

School-based marijuana and alcohol prevention programs targeting adolescents aged 10-15: Evidence and implications for public health

Review on which this evidence summary is based:

Lemstra, M., Bennett, N., Nannapaneni, U., Neudorf, C., Warren, L., Kershaw, T., & Scott, C. (2010). A systematic review of school-based marijuana and alcohol prevention programs targeting adolescents aged 10–15. *Addiction Research and Theory*, 18(1), 84-96.

Review Focus

P	Adolescents aged 10-15 years
I	Knowledge-based programs (provision of anti-drug information delivered in a school setting) OR comprehensive type (provision of anti-drug information <i>plus</i> developing refusal, self-management, and social skills)
C	No exposure or knowledge only (e.g. pamphlet)
O	<i>Primary Outcomes:</i> Long-term reduction in marijuana/alcohol use (defined as at least once per month) <i>Secondary Outcomes:</i> Effectiveness of knowledge-based interventions vs. comprehensive type prevention programs

Review Quality Rating: 9 (strong) *Details on the methodological quality are available [here](#).*

Considerations for Public Health Practice

Conclusions from Health Evidence	General Implications
<p>This is a well-done systematic review based on six primary studies of good methodological quality</p> <p>Comprehensive program content generated:</p> <ul style="list-style-type: none"> a mean reduction of 12 days of alcohol use/month and 7 days of marijuana use/month, among those aged 10-15 years <p>Knowledge-only program generated:</p> <ul style="list-style-type: none"> a mean reduction in alcohol use of 2 days/month among those aged 10-15 years (but not statistically significant) results from one study showed a statistically significant reduction in marijuana use of 25 days/month. <p>All studies relied on self-report data for measuring alcohol and marijuana use, and no studies took into account other confounding factors (e.g. age, gender, socioeconomic status).</p>	<p>Based on this review, public health decision-makers <i>should</i> promote and/or support:</p> <ul style="list-style-type: none"> Comprehensive, school-based alcohol and marijuana prevention interventions, of at least one year duration, that include skill development (e.g. refusal skills, self management skills, and social skills), for those aged 10-15 years. School-based knowledge-only programs but <i>only</i> if comprehensive programming is not possible. <p>Based on this review, <i>there is very limited evidence suggesting knowledge-only programs reduce marijuana use, however given the evidence is limited to one study at this time, these results must be interpreted cautiously.</i></p> <p>Given use of self-report measures, primary study findings may overestimate the <i>true</i> treatment effect. Therefore, upon program implementation, its impact should be evaluated and determine if effectiveness changes with age, gender, culture, and/or socioeconomic status.</p>

Evidence and Implications

What's the evidence?	Implications for practice and policy
<p>1. Comprehensive Programs (5 studies)</p> <ul style="list-style-type: none"> <i>Alcohol use</i> (3 studies) – achieved a mean absolute reduction of 12 days/month [Mean Usage Ratio (MUR) 0.88, 95%CI 0.87-0.89], compared to no intervention. 	<p>1. Comprehensive Programs</p> <ul style="list-style-type: none"> Public health and school officials should promote and support long-term (i.e. > one year), school-based, comprehensive alcohol and marijuana

<ul style="list-style-type: none"> • <i>Marijuana use</i> (2 studies) – achieved a mean absolute reduction of 7 days/month (MUR 0.93, 95%CI 0.92-0.94), compared to no intervention. 	<p>prevention programming for students aged 10-15 years.</p> <ul style="list-style-type: none"> • Programming that includes the development of life skills, refusal skills and self-management skills is preferable to knowledge-only programs to reduce alcohol and marijuana use.
<p>2. Knowledge-only Programs</p> <ul style="list-style-type: none"> • <i>Alcohol use</i> (2 studies) – (MUR 0.98, 95% 0.92-1.04). • <i>Marijuana use</i> – a single study showed a reduction in marijuana use (MUR 0.75, 95%CI 0.63-0.87). 	<p>2. Knowledge-only Programs</p> <ul style="list-style-type: none"> • Public health and school officials investing in new school-based programming, to reduce <i>both</i> alcohol and marijuana use, should implement programs that include a skill development focus.
<p>Legend: P – Population; I – Intervention; C – Comparison group; O – Outcomes; CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk **For definitions see the healthevidence.org Glossary http://www.healthevidence.org/glossary.aspx</p>	

Why this issue is of interest to public health in Canada

Based on 2007-2008 data from provincial student alcohol and drug use surveys, along with national data collected by the Youth Smoking Survey, the Canadian Centre on Substance Use (CCSA) found that 2–5% of students in grades 7-12 report using cannabis daily or almost daily, and between 20–36% of Canadian students (grades 7-12) report they have used cannabis in their lifetime.¹ In addition, 8% to 28% of grade 7 students in Canada report drinking alcohol in the past year. Notably, there are few gender differences in alcohol or cannabis use.¹ Clearly the majority of younger adolescents (i.e. 12 years of age) *do not* consume alcohol and/or use marijuana, but it stands that the *average age* of first substance use is now about 14 or 15.² As such, the CCSA's Drug Prevention Strategy for Canada's Youth emphasizes the need for interventions aimed at deterring or delaying the onset of substance use to begin at 10 years of age or younger.² The negative impacts associated with marijuana use include impaired attention span, concentration, and memory, lung irritation and the ingestion of tar, a known cancer-causing agent.¹ Underage drinking is a common behaviour in Canada, particularly among older teens (e.g. 17 or 18 years of age) and there is an urgent need to reduce hazardous drinking and harm in this age group.² In fact, Canada's recently released national guidelines on low-risk drinking⁴ suggest that given the negative impact of alcohol on the healthy physical and mental development of children and adolescents, the "uptake of drinking by youth should be delayed at least until the late teens and be consistent with local legal drinking age laws." Promoting interventions that target the use of alcohol and marijuana aligns with the National Anti-drug Strategy's Prevention Action Plan.²

1. Canadian Centre on Substance Abuse. (2011). *Cross-Canada report on student alcohol and drug use*. Retrieved from http://www.ccsa.ca/2011%20CCSA%20Documents/2011_CCSA_Student_Alcohol_and_Drug_Use_en.pdf
2. Canadian Centre on Substance Abuse (CCSA). (2007). *A drug prevention strategy for Canada's youth*. Ottawa, ON: CCSA. Retrieved from <http://www.ccsa.ca/2007%20CCSA%20Documents/ccsa-011522-2007-e.pdf>
3. Centre for Addiction and Mental Health. *Health information, Mental health & addition information: Marijuana (Cannabis)*. Retrieved from http://www.camh.ca/en/hospital/health_information/a_z_mental_health_and_addiction_information/marijuana/Pages/marijuana.aspx
4. Butt, P., Beirness, D., Gliksman, L., Paradis, C., & Stockwell, T. (2011). *Alcohol and health in Canada: A summary of evidence and guidelines for low-risk drinking*. Ottawa, ON: CCSA. Retrieved from <http://www.ccsa.ca/2011%20CCSA%20Documents/2011-Summary-of-Evidence-and-Guidelines-for-Low-Risk%20Drinking-en.pdf>

Other quality reviews on this topic are available on www.healthevidence.org

Suggested citation

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*This evidence summary was written to condense the work of the authors of the review referenced on page one. The intent of this summary is to provide an overview of the findings and implications of the full review. For more information on individual studies included in the review, please see the review itself. The opinion and ideas contained in this document are those of the evidence summary author(s) and healthevidence.org. They do not necessarily reflect or represent the views of the author's employer or other contracting organizations. Links from this site to other sites are presented as a convenience to healthevidence.org internet users. Healthevidence.org does not endorse nor accept any responsibility for the content found at these sites. The production of this evidence summary was funded by the **Canadian Institutes of Health Research (KTB-112487)**. The views expressed herein do not necessarily represent the views of the Canadian Institutes of Health Research.*