Over thirty years of research shows that the Life Skills Training program cuts the use of psychoactive substances in half, works with a wide range of students, reduces other health risk behaviors, offers potential academic benefits, and saves $38 for every dollar invested.

4

Life skills training: Preventing substance misuse by enhancing individual and social competence

Gilbert J. Botvin, Kenneth W. Griffin

RESEARCH CONCERNING THE etiology and prevention of substance misuse has led to the development of preventive interventions that are theory based and effective. One such approach, *Life Skills Training* (*LST*), targets key etiologic factors using a conceptual framework derived from social learning theory and problem behavior theory. LST has been extensively tested in a series of randomized trials and found effective in preventing the use/misuse of alcohol, tobacco, marijuana, and other psychoactive drugs. Research demonstrates that it is effective when implemented under different delivery conditions, by different program providers, with different age groups, and with different populations. Follow-up studies provide evidence of the long-term effectiveness of LST. Independent economic analysis indicates that LST produces cost savings of as much as $38 for every dollar invested. Finally, LST offers the potential of reducing other health risk behaviors and fostering academic success.

NEW DIRECTIONS FOR YOUTH DEVELOPMENT, NO. 141, SPRING 2014 © WILEY PERIODICALS, INC.
Published online in Wiley Online Library (wileyonlinelibrary.com) • DOI: 10.1002/yd.20086

Introduction

Research concerning the etiology and prevention of substance misuse led to the development of preventive interventions that are theory based and effective. This chapter focuses on a school-based prevention approach, *Life Skills Training* (*LST*), designed to address key risk and protective factors associated with the initiation and escalation of tobacco, alcohol, and illicit drug use. LST was extensively tested in a series of randomized trials that provide robust evidence of its effectiveness. To date, schools in all fifty states in the United States and in thirty-five countries around the world have implemented LST—making it one of the most widely implemented evidence-based substance abuse prevention programs. In this chapter, we describe the LST program, summarize evidence of its effectiveness, and discuss the application of this approach to multiple populations and other health risk behaviors.

Empirical and theoretical foundation

Etiology research indicates that the initiation and escalation of psychoactive substance use is the result of a combination of cognitive, social, personality, pharmacological, biological, and developmental factors.[1] Examination of the etiology literature leads to three conclusions: (1) there are a large number of etiologic factors, (2) some are more important than others, and (3) some are likely to be more amenable to intervention than others. Therefore, development of effective preventive interventions cannot be guided exclusively by etiology research. Theory is also necessary to provide a conceptual framework for organizing key etiologic factors associated with the initiation and escalation of substance use and for identifying potential opportunities for intervention.

Two theories relied on by prevention researchers to conceptualize the etiology of substance abuse are social learning theory and problem behavior theory.[2] According to social learning theory, learning occurs within a social context as a result of a process

of observation, imitation, and modeling. Problem behavior theory is an extension of social learning theory to adolescent problem behaviors. Social factors and the modeling of substance use and other health risk behaviors by peers and high status role models are powerful influences shaping the lives of children and adolescents. Intrapersonal factors (such as knowledge, attitudes, skills, and personality characteristics) affect motivation to engage in these behaviors and interact with social factors to increase risk by affecting susceptibility to those influences.[3]

Life skills training

The LST program is designed to target social and intrapersonal factors by providing the knowledge, attitudes, and skills necessary to actively resist social influences to smoke, drink, or use illicit drugs; reduce susceptibility to those influences and increase resilience; and decrease motivation to use psychoactive substances.[4] LST is a school-based prevention program intended to be implemented in the classroom by teachers and/or peer leaders, health educators, and prevention specialists. The LST middle/junior high school program consists of fifteen class periods in the first year, ten class periods in the second year, and five class periods in the third year. LST is intended to be taught in a logical sequence at a rate of one or more sessions per week.

The material covered in the LST program is conceptually organized into three major components: (1) a personal competence component that teaches self-management skills; (2) a social competence component that teaches a set of social skills; and (3) a drug resistance component that teaches health-related content, resistance skills, and prohealth attitudes. Thus, in addition to targeting proximal etiologic factors specific to substance use, LST addresses more distal etiologic factors associated with psychoactive substance use from the perspective of positive youth development and general competence enhancement. Many of the skills taught in the LST program are borrowed from cognitive-behavior therapy but,

instead of being used in a therapeutic setting to remediate existing problems, they are taught in school to prevent the development of potential problems, increase resilience, and facilitate healthy psychosocial development. Each component of the LST program consists of units designed to be taught in one or more class sessions.

The *personal competence component* consists of units that teach problem-solving and decision-making skills; critical thinking skills to identify, analyze, and resist common advertising appeals; skills for coping with stress and anxiety; emotional self-regulation skills (for example, reframing and positive self-statements) to manage feelings of anger/frustration; and skills for facilitating personal development (self-assessment, goal-setting, self-monitoring, and self-reinforcement).

The *social competence component* consists of units that teach communication skills for communicating clearly and avoiding misunderstandings (maintaining consistency between verbal and nonverbal channels of communication, learning to be specific when giving instructions or making arrangements, and paraphrasing to ensure that a communication is understood); skills for overcoming shyness (initiating social interactions through common greetings and initiating brief social interactions), meeting new people, making new friends, and developing healthy relationships. Students are also taught complimenting skills (both giving and receiving compliments); general conversational skills (techniques for starting, sustaining, and concluding a conversation); and general assertive skills (such as skills for making requests, refusing unreasonable requests, and standing up for one's rights).

The *drug resistance component* consists of units that teach information and skills to increase students' ability to resist social pressures to smoke cigarettes, drink alcohol, and use illicit drugs. Included are units that focus on the adverse consequences of tobacco, alcohol, and illicit drug use; the current prevalence of drug use among both youth and adults in order to correct or modify normative expectations about drug use; and the immediate physiological effects of cigarette smoking. In addition, material related to substance use and other health topics is also integrated into several

units of the program. For example, the unit on recognizing and resisting media influences, teaches the application of those skills to media pressures to smoke, drink, or use illicit drugs. Similarly, the advertising unit teaches students to identify and form counterarguments to ads promoting cigarette smoking and alcohol use. Finally, the unit on assertive skills teaches students how to use those skills to resist peer pressure to smoke cigarettes, drink alcohol, or use illicit drugs.

The LST program is designed to be self-contained, easy to use, and engaging for students. LST materials include a teacher's manual and student guide for each year of the program in order to standardize the intervention and enhance fidelity. Although some material in the LST program is taught using traditional didactic methods, emphasis is placed in the use of interactive teaching techniques such as facilitation and group discussion, classroom demonstrations, and cognitive-behavioral skills training. Training for educators and health professionals to implement the LST program is delivered by certified trainers using either a conventional face-to-face workshop or online webinar format.

Evidence of effectiveness

The effectiveness of the LST program is documented by evidence from a series of randomized controlled trials conducted over the course of three decades. This includes thirty-two outcome studies (involving eighteen separate cohorts of students) published in peer-reviewed scientific journals. These studies have ranged from small-scale efficacy trials involving a few hundred students each to large-scale effectiveness trials involving many thousands of students. For the purposes of this chapter, a summary of the research methods and key findings of this research is provided below; a more detailed review of this literature can be found elsewhere.[5]

A notable characteristic of studies testing the LST approach is the random assignment of schools to treatment or control conditions, with students in the treatment condition receiving the LST

program. Students in the control condition either received no intervention in the early efficacy trials or received "treatment as usual" (the usual drug education program) in later studies. Random assignment of schools to conditions controls potential biases such as contamination across conditions and other threats to internal validity. Pretest and posttest data were collected by a questionnaire to assess demographic characteristics, substance use, and hypothesized mediating variables associated with substance use risk. Data collection and program implementation were standardized using detailed protocols to protect against potential threats to the scientific validity. Data were analyzed using well-accepted statistical methods for prevention evaluations.

Studies testing LST consistently show that it can cut the rate of psychoactive substance use in half and, in some cases, by as much as 80 percent. Early studies found that LST can prevent cigarette smoking. Subsequent studies found LST could also reduce use of alcoholic beverages and/or marijuana. In addition, research shows that booster sessions can maintain and even enhance initial prevention effects. Studies show LST is effective when implemented by health professionals, peer leaders, and classroom teachers.

In addition to testing LST with white, middle-class youth, several studies tested it with inner-city, minority youth. Research with minority youth show that LST can prevent cigarette smoking with Hispanic youth and with African-American youth. Several studies with minority youth from multiple racial/ethnic groups indicate that LST is effective in reducing the frequency and amount of alcohol use. Additional research with multiethnic minority youth demonstrates that it is effective in preventing the use of tobacco, alcohol, and marijuana, as well as the use of multiple drugs. Taken together, these studies show that LST works well with multiple populations including white, African-American, and Hispanic youth.

Studies also tested the effectiveness of the LST program when implemented under different conditions. These studies show that LST is effective when implemented using different delivery formats (weekly or multiple times per week), different program providers (teachers, health professionals, and peer leaders), with

different age groups (elementary, middle/junior high, and high school students), and different types of schools (suburban, urban, and rural). Although most research testing LST involves middle/junior high school students, research shows that this approach is also effective with elementary and high school students when age-appropriate materials are used.

Follow-up data from several randomized trials demonstrate that LST can produce a long-lasting impact on substances use. Several studies show that students who received the LST program in grade six or seven had less substance use than students who did not when assessed five years later at the end of high school. And one study, using twelve-year follow-up data from a cohort of students who received LST in grade seven, found that it produces prevention effects that last well into young adulthood. Finally, in addition to its effect on substance use, LST also produces a positive impact on a variety of hypothesized mediating variables (such as knowledge, attitudes, and skills). These findings combined with the results of etiology and prevention studies examining mediation and moderation provide empirical support for the conceptual model underlying the LST approach.

Other potential benefits

It is increasingly clear that many health risk behaviors cluster together and the same individuals are at risk for multiple health problems.[6] This suggests the exciting possibility that, instead of developing a separate intervention for each of the many health risk behaviors, a single approach targeting these shared etiologic factors may be able to prevent multiple health risk behaviors at the same time. Research demonstrating that LST can produce a positive impact on several different health risk behaviors provides initial support for this hypothesis. For example, LST can reduce risky driving, violence and delinquency, and HIV/AIDS risk behaviors.[7]

Beyond an impact on substance use and other health risk behaviors, LST also offers potential academic and economic benefits.

As an effective prevention program, LST can help students avoid the deleterious effects of substance use and related problem behaviors on academic performance and school attendance. In addition, LST teaches the kind of social and emotional skills needed to facilitate academic success. For example, it can improve students' ability to handle academic pressure by teaching problem solving and decision making, goal setting and self-reinforcement, and skills for coping with stress and anxiety. It can also facilitate more effective classroom learning by improving emotional self-regulation and persistence. And by teaching general social skills, LST can foster more effective collaboration with teachers and other students as well as increased social support to and from peers.

Nationwide implementation of effective prevention programs such as LST offers the potential for considerable cost savings. Several cost–benefit studies show that effective prevention programs are a good investment and that LST, in particular, can produce significant cost savings. An independent cost–benefit analysis recently found that every dollar spent on LST produced a $38 benefit.[8]

Summary, conclusions, and future directions

LST is an evidence-based prevention approach grounded in theory and research. LST targets key etiologic factors using a positive youth development approach that emphasizes the development of individual and social competence. Research conducted over the past thirty years provides strong evidence of LST's effectiveness when delivered under different conditions, by different providers, and with multiple populations and age groups. LST reduces the use of psychoactive substances and other health risk behaviors, produces long-lasting effects, and offers potential academic and economic benefits. In order to capitalize on the potential of theory-based and carefully tested prevention programs, future work needs to focus on translational research and initiatives

to promote the widespread and sustained use of evidence-based programs.

Notes

1. Scheier, L. M. (Ed.). (2010). *Handbook of drug prevention.* Washington, DC: American Psychological Association.

2. Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall; Jessor, R., & Jessor, S. L. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York, NY: Academic Press.

3. Botvin, G. J. (2000). Preventing drug abuse in schools: Social and competence enhancement approaches targeting individual-level etiological factors. *Addictive Behaviors*, *25*, 887–897.

4. Botvin, G. J., & Griffin, K.W. (2010). Advances in the science and practice of prevention: Targeting individual-level etiologic factors and the challenge of going to scale. In L. M. Scheier (Ed.), *Handbook of drug use etiology: Theory, methods, and empirical findings* (pp. 631–650). Washington, DC: American Psychological Association.

5. Botvin & Griffin (2010); Botvin, G. J., & Griffin, K. W. (in press). Life skills training: A competence enhancement approach to tobacco, alcohol, and drug abuse prevention. In L. M. Scheier (Ed.), *Handbook of drug prevention.* Washington, DC: American Psychological Association.

6. Biglan, A., Brennan, P. A., Foster, S. L., & Holder, H. D. (2004). *Helping adolescents at risk: Prevention of multiple problem behaviors* (318 pp.). New York, NY: Guilford.

7. Griffin, K. W., Botvin, G. J., & Nichols, T. R. (2004). Long-term follow-up effects of a school-based drug abuse prevention program on adolescent risky driving. *Prevention Science*, *5*, 207–212; Botvin, G. J., Griffin, K. W., & Nichols, T. R. (2006). Preventing youth violence and delinquency through a universal school-based prevention approach. *Prevention Science*, 7, 403–408; Griffin, K. W., Botvin, G. J., & Nichols, T. R. (2006). Effects of a school-based drug abuse prevention program for adolescents on HIV risk behaviors in young adulthood. *Prevention Science*, 7, 103–112.

8. Lee, S., Aos, S., Drake, E., Pennucci, A., Miller, M., & Anderson, L. (2012, April). *Return on investment: Evidence-based options to improve statewide outcomes* (Document No. 12-04-1201). Olympia, WA: Washington State Institute for Public Policy.

GILBERT J. BOTVIN *is a professor emeritus of psychology in public health at Weill Cornell Medical College of Cornell University.*

KENNETH W. GRIFFIN *is a professor of public health and acting chief of the Division of Prevention and Health Behavior at Weill Cornell Medical College of Cornell University.*