



Review article

Interventions for Adolescent Substance Abuse: An Overview of Systematic Reviews



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A B S T R A C T

Many unhealthy behaviors often begin during adolescence and represent major public health challenges. Substance abuse has a major impact on individuals, families, and communities, as its effects are cumulative, contributing to costly social, physical, and mental health problems. We conducted an overview of systematic reviews to evaluate the effectiveness of interventions to prevent substance abuse among adolescents. We report findings from a total of 46 systematic reviews focusing on interventions for smoking/tobacco use, alcohol use, drug use, and combined substance abuse. Our overview findings suggest that among smoking/tobacco interventions, school-based prevention programs and family-based intensive interventions typically addressing family functioning are effective in reducing smoking. Mass media campaigns are also effective given that these were of reasonable intensity over extensive periods of time. Among interventions for alcohol use, school-based alcohol prevention interventions have been associated with reduced frequency of drinking, while family-based interventions have a small but persistent effect on alcohol misuse among adolescents. For drug abuse, school-based interventions based on a combination of social competence and social influence approaches have shown protective effects against drugs and cannabis use. Among the interventions targeting combined substance abuse, school-based primary prevention programs are effective. Evidence from Internet-based interventions, policy initiatives, and incentives appears to be mixed and needs further research. Future research should focus on evaluating the effectiveness of specific interventions components with standardized intervention and outcome measures. Various delivery platforms, including digital platforms and policy initiative, have the potential to improve substance abuse outcomes among adolescents; however, these require further research.

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Adolescence is recognized as the period for onset of behaviors and conditions that not only affect health limited to that time but also lead to adulthood disorders. Unhealthy behaviors such as smoking, drinking, and illicit drug use often begin during adolescence; they are closely related to increased morbidity and mortality and represent major public health challenges. Unemployment, poor health, accidents, suicide, mental illness, and decreased life expectancy all have drug misuse as a major

common contributing factor [1,2]. Substance abuse has a major impact on individuals, families, and communities as its effects are cumulative, contributing to costly social, physical, and mental health problems [3]. Several factors can enhance the risk for initiating or continuing substance abuse including socioeconomic status, quality of parenting, peer group influence, and biological/inherent predisposition toward drug addiction [4]. This culminates in a cycle where these individuals cease to perform as effective members of society and instead are consumed by their addictions [5].

Globally, tobacco use is the leading preventable cause of premature death and most adult smokers initiate smoking in adolescence [6,7]. The prevalence of smoking in girls and boys varies across countries; 1 in every 10 girls aged 13–15 years and 1 in every 5 boys aged 13–15 years use tobacco [2,6]. Smoking rates are generally highest in Europe and the Western Pacific regions while cigarette smoking is decreasing among younger adolescents in most high-income countries (HICs) and in some low- and middle-income countries. Approximately 4% of the global burden of disease is attributable to alcohol use [8]. Alcohol consumption among adolescents and young adults is increasing globally; however, it is decreasing in most HICs in Europe and North America [2,9]. Currently, the World Health Organization (WHO) European Region and WHO Region of the Americas report the highest proportions of drinkers among adolescents while the WHO South-East Asia Region and WHO Eastern Mediterranean Region have the lowest [9]. In general, men drink more alcohol than women, but the sex difference is smaller at younger age. Cannabis use is associated with a decline in intelligence quotient scores before age 18 years and an increase in the risk of injury among adults. Unlike other substances, in many countries, boys and girls show similar prevalence of ever-using cannabis.

Efforts should be concerted on early identification, awareness and prevention programs, and routine monitoring of adolescent health data. Given the prevailing burden and impact of substance abuse in children and adolescents, it is essential that effective interventions and delivery platforms on enhancing social skills, problem-solving skills, and self-confidence are identified and implemented [10]. Standardized screening tools on identifying adolescents at high risk are available and outlined in the American Academy of Pediatrics and National Institute on Alcohol Abuse and Alcoholism publications [11–14]. School-based surveys of adolescents monitor a number of these health-related behaviors among adolescents at the country level. The focus should be targeting modifiable risk factors and enhancing protective factors through family, school, and community prevention programs [15]. The various types of prevention programs can be delivered via school, community, and health care systems with general goals of case finding with accompanying referral and treatment or risk factor reduction [16–18].

This article is part of a series of reviews conducted to evaluate the effectiveness of potential interventions to improve adolescent health and well-being. We developed a conceptual framework based on existing conceptual frameworks [19,20] and consultations and deliberations with the global experts in the field of adolescent health, and based on the recommendations, we identified a set of interventions to be incorporated in our review process. The interventions were chosen from the existing work on the basis of proven and potential effectiveness to improve adolescent health outcomes and access to primary

health care and commodities for adolescents [20–23]. Detailed conceptual framework, methodology, and other potential interventions have been discussed in separate articles [24–30]. Our conceptual framework depicts the individual and general risk factors through the life cycle perspective that can have implications at any stage. However, the focus of this overview is to evaluate potential interventions and delivery platforms targeting adolescent age group only and impact quality of life thereon [25]. We focused on risk factors including risky sexual behaviors, unintended pregnancies, violence, risky driving (including speeding and drunk driving), undernutrition, obesity, infections, and mental health risks. Then we identified a range of potential interventions which could alleviate these risks including sexual and reproductive health interventions, nutrition interventions, infections and immunizations, mental health interventions, substance abuse, and injury prevention interventions. The conceptual framework shows that implementation of these interventions could yield immediate and direct results, including improving access to sexual health, mental health, and substance abuse services; knowledge of sexually transmitted infections, dietary behavior, and physical activity; immunization uptake; and delivery of suicide preventive services. Broadly, the conceptual framework classifies outcomes to individual, community, and societal levels, and it illustrates that the immediate and direct impacts could yield improved health, better adult life, and improved work productivity; these individual impacts could lead to gains at the family and immediate community which collectively could help accelerate economic growth and national progress.

In this article, we conducted a comprehensive overview of systematic reviews for the effectiveness of substance abuse interventions for adolescents and various delivery platforms.

Methods

We systematically reviewed literature published up to December 2015 to identify systematic reviews on interventions for substance abuse in adolescent population. For the purpose of this overview, the adolescent population was defined as aged 11–19 years; however, since many reviews targeted youth (aged 15–24 years) along with adolescents, exceptions were made to include reviews targeting adolescents and youth. We did not apply any limitations on the start search date or geographical settings. We considered all available published systematic reviews on interventions for adolescent substance abuse. A broad search strategy was used that included a combination of appropriate keywords, medical subject heading, and free text terms. Search was conducted in the Cochrane Library and PubMed. The abstracts (and the full sources where abstracts are not available) were screened by two abstractors to identify systematic reviews adhering to our objectives. Any disagreements on selection of reviews between these two primary abstractors were resolved by the third reviewer. After retrieval of the full texts of all the reviews that met the inclusion/exclusion criteria, data from each review were extracted independently into a standardized form. Information was extracted on (1) the characteristics of included studies; (2) description of methods, participants, interventions, and outcomes; (3) measurement of treatment effects; (4) methodological issues; and (5) risk of bias tool. We extracted pooled effect size for the outcomes reported by the review authors with 95% confidence intervals (CIs). We assessed and reported the quality of included reviews using the

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