use of marijuana and other illegal drugs were significantly reduced. While many of measures were reliable ([alpha] greater than 0.80), further changes are necessary to improve the accuracy of future studies. Despite these limitations, Familia Adelante improves many areas of participant's family life, and points toward the feasibility of multi-risk reduction behavioral health prevention approaches.

Clark, H. K., Ringwalt, C. L., Shamblen, S. R., & Hanley, S. M. (2011). Project success' effects on substance use-related attitudes and behaviors: A randomized controlled trial in alternative high schools. *Journal of Drug Education, 41*(1), 17-44.

Using a randomized controlled effectiveness trial, we examined the effects of Project SUCCESS on a range of secondary outcomes, including the program's mediating variables. Project SUCCESS, which is based both on the Theory of Reasoned Action and on Cognitive Behavior Theory, is a school-based substance use prevention program that targets high-risk students. We recruited two groups of alternative high schools in successive academic years, and randomly assigned schools in each group to either receive the intervention (n = 7) or serve as a control (n = 7). Students completed surveys prior to and following the administration of the program, and again 1 year later. Although participation in Project SUCCESS significantly increased students' perceptions

of harm resulting from alcohol and marijuana use, students in the control group reported greater increases in peer support. We also found conflicting evidence in two opposing trends related to students' perceptions of the prevalence and acceptability of substance use. Therefore, the effects of Project SUCCESS on substance use-related beliefs and behaviors must be considered mixed.

Claros, E., & Sharma, M. (2012). The relationship between emotional intelligence and abuse of alcohol, marijuana, and tobacco among college students. *Journal of Alcohol and Drug Education*, *56*(1), 8-37.

This study examined the relationship between emotional intelligence (EI), alcohol, marijuana, and tobacco use. A correlation analysis was used to explore the relationship between EI and the use of alcohol, marijuana, and tobacco among college students (n = 199). EI abilities (perception, utilization, understanding, and regulation of emotions) were measured in college students who completed the valid and reliable Schutte Self Report Inventory (SSRI), the Alcohol Use Disorders Identification Test (AUDIT), the Fagerström Test for Nicotine Dependence (FTND), and the Marijuana Screening Inventory (MSI). The results demonstrated that EI constructs (Perception, Utilization, Regulation, and Management of Emotion) scores were significant predictors of alcohol and marijuana use. An association between the EI and cigarette smoking was not supported by this study.

Collins, D., Abadi, M.H., Johnson, K., Shamblen, S., & Thompson, K. (2011). Non-medical use of prescription drugs among youth in an Appalachian population: Prevalence, predictors, and implications for prevention. *Journal of Drug Education*, *41*(3), 309-326.

This article examines prevalence of non-medical use of prescription drugs (NMUPD) in a sample of elementary and high school students in an Appalachian Tennessee county. We found that lifetime prevalence of NMUPD (35%) was higher than prevalence of cigarette use (28%) and marijuana use (17%), but lower than lifetime prevalence of alcohol use (46%). We examined characteristics, as well as risk and protective factors in several domains, as predictors of NMUPD. For comparison, we also examined these characteristics and factors as predictors of alcohol, cigarette, and marijuana use. Using survey data from a sample of late elementary school and high school students (grades 5, 7, 9, and 11), logistic regression analyses showed that the risk factors of friends' non-medical use and perceived availability, and the protective factors of perceived risk, parents' disapproval, school commitment, and community norms against youth NMUPD were significant predictors of lifetime prevalence of NMUPD. Implications for prevention are discussed.

Comello, M. L. G. (2011). Characterizing drug non-users as distinctive in prevention messages: Implications of optimal distinctiveness theory. *Health Communication, 26*(4), 313-322.

Optimal distinctiveness theory (ODT) posits that highly valued groups are those that can simultaneously satisfy needs to belong and to be different. The success of drug-prevention messages with a social-identity theme should therefore depend on the extent to which the group is portrayed as capable of meeting these needs. Specifically, messages that portray non-users as a large and undifferentiated majority may not be as successful as messages that emphasize uniqueness of non-users. This prediction was examined using marijuana prevention messages that depicted non-users as a distinctive or a majority group. Distinctiveness characterization lowered behavioral willingness to use marijuana among non-users (Experiment 1) and served as a source of identity threat (contingent on gender) among users (Experiment 2).

Connell, A.M., Dishion, T.J., Yasui, M., & Kavanagh, K. (2007). An adaptive approach to family intervention: Linking engagement in family centered intervention to reductions in adolescent problem behavior. *Journal of Consulting and Clinical Psychology, 75*(4), 568-579.

This study used Complier Average Causal Effect analysis (CACE; see G. Imbens & D. Rubin, 1997) to examine the impact of an adaptive approach to family intervention in the public schools on rates of substance use and antisocial behavior among students ages 11–17. Students were randomly assigned to a family-centered intervention (N = 998) in 6th grade and offered a multilevel intervention that included (a) a universal classroom-based intervention, (b) the Family Check-Up (selected; T. J. Dishion & K. Kavanagh, 2003), and (c) family management treatment (indicated). All services were voluntary, and approximately 25% of the families engaged in the selected and indicated levels. Participation in the Family Check-Up was predicted by 6th-grade teacher ratings of risk, youth reports of family conflict, and the absence of biological fathers from the youths' primary home. Relative to randomized matched controls, adolescents whose parents engaged in the Family Check-Up exhibited less growth in alcohol, tobacco, and marijuana use and problem behavior during ages 11 through 17, along with decreased risk for substance use diagnoses and police records of arrests by age 18.

de Dios, M. A., Hagerty, C. E., Herman, D. S., Hayaki, J., Anderson, B. J., Budney, A. J., & Stein, M. (2010). General anxiety disorder symptoms, tension reduction, and marijuana use among young adult females. *Journal of Women's Health*, *19*(9), 1635-1642.

Background: The current study tested the hypothesis that tension reduction expectancies mediate the relationship between anxiety symptoms and marijuana use. *Methods:* Interview data for 332 young adult females from Southern New England were collected from 2004 to 2009. *Results:* In structural equation modeling, anxiety symptoms had a significant direct effect (b_{yx} = 0.227, 95% confidence interval [CI] 0.086-0.369, $p < 0.05$) on tension reduction expectancies and a significant indirect effect (b_{yx} = 0.026, 95% CI 0.010-0.046, $p < 0.05$) on marijuana use. *Conclusions:* The effect of anxiety

symptoms on marijuana use was fully mediated by tension reduction expectancies. Implications for tension reduction as a possible component of treatment interventions are discussed.

Denering, L.L., & Spear, S.E. (2012). Routine use of screening and brief intervention for college students in a university counseling center. *Journal of Psychoactive Drugs*, *44*(4), 318-324.

This study provides preliminary evidence of the effectiveness of the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) and ASSIST-linked brief intervention in a college mental health clinic. Data are from a single group, pre-post evaluation study (2006–2009) at a university counseling center. Students deemed to be at risk for substance use problems were offered the ASSIST and the ASSIST-linked brief intervention. Staff therapists administered the ASSIST and intervention as part of routine care; 453 students (ages 18–24) participated in the evaluation and completed baseline and six-month follow-up interviews. Changes in alcohol and marijuana use were examined by McNemar's test of proportions and by paired t-tests for means. Slight reductions in the rates and number of days (in the prior 30 days) of binge drinking and marijuana use were found. Routine screening and brief intervention procedures in a mental health setting may reduce problematic substance use among college students.

Denham, B. E. (2011). Alcohol and marijuana use among American high school seniors: Empirical associations with competitive sports participation. *Sociology of Sport Journal*, *28*, 362-379.

Drawing on data gathered from high-school seniors in the 2008 Monitoring the Future Study of American Youth (N = 2,063), this research examined the explanatory effects of competitive sports participation on alcohol consumption and marijuana use using race and noncompetitive exercise frequency as controls. Among males, competitive sports included baseball, basketball, football, soccer, track and field, and weightlifting, and among females, sports included softball, basketball, soccer, swimming and diving, track and field, and volleyball. White males reported greater alcohol consumption than Black and Hispanic respondents, with competitors in baseball, football and weightlifting consuming alcohol more frequently. The use of marijuana did not depend on race, but baseball players and weightlifters reported significantly more use. Among females, race differences did not emerge in ordinal regression models testing effects on alcohol consumption, but participants in every sport reported drinking alcohol more frequently. White female athletes also appeared to smoke marijuana more frequently. Overall, results suggested comparably strong effects for female sport environments while male behaviors varied by race, noncompetitive exercise frequency, and sports competition. Limitations of the study and recommendations for future research are offered.

DeSimone, J. & Farrelly, M.C. (2003). Price and enforcement effects on cocaine and marijuana demand. *Economic Inquiry 41*(1), 98-115.

This article estimates equations for past year cocaine and marijuana use among adult and juvenile respondents of the 1990–97 National Household Surveys on Drug Abuse. Unlike most previous studies, we control for the monetary price of marijuana, probabilities of arrest for marijuana and cocaine possession, and state fixed effects. Results indicate that cocaine prices are inversely related to adult cocaine and marijuana demand but are unrelated to juvenile drug demand, marijuana price effects are always statistically insignificant, estimated price effects are inflated when state effects are omitted, and increases in each arrest probability diminish both types of drug use.

Dever, B. V., Schulenberg, J. E., Dworkin, J. B., O'Malley, P.M., Kloska, D. D., & Bachman, J. G. (2012). Predicting risk-taking with and without substance use: The effects of parental monitoring, school bonding, and sports participation. *Prevention Science*, *13*(6), 605-615.

Risk-taking is statistically normative during adolescence, yet is associated with adverse outcomes including substance use. The present study draws the distinction between protective factors (effective for those identified as high risk takers) and promotive factors (effective for all) against substance use, focusing on parental monitoring, school bonding, and sports participation. A total of 36,514 8th and 10th grade participants in the national Monitoring the Future study were included. Although parental monitoring was associated with lower alcohol and marijuana use among all adolescents (i.e., promotive effect), these effects were strongest among the highest risk takers (i.e., protective effect) and females. School bonding was associated with lower levels of both alcohol and marijuana use among all groups of adolescents, but these promotive effects were weak. Sports participation was associated with higher levels of alcohol use among all males and among 8th grade females who did not identify as high risk takers. Despite being a risk factor for alcohol use, sports participation did demonstrate a promotive effect against marijuana use among 10th grade females only, and especially so for high risk-taking females (i.e., protective effect). Overall, these findings suggest that of the three mechanisms studied, parental monitoring emerged as the most promising entry point for substance use prevention and intervention across groups, particularly for females and high risk-taking adolescents.

Dunn, M. S., Kitts, C., Lewis, S., Goodrow, B., & Scherzer, G. D. (2011). Effects of youth assets on adolescent alcohol, tobacco, marijuana use, and sexual behavior. *Journal of Alcohol and Drug Education, 55*(3), 23-40.

Background: Alcohol, tobacco, marijuana use, and sexual behaviors are consistently reported by high school students in the United States and can contribute to reduced quality of life. Empirical research finds that many assets may act as a protective factor for adolescent risk behaviors. As such, the purpose of this study was to examine the associations of youth assets and adolescent engagement in alcohol, cigarette, marijuana

use, and sexual behavior among students 14-18 years in a rural state. *Methods:* Participants consisted of a random sample of 834 students aged 14-18 years attending two public school districts in rural Tennessee. A survey that assessed behaviors, knowledge, and youth assets was administered to these students during the spring of the school year. *Results:* Analysis found that a large percentage of students had engaged in alcohol, tobacco, marijuana use, and sexual behaviors. Additionally, it was discovered that some youth assets such as future aspirations, parental expectations, and positive peer influence were associated with a lower prevalence of adolescent substance use and sexual behavior. Furthermore, assets seem to be more protective in this sample of 14-18 year olds for past 30 days behavior compared to ever having used a substance (i.e., alcohol, tobacco, marijuana) or ever having had sexual intercourse. *Conclusions:* The results suggest that substance use and sexual behaviors among adolescents vary by youth asset. As such, it is important to realize that interventions designed to reduce alcohol, tobacco, marijuana use, and sexual behavior using an asset development framework needs to be tailored.

Eisen, M., Zellman, G. L., & Murray, D. M. (2003). Evaluating the Lions-Quest "Skills for Adolescence" drug education program: Second-year behavior outcomes. *Addictive Behaviors, 28*, 883-897.

http://www.ncbi.nlm.nih.gov/pubmed/12788263

Elliot, D. L., Goldberg, L., Moe, E. L., DeFrancesco, C. A., Durham, M. B., McGinnis, W., & Lockwood, C. (2008). Long-term Outcomes of the ATHENA (Athletes Targeting Healthy Exercise & Nutrition Alternatives) Program for Female High School Athletes. *Journal of Alcohol & Drug Education, 52*(2), 73-92.

The article presents a study which examined long-term outcomes of the Athletes Targeting Healthy Exercise & Nutrition Alternatives (ATHENA) program for female high school athletes in the U.S. The study reported the intervention's immediate beneficial effects on diet pill use and unhealthy eating behaviors. It is noted that tobacco, alcohol and marijuana use were not immediately altered. The study considered sports teams as effective tools for gender-specific interventions to promote competency skills and deter harmful actions and those benefits may manifest when acquired abilities are use in new environments after high school graduation.

Ennett, S. T., Bauman, K. E., Hussong, A., Faris, R., Foshee, V. A., Cai, L., & DuRant, R. H. (2006). The peer context of adolescent substance use: Findings from social network analysis. *Journal of Research on Adolescence*, *16*(2), 159-186.

To examine the peer context of adolescent substance use, social network analysis was used to measure three domains of attributes of peer networks: social embeddedness, social status, and social proximity to substance users. The sample was a panel of 5,104 sixth, seventh, and eighth graders in three public school systems surveyed every 6

months for five assessments. Hierarchical generalized linear models showed that adolescents less embedded in the network, with greater status, and with closer social proximity to peer substance users were more likely to use substances. Also, adolescents in less dense networks and networks with higher smoking prevalence were more likely to smoke and use marijuana. Results establish the utility of social network analysis for measuring peer context and indicate that conventionality of relationships—having friends in the network, being liked but not too well liked, and having fewer friends who use substances—is most beneficial.

Fagan, A.A., Van Horn, M.L., Hawkins, J.D., & Arthur, M. (2007). Using community and family risk and protective factors for community-based prevention planning. *Journal of Community Psychology*, *35*(4), 535-555.

Research has identified risk and protective factors related to adolescent substance use using individual-level data, but it is uncertain whether or not these relationships exist when data are aggregated to a community level. Using data from adolescents in 41 communities, this article found that most community and family risk and protective factors, measured at the community level, predicted student prevalence of tobacco, alcohol, and marijuana use 2 years later, whether using information from the same or different groups of students, although the predictive power was stronger within cohorts. The findings support community-level prevention planning that uses epidemiological information on levels of community and family risk and protective factors to identify areas of elevated risk and low protection to be targeted for community-based preventive interventions.

Fang, L., & Schinke, S. P. (2013). Two-year outcomes of a randomized, family-based substance use prevention trial for Asian American adolescent girls. *Psychology of Addictive Behaviors, 27*(3), 788-798.

Asian Americans have been largely ignored in the prevention outcome literature. In this study, we tested a parent–child program with a sample of Asian American adolescent girls and their mothers, and evaluated the program's efficacy on decreasing girls' substance use and modifying risk and protective factors at individual, family, and peer levels. A total of 108 Asian American mother–daughter dyads recruited through online advertisements and from community service agencies were randomly assigned to an intervention arm (n = 56) or to a test-only control arm (n = 52). The intervention consisted of a nine-session substance abuse prevention program, delivered entirely online. Guided by family interaction theory, the prevention program aimed to strengthen the quality of girls' relationships with their mothers while increasing girls' resilience to resist substance use. Intent-to-treat analyses showed that at 2-year follow-up, intervention-arm dyads had significantly higher levels of mother–daughter closeness, mother–daughter communication, maternal monitoring, and family rules against substance use compared with the control-arm dyads. Intervention-arm girls also showed sustained improvement in self-efficacy and refusal skills and had lower

intentions to use substances in the future. Most important, intervention-arm girls reported fewer instances of alcohol and marijuana use and prescription drug misuse relative to the control-arm girls. The study suggests that a culturally generic, family-based prevention program was efficacious in enhancing parent–child relationships, improving girls' resiliency, and preventing substance use behaviors among Asian American girls.

Farhat, T., Simons-Morton, B., & Luk, J. W. (2011). Psychosocial correlates of adolescent marijuana use: Variations by status of marijuana use. *Addictive Behaviors*, *36*(4), 404-407.

Introduction: This study examined the associations between psychosocial factors and status of marijuana use: former experimentation, current occasional, and current frequent use. *Methods:* Data were collected from a nationally-representative sample of U.S. tenth-graders who participated in the 2005/6 Health Behavior in School-aged Children Study (n = 1465). Multinomial regressions, run separately by gender, examined the association of risk and protective factors from the individual (life satisfaction; academic achievement; aggression, bullying) and contextual (mothers and fathers' knowledge of adolescents' activities, school climate) domains with status of marijuana use (former experimentation, current occasional use, current frequent use). *Results:* Former experimental and current marijuana uses were negatively associated with protective factors such as academic achievement, mothers' and fathers' knowledge of adolescents' activities, and life satisfaction, but not with positive school climate. Former experimental and current marijuana uses were positively associated with aggression and bullying perpetration. Most associations varied by gender and status of marijuana use. In adjusted analyses, aggression emerged as the sole risk factor and fathers' knowledge as the sole protective factor associated with most statuses of marijuana use, across gender. *Conclusion:* Fathers may be particularly important in preventing adolescent marijuana use, and interventions promoting fathers' knowledge of adolescents' activities are warranted.

Finch, K. A., Ramo, D. E., Delucchi, K. L., Liu, H., & Prochaska, J. J. (2013). Subjective social status and substance use severity in a young adult sample. *Psychology of Addictive Behaviors*, *27*(3), 901-908.

Subjective social status (SSS), an individual's subjective view of standing in society, has been shown to better predict health outcomes compared to objective measures of socioeconomic status (SES), including educational attainment and income. This study examines the relationship between SSS and severity of tobacco, alcohol, and marijuana use after controlling for objective measures of SES. Young adults (N = 1,987) aged 18–25 who reported smoking at least one cigarette in the past 30 days were recruited and surveyed anonymously online. Three separate structural equation models examined whether SSS was associated with severity of tobacco, alcohol, and marijuana use, controlling for personal and household income, years of education, employment status, and parental education. Household income (b = .31), employment status (b = .07), years

of education (b = .09), and parental education (b = .16) were positively associated with SSS (all p values < .001); personal income was not significantly associated with SSS (p = .11). All three models adequately fit the data. SSS was negatively associated with severity of tobacco (b = −.13, p < .001) and marijuana use (b = −36, p = .02), but not alcohol use severity (b = .01, p = .56). Among young adults, higher subjective social status is associated with less severe tobacco and marijuana use, whereas alcohol use severity appears to be similar across socioeconomic class.

Fischer, B., Jones, W., Shuper, P., & Rehm, J. (2012). 12-month follow-up of an exploratory 'brief intervention' for high-frequency cannabis users among Canadian university students. *Substance Abuse Treatment, Prevention & Policy, 7*(1), 15-19.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3504513/

Fishbein, D., Herman-Stahl, M., Eldreth, D., Paschall, M., Hyde, C., Hubal, R., & ... Ialongo, N. (2006). Mediators of the stress-substance-use relationship in urban male adolescents. *Prevention Science*, *7*(2), 113-126.

Exposure to chronic or severe acute stressors throughout the lifespan has been linked with numerous negative behavioral, emotional, cognitive, and physical consequences. Adolescence is considered to be a particularly vulnerable period given that the brain is experiencing dramatic developmental change during this time. The present study examined a sample of adolescents (N=125) considered to be at high risk for stress exposures and drug use by virtue of their environment and low income levels to identify possible neurocognitive (i.e., impulsivity, delay of gratification, emotional perception, and risky decision-making) and social competency mechanisms that may mediate this relationship. Using Mplus, a mediational model was tested using full information maximum likelihood estimates. Risky decision-making and poor social competency skills were related to previous stressful experiences; however, only social competencies mediated the effect of stressors on reports of past year marijuana, alcohol, and polydrug use. As such, stress appears to exert its negative impact through alterations in abilities to generate and execute prosocial decisions and behaviors. Interventions that directly address the effects of stress on social competencies may be especially important for children who have experienced adversity including those exposed to parental divorce, parental psychopathology, neglect or abuse, parental death, and poverty.

Furr-Holden, C. D. M., Lee, M. H., Milam, A. J., Johnson, R. M., Lee, K-S, & Ialongo, N. S. (2011). The growth of neighborhood disorder and marijuana use among urban adolescents: A case for policy and environmental interventions. *Journal of Studies on Alcohol and Drugs*, *72*(3), 371-379.

Objective: This study examines the growth of neighborhood disorder and subsequent marijuana use among urban adolescents transitioning into young adulthood. *Method:*

Data are derived from a longitudinal sample of 434 predominately African American 12th graders followed-up at two years after high school. The data are rich in repeated measures documenting substance use and misuse and neighborhood characteristics. Growth mixture modeling was used to examine how neighborhood disorder trajectories, measured through the presence of abandoned buildings on the blocks where participants reside, influence subsequent drug use beginning in late adolescence and into young adulthood. *Results:* A four-class solution characterizing neighborhood growth was selected as the final model and included rapidly improving, slightly improving, always-good, and deteriorating neighborhoods. Young adults living in neighborhoods that had been deteriorating over time were 30% more likely to use marijuana two years after high school than adolescents living in always-good neighborhoods (odds ratio = 1.30, p = .034). There was no relationship between living in a neighborhood that was improving and marijuana use. *Conclusions:* This study identified a salient and malleable neighborhood characteristic, abandoned housing, which predicted elevated risk for young-adult marijuana use. This research supports environmental strategies that target abandoned buildings as a means to improve health and health behaviors for community residents, particularly young-adult substance use.

Giles, S. M., Pankratz, M. M., Ringwalt, C., Hansen, W. B., Dusenbury, L., & Jackson-Newsom, J. (2010). Teachers' delivery skills and substance use prevention program outcomes: The moderating role of students' need for cognition and impulse decision making. *Journal of Drug Education, 40*(4), 395-410.

Purpose: To extend the literature in both substance use implementation and persuasive health communication by examining the extent to which students' need for cognition and impulsive decision-making moderated the relationship between teachers' classroom communication behavior and program outcomes in an evidence-based middle school substance use prevention curriculum. Participants included 48 teachers and their respective 7th grade students who participated in a randomized trial testing the effectiveness of personal coaching as a means to improve the quality with which teachers implemented the *All Stars* curriculum. Need for cognition and impulse decision-making were both associated with positive changes in lifestyle incongruence and commitments to not use substances for students whose teachers displayed greater interactive teaching. Further, need for cognition was associated with lower alcohol use rates while impulse decision making related to lower rates of marijuana use in classes with interactive teaching.

Glaser, B., Shelton, K.H., & van den Bree, M. B. (2010). The moderating role of close friends in the relationship between conduct problems and adolescent substance use. *Journal of Adolescent Health*, *47*(1), 35-42.

Purpose: Conduct problems and peer effects are among the strongest risk factors for adolescent substance use and problem use. However, it is unclear to what extent the effects of conduct problems and peer behavior interact, and whether adolescents'

capacity to refuse the offer of substances may moderate such links. This study was conducted to examine relationships between conduct problems, close friends' substance use, and refusal assertiveness with adolescents' alcohol use problems, tobacco, and marijuana use. *Methods:* We studied a population-based sample of 1,237 individuals from the Cardiff Study of All Wales and North West of England Twins ages 11-18 years. Adolescent- and mother-reported information was obtained. Statistical analyses included cross-sectional and prospective logistic regression models and family-based permutations. *Results:* Conduct problems and close friends' substance use were associated with increased adolescents' substance use, whereas refusal assertiveness was associated with lower use of cigarettes, alcohol, and marijuana. Peer substance use moderated the relationship between conduct problems and alcohol use problems, such that conduct problems were only related to increased risk for alcohol use problems in the presence of substance-using friends. This effect was found in both cross-sectional and prospective analyses and confirmed using the permutation approach. *Conclusions:* Reduced opportunities for interaction with alcohol-using peers may lower the risk of alcohol use problems in adolescents with conduct problems.

Grana, R. A., Black, D., Sun, P., Rohrbach, L. A., Gunning, M., & Sussman, S. (2010). School disrepair and substance use among regular and alternative high school students. *Journal of School Health*, *80*(8), 387-393.

Background: The physical environment influences adolescent health behavior and personal development. This article examines the relationship between level of school disrepair and substance use among students attending regular high school (RHS) and alternative high school (AHS). *Methods:* Data were collected from students (N = 7058) participating in two randomized controlled trials of a school-based substance abuse prevention program implemented across the United States. Students provided substance use and demographic information on a self-reported survey. Data for the physical disrepair of schools were collected from individual rater observations of each school environment. We hypothesized that school disrepair would be positively associated with substance use controlling for individual characteristics and a socioeconomic status proxy. Multilevel mixed modeling was used to test the hypothesized association and accounted for students nested within schools. *Results:* Findings indicated that students attending AHS with greater school disrepair were more likely to report the use of marijuana and other illicit drugs (i.e., cocaine, heroin). Students attending RHS with greater school disrepair were less likely to report smoking cigarettes. *Conclusions:* Differences in findings between RHS and AHS students are discussed, and implications for substance use prevention programming are offered. Students attending AHS with greater school disrepair may require more substance abuse prevention programming, particularly to prevent illicit substance use.

Griffin, K. W., Bang, H., & Botvin, G. J. (2010). Age of alcohol and marijuana use onset predicts weekly substance use and related psychosocial problems during young adulthood. *Journal of Substance Use*, *15*(3), 174-183.

The present study examined whether age of alcohol and marijuana use onset during adolescence predicted later substance use and related problems in several areas of psychosocial functioning among young adults. A total of 621 participants completed surveys regarding current substance use from 7th through 12th grades and also completed a survey as young adults (age 24) that included questions regarding the impact of alcohol and drug use on several areas of functioning. Findings indicated that earlier age of substance use onset was positively associated with weekly use of alcohol and marijuana during young adulthood, as well as substance-related occupational, relationship, and legal problems. The majority of young adults reporting problems due to alcohol or drug use had first reported alcohol and/or marijuana use before entering high school. For women, onset of substance use prior to high school was more strongly related to negative drug-related occupational outcomes than was concurrent weekly substance use as a young adult. Findings indicated that the negative effects of early onset substance use are strongest in social and occupational functioning, areas that correspond to the DSM criteria relevant to the diagnosis of alcohol or substance use disorder.

Guxens, M., Nebot, M., & Ariza, C. (2007). Age and sex differences in factors associated with the onset of cannabis use: A cohort study. *Drug and Alcohol Dependence*, *88*(2-3), 234-243.

Objective: To investigate age and sex differences in factors associated with the onset of cannabis use among adolescents. *Methods:* A representative sample of schoolchildren from secondary schools in Barcelona (n=1056) was selected and followed-up from the first to the fourth year of secondary education (7-10th grades). The participants completed a self-administered lifestyle questionnaire each year. Multilevel logistic regression models were used for each year and sex to analyze predictors of cannabis use; the second level was adjusted by school. *Results:* Onset of cannabis use during follow-up was associated with a prior history of tobacco smoking [odds ratio (OR)=7.7 in boys; OR=3.8 in girls], alcohol consumption (OR=6.4 in boys; OR=3.2 in girls), antisocial behavior (OR=2.8 in boys; OR=2.2 in girls), intention to use drugs (OR=3.5 in boys; OR=4.2 in girls), drug use among friends (OR=2.5 in boys; OR=3.7 in girls) and spending leisure time in bars or discos (OR=2.1 in boys; OR=3.8 in girls). Moreover, among girls, attending state schools (OR=2.9), low academic performance (OR=5.7) and living in a single-parent family (OR=2.0) also independently predicted cannabis use. *Conclusions:* This study reveals a wide array of predictive factors in cannabis use onset that largely differed by age and sex. The results support the role of tobacco and alcohol, as well as the influence of drug use among friends, and the importance of leisure time patterns as facilitators of cannabis use.

Hampson, S.E., Andrews, J.A., & Barckley, M. (2008). Childhood predictors of adolescent marijuana use: Early sensation-seeking, deviant peer affiliation, and social images. *Addictive Behaviors*, *33*(9) 1140-1147.

This study examined psychosocial mechanisms by which children's early sensation-seeking may influence their later marijuana use. In a longitudinal study, 4th and 5th grade elementary school children (N = 420) were followed until they were in 11th and 12th grades in high school with annual or biennial assessments. Sensation-seeking (assessed over the first 4 assessments) predicted affiliating with deviant peers and level of favorable social images of kids who use marijuana (both assessed over the subsequent 3 assessments). Affiliation with deviant peers and the growth in social images predicted marijuana use in 11th and 12th grades. Affiliation with deviant peers mediated the effect of early sensation-seeking on subsequent marijuana use. The theoretical and applied significance of this influence of early sensation-seeking is discussed.

Hayaki J, Hagerty C.E., Herman, D.S., de Dios, M.A., Anderson, B.J., & Stein, M.D. (2010). Expectancies and marijuana use frequency and severity among young females. *Addictive Behaviors*, *35*(11), 995-1000.

This study examined associations between the endorsement of drug use expectancies and the frequency and severity of marijuana use in a community sample of 332 women aged 18–24years who were not explicitly seeking treatment for their marijuana use. Participants were enrolled in a larger intervention study of motivational interviewing for various health behaviors and provided self-reports of their current and past marijuana use, marijuana abuse/dependence symptoms, and marijuana use expectancies. Marijuana use expectancies were measured using the six subscales of the Marijuana Effects Expectancy Questionnaire (MEEQ). Use frequency was defined as the number of use days in the past month, severity as the total number of DSM-IV marijuana abuse or dependence symptom criteria met. Replicating and extending prior research, expectations regarding Relaxation and Tension Reduction emerged as a robust belief in this cohort, predicting not only frequency ($p<.01$) but also severity ($p<.01$) of marijuana use in multivariate analyses. Severity of marijuana use was further predicted by expectations regarding loss of control, affective changes following marijuana use, and other aspects of emotion dysregulation (Global Negative Effects, $p<.01$). These findings document meaningful associations between substance-related cognitions and use behavior and suggest that marijuana users who hold certain beliefs regarding marijuana use may be particularly susceptible to clinically significant problems associated with their substance use. As such, marijuana use expectancies may represent a clinical target that could be incorporated into future interventions.

Heavyrunner-Rioux, A. R., & Hollist, D. R. (2010). Community, family, and peer influences on alcohol, marijuana, and illicit drug use among a sample of Native American youth: An analysis of predictive factors. *Journal of Ethnicity in Substance Abuse*, 9, 260-283.

Using a cross-sectional sample of 8th, 10th, and 12th grade Native American public school children, this study examines hypotheses pertaining to the ability and influence of measures drawn from social bonding, social learning, and social disorganization theories to account for variations in self-reported lifetime and 30-day use of alcohol, marijuana, and illicit drugs. Results derived from ordinary least squares regression equations show significant associations, most notably with variables from the social learning tradition. In addition, comparisons across equations show significant differences in the impact of the theoretical indicators on substance use between respondents in the sub-samples of those residing on and off reservations. The findings suggest that existing theories offer a promising framework for understanding the process of Native American substance use, and that the role of these in some cases differ for adolescents who reside on and off reservations. Contributions to the literature along with suggestions for future research are discussed.

Hecht, M. L., Graham, J. W., & Elek, E. (2006). The drug resistance strategies intervention: Program effects on substance use. *Health Communication*, *20*(3), 267-276.

This study evaluates the Drug Resistance Strategies (DRS) project, a culturally grounded, communication-based substance use prevention program implemented in 35 middle schools in Phoenix, Arizona. The intervention consisted of 10 lessons taught by the classroom teacher that imparted the knowledge, motivation, and skills needed to resist drug offers. The evaluation used growth modeling to analyze significant differences in average post-intervention substance use (alcohol, cigarettes, and marijuana) and growth of use over the course of the study. The study involved 6,298 seventh graders (65% Mexican/Mexican American) who responded to at least 1 of 4 questionnaires (1 pretest and 3 follow-up measures). When compared to a control group, the DRS intervention appeared to significantly limit the increase in the number of students reporting recent substance use, especially alcohol and marijuana use. The multicultural version of the curriculum proved most broadly effective, followed by the version targeting Mexican American youth. The development of a culturally grounded prevention curriculum for Mexican American youth expands the population being served by interventions. Moreover, the success of the multicultural curriculum version, which has the broadest application, provides particular promise, and the article demonstrates how a growth modeling approach can be used to evaluate a communication-based intervention by analyzing changes over time rather than differences between the pretest and posttest scores.

Hecht, M. L., Marsiglia, F. F., Elek, E., Wagstaff, D. A., Kulis, S., Dustman, P., & Miller-Day, M. (2003). Culturally grounded substance use prevention: an evaluation of the keepin'it REAL curriculum. *Prevention Science*, *4*(4), 233-248.

This paper reports on the evaluation of a culturally grounded prevention intervention targeting substance use among urban middle-school students. The curriculum consists of 10 lessons promoting antidrug norms and teaching resistance and other social skills, reinforced by booster activities and a media campaign. Three versions were delivered: Mexican American, combined African American and European American, and Multicultural. Thirty-five middle schools were randomly assigned to 1 of the 3 versions or the control. Students completed baseline and follow-up questionnaires over a 2-year period (total 6,035 respondents). Analyses utilizing a generalized estimating equations approach assessed the overall effectiveness of cultural grounding and the cultural matching hypothesis. Support was found for the intervention's overall effectiveness, with statistically significant effects on gateway drug use as well as norms, attitudes, and resistance strategies but with little support for the cultural matching hypothesis. Specific contrasts found the Mexican American and Multicultural versions impacted the most outcomes.

Henry, K.L., Thornberry, T.P., & Huizinga, D.H. (2009). A discrete-time survival analysis of the relationship between truancy and the onset of marijuana use. *Journal of Studies on Alcohol and Drugs*, *70*(1), 5-15.

Objective: Despite truancy being a common behavior among teenagers, little research has assessed its deleterious effects. In this study, the effect of truancy on the initiation of marijuana use was examined. *Method:* Using data from the Rochester Youth Development Study (a longitudinal sample of predominantly minority youth), discrete time survival analyses were estimated to assess the effect of truancy on the subsequent initiation of marijuana use. The current analyses used 5 years of panel data collected from youth and their primary caregiver every 6 months throughout adolescence. *Results:* Truancy was a significant predictor of the initiation of marijuana use during each subsequent 6-month period. The effect was more robust in earlier compared with later adolescence. These effects persisted after controlling for potential risk factors that are shared by both truancy and drug use, including commitment to school, grade-point average, delinquent values, prior involvement in delinquency, peer reactions to delinquency, parental monitoring, affective ties to the child, and positive parenting. *Conclusions:* We argue that the effect is, in part, the result of reduced social control (i.e., disengagement from pro-social entities such as school) and, in part, the result of the unsupervised, unmonitored time afforded by truancy. Prevention initiatives aimed at reducing truancy also may have a beneficial impact on preventing the initiation of drug use among adolescents.

Hodder, R. K., Daly, J., Freund, M., Bowman, J., Hazell, T., & Wiggers, J. (2011). A school-based resilience intervention to decrease tobacco, alcohol and marijuana use in high school students*. BMC Public Health, 11*, 722-732.

Background: Despite schools theoretically being an ideal setting for accessing adolescents and preventing initiation of substance use, there is limited evidence of effective interventions in this setting. Resilience theory provides one approach to achieving such an outcome through improving adolescent mental well-being and resilience. A study was undertaken to examine the potential effectiveness of such an intervention approach in improving adolescent resilience and protective factor scores; and reducing the prevalence of adolescent tobacco, alcohol and marijuana use in three high schools. *Methods:* A non-controlled before and after study was undertaken. Data regarding student resilience and protective factors, and measures of tobacco, alcohol and marijuana use were collected from grade 7 to 10 students at baseline (n = 1449) and one year following a three year intervention (n = 1205). *Results:* Significantly higher resilience and protective factors scores, and significantly lower prevalence of substance use were evident at follow up. *Conclusions:* The results suggest that the intervention has the potential to increase resilience and protective factors, and to decrease the use of tobacco, alcohol and marijuana by adolescents. Further more rigorous research is required to confirm this potential.

Humensky, J. L. (2010). Are adolescents with high socioeconomic status more likely to engage in alcohol and illicit drug use in early adulthood? *Substance Abuse Treatment, Prevention, and Policy*, *5*, 19.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2924306/

Juon HS, Fothergill KE, Green KM, Doherty EE, & Ensminger ME (2011). Antecedents and consequences of marijuana use trajectories over the life course in an African American population. *Drug and Alcohol Dependence*, *118*(2-3), 216-223.

Background: We examined developmental trajectories of marijuana use among a cohort of urban African Americans followed from first grade to mid adulthood. We compared risk factors in childhood and adolescence and consequences in mid adulthood across trajectory groups. *Methods:* Using semi-parametric group-based mixture modeling, five marijuana trajectories for men (n =455) and four trajectories for women (n =495) were identified extending from adolescence to young adulthood (age 32). We labeled the four trajectory groups similar for men and women "abstainers," "adolescent only users," "early adulthood decliners," and "persistent users." We named the unique fifth group for men "late starters." *Results:* Multivariate multinomial logistic regressions show that childhood problem behaviors, adolescent family involvement, and dropping out of high school differentiated trajectory membership. Analyses comparing the trajectory groups on behavioral, social, and health outcomes at age 42 revealed that for both men and women, those in the persistent trajectory had the most problems, and those in the early

adult decliner group also had specific problems. Male late starters also had poor outcomes. *Conclusions:* The findings point to the value of identifying specific patterns of substance use over the life course and understanding the differences in their correlates and consequences. The implications of these findings are discussed.

Keyes, K. M., Shculenberg, J. E., O'Malley P. M., Johnston, L. D., Bachman, J. G., Li, G. & Hasin, D. (2011). The social norms of birth cohorts and adolescent marijuana use in the United States, 1976-2007. *Addiction*, *106*, 1790-1800.

http://www.ncbi.nlm.nih.gov/pubmed/21545669

Kim, H. & Leve, L. (2011). Substance use and delinquency among middle school girls in foster care: A three-year follow-up of a randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *79*(6), 740-750.

Objective: The present study evaluated the efficacy of the Middle School Success intervention (MSS) for reducing substance use and delinquency among girls in foster care, using a randomized controlled trial design. The program was designed to fill a service gap during the summer prior to the middle school transition and to prevent delinquency, substance use, and related problems. *Method:* One hundred girls in foster care and their caregivers were randomly assigned either to the intervention (n = 48) or to a regular foster care control (n = 52) condition. The girls completed a baseline (T1) assessment and follow-up assessments at 6 months (T2), 12 months (T3), 24 months (T4), and 36 months (T5) post-baseline. Caregivers participated in assessments from T1 through T4. This study is a follow-up to Smith, Leve, and Chamberlain's (2011) study, which examined immediate outcomes at T2. *Results:* Girls in the intervention condition showed significantly lower levels of substance use than did girls in the control condition at 36 months post-baseline. The group difference was only marginally significant for delinquency. Further analyses indicated significant indirect effects of the intervention through increased pro-social behaviors that led to decreased internalizing and externalizing symptoms and then to lower levels of substance use. The direct effect of the intervention on substance use remained significant in the presence of the indirect effects. For delinquency, the intervention had positive effects mainly through increased pro-social skills. *Conclusions:* Findings highlight the importance of providing preventive intervention services for early adolescent girls in foster care.

King, K. M., Fleming, C. B., Monahan, K. C., & Catalano, R. F., (2011). Changes in self-control problems and attention problems during middle school predict alcohol, tobacco, and marijuana use during high school. *Psychology of Addictive Behaviors*, *25*(1), 69-79.

Although deficits in impulse control have been linked to adolescent use of alcohol and illicit drugs, less attention has been given to variability in change in impulse control across adolescence and whether this variability may be a signal of risk for early substance use. The goals of the current study were to examine growth in two aspects of

impulse control, self-control problems and attention problems, across middle adolescence, and to test the prospective effects of level and change in these variables on levels and change over time in substance use. Data are from a community sample of 955 adolescents interviewed (along with their parents and teachers) annually from 6th to 11th grade. Results indicated that greater self-control problems and attentional problems in the 6th grade and increases in these problems over time were associated with higher levels of substance use at 11th grade. Our results suggest that modeling change over time enhances the understanding of how impulse control influences the development of substance use.

King, K., & Hoffman, A. R. (2012). Sex and grade level differences in marijuana use among youth. *Journal of Drug Education*, *42*(3), 361-377.

A total of 54,361 students in seventh through twelfth grades completed a survey examining the impact of perceived harm of marijuana use, ease of access in obtaining marijuana, and perceived parent/peer disapproval of marijuana use on youth involvement in annual and recent marijuana use. Results indicated that 1 in 6 (16%) students used marijuana in the past year, while 1 in 10 (10%) used marijuana in the past month. Students at highest risk for marijuana use were those who felt use was not harmful/somewhat harmful, felt it was easy/very easy to access marijuana, and had parents/peers who did not disapprove of use. Findings can assist prevention specialists to more thoroughly understand how perceived harm, ease of access, and parent/peer disapproval affect marijuana use among youth. Consistent parent-child communication on marijuana use should be encouraged.

Kitzman, H. J., Olds, D. L., Cole, R. E., Hanks, C. A., Anson, E. A., Arcoleo, K. J., … & Holmberg, J. R. (2010). Enduring effects of prenatal and infancy home visiting by nurses on children: Follow-up of a randomized trial among children at age 12 years. *Archives of Pediatrics & Adolescent Medicine, 164*(5), 412-418.

http://www.ncbi.nlm.nih.gov/pubmed/20439791

Korhonen, T., Huizink, A. C., Dick, D.M., Pulkkinen, L., Rose, R.J., & Kapiro, J. (2008). Role of individual, peer and family factors in the use of cannabis and other illicit drugs: A longitudinal analysis among Finnish adolescent twins. *Drug and Alcohol Dependence*, *97*(1-2), 33-43.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2574687/

Kulis, S., Marsiglia, F. F., Elek, E., Dustman, P., Wagstaff, D. A., & Hecht, M. L. (2005). Mexican/Mexican American adolescents and keepin'it REAL: An evidence-based substance use prevention program. *Children & Schools*, *27*(3), 133-145.

A randomized trial tested the efficacy of three curriculum versions teaching drug resistance strategies, one modeled on Mexican American culture; another modeled on

European American and African American culture; and a multicultural version. Self-report data at baseline and 14 months post-intervention were obtained from 3,402 Mexican heritage students in 35 Arizona middle schools, including 11 control sites. Tests for intervention effects used simultaneous regression models, multiple imputation of missing data, and adjustments for random effects. Compared with controls, students in the Latino version reported less overall substance use and marijuana use, stronger intentions to refuse substances, greater confidence they could do so, and lower estimates of substance-using peers. Students in the multicultural version reported less alcohol, marijuana, and overall substance use. Although program effects were confined to the Latino and multicultural versions, tests of their relative efficacy compared with the non-Latino version found no significant differences. Implications for evidence-based practice and prevention program designs are discussed, including the role of school social workers in culturally grounded prevention.

Kuntsche, E., & Jordon, M.D. (2006). Adolescent alcohol and cannabis use in relation to peer and school factors: Results of a multilevel analysis. *Drug and Alcohol Dependence*, *84*(2), 167-174.

The present study used a multilevel approach with multiple informants to determine whether, at individual level, association with substance-using peer groups, and, at class level, incidences of intoxicated students in school premises, are related to students' own substance use. Additionally, it tested the hypothesis that such school incidences affect the closeness of the relation between association with substance-using peers and students' own substance use. Multilevel regression models were estimated separately for drunkenness and cannabis use on the basis of cross-sectional data from 3925 students of eighth and ninth grades in Switzerland (mean age 15.3, S.D. 0.9) and their teachers (N=220). For both drunkenness and cannabis use, the results confirmed that association with substance-using peers is strongly related to individual substance-use. A higher level of students' own cannabis use and a closer relation between association with cannabis-using peers and the students' own cannabis use were found in classes where students saw others coming cannabis-intoxicated to school or taking cannabis in school premises. Such relations were not found for alcohol. It appears that cannabis use at school or shortly before arriving at school creates an atmosphere that favors cannabis use whether or not students are associated with cannabis-using peers. Establishing an overarching environment of disapproval appears to be an effective means of preventing cannabis use by adolescents.

Lac, A., Unger, J. B., Basanez, T., Ritt-Olson, A., Soto, D. W., & Baezconde-Garbanati, L. (2011). Marijuana use among Latino adolescents: Gender differences in protective familial factors. *Substance Use & Misuse*, *46*, 644-655.

Given the important contextual function of family dynamics and traditional gender roles in Latino cultures, parental influences on substance use among Latino adolescents may differ across genders. This study examined associations between family factors (parental

monitoring, parent--child communication, family cohesion, and familism) and marijuana use among 1,369 Latino adolescents in Southern California. Students from seven schools completed surveys in 9th and 11th grades. Longitudinal hierarchical linear regression analyses evaluated the associations between family factors in 9th grade and lifetime marijuana use in 11th grade, as well as gender differences in these associations. Girls reported higher levels of parental monitoring, parental communication, and familism than boys did, but there were no gender differences in family cohesiveness. In a regression model controlling for covariates and previous marijuana use, parent--child communication and family cohesion in 9th grade were each uniquely predictive of lower levels of marijuana consumption in 11th grade. Gender was a statistical moderator, such that higher levels of parent--child communication predicted lower marijuana use among boys, whereas girls'' use was relatively low regardless of parent--child communication levels. Results are discussed in the light of the concurrent socialization processes of family and gender in Latino culture and its relation to preventing delinquent behaviors such as marijuana use.

Low, N.C., Dugas, E., O'Loughlin, E., Rodriquez, D., Contreras, G., Chaiton, M., & O'Loughlin, J. (2012). Common stressful life events and difficulties are associated with mental health symptoms and substance use in young adolescents. *BMC Psychiatry*, *12*, 116.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3466152/

Luk, J.W., Farhat, T., Iannotti, R.J., & Simons-Morton, B. G. (2010). Parent-child communication and substance use among adolescents: Do father and mother communication play a different role for sons and daughters? *Addictive Behaviors*, *35*(5), 426-431.

Purpose: To investigate gender-specific variations in the associations between communication with father and mother, cigarette smoking, alcohol drinking and marijuana use in male and female adolescents. Cross-sectional data were collected from a national sample of 1308 tenth graders who participated in the 2005/06 U.S. HBSC. Outcome variables were self-reported substances used in the past 30days. Logistic regression analyses controlling for race/ethnicity, family structure and socioeconomic status showed that the association of mother and father communication with adolescent substance use varied by substance and gender. Among sons, father communication was protective against marijuana use and mother communication was protective against smoking. Neither father nor mother communication was protective against substance use by daughters. Research is needed to understand gender-specific differences in correlates of adolescent substance use and the implications for prevention and intervention.

MacKinnon, D. P., Johnson, C. A., Pentz, M. A., Dwyer, J. H., Hansen, W. B., Flay, B. R., & Wang, E. Y. I. (1991). Mediating mechanisms in a school-based drug prevention program: first-year effects of the Midwestern Prevention Project. Health Psychology, *10*(3), 164.

Studied the effects of a drug prevention program based on the mediation of social influences in which 5,008 6th and 7th graders from 42 middle schools were measured at baseline and again 1 year later after 24 of the schools had been through the program. Compared with students in control schools, students in program schools became less likely to express belief in the positive consequences of drug use, less likely to indicate that they would use drugs in the future, more likely to report that their friends were less tolerant of drug use, and more likely to believe that they were better able to communicate with their friends about drug or school problems. Change in perceptions of friends' tolerance of drug use was the most substantial mediator of program effects on drug use. There was evidence that intentions to use and beliefs about the positive consequences of use may also have mediated program effects on drug use.

Mandara, J., Rogers, S. Y., & Zinbarg, R. E. (2011). The effects of family structure on African American adolescents' marijuana use. *Journal of Marriage and Family*, *73*(3), 557-569.

The relationship between family structure and marijuana use throughout adolescence was assessed among 1,069 African Americans from the National Longitudinal Survey of Youth. A model was also tested suggesting that the effects of family structure on marijuana use would be mediated by poverty, neighborhood quality, and adolescents' self-control. As most prior studies have found, family structure was not related to female adolescents' marijuana use. For young men, being raised with both biological parents was associated with less marijuana use throughout adolescence compared to those whose mothers never married, divorced early and never remarried, or divorced and remarried. Some support for the model was also found. We concluded that being raised without the presence of a biological father is a risk factor for marijuana use among young men, but African American young women from single-parent households have unique resources that protect them from marijuana use. Understanding those resources may offer insight into prevention programs for other youth.

Marmorstein, N. R., White, H. R., Loeber, R., & Stouthamer-Loeber, M. (2011). Anxiety as a predictor of age at first use of substances and progression to substance use problems among boys. *Journal of Abnormal Child Psychology*, *38*(2), 211-224.

This study examined associations of generalized and social anxiety with (1) age at first use of tobacco, alcohol, and marijuana and (2) interval from first use to first problem use of each substance. Participants were 503 males who comprised the youngest cohort (first assessed in the first grade) of the Pittsburgh Youth Study, a longitudinal community-based study of boys. Annual assessments of generalized and social anxiety, delinquency, and substance use from first grade through high school were included. Both types of anxiety predicted earlier first use of alcohol and tobacco, and generalized

anxiety predicted earlier first use of marijuana. Both types of anxiety predicted the progression from first use to problems related to marijuana. The effect of generalized anxiety tended to be significant above and beyond the effect of delinquency, while the effect of social anxiety on risk for first use of substances was not. Overall, the associations between anxiety and substance use and related problems depend on the class of substance and the type of anxiety.

Martin, G., & Copeland, J. (2008). The adolescent cannabis check-up: Randomized trial of a brief intervention for young cannabis users. *Journal of Substance Abuse Treatment, 34*(4), 407-414.

The aim of this study was to evaluate the efficacy of a brief motivational enhancement therapy in reducing cannabis use and cannabis-related problems in a population of non-treatment-seeking adolescent cannabis users. In a randomized controlled trial, 40 young people (aged 14-19 years) were randomly assigned to either a two-session brief intervention or a 3-month delayed-treatment control condition. The intervention consisted of a detailed assessment and a session of motivational enhancement therapy. An additional optional discussion of skills for reducing or quitting cannabis use was offered if a participant was interested in discussing these issues. Primary outcome measures were changes in days of cannabis use, mean quantity of cannabis used weekly, and number of DSM-IV dependence symptoms reported. Significantly greater reductions on these measures were found in the Adolescent Cannabis Check-up group at 3-month follow-up. Between-group effect sizes were moderate. The approach is acceptable to participants and merits further evaluation with this difficult to reach population.

Martino S.C., Ellickson P.L., & McCaffrey, D.F. (2008). Developmental trajectories of substance use from early to late adolescence: A comparison of rural and urban youth. *Journal of Studies on Alcohol and Drugs*, *69*(3), 430-440.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3635839/

McCambridge, J., Slym, R. L., & Strang, J. (2008). Randomized controlled trial of motivational interviewing compared with drug information and advice for early intervention among young cannabis users. *Addiction, 103*(11), 1809-1818.

Aim: To test the effectiveness of motivational interviewing (MI) in comparison with drug information and advice in opportunistically securing reductions in drug-related risk among young cannabis users not seeking help. *Design:* Randomized controlled trial. *Setting:* Eleven London Further Education colleges. *Participants:* A total of 326 students aged 16–19 years who smoked cannabis weekly or more frequently. Interventions Participants were randomized to a single-session intervention of MI or drug information and advice-giving. Measurements Cannabis use, cigarette smoking and alcohol consumption and harm outcomes were assessed after both 3 and 6 months. Findings No

differences were found between MI and drug information and advice, although MI fidelity was not high. There were wide-ranging individual practitioner effects on observed outcomes and a practitioner–intervention interaction was detected in relation to cannabis cessation after 3 months. Change over time was more pronounced for cannabis use than for other drug use. *Conclusions:* Further study of the nature and consequences of MI fidelity, and individual practitioner effects more generally, is needed. Advice may be an effective brief intervention with young cannabis users in its own right and should be evaluated further in trials.

Miller, S.M., Siegel, J. T., Hohman, Z., & Crano, W.D. (2013). Factors mediating the association of the recency of parent's marijuana use and their adolescent children's subsequent initiation. *Psychology of Addictive Behaviors*, *27*(3), 848-853.

This study was designed to determine whether the relation between parents' recency of (lifetime) marijuana use (RMU) and their adolescent children's subsequent marijuana initiation was mediated by the adolescents' expectancies regarding the consequences of usage, their anticipated severity of punishment for use, and their evaluative attitudes toward marijuana. Parents and their initially marijuana-abstinent adolescent children drawn from the National Survey of Parents and Youth were studied (N = 1,399). A bootstrapped multiple mediation analysis tested whether adolescents' expectations, anticipated punishment, and attitudes toward marijuana collected in the first year of the longitudinal study mediated the relationship between parents' RMU and their adolescent children's marijuana initiation one year later. Analysis revealed a statistically significant association between the parental measure and youths' subsequent initiation ($p < .001$). The three mediators were related significantly to parents' RMU and adolescents' usage. Individually, each variable mediated the association of the parental measure and that of their initially abstinent adolescents when usage was assessed one year later. The results offer insight into the positive association of parents' RMU with their child's marijuana use and provide insights that may be useful in future prevention efforts.

Morehouse, E. & Tobler, N. S. (2000). Preventing and reducing substance use among institutionalized adolescents. *Adolescence, 35*(137), 1-28.

The Residential Student Assistance Program, serving high-risk, multi-problem, inner-city, primarily African-American and Latino youth, was evaluated for its ability to prevent and decrease alcohol and other drug use. Participants were drawn from several adolescent residential facilities: three foster care sites for abused, neglected, orphaned, or troubled adolescents, a non-secure facility for adjudicated juvenile offenders, a treatment center for teens with severe psychiatric problems, and a locked county correctional facility. In addition, comparison groups were employed. A 5th-year outcome evaluation documented the program's effectiveness in both preventing and reducing substance use among participants, with impact related to program dosage. Qualitative process data clarified and strengthened confidence in the quantitative outcomes.

Morrison, D. M., Lohr, M. J., Beadnell, B. A., Gillmore, M. R., Lewis, S., & Gilchrist, L. (2010). Young mothers' decisions to use marijuana: A test of an expanded theory of planned behavior. *Psychology & Health*, *25*(5), 569587.

The current study examines the Theory of Planned Behaviour's (TPB) ability to predict marijuana use among young women who experienced a premarital pregnancy before the age of 18 years, using longitudinal data. The validity of the TPB assumption that all other variables work through TPB constructs is also tested. Indicators of four constructs that have been shown in the literature to be predictive of marijuana use-persistent environmental adversity, emotional distress, adolescent marijuana use and drug use in the social network-were tested as predictors of attitudes, norms and self-efficacy, in a structural equation modelling framework. All paths from distal predictors were through the mediating TPB constructs, in accordance with the tenets of the model. Implications of these findings for the TPB model and for understanding factors that lead to marijuana use are discussed.

Mrug, S., Gaines, J., Su, W., & Windle, M. (2010). School-level substance use: Effects on early adolescents' alcohol, tobacco, and marijuana use. *Journal of Studies on Alcohol and Drugs, 71*(4), 480-495.

Objective: School-level use of tobacco and alcohol are related to individual students' use in high school, but few studies have examined the effects of school-level substance use in early adolescence. In addition, little is known about factors modifying individuals' vulnerability to school-level influences. This study examined school-wide levels of alcohol, cigarette, and marijuana use in relation to early adolescents' substance use and the role of peer deviance and parenting practices as modifiers of school-level effects. *Method:* This cross-sectional study included 542 students attending 49 public middle schools in a single metropolitan area. Students reported on their use of alcohol, cigarettes, and marijuana, and friends' deviant behavior in the last 12 months. Parents provided information about parental nurturance and harsh and inconsistent discipline. School-wide levels of substance use were obtained from the Pride Surveys completed by all students in Grades 6-8 at each school. Multilevel logistic regressions modeled individual use as a function of school-level use for each substance. Interactions of friends' deviance and poor parenting with school-level substance use evaluated differential susceptibility. *Results:* Among the three substances, only school-level rates of cigarette smoking were associated with individual smoking. The relationships of school-level smoking and alcohol use with individual use were stronger for students whose parents reported poorer parenting practices. *Conclusions:* Antismoking programs may need to preferentially target middle schools with high rates of cigarette smoking. Students who receive suboptimal parenting may benefit from increased support to deter them from early initiation of smoking and alcohol use, especially in high-risk schools.

Muennig, P., Robertson, D., Johnson, G., Campbell, F., Pungello, E. P., & Neidell, M. (2011). The effect of an early education program on adult health: The Carolina Abecedarian Project randomized controlled trial. *American Journal of Public Health*, *101*(3), 512-516.

Objectives: We explored whether a successful randomized controlled trial of early education, the Carolina Abecedarian Project (ABC), which enrolled infants from 1972 to 1977 at the Frank Porter Graham Child Development Institute in Chapel Hill, North Carolina, improved health outcomes and behaviors by 21 years of age. *Methods:* ABC randomized 111 infants to receive an intensive early education program or nutritional supplements and parental counseling alone; participants have been followed to the present day. We examined the effect of ABC on health outcomes and behavioral risk factors when participants were aged 21 years, and then explored the mediators of this relationship. *Results:* Relative to the control group, the ABC treatment group was previously found to have improved cognition and educational attainment. We found that the intervention also improved heath (P=.05) and health behaviors (P=.03) when participants were aged 21 years. These improvements in behaviors were not mediated by IQ, math and reading scores at 15 years of age, educational attainment, or health insurance. *Conclusions.* Effective early education programs may improve health and reduce risky health behaviors in adulthood.

Murphy, D. A., Chen, X., Naar-King, S. Parsons, J. T. (2012). Alcohol and marijuana use outcomes in the Healthy Choices Motivational Interviewing intervention for HIV-positive youth. *AIDS Patient Care and STDS, 26*(2), 95-100.

Healthy Choices is a motivational interviewing intervention targeting multiple risk behaviors among HIV-positive youth. This study investigated the effects of this intervention program specifically on alcohol and marijuana use. Youth living with HIV (n=143, mean age=20.7, 51.5% male) were recruited from four sites in the United States, and randomly assigned to intervention or control conditions. The four-session intervention focused on two of three possible problem behaviors based on entry screening; this study focused on 143 HIV-positive youth who received the intervention for substance use. At 15-month follow-up past-week alcohol use was significantly lower for intervention youth than control youth (39.7% versus 53.6%, $\chi 2=2.81$, $0.05< p<0.01$); developmental trajectory analysis demonstrated significant reductions in alcohol use, but more importantly the intervention was effective over time in significantly reducing the adolescent's probability of being classified into the high-risk trajectory group. The intervention was less effective in reducing marijuana use.

Musick, K., Seltzer, J.A., & Schwartz, C.R. (2008). Neighborhood norms and substance use among teens. *Social Science Research*, *37*(1), 138-155.

This paper uses new data from the Los Angeles Family and Neighborhood Survey (L.A. FANS) to examine how neighborhood norms shape teenagers' substance use.

Specifically, it takes advantage of clustered data at the neighborhood level to relate adult neighbors' attitudes and behavior with respect to smoking, drinking, and drugs, which we treat as norms, to teenagers' own smoking, drinking, and drug use. We use hierarchical linear models to account for parents' attitudes and behavior and other characteristics of individuals and families. We also investigate how the association between neighborhood norms and teen behavior depends on: (1) the strength of norms, as measured by consensus in neighbors' attitudes and conformity in their behavior; (2) the willingness and ability of neighbors to enforce norms, for instance, by monitoring teens' activities; and (3) the degree to which teens are exposed to their neighbors. We find little association between neighborhood norms and teen substance use, regardless of how we condition the relationship. We discuss possible theoretical and methodological explanations for this finding.

Nalls, A.M., Mullis, R.L., & Mullis, A.K. (2009). American Indian youths' perceptions of their environment and their reports of depressive symptoms and alcohol/marijuana use. *Adolescence*, *44*(176), 965-978.

The role of neighborhood and school environments in adolescent development has been explored over the years, yet few have examined these relationships with an American Indian sample. The purpose of this study was to explore the role of American Indian adolescents' sense of safety in their neighborhood and school environments and how this relates to their experience of depressive symptoms and alcohol/marijuana use. The data were drawn from a southwestern state's dataset containing survey results of adolescent well-being. Responses from a total of 148 American Indian 8th, 10th, and 12th grade students were analyzed. The findings indicated that neighborhood safety, especially the presence of crime and drug sales, was the strongest predictor of depressive symptoms and alcohol/marijuana use. Implications for future research and work with this population are discussed.

Nasim, A., Corona, R., Belgrave, F., Utsey, S.O., & Fallah, N. (2007). Cultural orientation as a protective factor against tobacco and marijuana smoking for African American young women. *Journal of Youth & Adolescence*, *36*(4), 503-516.

The present study examined cultural orientation as a protective factor against tobacco and marijuana smoking for African American young women (ages 18 to 25). African American college students (N = 145) from a predominantly White university were administered subscales from the African American Acculturation Scale-Revised (AAAS-R); the shortened Individualism/Collectivism (INDCOL) Scale; a Tobacco and Drug Use Survey; and a background survey. Multiple logistic regression was conducted using cultural orientation variables as predictors and smoking status (i.e., tobacco and marijuana) as the criterion. It was expected that young women who endorsed traditional African American cultural characteristics (i.e., religious beliefs, health, family values, and socialization) and were collectivistic in their community (i.e., cultural interdependency) and familial (i.e., familial interdependency) interactions would be less

likely to smoke. Results show that traditional religious beliefs and practice was protective against tobacco smoking for this sample of young women. Familial interdependency (e.g., supportive exchanges between friends, and consultation and sharing with parents), and traditional religious beliefs and practices surfaced as protective factors against marijuana smoking. Traditional health beliefs and practices was a risk factor for both tobacco and marijuana smoking. The implications signal the need for smoking prevention and cessation programs to focus on interpersonal factors which may strengthen African American young women's religious and familial bonding.

Nelson, A. & Arthur, B. (2003). Storytelling for Empowerment: Decreasing at-risk youth's alcohol and marijuana use. *Journal of Primary Prevention*, *24*(2), 169-180.

The Storytelling for Empowerment Program decreased marijuana and alcohol use in high risk middle school youth, aged 11-15, across two years of implementation (Cohort 98 and Cohort 99). The program was a unique combination of cultural empowerment, cognitive skills, storytelling and the arts for emotional expression. A quasi-experimental research design compared participants' pre and posttest responses on drug use and also compared participants' responses to those from students who attended comparison schools who did not receive the program. High contact participants were defined as being those above the median of contact hours for that year. For Cohort 98 this was 28 hours and for Cohort 99 this was 19.75 hours. High contact participants had the most marked changes with a decrease in their alcohol and marijuana use. In addition, all participants in the last year of the program regardless of contact hours decreased their alcohol use and increased in their resistance to drug use.

Newton, N. C., Teesson, M., Vogl, L. E., & Andrews, G. (2010). Internet-based prevention for alcohol and cannabis use: Final results of the Climate Schools course. *Addiction, 105*(4), 749-759.

http://www.ncbi.nlm.nih.gov/pubmed/20148791

Newton, N. C., Vogl, L., Teesson, M., & Andrews, G. (2011). Developing the climate schools: Alcohol and cannabis module: A harm-minimization, universal drug prevention program facilitated by the internet. *Substance Use & Misuse, 46*(13), 1651-1663.

The Climate Schools: Alcohol and Cannabis Module is a universal harm-minimization school-based prevention program for adolescents aged 13-15 years. The core content of the program is delivered over the Internet using cartoon storylines to engage students, and teacher-driven activities reinforce the core information. The program is embedded within the school health curriculum and is easy to implement with minimal teacher training required. The program was developed in 2007 through extensive collaboration with teachers, students, and health professionals (N = 24) in Sydney, Australia and has since been evaluated (N = 764). This article describes the formative research and

process of planning that formed the development of the program and the evidence base underpinning the approach. The study's limitations are noted.

O'Connell, J. M., Novins, D. K., Beals, J., Whitesell, N. R., Spicer, P., & The AI-SUPERPFP Team (2011). The association between substance use disorders and early and combined use of alcohol and marijuana in two American Indian populations. *Journal of Substance Use*, *16*(3), 213-229.

Objective: To study the relationships between early and combined use of alcohol and marijuana with diagnoses of alcohol and marijuana use disorders in two American Indian (AI) populations. *Method:* Data were drawn from a psychiatric epidemiologic study of 3084 AIs living on or near two reservations. We analyzed data for adults aged 18-54 years at the time of interview (n = 2739). Logistic regression models were estimated to examine associations between early and combined use of alcohol and marijuana with lifetime diagnoses of abuse and dependence. Results: Overall, younger AIs (18--29 years old) were more likely than older AIs (40--54 years old) to initiate substance use early and initiate use with marijuana, with or without alcohol. Persons who initiated alcohol use before age 14 were more than twice as likely as those who initiated use at older ages to meet criteria for alcohol or marijuana use disorders ($p < 0.01$). The odds of abuse or dependence were two to five times higher among persons who reported combined use of alcohol and marijuana ($p< 0.01$) than among those who reported use of either substance. Conclusions: These findings document the need to address both early and combined use of alcohol and marijuana in prevention and treatment programmes.

Odden, H. L. (2012). Alcohol, tobacco, marijuana and hallucinogen use in Samoan adolescents. *Drug and Alcohol Review*, *31*, 47-55.

Introduction and Aims: Adolescent substance use has increased with globalization, and yet few data exist from lower- and middle-income countries and the Pacific Islands. This study examines the prevalence of three aspects of substance use over the past 30 days in Samoan adolescents: (i) use of alcohol, tobacco and other drugs; (ii) poly-substance use; and (iii) possible substance use problems. *Design and Methods:* A survey was administered to secondary school children (n = 879) between 12 and 19 years of age at a single school in Apia, the capital of Samoa, in August 2008. *Results:* There were important gender differences in substance use with boys reporting significantly higher rates of any use of each substance and poly-substance use. Boys were also three times more likely to report behaviours indicative of substance use problems. There were no significant differences in regular use of any substance with the exception of marijuana. Although the use of hallucinogens is prominent for boys and girls in the younger age group (12-15), consumption decreases with age. Boys showed substantial increases in any use of alcohol and marijuana and daily use of tobacco by age. There was also a significant increase in the number of boys reporting behaviours indicative of disordered use by age to 21% of 16- to 19-year-old boys. *Discussion and Conclusions:* One of few

studies on substance use in Samoa, the data provide a basis for setting priorities to address health risks posed by adolescent use and understanding the influence of rapid change.

Olds, D. L., Kitzman, H. J., Cole, R. E., Hanks, C. A., Arcoleo, K. J., Anson, E. A., ... & Stevenson, A. J. (2010). Enduring effects of prenatal and infancy home visiting by nurses on maternal life course and government spending: Follow-up of a randomized trial among children at age 12 years. *Archives of pediatrics & adolescent medicine*, *164*(5), 419-424.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3249758/

Pacek, L. R., Malcom, R. J., & Martins, S. S. (2012). Race/Ethnicity differences between alcohol, marijuana, and co-occurring alcohol and marijuana use disorders and their association with public health and social problems using a national sample. *The American Journal on Addictions*, *21*, 435-444.

Background: Alcohol and marijuana are commonly used and misused in the United States, both singly and together. Despite this, few studies examine their co-occurring use and the corresponding association with public health and other problems. Moreover, there is a lack of investigation into differences in these associations on the basis of race/ethnicity. *Methods:* The present study estimated the frequency of alcohol use disorder, marijuana use disorder, and co-occurring alcohol and marijuana use disorder and their associated public health and social problems in Whites, African Americans, and Hispanics. This cross-sectional study included 13,872 individuals and used data from the 2005-2007 National Survey on Drug Use and Health. Frequency was calculated and multinomial regression was used to assess associations between substance use disorder and psychosocial, adverse consequences such as history of being arrested, substance use treatment, and sexually transmitted infection. *Results:* Alcohol use disorder was comparable between, and most prevalent among, Whites and Hispanics compared to African Americans, whereas marijuana use disorder was greatest among African Americans compared to other race/ethnicities. Co-occurring alcohol and marijuana use disorders were most prevalent for African Americans versus Whites and Hispanics, and similar in Whites and Hispanics. In general, major depressive episode was more prevalent for respondents with co-occurring use disorders or single marijuana use disorders. However, race/ethnicity differences in associations between substance use disorder and psychosocial correlates and adverse consequences were observed. *Conclusions:* Findings have implications for race/ethnicity appropriate integrated prevention and treatment of single and co-occurring use disorders and psychiatric comorbidities.

Palmgreen, P., Donohew, L., Lorch, E.P., Hoyle, R.H., & Stephenson, M.T. (2001). Television campaigns and adolescent marijuana use: Tests of sensation seeking targeting. *American Journal of Public Health, 91*(2), 292-296.

Objectives: This study evaluated the effectiveness of targeted televised public service announcement campaigns in reducing marijuana use among high-sensation-seeking adolescents. *Methods:* The study used a controlled interrupted time-series design in two matched communities. Two televised anti-marijuana campaigns were conducted in one county and one campaign in the comparison community. Personal interviews were conducted with 100 randomly selected teenagers monthly in each county for 32 months. *Results:* All three campaigns reversed upward developmental trends in 30-day marijuana use among high-sensation seekers ($P < .002$). As expected, low-sensation seekers had low use levels, and no campaign effects were evident. *Conclusions:* Televised campaigns with high reach and frequency that use public service announcements designed for and targeted at high-sensation-seeking adolescents can significantly reduce substance use in this high-risk population.

Palmgreen, P., Lorch, E.P., Stephenson, M. T., Hoyle, R. H., & Donohew, L. (2007). Effects of the Office of National Drug Control Policy's Marijuana Initiative Campaign on High-Sensation-Seeking Adolescents. *American Journal of Public Health, 97*(9), 1644-1649.

This article examines the effect of the U.S. Office of National Drug Control Policy's (ONCDP) Marijuana Initiative Campaign on high-sensation-seeking adolescents. The Marijuana Initiative appears to have had an effect on reversing upward development trends in 30-day use among high-sensation seeking teens and reduced positive marijuana attitudes and beliefs in this population. It did not appear to impact the use of control substances. Low-sensation-seeking teens did not see an effect. The findings of the report suggest that substance use prevention campaigns can be effective by using negative-consequence messages.

Pasch, K. E., Latimer, L. A., Cance, J. D., Moe, S.G., & Lytle, L. A. (2012). Longitudinal bi-directional relationships between sleep and youth substance use. *Journal of youth and adolescence*, *41*(9), 1184-1196.

Despite the known deficits in sleep that occur during adolescence and the high prevalence of substance use behaviors among this group, relatively little research has explored how sleep and substance use may be causally related. The purpose of this study was to explore the longitudinal bi-directional relationships between sleep duration, sleep patterns and youth substance use behaviors. Participants included 704 mostly white (86.4 %) youth, 51 % female, with a baseline mean age of 14.7 years. Self-reported substance use behaviors included past month alcohol, cigarette, and marijuana use. Sleep measures included sleep duration on weekends and weekdays, total sleep, weekend oversleep, and weekend sleep delay. Cross-lagged structural equation models, accounting for clustering at the school level, were run to determine

the longitudinal association between sleep and substance use adjusting for socio-demographic characteristics, pubertal status, body mass index z-score, and depressive symptoms. Cigarette use and weekend sleep were bi-directionally related as were marijuana use and total sleep. No other bi-directional associations were identified. However, alcohol use predicted shorter weekend oversleep and marijuana use predicted increased weekend sleep and weekend oversleep. Sleep patterns and duration also predicted adolescents' cigarette, alcohol, and marijuana use. Sleep, both patterns and duration, and substance use among youth are intertwined. Future research is needed to explore these bi-directional relationships, as well as other important contextual factors that may moderate these associations.

Patrick, M.E., Wightman, P., Schoeni, R.F., & Schulenberg, J.E. (2012). Socioeconomic status and substance use among young adults: A comparison across constructs and drugs. *Journal of Studies on Alcohol and Drugs*, *73*(5), 772-782.

Objective: Little consensus exists regarding the relationship between socioeconomic status (SES) and substance use. This study examined the associations of three indicators of family SES during childhood--income, wealth, and parental education--with smoking, alcohol use, and marijuana use during young adulthood. Method: Data were obtained from the national Panel Study of Income Dynamics, a survey of U.S. families that incorporates data from parents and their children. In 2005 and 2007, the Panel Study of Income Dynamics was supplemented with two waves of Transition into Adulthood data drawn from a national sample of young adults, 18-23 years old. Data from the young adults (N = 1,203; 66.1% White; 51.5% female) on their current use of alcohol, cigarettes, and marijuana were used as outcome variables in logistic regressions. Socioeconomic background was calculated from parental reports of education, wealth, and income during the respondent's childhood (birth through age 17 years). *Results:* Smoking in young adulthood was associated with lower childhood family SES, although the association was explained by demographic and social role covariates. Alcohol use and marijuana use in young adulthood were associated with higher childhood family SES, even after controlling for covariates. *Conclusions:* Findings based on three indicators of family background SES--income, wealth, and parental education--converged in describing unique patterns for smoking and for alcohol and marijuana use among young adults, although functional relationships across SES measures varied. Young adults with the highest family background SES were most prone to alcohol and marijuana use.

Pejnovic, F.I., Kuzman, M., Pavic, S.I., & Kern, J. (2011). Impact of environmental factors on marijuana use in 11 European countries. *Croatian Medical Journal, 52*(4), 446-457.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3160692/

Peña, J., Wyman, P., Brown, C., Matthieu, M., Olivares, T., Hartel, D., & Zayas, L. (2008). Immigration generation status and its association with suicide attempts, substance use, and depressive symptoms among Latino adolescents in the USA. *Prevention Science: The Official Journal of the Society for Prevention Research*, *9*(4), 299-310.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2662363/

Pentz, M. A., Dwyer, J. H., MacKinnon, D. P., Flay, B. R., Hansen, W. B., Wang, E. Y. I., & Johnson, C. A. (1989). A multicommunity trial for primary prevention of adolescent drug abuse: Effects on drug use prevalence. *JAMA, 261*(22), 3259-3266.

The entire early adolescent population of the 15 communities that constitute the Kansas City (Kansas and Missouri) metropolitan area has participated in a community-based program for prevention of drug abuse since September 1984. The Kansas City area is the first of two major metropolitan sites being evaluated in the Midwestern Prevention Project, a longitudinal trial for primary prevention of cigarette, alcohol, and marijuana use in adolescents. The project includes mass media programming, a school-based educational program for youths, parent education and organization, community organization, and health policy components that are introduced sequentially into communities during a 6-year period. Effects of the program are determined through annual assessments of adolescent drug use in schools that are assigned to immediate intervention or delayed intervention control conditions. In the first 2 years of the project, 22,500 sixth- and seventh-grade adolescents received the school-based educational program component, with parental involvement in homework and mass media coverage. Analyses of 42 schools indicate that the prevalence rates of use for all three drugs are significantly lower at 1-year follow-up in the intervention condition relative to the delayed intervention condition, with or without controlling for race, grade, socioeconomic status, and urbanicity (17% vs 24% for cigarette smoking, 11% vs 16% for alcohol use, and 7% vs 10% for marijuana use in the last month), and the net increase in drug use prevalence among intervention schools is half that of delayed intervention schools.

Perez, A., Ariza, C., Sanchez-Martinez, F., & Nebot, M. (2010). Cannabis consumption initiation among adolescents: A longitudinal study. *Addiction*, 35(2), 129-134.

This study aimed to investigate factors related to initiation of cannabis consumption among adolescents. A questionnaire was administered to 2043 14–15-year-olds from Barcelona who were followed-up and re-interviewed after 15months. A bivariate analysis was performed to identify the factors associated with consumption, and multivariate logistic regression was carried out to model cannabis initiation. Among matched students, 23.7% of non-users at baseline had started to consume 15months later (23.0% boys and 24.2% girls). Among those who had reported occasional cannabis use, 30.3% reported consumption during the previous month at the follow-up survey. Factors associated with cannabis initiation among boys and girls were smoking, risky

alcohol use and intention to consume cannabis. Among boys, other associated factors were frequenting bars or discotheques and not having organized activities in leisure time. Among girls, another risk factor for initiation was having cannabis-using friends. Cannabis initiation was facilitated by legal drug use, favorable attitudes and context-related variables. These results highlight the role of behavioral and contextual variables and support the importance of reinforcing social skills in preventive programs.

Perkonigg, A., Goodwin, R. D., Fiedler, A., Behrendt, S., Beesdo, K., Lieb, R. & Wittchen, H.U. (2008). The natural course of cannabis use, abuse and dependence during the first decades of life. *Addiction*, *103*(3), 439–49.

http://www.ncbi.nlm.nih.gov/pubmed/18269364

Perry, C. L., Williams, C. L., Veblen-Mortenson, S., Toomey, T. L., Komro, K. A., Anstine, P. S., & ... Wolfson, M. (1996). Project Northland: Outcomes of a communitywide alcohol use prevention program during early adolescence. *American Journal of Public Health, 86*(7), 956-965.

Objectives: Project Northland is an efficacy trial with the goal of preventing or reducing alcohol use among young adolescents by using a multilevel, communitywide approach. *Methods:* Conducted in 24 school districts and adjacent communities in northeastern Minnesota since 1991, the intervention targets the class of 1998 (sixth-grade students in 1991) and has been implemented for 3 school years (1991 to 1994). The intervention consists of social-behavioral curricula in schools, peer leadership, parental involvement/education, and communitywide task force activities. Annual surveys of the class of 1998 measure alcohol use, tobacco use, and psychosocial factors. *Results:* At the end of 3 years, students in the intervention school districts report less onset and prevalence of alcohol use than students in the reference districts. The differences were particularly notable among those who were nonusers at baseline. *Conclusions:* The results of Project Northland suggest that multilevel, targeted prevention programs for young adolescents are effective in reducing alcohol use.

Petoskey, E. L., Van Stelle, K. R., & De Jong, J. A. (1998). Prevention through empowerment in a Native American community. In J. Valentine, J. A. De Jong, & N. J. Kennedy (Eds.), *Substance abuse prevention in multicultural communities* (pp. 147-162). New York: Haworth Press.

Reports the progress of a prevention demonstration grant program which combined several complementary strategies (a school-based cultural curriculum, training of teachers, development of a leadership core group, and a community curriculum) in an effort to address the self-perception of personal and communal powerlessness of Native Americans, which places them at risk for drug and alcohol abuse. A survey of 4th–12th grade students was used to examine substance use, school bonding and the relationship between cultural affiliation and substance use for the youth population. Two sets of outcome results, quantitative and qualitative, are reported and discussed in relation to

the Freirian model of community empowerment.

Pinchevsky, G. M., Arria, A. M., Caldeira, K. M., Garnier-Dykstra, L. M., Vincent, K. B., & O'Grady, K. E. (2012). Marijuana exposure opportunity and initiation during college: Parent and peer influences. *Prevention Science*, *13*, 43-54.

Marijuana is the most prevalent illicit drug used by adolescents and young adults, yet marijuana initiation is rarely studied past adolescence. The present study sought to advance our understanding of parent and peer influences on marijuana exposure opportunity and incident use during college. A sample of 1,253 students was assessed annually for 4 years starting with the summer prior to college entry. More than one-third (38%(wt)) of students had already used marijuana at least once prior to college entry; another 25%(wt) initiated use after starting college. Of the 360 students who did not use marijuana prior to college, 74% were offered marijuana during college; of these individuals, 54% initiated marijuana use. Both low levels of parental monitoring during the last year of high school and a high percentage of marijuana-using peers independently predicted marijuana exposure opportunity during college, holding constant demographics and other factors (AOR = 0.92, 95% CI = 0.88-0.96, $p < .001$ and AOR = 1.11, 95% CI = 1.08-1.14, $p < .001$, respectively). Among individuals with exposure opportunity, peer marijuana use (AOR = 1.04, 95% CI = 1.03-1.05, $p < .001$), but not parental monitoring, was associated with marijuana initiation. Results underscore that peer influences operate well into late adolescence and young adulthood and thus suggest the need for innovative peer-focused prevention strategies. Parental monitoring during high school appears to influence exposure opportunity in college; thus, parents should be encouraged to sustain rule-setting and communication about adolescent activities and friend selection throughout high school.

Primack, B. A., Kraemer, K. L., Fine, M. J., & Dalton, M. A. (2009). Media exposure and marijuana and alcohol use among adolescents. *Substance Use & Misuse*, *44*(5), 722-739.

We aimed to determine which media exposures are most strongly associated with marijuana and alcohol use among adolescents. In 2004, we surveyed 1,211 students at a large high school in suburban Pittsburgh regarding substance use, exposure to entertainment media, and covariates. Of the respondents, 52% were female, 8% were non-White, 27% reported smoking marijuana, and 60% reported using alcohol. They reported average exposure to 8.6 hours of media daily. In adjusted models, exposure to music was independently associated with marijuana use, but exposure to movies was independently associated with alcohol use. Implications, limitations, and suggestions for further research are discussed.

Roettger, M. E., Swisher, R.R., Kuhl, D. C., & Chavez, J. (2011). Paternal incarceration and trajectories of marijuana and other illegal drug use from adolescence into young adulthood: Evidence from longitudinal panels of males and females in the United States. *Addiction*, *106*(1), 121-132.

One-eighth of young adults in the United States report that their biological father has ever been incarcerated (FEI). This study is the first to examine associations between FEI and trajectories of substance use during the transition from adolescence into young adulthood for the US population. Using multi-level modeling techniques, trajectories of marijuana and other illegal drug use are examined, with FEI as the primary independent variable. Data are from the first three waves of the National Longitudinal Study of Adolescent Health, a nationally representative sample of US adolescents beginning in 1995. Panels of 7157 males and 7997 females followed from adolescence (7th-12th grades) into early adulthood (ages 18-27 years). Dependent variables included an ordinal measure of marijuana frequency of use in last thirty days, and a dichotomous measure for whether respondent had any use in the last thirty days of illegal drugs such crystal meth, cocaine, heroin, hallucinogens, PCP, LSD, speed, and ecstasy. Among males and females, respectively, FEI is associated with an increased frequency of marijuana use, and increased odds of any other illegal drug use. Interactions between FEI and age further reveal that FEI is associated with an accentuated trajectory (i.e. a steeper slope) of marijuana use, and an elevated risk (i.e. higher mean level) of other illegal drug use. Analysis provides some of the first evidence that paternal incarceration is significantly associated with drug use among U.S. males and females, even after controlling for a number of family background, parental, and individual characteristics.

Santisteban, D.A. Perez, A., Coatsworth, J.D., Kurtines, W.M., Schwartz, S.J., Laperriere, A., & Szapoeznik, J. (2003). Efficacy of brief strategic family therapy in modifying Hispanic adolescent behavior problems and substance use. *Journal of Family Psychology, 17*(1), 121-133.

This study investigated the efficacy of brief strategic family therapy (BSFT) with Hispanic behavior problem and drug using youth, an underrepresented population in the family therapy research literature. One hundred twenty-six Hispanic families with a behavior problem adolescent were randomly assigned to 1 of 2 conditions: BSFT or group treatment control (GC). Results showed that, compared to GC cases, BSFT cases showed significantly greater pre- to post-intervention improvement in parent reports of adolescent conduct problems and delinquency, adolescent reports of marijuana use, and observer ratings and self-reports of family functioning. These results extend prior findings on the efficacy of family interventions to a difficult to treat Hispanic adolescent sample.

Scheir, L. M., Grenard, J. L., & Holtz, K. D. (2011). An empirical assessment of the Above the Influence advertising campaign. *Journal of Drug Education, 41*(4), 431-461.

This study evaluated the efficacy of Above the Influence (ATI), a national media-based health persuasion campaign to deter youth drug use. The campaign uses public service anti-drug prevention messages and targets youth between the ages of 14 and 16, a period of heightened susceptibility to peer influences. The evaluation utilized mall intercepts from geographically dispersed regions of the country. Theoretical impetus for the campaign combines elements of the theory of reasoned action (TRA), persuasion theory, and the health belief model. A series of structural equation models were tested with four randomly drawn cross-validation samples (N = 3,000). Findings suggest that awareness of ATI is associated with greater anti-drug beliefs, fewer drug use intentions, and less marijuana use. Congruent with the TRA, changes in beliefs and intentions are intermediate steps linking campaign awareness with behavior. This study provides further evidence of positive campaign effects and may strengthen reliance on mass media health persuasion campaigns as a useful adjunct to other programs targeting youth.

Schinke, S.P., Orlandi, M.A., Botvin, G.J., Gilchrist, L.D., Trimble, J.E., & Locklear, V.S. (1988). Preventing substance abuse among American-Indian adolescents: A bicultural competence skills approach. *Journal of Counseling Psychology*, *35*, 87–90.

Tobacco, alcohol, and drug use are problems for American-Indian people. We reviewed these problems and the explanations for them and described a bicultural competence skills approach for preventing substance abuse with American-Indian adolescents. Data from a study of that approach suggest its efficacy with American-Indian youth. At posttest and a 6-month follow-up, American-Indian subjects who received preventive intervention based on bicultural competence skills concepts improved more than did American-Indian subjects in a no-intervention control condition on measures of substance-use knowledge, attitudes, and interactive skills, and on self-reported rates of tobacco, alcohol, and drug use. Our findings have implications for future substance-abuse prevention research with American-Indian people.

Schinke, S. P., Tepavac, L., & Cole, K. C. (2000). Preventing substance use among Native American youth: Three-year results. *Addictive Behaviors*, *25*(3), 387–97.

This study developed and tested skills- and community-based approaches to prevent substance abuse among Native American youth. After completing pretest measurements, 1,396 third- through fifth-grade Native American students from 27 elementary schools in five states were divided randomly by school into two intervention arms and one control arm. Following intervention delivery, youths in all arms completed posttest measurements and three annual follow-up measurements. Youths in schools assigned to the intervention arms learned cognitive and behavioral skills for substance abuse prevention. One intervention arm additionally engaged local community residents

in efforts to prevent substance use among Native American youth. Outcome assessment batteries measured youths' reported use of smoked and smokeless tobacco, alcohol, and marijuana. Over the course of the 3.5-year study, increased rates of tobacco, alcohol, and marijuana use were reported by youths across the three arms of the study. Though cigarette use was unaffected by intervention, follow up rates of smokeless tobacco, alcohol, and marijuana use were lower for youths who received skills intervention than for youths in the control arm. Community intervention components appeared to exert no added beneficial influence on youths' substance use, beyond the impact of skills intervention components alone. Finally, gender differences were apparent across substances, measurements, and study arms, with girls smoking more cigarettes and boys using more smokeless tobacco, alcohol, and marijuana.

Shakya, H. B., Christakis, N. A., & Fowler, J. H. (2012). Parental influence on substance use in adolescent social networks. *Archives of Pediatric Adolescent Medicine*, *166*(12), 1132-1139.

Objective: To evaluate the relationship between the parenting style of an adolescent's peers' parents and an adolescent's substance use. *Design:* Longitudinal survey. Setting: Adolescents across the United States were interviewed at school and at home. Participants: Nationally representative sample of adolescents in the United States. *Main Exposure:* Authoritative vs neglectful parenting style of adolescent's parents and adolescent's friends' parents and adolescent substance use. *Main Outcome Measures:* Adolescent alcohol abuse, smoking, marijuana use, and binge drinking. *Results:* If an adolescent had a friend whose mother was authoritative, that adolescent was 40% (95% CI, 12%-58%) less likely to drink to the point of drunkenness, 38% (95% CI, 5%-59%) less likely to binge drink, 39% (95% CI, 12%-58%) less likely to smoke cigarettes, and 43% (95% CI, 1%-67%) less likely to use marijuana than an adolescent whose friend's mother was neglectful, controlling for the parenting style of the adolescent's own mother, school-level fixed effects, and demographics. These results were only partially mediated by peer substance use. *Conclusions:* Social network influences may extend beyond the homogeneous dimensions of own peer or own parent to include extra-dyadic influences of the wider network. The value of parenting interventions should be reassessed to take into account these spillover effects in the greater network.

Slater, M.D., Kelley, K.J., Edwards, R.W., Thurman, P.J., Plested, B.A., Keefe, T.J., Lawrence, F.R., & Henry, K.L. (2006). Combining in-school and community-based media efforts: Reducing marijuana and alcohol uptake among younger adolescents. *Health Education Research, 21*(1)*,* 157-167.

This study tests the impact of an in-school mediated communication campaign based on social marketing principles, in combination with a participatory, community-based media effort, on marijuana, alcohol and tobacco uptake among middle-school students. Eight media treatment and eight control communities throughout the US were randomly assigned to condition. Within both media treatment and media control communities, one school received a research-based prevention curriculum and one

school did not, resulting in a crossed, split-plot design. Four waves of longitudinal data were collected over 2 years in each school and were analyzed using generalized linear mixed models to account for clustering effects. Youth in intervention communities (N = 4216) showed fewer users at final post-test for marijuana [odds ratio (OR) = 0.50, P = 0.019], alcohol (OR = 0.40, P = 0.009) and cigarettes (OR = 0.49, P = 0.039), one-tailed. Growth trajectory results were significant for marijuana (P = 0.040), marginal for alcohol (P = 0.051) and non-significant for cigarettes (P = 0.114). Results suggest that an appropriately designed in-school and community-based media effort can reduce youth substance uptake. Effectiveness does not depend on the presence of an in-school prevention curriculum.

Slater, M. D., Kelly, K. J., Lawrence, F. R., Stanley, L. R., & Comello, M. L. (2011). Assessing media campaigns linking marijuana non-use with autonomy and aspirations: "Be Under Your Own Influence" and ONDCP's "Above the Influence". *Prevention Science, 12*(1), 12-22.

Two media-based interventions designed to reduce adolescent marijuana use ran concurrently from 2005 to 2009. Both interventions used similar message strategies, emphasizing marijuana's inconsistency with personal aspirations and autonomy. "Be Under Your Own Influence" was a randomized community and school trial replicating and extending a successful earlier intervention of the same name (Slater et al. Health Education Research 21:157–167, 2006). "Above the Influence" is a continuing national television, radio, and print campaign sponsored by the Office of National Drug Control Policy (ONDCP). This study assessed the simultaneous impact of the interventions in the 20 U.S. communities. Results indicate that earlier effects of the "Be Under Your Own Influence" intervention replicated only in part and that the most plausible explanation of the weaker effects is high exposure to the similar but more extensive ONDCP "Above the Influence" national campaign. Self-reported exposure to the ONDCP campaign predicted reduced marijuana use, and analyses partially support indirect effects of the two campaigns via aspirations and autonomy.

Smith, D. K., Chamberlain, P., & Eddy, J. M. (2010). Preliminary support for multidimensional treatment foster care in reducing substance use in delinquent boys. *Journal of Child and Adolescent Substance Abuse*, *19*, 343–358.

Although effective outpatient treatments have been identified for the well-documented negative outcomes associated with delinquency and substance use, effective treatments for youths in out-of-home care are rare. In this study, 12- and 18-month substance use outcomes were examined for a sample of 79 boys who were randomly assigned to Multidimensional Treatment Foster Care (experimental condition) or to group care (comparison condition). The boys in the experimental condition had lower levels of self-reported drug use at 12 months, and lower levels of tobacco, marijuana, and other drug use at 18 months. Limitations and future directions are discussed.

Solomon, D., Battistich, V., Watson, M., Schaps, E., & Lewis, C. (2000). A six-district study of educational change: Direct and mediated effects of the Child Development Project. *Social Psychology of Education, 4*, 3-51.

A comprehensive elementary school program, the Child Development Project, was conducted in two schools in each of six school districts over a three-year period. Two additional schools in each district served as a comparison group. The program attempts to create a 'caring community of learners' in school and classroom through classroom, schoolwide, and parent involvement components. The classroom component includes student collaboration, a literature-based approach to reading, and a student-centered approach to classroom management. Classroom observation, student questionnaire, teacher questionnaire, and test data were collected in a baseline year and in each of the three years of program implementation. Results showed positive student results in the five program schools that made significant progress in implementation. Schools that progressed in implementation showed gains – relative to their comparison schools – in students' personal, social, and ethical attitudes, values, and motives. Significant effects on academic achievement were found only in two schools with a performance-based assessment and a highly consistent local reform mandate. Modeling analyses indicated that student sense of community was an important mediating variable for almost all dependent variables – indicating that the program produced positive effects to the degree that it was successful in establishing a caring community in the school.

Soper, A. C., Wolchik, S. A., Tein, J. Y., & Sandler, I. N. (2010). Mediation of a preventive intervention's 6-year effects on health risk behaviors. *Psychology of Addictive Behaviors, 24*(2), 300-310.

Using data from a 6-year longitudinal follow-up sample of 240 youth who participated in a randomized experimental trial of a preventive intervention for divorced families with children ages 9 to 12, the current study tested mechanisms by which the intervention reduced substance use and risky sexual behavior in mid to late adolescence (15-19 years old). Mechanisms tested included parental monitoring, adaptive coping, and negative errors. Parental monitoring at 6-year follow-up mediated program effects to reduce alcohol and marijuana use, polydrug use, and other drug use for those with high pretest risk for maladjustment. In the condition that included a program for mothers only, increases in youth adaptive coping at 6-year follow-up mediated program effects on risky sexual behavior for those with high pretest risk for maladjustment. Contrary to expectation, program participation increased negative errors and decreased adaptive coping among low-risk youth in some of the analyses. Ways in which this study furthers our understanding of pathways through which evidence-based preventive interventions affect health risk behaviors are discussed.

Spoth, R., Redmond, C., & Shin, C. (2001). Randomized trial of brief family interventions for general population: Adolescent substance use outcomes four years following baseline. *Journal of Consulting & Clinical Psychology, 69*(4), 627-642.

This study examined the long-term substance use outcomes of two brief interventions designed for general population families of young adolescents. Thirty-three public schools were randomly assigned to 3 conditions: the 5-session Preparing for the Drug Free Years Program, the 7-session Iowa Strengthening Families Program, and a minimal contact control condition. The pretest involved 667 6th graders and their families. Assessments included multiple measures of initiation and current use of alcohol, tobacco, and marijuana. Pretest data were collected in the 6th grade and the reported follow-up data were collected in the 10th grade. Significant intervention-control differences in initiation and current use were found for both interventions. It is concluded that brief family skills-training interventions designed for general populations have the potential to reduce adolescent substance use and thus have important public health implications.

Spoth, R., Redmond, C., Shin, C., & Azevedo, K. (2004). Brief family intervention effects on adolescent substance initiation: School-level growth curve analysis 6 years following baseline. *Journal of Consulting and Clinical Psychology*, *72*, 535-542.

This study examines the effects of 2 brief family-focused interventions on the trajectories of substance initiation over a period of 6 years following a baseline assessment. The 2 interventions, designed for general-population families of adolescents, were the 7-session Iowa Strengthening Families Program (ISFP) (Molgaard & Spoth, 2001) and the 5-session Preparing for the Drug Free Years Program (PDFY) (Catalano, Kosterman, Haggerty, Hawkins, & Spoth, 1999). Thirty-three rural public schools were randomly assigned to the ISFP, the PDFY, or a minimal-contact control condition. The authors evaluated the curvilinear growth observed in school-level measures of initiation using a logistic growth curve analysis. Alcohol and tobacco composite use indices-as well as lifetime use of alcohol, cigarettes, and marijuana-and lifetime drunkenness, were examined. Significant intervention-control differences were observed, indicating favorable delays in initiation in the intervention groups.

Spoth, R., Redmond, C., Shin, C., Greenberg, M., Clair, S., & Feinberg, M. (2007). Substance use outcomes at 18 months post baseline: The PROSPER Community-University Partnership Trial. *American Journal of Prevention Medicine, 32*(5), 395-402.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2869212/

St Pierre, T.L., Kaltreider, D.L., Mark, M.M., & Aikin, K.J. (1992). Drug prevention in a community setting: A longitudinal study of the relative effectiveness of a three-year primary prevention program in boys & girls clubs across the nation. *American Journal of Community Psychology*, *20*(6):673-706.

Tested the effectiveness of a youth drug prevention program in a community setting. Boys & Girls Clubs of America's Stay SMART program, adapted from a school-based personal and social competence drug prevention program, was offered, with and without a 2-year booster program, to 13-year-old members of Boys & Girls Clubs. Over 27 months, (a) 5 Boys & Girls Clubs offered the Stay SMART program, (b) 5 Boys & Girls Clubs offered the Stay SMART program with the booster programs, and (c) 4 Boys & Girls Clubs served as a control group. The Stay SMART program alone and the Stay SMART program with the booster programs showed effects for marijuana-related behavior, cigarette-related behavior, alcohol-related behavior, overall drug-related behavior, and knowledge concerning drug use. The Stay SMART program with the booster programs produced additional effects for alcohol attitudes and marijuana attitudes after each year of booster programs. Results suggest that a school-based personal and social competence program can be adapted effectively to a community setting and that booster programs might enhance program effects. Implications for alternative community models of prevention are discussed.

Stein, M. D., Hagerty, C. E., Herman, D. S., Phipps, M. G., & Anderson, B. J. (2011). A brief marijuana intervention for non-treatment-seeking young adult women. *Journal of Substance Abuse Treatment, 40*(2), 189-198.

We randomized 332 women, 18-24 years old, who were not explicitly seeking treatment for their marijuana use to either a two-session motivationally focused intervention or an assessment-only condition. Assessed by timeline follow-back methodology, participants reported using marijuana 57% of days in the three months prior to study entry. Intervention effects on the likelihood of marijuana use were not statistically significant at 1 month (odds ratio [OR] = 0.77, p = .17), significant at 3 months (OR = 0.53, p = .01), and no longer significant at 6 months (OR = 0.74, p = .20). Among the 61% of participants endorsing any desire to quit using marijuana at baseline, significant intervention effects on the likelihood of marijuana use days were observed at 1 month (OR = 0.42, p = .03), 3 months (OR = 0.31, p = .02), and 6 months (OR = 0.35, p = .03). A two-session brief motivational intervention reduced marijuana use among young women not seeking treatment. Women with a desire to quit showed a greater and more durable response.

Stein, L. A., Lebeau, R., Colby, S. M., Barnett, N. P., Golembeske, C., & Monti, P. M. (2011). Motivational interviewing for incarcerated adolescents: Effects of depressive symptoms on reducing alcohol and marijuana use after release. *Journal of Studies on Alcohol and Drugs, 72*(3), 497-506.

Objective: Motivational interviewing to reduce alcohol and marijuana use among incarcerated adolescents was evaluated. *Method:* Adolescents (N = 162, 84% male; M = 17.10 years old) were randomly assigned to receive motivational interviewing or relaxation training, with follow-up assessment 3 months after release. *Results:* Compared with those who received relaxation training, adolescents who received motivational interviewing had lower rates of alcohol and marijuana use at follow-up, with some evidence for moderating effects of depression. At low levels of depression, adolescents who received motivational interviewing had lower rates of use. Adolescents who received relaxation training and who had high levels of depressive symptoms early in incarceration showed less use at follow-up than those low in depressive symptoms who received relaxation training. *Conclusions:* This brief motivational interviewing intervention during incarceration reduces alcohol and marijuana use after release. In addition, depressive symptoms early in incarceration should be considered in treating these adolescents, but more work is needed to extend follow-up period and account for the impact of depression on outcomes.

Stephens, R. S., Roffman, R. A., Fearer, S., & Williams, C., & Burke, R. S. (2007). The Marijuana Check-Up: Promoting change in ambivalent marijuana users. *Addiction, 102*, 947-957.

Aims: To evaluate the efficacy of a two-session assessment and feedback intervention designed to reach and increase motivation for change in marijuana users who were experiencing negative consequences but were ambivalent about change. *Design:* Random assignment to one of two types of feedback conditions or a delayed feedback control (DFC) with follow-up assessments at 7 weeks, 6 months and 12 months. *Setting:* University of Washington research center in Seattle, Washington. *Participants:* A total of 188 adult male and female marijuana users who responded to advertisements. *Interventions:* A personalized feedback (PF) condition utilizing motivational interviewing was compared to an educational control condition labeled multi-media feedback (MMF). *Measurements:* Marijuana use, dependence symptoms, other associated negative consequences and motivational constructs were assessed at all time-points. *Findings:* PF participants reported fewer days of use per week, fewer periods of use per day and fewer dependence symptoms at 7 weeks than those in the MMF and DFC conditions. PF participants also reported fewer days of use per week compared to MMF participants at the 12-month follow-up and fewer dependence symptoms at both the 6- and 12-month follow-ups compared to MMF participants. *Conclusions:* The PF intervention, delivered in the context of a check-up, shows potential as a way of reaching and motivating change in marijuana users with a diagnosable disorder who otherwise are not ready to approach treatment. Ways of augmenting the modest absolute levels of change are discussed.

Stephens, P.C., Solboda, Z., Stephens, R., Teasdale, B., Grey, S.F., Hawthorne, R.D., & Williams, J. (2009). Universal school-based substance abuse prevention programs: Modeling targeted mediators and outcomes for adolescent cigarette, alcohol and marijuana use. *Drug and Alcohol Dependence, 102*(1-3), 19-29.

Objectives: We examined the relationships among targeted constructs of social influences and competence enhancement prevention curricula and cigarette, alcohol and marijuana use outcomes in a diverse sample of high school students. We tested the causal relationships of normative beliefs, perceptions of harm, attitudes toward use of these substances and refusal, communication, and decision-making skills predicting the self-reported use of each substance. In addition, we modeled the meditation of these constructs through the intentions to use each substance and tested the moderating effects of the skills variables on the relationships between intentions to use and self-reported use of each of these substances. *Methods:* Logistic regression path models were constructed for each of the drug use outcomes. Models were run using the Mplus 5.0 statistical application using the complex sample function to control for the sampling design of students nested within schools; full information maximum likelihood estimates (FIML) were utilized to address missing data. *Results:* Relationships among targeted constructs and outcomes differed for each of the drugs with communication skills having a potentially iatrogenic effect on alcohol use. Program targets were mediated through the intentions to use these substances. Finally, we found evidence of a moderating effect of decision-making skills on perceptions of harm and attitudes toward use, depending upon the outcome. *Conclusions:* Prevention curricula may need to target specific drugs. In addition to normative beliefs, perceptions of harm, and refusal and decision-making skills, programs should directly target constructs proximal to behavioral outcomes such as attitudes and intentions. Finally, more research on the effects of communication skills on adolescent substance use should be examined.

Sussman, S., Sun, P., McCuller, W. J., & Dent, C. W. (2003). Project Towards No Drug Abuse: Two-year outcomes of a trial that compares health educator delivery to self-instruction. *Preventive Medicine*, *37*(2), 155-162.

Objectives: This paper describes the 2-year follow-up of a 12-session version of an indicated drug abuse prevention program, Project Towards No Drug Abuse (TND). Self-instruction programming often is used to help youth that are at high risk for dropout and drug abuse to complete their high school education. However, a health educator-led program is much more interactive. *Methods:* The effects of self-instruction versus health educator-led versions of this curriculum were examined. Eighteen schools were randomly assigned by block to one of three conditions—standard care (control), health educator-led classroom program, and self-instruction classroom program. Subjects were followed up 1 and 2 years later. Two-year results are reported here. *Results:* The self-instruction program produced no behavioral effects relative to the standard care control condition. The 2-year follow-up results indicated maintenance of program effects on cigarette smoking and hard drug use in the health educator-led version. *Conclusions:*

Project TND shows maintenance of effects on some drugs 2 years after program implementation, when most youth were young adults. More work is needed to learn how to maintain effects across substances. Continued exploration of modalities of implementation may be helpful.

Sussman, S., Ping, S., Rohrbach, L. A., & Spruijt-Metz, D. (2012). One-year outcomes of a drug abuse prevention program for older teens and emerging adults: Evaluating a motivational interviewing booster component. *Health Psychology, 31*(4), 476-485.

Objective: The present study tested the efficacy of motivational interviewing-based booster sessions for Project Toward No Drug Abuse (TND), a 12-session school-based curriculum targeting youth at risk for drug abuse. In addition, generalization of effects to risky sexual behavior was assessed. The 1-year outcomes evaluation of the project is presented. *Method:* A total of 24 schools were randomized to one of three conditions: standard care control (SCC), TND classroom program only (TND-only), and TND plus motivational interviewing booster (TND + MI). A total of 1186 participants completed baseline and 1-year follow-up surveys. Following the classroom program, youth in the TND + MI condition received up to 3 sessions of MI in person or by telephone. Effects were examined on 30-day cigarette, alcohol, marijuana, and hard drug use, as well as measures of risky sexual behavior (number of sex partners, condom use, having sex while using drugs or alcohol). *Results:* Collapsed across the 2 program conditions, results showed significant reductions in alcohol use, hard drug use, and cigarette smoking relative to controls. These effects held for an overall substance use index. The MI booster component failed to achieve significant incremental effects above and beyond the TND classroom program. No effects were found on risky sexual behavior. *Conclusions:* While the program effects of previous studies were replicated, the study failed to demonstrate that an adequately implemented MI booster was of incremental value at 1-year follow-up.

Swan, M., Schwartz, S., Berg, B., Walker, D., Stephens, R., & Roffman, R. (2008). The Teen Marijuana Check-Up: An in-school protocol for eliciting voluntary self-assessment of marijuana use. *Journal of Social Work Practice in the Addictions, 8*(3), 284-302.

Given the prevalence of regular marijuana use among adolescents and the associated risks for adverse consequences to functioning, effective interventions are needed that are tailored to this population. To date, most such counseling approaches have relied on nonvoluntary participation by adolescent marijuana smokers and the outcomes have been only modestly successful. The Teen Marijuana Check-Up is a brief motivational enhancement intervention publicized as a nonpressured and confidential opportunity for the teen marijuana smoker to "take stock" of his or her use. The intervention is designed for in-school implementation and intended to elicit the teen's voluntary participation. This article highlights the manner in which adolescents are recruited, key intervention elements, the nature of the counseling style utilized, and clinical challenges. The outcomes of two trials with this intervention are briefly discussed.

Swift, W., Coffey, C., Carlin, J.B., Degenhardt, L., & Patton, G.C. (2008). Adolescent cannabis users at 24 years: Trajectories to regular weekly use and dependence in young adulthood. *Addiction, 103*(8), 1361-1370.

http://www.ncbi.nlm.nih.gov/pubmed/18855826

Tang, Z. & Orwin, R. G. (2009). Marijuana initiation among American youth and its risks as dynamic processes: Prospective findings from a national longitudinal study. *Substance Use & Misuse*, *44*(2), 195-211.

http://www.ncbi.nlm.nih.gov/pubmed/19142821

Temple, J. R., van den Berg, P., Thomas, J. F., Northcutt, J., Thomas, C., & Freeman, D. H. Jr. (2011). Teen dating violence and substance use following a natural disaster: Does evacuation status matter? *American Journal of Disaster Medicine*, *6*(4), 201206.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3292852/

Terry-McElrath, Y.M., & O'Malley, P.M. (2011). Substance use and exercise participation among young adults: Parallel trajectories in a national cohort-sequential study. *Addiction*, *106*(10), 1855-1865.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3174354/

Thompson, R. G., & Hasin, D. S. (2011). Cigarette, marijuana, and alcohol use and prior drug treatment among newly homeless young adults in New York City: Relationship to a history of foster care. *Drug and Alcohol Dependence*, *117*(1), 66-69.

Background: This study examined whether a history of foster care was associated with the risk for substance use among newly homeless young adults, controlling for demographics and other risk factors. *Methods:* Multiple logistic regression analyses, adjusted for controls, among consecutive admissions of 424 newly homeless young adults (18-21 years), determined the association between foster care and substance use. *Results:* A history of foster care was reported by 35% of the sample. Alcohol, marijuana, and cigarettes were the most frequently used substances. After adjusting for demographics, childhood emotional, physical, and sexual abuse, prior arrest, unemployment, lack of high school diploma, and family drug use, homeless young adults with histories of foster care were: three times as likely to smoke cigarettes (AOR=3.09); more than three times as likely to use marijuana (AOR=3.30); and almost nine times as likely to have been in drug treatment (AOR=8.81) than those without such histories. *Conclusions:* It is important to screen homeless young adults who exited foster care for substance use, particularly cigarettes and marijuana. Risk reduction interventions should be targeted and tailored to their substance prevention needs.

Tobler, A. L., & Komro, K. A. (2010). Trajectories of parental monitoring and communication and effects on drug use among urban young adolescents. *Journal of Adolescent Health*, *46*(6), 560-568.

Purpose: Identify the number and characteristics of heterogeneous trajectories of parental monitoring and communication among a sample of urban, racial/ethnic minority youth and examine the effects of these patterns on alcohol, cigarette and marijuana use. *Methods:* The study sample (n=2,621) was predominantly African American or Hispanic (38% and 32%, respectively) and low-income (67% received free, or reduced price, lunch). They completed classroom-based surveys when in 6th-8th grades. Multilevel general growth mixture modeling was used to identify the heterogeneous trajectories of parental monitoring and communication and estimate the effects of these distinct patterns on drug use in 8th grade. *Results:* Four trajectories of parental monitoring and communication were identified: (1) High (76.4%), (2) Medium (9.1%), (3) Decreasing (6.0%) and (4) Inconsistent (8.5%). Relative to those with high monitoring/communication, youth in the decreasing and inconsistent trajectories were at significantly greater risk for past year and past month alcohol and marijuana use and having ever smoked a cigarette. After controlling for family composition, only youth in the decreasing trajectory were significantly more likely to report substance use in 8th grade. *Conclusions:* Findings support the role of parents in preventing drug use during early adolescence and suggest that efforts to improve the level and consistency of parental monitoring and communication may be a fruitful target for prevention. Many youth initiate use of alcohol, tobacco or marijuana in this critical developmental period and considered with the health and social consequences of use, engaging parents in preventing drug use should remain a priority for prevention.

Tobler, A. L., Komro, K. A., Dabroski, A., Aveyard, P., & Markham, W. A. (2011). Preventing the link between SES and high-risk behaviors: "Value added" education, drug use and delinquency in high-risk urban schools. *Prevention Science*, *12*(2), 211-212.

We examined whether schools achieving better than expected educational outcomes for their students influence the risk of drug use and delinquency among urban, racial/ethnic minority youth. Adolescents (n = 2,621), who were primarily African American and Hispanic and enrolled in Chicago public schools (n = 61), completed surveys in 6th (aged 12) and 8th (aged 14) grades. Value-added education was derived from standardized residuals of regression equations predicting school-level academic achievement and attendance from students' sociodemographic profiles and defined as having higher academic achievement and attendance than that expected given the sociodemographic profile of the schools' student composition. Multilevel logistic regression estimated the effects of value-added education on students' drug use and delinquency. After considering initial risk behavior, value-added education was associated with lower incidence of alcohol, cigarette and marijuana use; stealing; and participating in a group-against-group fight. Significant beneficial effects of value-added

education remained for cigarette and marijuana use, stealing and participating in a group-against-group fight after adjustment for individual- and school-level covariates. Alcohol use (past month and heavy episodic) showed marginally significant trends in the hypothesized direction after these adjustments. Inner-city schools may break the links between social disadvantage, drug use and delinquency. Identifying the processes related to value-added education in order to improve school environments is warranted given the high costs associated with individual-level interventions.

Tonin, S.L., Burrow-Sanchez, J.J., Harrison, R.S., & Kircher, J.C. (2008). The influence of attitudes, acculturation and gender on substance use for Mexican American middle school students. *Addictive Behaviors*, *33*(7), 494-954.

The present study tested if current drug use was related to acculturation (measured by language spoken at home), gender, or youth attitudes towards drugs in a large sample of 8th grade, predominantly Mexican American, Hispanic youth. The data were obtained via self-report survey from 2964 Hispanic youth in 108 schools. Hierarchical linear modeling (HLM) was used to test if acculturation, gender, or youth attitudes towards drugs predicted past 30-day use of alcohol, inhalant, or marijuana use and assess school-level influences. Acculturation and gender interacted with attitudes towards drugs to predict current alcohol use. Gender interacted with attitudes towards drugs to predict current alcohol and inhalant use. Having positive attitudes towards drugs was related to increased substance use for all three drug types. Hispanic eighth grade girls had significantly higher use rates than boys for both alcohol and inhalants. Additional research is needed to better understand the influence of acculturation on substance use among Hispanic youth.

Tu, A.W., Ratner, P.A., & Johnson, J.L. (2008). Gender differences in the correlates of adolescents' cannabis use. *Substance Use and Misuse*, *43*(10), 1438-1463.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2562034/

Tucker, J. S., Green, H.D. Jr., Zhou, A. J., Miles, J. N., Shih, R. A., D'Amico, E. J. (2011). Substance use among middle school students: Associations with self-rated and peer-nominated popularity. *Journal of Adolescence*, *34*(3), 513-519.

Associations of popularity with adolescent substance use were examined among 1793 6-8th grade students who completed an in-school survey. Popularity was assessed through both self-ratings and peer nominations. Students who scored higher on either measure of popularity were more likely to be lifetime cigarette smokers, drinkers, and marijuana users, as well as past month drinkers. Self-rated popularity was positively associated with past month marijuana use and heavy drinking, and peer-nominated popularity showed a quadratic association with past month heavy drinking. These results extend previous work and highlight that popularity, whether based on self-perceptions or peer friendship nominations, is a risk factor for substance use during

middle school. Given the substantial increase in peer influence during early adolescence, prevention program effectiveness may be enhanced by addressing popularity as a risk factor for substance use or working with popular students to be peer leaders to influence social norms and promote healthier choices.

Turner-Musa, J. O., Rhodes, W. A., Harper, P. T. H., & Quinton, S. L. (2008). Hip Hop to Prevent Substance Abuse and HIV among African American youth: A preliminary investigation. *Journal of Drug Education, 38*(4), 351-365.

Substance use and HIV risk behaviors are increasing among African-American youth. Interventions that incorporate youth values and beliefs are needed to reduce this trajectory. Hip-hop plays an important role in the lives of many African-American youth and provides a context within which to prevent risky behaviors. The current study examines the efficacy of a hip-hop based substance use and HIV preventive intervention that targets African-American middle-school youth. The sample consists of 68 middle-school students who completed baseline and 6-month follow-up assessments. Findings suggest that students in the intervention group were significantly more likely to have higher knowledge of perception of drug risk and more knowledge about HIV/AIDS compared to students in the comparison group at the 6-month post-intervention assessment. Discussion is centered on implications of hip-hop as a viable approach for preventing substance use and HIV within a high-risk group.

Unger, J. B., Ritt-Olson, A., Soto, D. W., & Baezconde-Garbanati, L. (2009). Parent-child acculturation discrepancies as a risk factor for substance use among Hispanic adolescents in Southern California. *Journal of Immigrant & Minority Health*, *11*(3), 149-157.

Theories of acculturation predict that discrepancies in cultural orientation between adolescents and their parents will increase the adolescents' risk for behavior problems such as substance use. This study evaluated this hypothesis in a sample of 1772 Hispanic 9th grade students in Southern California. Parent-child discrepancy in U.S. orientation (defined as the difference between the child's U.S. orientation and the child's perception of the parents' U.S. orientation) was a risk factor for past-month smoking, lifetime and past-month alcohol use, and lifetime and past-month marijuana use. Parent-child discrepancy in Hispanic orientation (defined as the difference between the child's Hispanic orientation and the child's perception of the parents' Hispanic orientation) was a risk factor for lifetime and past-month alcohol and marijuana use. The adolescents' own Hispanic orientation was protective against lifetime and past-month smoking and marijuana use, but not alcohol use. In an analysis of mediation, U.S. acculturation discrepancy was associated with lower levels of family cohesion, which in turn was associated with higher levels of substance use. Results suggest that family-based interventions for acculturating and bicultural Hispanic families may be useful in decreasing the likelihood of substance use among Hispanic adolescents.

Van Horn, M.L., Hawkins, J.D., Arthur, M.W., & Catalano, R.F. (2007). Assessing community effects on adolescent substance use and delinquency. *Journal of Community Psychology, 35*(8), 924-946.

Over the past five years, a great deal of attention has been paid to the development of early warning systems for dropout prevention. These warning systems use a set of indicators based on official school records to identify youth at risk for dropout and then appropriately target intervention. The current study builds on this work by assessing the extent to which a school disengagement warning index predicts not only dropout but also other problem behaviors during middle adolescence, late adolescence, and early adulthood. Data from the Rochester Youth Development Study (N = 911, 73% male, 68% African American, and 17% Latino) were used to examine the effects of a school disengagement warning index based on official 8th and 9th grade school records on subsequent dropout, as well as serious delinquency, official offending, and problem substance use during middle adolescence, late adolescence, and early adulthood. Results indicate that the school disengagement warning index is robustly related to dropout as well as serious problem behaviors across the three developmental stages, even after controlling for important potential confounders. High school dropout mediates the effect of the warning index on serious problem behaviors in early adulthood.

Vaske, J. (2013). Interaction of the TaqIA polymorphism and poor parental socialization on changes in adolescent marijuana use. *Substance Use & Misuse*, *48*(3), 258-264.

The current study uses data from the genetic subsample from the National Longitudinal Study of Adolescent Health (Add Health) in waves I and II (ages of 11-19 and 12-20 respectively) to investigate the interaction of the TaqIA polymorphism and poor parental socialization on changes in adolescent marijuana use. Results reveal that TaqIA interacts with poor parental rule setting, but not quality of mother-child communication, to influence changes in marijuana use. Adolescents who are homozygous for the A1 and whose parents allow the youth to set their own curfew experience significant increases in marijuana use during adolescence. In contrast, youths with the A1/A1 genotype whose parents do not allow the adolescent to set their own curfew experience significant decreases in the frequency of marijuana use. These results suggest that direct parental social control may effectively suppress the genetic risk of the A1/A1 genotype on marijuana use in adolescence. The study's limitations are noted.

Waldron, H. B., Slesnick, N., Brody, J. L., Turner, C. W., & Peterson, T. R. (2001). Treatment outcomes for adolescent substance abuse at 4- and 7-month assessments. *Journal of Consulting and Clinical Psychology, 69*, 802-813.

This randomized clinical trial evaluated individual cognitive-behavioral therapy (CBT), family therapy, combined individual and family therapy, and a group intervention for 114 substance-abusing adolescents. Outcomes were percentage of days marijuana was

used and percentage of youths achieving minimal use. Each intervention demonstrated some efficacy, although differences occurred for outcome measured, speed of change, and maintenance of change. From pretreatment to 4 months, significantly fewer days of use were found for the family therapy alone and the combined interventions. Significantly more youths had achieved minimal use levels in the family and combined conditions and in CBT. From pretreatment to 7 months, reductions in percentage of days of use were significant for the combined and group interventions, and changes in minimal use levels were significant for the family, combined, and group interventions.

Walker, D. D., Neighbors, C., Rodriguez, L. M., Stephens, R. S., Roffman, R. A. (2011). Social norms and self-efficacy among heavy using adolescent marijuana smokers. *Psychology of Addictive Behaviors*, *25*(4), 727-732.

Adolescence is a time in which individuals are particularly likely to engage in health-risk behaviors, with marijuana being the most prevalent illicit drug used. Perceptions of others' use (i.e., norms) have previously been found to be related to increased marijuana use. Additionally, low refusal self-efficacy has been associated with increased marijuana consumption. This cross-sectional study examined the effects of normative perceptions and self-efficacy on negative marijuana outcomes for a heavy using adolescent population. A structural equation model was tested and supported such that significant indirect paths were present from descriptive norms to marijuana outcomes through self-efficacy. Implications for prevention and intervention with heavy using adolescent marijuana users are discussed.

Walker, D. D., Roffman, R. A., Stephens, R. S., Wakana, K., & Berghuis, J. (2006). Motivational enhancement therapy for adolescent marijuana users: A preliminary randomized controlled trial. *Journal of Consulting and Clinical Psychology, 74*(3), 628-632.

This study's aims were (a) to investigate the feasibility of a school-based motivational enhancement therapy (MET) intervention in voluntarily attracting adolescents who smoke marijuana regularly but who are not seeking formal treatment and (b) to evaluate the efficacy of the intervention in reducing marijuana use. Ninety-seven adolescents who had used marijuana at least 9 times in the past month were randomly assigned to either an immediate 2-session MET intervention or to a 3-month delay condition. Two thirds of the sample characterized themselves as in the pre-contemplation or contemplation stages of change regarding marijuana use. Participants' marijuana use and associated negative consequences were assessed at baseline and at a 3-month follow-up. Analyses revealed that both groups significantly reduced marijuana use at the 3-month follow-up ($p = .001$); however, no between-group differences were observed. Despite the absence of a clear effect of MET, this study demonstrated that adolescents could be attracted to participate in a voluntary marijuana intervention that holds promise for reducing problematic levels of marijuana use.

Walker, D. D., Stephens, R., Roffman, R., DeMarce, J., Lozano, B., Towe, S., & Berg, B. (2011). Randomized controlled trial of motivational enhancement therapy with nontreatment-seeking adolescent cannabis users: A further test of the teen marijuana check-up*. Psychology of Addictive Behaviors, 25*(3), 474-484.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3177997/

Wenzel, S.L., Tucker, J. S., Golinelli, D., Green, H.D., & Zhou, A. (2010). Personal network correlates of alcohol, cigarette, and marijuana use among homeless youth. *Drug and Alcohol Dependence, 112*(1-2), 140-149.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3683450/

Werch, C. E., Bian, H., Carlson, J. M., Moore, M. J., DiClemente, C. C., Huang, I. C, …& Pokorny, S. B. (2011). Brief integrative multiple behavior intervention effects and mediators for adolescents. *Journal of Behavioral Medicine, 34*(1), 3-12.

This study evaluated the efficacy of a brief integrative multiple behavior intervention and assessed risk factors as mediators of behavioral outcomes among older adolescents. A randomized controlled trial was conducted with participants randomly assigned to either a brief intervention or standard care control with 3-month follow-up. A total of 479 students attending two public high schools participated. Participants receiving the intervention showed a significant reduction in quantity × frequency of alcohol use, and increases in fruit and vegetable consumption and frequency of relaxation activities, compared to those receiving the control, P's = .01. No effects were found on cigarette and marijuana use, exercise and sleep. Effect sizes were small with alcohol use cessation effects reaching medium size. Intervention effects were mediated by changes in peer influenceability for alcohol use, and self-efficacy and self-image for health promoting behaviors. Findings suggest that the brief intervention resulted in health risk and promoting behavior improvements for adolescents, with outcomes mediated by several risk factors.

Werch, C. E., Moore, M. J., Bian, H., DiClemente, C. C., Ames, S. C., Weiler, R. M., & ... Huang, I. (2008). Efficacy of a brief image-based multiple-behavior intervention for college students. *Annals of Behavioral Medicine*, *36*(2), 149-157.

Background: Epidemiologic data indicate most adolescents and adults experience multiple, simultaneous risk behaviors. Purpose: The purpose of this study is to examine the efficacy of a brief image-based multiple-behavior intervention (MBI) for college students. *Methods:* A total of 303 college students were randomly assigned to: (1) a brief MBI or (2) a standard care control, with a 3-month postintervention follow-up. *Results:* Omnibus treatment by time multivariate analysis of variance interactions were significant for three of six behavior groupings, with improvements for college students receiving the brief MBI on alcohol consumption behaviors, F(6, 261) = 2.73, p = 0.01,

marijuana-use behaviors, F(4, 278) = 3.18, p = 0.01, and health-related quality of life, F(5, 277) = 2.80, p = 0.02, but not cigarette use, exercise, and nutrition behaviors. Participants receiving the brief MBI also got more sleep, F(1, 281) = 9.49, p = 0.00, than those in the standard care control. *Conclusions:* A brief image-based multiple-behavior intervention may be useful in influencing a number of critical health habits and health-related quality-of-life indicators of college students.

Werch, C. E., Moore, M. J., DiClemente, C. C., Bledsoe, R., & Jobli, E. (2005). A multi-health behavior intervention integrating physical activity and substance use prevention for adolescents. *Prevention Science*, *6*(3), 213-226.

http://www.ncbi.nlm.nih.gov/pubmed/16133900

Werch, C. E., Young, M., Clark, M., Garrett, C., Hooks, S., & Kersten, C. (1991). Effects of a take-home drug prevention program on drug-related communication and beliefs of parents and children. *Journal of School Health*, *61*(8), 346-350.

Five hundred and eleven fourth, fifth, and sixth grade students and their parents from six schools in northwest Arkansas participated in this study. Students were blocked on school and grade level, then assigned randomly by class to either the intervention Keep A Clear Mind (KACM) program or a waiting list control. KACM students received four weekly correspondence lessons designed to be completed at home with a parent. KACM students reported significantly less perceived peer use of alcohol, tobacco, and marijuana, as well as significantly less peer pressure susceptibility to experiment with cigarettes. Mothers in the KACM program reported significantly more recent and frequent communication with their children about refusing drugs, and significantly greater discussions with their children regarding how to resist peer pressure to use alcohol, tobacco, and marijuana. Intervention program fathers reported significantly more communication with their children concerning how to resist peer pressure to drink alcohol and use tobacco, and significantly greater motivation to help their children avoid drug use. No significant differences were found between groups on student intentions to use drugs. These data suggest a print medium that emphasizes parent-child activities holds promise for accessing families and enhancing drug prevention communication.

White, H.R., McMorris, B.J., Catalano, R.F., Fleming, C.B., Haggerty, K.P., & Abbot, R.D. (2006). Increases in alcohol and marijuana use during the transition out of high school into emerging adulthood: The effects of leaving home, going to college and high school protective factors. *Journal of Studies on Alcohol*, *67*(6), 810-822.

Objective: This study examined the effects of leaving home and going to college on changes in the frequency of alcohol use, heavy episodic drinking, and marijuana use shortly after leaving high school. We also examined how protective factors in late adolescence predict post-high school substance use and moderate the effects of leaving home and going to college. *Method:* Data came from subjects (N = 319; 53% male)

interviewed at the end of 12th grade and again approximately 6 months later, as part of the Raising Healthy Children project. *Results:* Leaving home and going to college were significantly related to increases in the frequency of alcohol use and heavy episodic drinking from high school to emerging adulthood but not to changes in marijuana use. Having fewer friends who used each substance protected against increases in the frequency of alcohol use, heavy episodic drinking, and marijuana use. Higher religiosity protected against increases in alcohol-and marijuana-use frequency. Higher parental monitoring protected against increases in heavy episodic drinking and moderated the effect of going to college on marijuana use. Lower sensation seeking lessened the effect of going to college on increases in alcohol use and heavy episodic drinking. *Conclusions:* To prevent increases in substance use in emerging adulthood, interventions should concentrate on strengthening prosocial involvement and parental monitoring during high school. In addition, youths with high sensation seeking might be targeted for added intervention.

Wymbs, B. T., McCarty, C. A., King, K.M., McCauley, E., Vander Stoep, A., Baer, J.S., & Waschbusch, D.A. (2012). Callous-unemotional traits as unique prospective risk factors for substance use in early adolescent boys and girls. *Journal of Abnormal Child Psychology*, *40*(7), 1099-1110.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3534821/

Yabiku, S. T., Marsiglia, F. F., Kulis, S., Parsai, M. B., Becerra, D., & del Colle, M. (2010). Parental monitoring and changes in substance use among Latino/a and Non-Latino/a pre-adolescents in the southwest. *Substance Use & Misuse*, *45*(14), 2524-2550.

Prior research shows parental monitoring is associated with less substance use, but these studies have some limitations. Many examine older adolescents from White, Euro-American heritage, and cross-sectional studies are unable to test if parental monitoring decreases substance use over time. We address these limitations with longitudinal data of 2,034 primarily Latino preadolescents in Phoenix, Arizona in 2004-2005. We use multilevel regression with multiple imputation of missing data. We find parental monitoring has beneficial, longitudinal effects on youth's substance use and related intentions, norms, and attitudes. Effects are invariant to gender or Latino ethnicity, except in the case of marijuana.

Young, M., Kersten, C., & Werch, C. (1996). Evaluation of a parent child drug education program. *Journal of Drug Education*, *26*(1), 57-68.

The purpose of the study was to evaluate the effectiveness of a parent-child drug education program. One thousand four hundred and forty-seven fourth, fifth, and sixth grade students and 2,036 of their parents participated in the study. Results indicated that the program produced changes in the responses of children and their parents to questions concerning attitudes, use, perceptions of use, and intended use of drugs.

Zonnevylle-Bender, M. S., Matthys, W., van de Wiel, N. H., & Lochman, J. E. (2007). Preventive effects of treatment of disruptive behavior disorder in middle childhood on substance use and delinquent behavior. *Journal of the American Academy of Child and Adolescent Psychiatry*, *46*(1), 33-39.

Objective: Disruptive behavior disorder (DBD) is a well-known risk factor for substance abuse and delinquent behavior in adolescence. Therefore, the long-term preventive effects of treatment of DBD in middle childhood on beginning substance use and delinquency in early adolescence were investigated. *Method:* Children with DBD (8-13 years old) had been randomly assigned to manualized behavior therapy (Utrecht Coping Power Program; UCPP) or to care as usual (CU) in the Netherlands. Five years (2003-2005) after the start of treatment (1996-1999), substance use and delinquency were monitored in 61 of the initial 77 adolescents and compared with a matched healthy control group by means of self-report questionnaires. One-factor analyses of variance and Pearson's chi2 analyses were performed. *Results:* Differences in substance use were revealed in favor of the UCPP, with more adolescents in the CU group smoking cigarettes in the last month (UCPP 17%, CU 42%; chi2 = 4.7; p < .03) and more adolescents in the CU group having ever used marijuana (UCPP 13%, CU 35%; chi2 = 4.0; p < .045). Moreover, in this respect, the UCPP fit in the range of the matched healthy control group. Both treatment groups were comparable to the matched healthy control group in delinquent behavior. *Conclusions:* Manualized behavior therapy for DBD in middle childhood seems to be more powerful than CU in reducing substance use in early adolescence. Both treatment conditions show a beneficial long-term preventive effect on delinquency.

Literature Reviews

Mellanby, A.R., Rees, J.B., & Tripp, J.H. (2000). Peer-led and adult-led school health education: A critical review of available comparative research. *Health Education Research, 15*(5), 533-545.

Peer-led health education in school is widely used. Advocates suggest it is an effective method based on the belief that information, particularly sensitive information, is more easily shared between people of a similar age. Critics suggest that this is a method not based on sound theory or evidence of effectiveness. This review evaluates school-based health education programmes which have set out to compare the effects of peers or adults delivering the same material. The identified studies indicated that peer leaders were at least as, or more, effective than adults. Although this suggests that peer-led programmes can be effective, methodological difficulties and analytical problems indicate that this is not an easy area to investigate, and research so far has not provided a definitive answer.

Norberg, M.M., Kezelman, S., & Lim-Howe, N. (2013). Primary prevention of cannabis use: A systematic review of randomized controlled trials. *PLoS ONE 8*(1), e53187.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3543459/

META-ANALYSES

Creemers, H.E., Dijkstra, J.K., Vollebergh, W.A.M., Ormel, J., Verhaulst, F.C., & Huizink, A.C. (2009). Predicting life-time and regular cannabis use during adolescence: The roles of temperament and peer substance use: The TRAILS study. *Addiction*, *105*(4), 699-708.

http://www.ncbi.nlm.nih.gov/pubmed/20148797

Creemers, H.E., Verhulst, F.C., & Huizink, A.C. (2009). Temperamental risk factors for adolescent cannabis use: A systematic review of prospective general population studies. *Substance Use and Misuse*, *44*(13), 1833-1854.

In order to establish the evidence for prospective relationships between temperamental and personality indicators of behavioral undercontrol and adolescent cannabis use, we systematically searched relevant papers published through April 2008. We assessed and evaluated 14 studies, of which only 4 were considered of high quality. Using "best evidence" synthesis, we found weak to moderate evidence for prospective relations between a combination of high approach and low avoidance and several measures of cannabis use. The study's limitations are noted. This review provides suggestions and recommendations for future studies in this area.

Derzon, J.H. (2007). Using correlational evidence to select youth for prevention programming. *Journal of Primary Prevention*, *28*(5), 421-447.

http://www.ncbi.nlm.nih.gov/pubmed/17990119

Lac, A., & Crano, W.D. (2009). Monitoring matters: Meta-analytic review reveals the reliable linkage of parental monitoring with adolescent marijuana use. *Perspectives on Psychological Science*, *4*(6), 578-586.

http://pps.sagepub.com/content/4/6/578.short

Lundahl, B. & Burke, B.L. (2009). The effectiveness and applicability of motivational interviewing: A practice-friendly review of four meta-analyses. *Journal of Clinical Psychology, 65*(11), 1232-1245.

http://www.ncbi.nlm.nih.gov/pubmed/19739205

Lundahl, B.W., Kuntz, C., Brownell, C., Tollefson, D.T., & Burke, B.L. (2010). A meta-analysis of motivational interviewing: Twenty-five years of empirical studies. *Research on Social Work Practice, 20*(2), 137-160.

> *Objective:* The authors investigated the unique contribution motivational interviewing (MI) has on counseling outcomes and how MI compares with other interventions. *Method:* A total of 119 studies were subjected to a meta-analysis. Targeted outcomes included substance use (tobacco, alcohol, drugs, marijuana), health-related behaviors (diet, exercise, safe sex), gambling, and engagement in treatment variables. *Results:* Judged against weak comparison groups, MI produced statistically significant, durable results in the small effect range (average g = 0.28). Judged against specific treatments, MI produced non-significant results (average g = 0.09). MI was robust across many moderators, although feedback (Motivational Enhancement Therapy [MET]), delivery time, manualization, delivery mode (group vs. individual), and ethnicity moderated outcomes. *Conclusions:* MI contributes to counseling efforts, and results are influenced by participant and delivery factors.

Additional Recommended Reading

Komono, K.A., & Toomey, T.L. (2002). Strategies to prevent underage drinking. *Alcohol Research and Health, 26*, 5-14.

> Alcohol use by underage drinkers is a persistent public health problem in the United States, and alcohol is the most commonly used drug among adolescents. Accordingly, numerous approaches have been developed and studied that aim to prevent underage drinking. Some approaches are school based, involving curricula targeted at preventing alcohol, tobacco, or marijuana use. Other approaches are extracurricular, offering activities outside of school in the form of social or life skills training or alternative activities. Other strategies strive to involve the adolescents' families in the prevention programs. Policy strategies also have been implemented that have increased the minimum legal drinking age, reduced the commercial and social access of adolescents to alcohol, and reduced the economic availability of alcohol. Approaches involving the entire community also have been employed. Several programs (e.g., the Midwestern Prevention Project and Project Northland) have combined many of these strategies.

Shamblen, S.R., & Derzon, J.H. (2009). A preliminary study of the population-adjusted effectiveness of substance abuse prevention programming: Towards making IOM program types comparable. *Journal of Primary Prevention, 30*, 89-107.

> The Institute of Medicine distinguishes between programs based on who is targeted: the entire population (universal), those at risk (selective), or persons exhibiting the early stages of use or related problem behavior (indicated). Evaluations suggest that although

universal programs can be effective in reducing and preventing substance use, selective and indicated programs are both more effective and have greater cost-benefit ratios. This paper tests these assumptions by comparing the impact of these program types in reducing and preventing substance use at the individual level (i.e., those exposed to intervention services) and in the population (i.e., those exposed and not exposed to intervention services). A meta-analysis was performed on 43 studies of 25 programs to examine program comparability across IOM categories. When examining unadjusted effect sizes at the individual level, universal programs were modestly more successful in reducing tobacco use, but selective and indicated programs were modestly more successful in reducing alcohol and marijuana use. When adjusted to the population level, the average effect sizes for selective and indicated programs were reduced by approximately half. At the population level, universal programs were more successful in reducing tobacco and marijuana use and selective and indicated programs were more successful in reducing alcohol use. Editors' Strategic Implications: the authors' focus on the public health value of a prevention strategy is compelling and provides a model for analyses of other strategies and content areas.

Sumnall, H. R., & Bellis, M. A. (2007). Can health campaigns make people ill? The iatrogenic potential of population-based cannabis prevention. *Journal of Epidemiology and Community Health, 61*(11), 930-931.

In the UK and elsewhere, social marketing is becoming a major feature of health-improvement strategies. Based on marketing techniques developed for commercial sales, social marketing uses imagery (e.g., television, magazines, internet and billboards) and phrases (e.g., radio adverts and slogans) specifically aimed at target groups (e.g., young people), typically to increase their positive health behaviours. Both national organizations and local health services routinely develop such interventions, often with little evidence of specifically how each campaign will affect public health. In general, such campaigns are regarded as potentially beneficial and possibly ineffective, but rarely are they considered dangerous to health. However, with access to powerful media such as the internet, professional eye-catching graphics and demographic targeting techniques unimaginable only a decade ago, such views need reassessing. In this report, we highlight the potential for social marketing campaigns to have negative repercussions, using cannabis prevention as an example.