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American Legacy Foundation, Using Multiple Strategies in Tobacco Use Prevention Education

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Using Multiple Strategies in Tobacco Use Prevention Education



PREAMBLE

In November 1998, Americans won an unprecedented victory in our nation's century long fight against tobacco use and abuse. A coalition of 46 state Attorneys General successfully settled their cases with the tobacco companies amounting to \$206 billion over the first 25 years. As part of the Master Settlement Agreement (MSA), a 501(c)(3) organization was established to reduce tobacco usage in the United States. Now known as the American Legacy Foundation (Legacy), it adopted four goals:

- Reduce youth tobacco use.
- Reduce exposure to secondhand smoke among all ages and populations.
- Increase successful quit rate among all ages and populations.
- Reduce disparities in access to prevention and cessation services and in exposure to secondhand smoke.

Legacy's Board of Directors consists of a diverse mix of state governors, legislators, Attorneys General, and experts in the medical, education, and public health fields:

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PURPOSE OF THE FIRST LOOK REPORT SERIES

The purpose of the First Look Report Series is to provide brief research findings from the National Youth Tobacco Surveys and other tobacco use surveys. The series will cover a wide range of topics including tobacco use behaviors, attitudes and beliefs about tobacco, pro- and counter-tobacco marketing efforts, results of the American Legacy Foundation initiatives, and other policies and programs related to tobacco use.

Dear Colleague:

Youth who receive multistrategy tobacco use prevention programs in school are more likely to hold antismoking attitudes, more likely to feel comfortable refusing offers to smoke, and less likely to report having smoked during the past month than youth who receive single strategy programs. These findings, from the 2000 National Youth Tobacco Survey, are in keeping with results from other research and with the recommendations of CDC, the National Institute on Drug Abuse (NIDA) and the American Lung Association (ALA).

Evidence about the effectiveness of school-based tobacco use prevention programs suggests that, in general, programs based on a multistrategy (or social influences) model are effective when program efforts are enduring or intense. Despite this evidence, NYTS 2000 data reveal that most students are *not* exposed to comprehensive tobacco education in school. Only 38% of all middle school students and 17% of all high school students received three of the four tobacco use prevention strategies measured in the 2000 survey. Furthermore, this report shows that the single strategy most frequently implemented in schools is educating students about the short-term health consequences of smoking; an approach that has not been shown to influence behavior.

Of course, tobacco use prevention requires a commitment not only from schools but from the greater community. School-based smoking prevention programs must be one component of a comprehensive effort to prevent and reduce smoking. The most effective programs involve broad-based, multi-population tobacco control policy and mass media efforts. It is not appropriate — or feasible — to expect school programs to single-handedly solve a problem that results in more deaths in the United States per year than any other cause.

This report contributes to the growing body of research which suggests that school-based tobacco prevention programs that draw on multiple educational strategies can effectively reduce youth tobacco use, particularly when they occur in the context of well designed tobacco control programs. It highlights a distressing gap between what has been demonstrated to be effective and what is practiced in schools. I am pleased to be able to share these important findings with you, in the hope that they will lead to increases in implementation of multiple strategy tobacco use prevention programs.

Sincerely,



Cheryl Heaton, DrPH
President/CEO
American Legacy Foundation

INNOVATIVE AND EVIDENCE-BASED PROGRAMS

MARKETING AND EDUCATION

The most visible of Legacy's efforts to date is the **truth**sm campaign. The **truth**sm campaign is aimed at reducing tobacco use among youths aged 12 to 17 who are most open to using tobacco. Modeled after successful teen brands, this multicultural countermarketing program incorporates advertising, Internet, grassroots, and public relations components and gives teens a voice in the effort.

APPLIED RESEARCH AND EVALUATION

The Applied Research and Evaluation team is composed of Legacy staff and colleagues from RTI, Legacy's Research and Evaluation Coordinating Center. Efforts include conducting two national surveys to document the tobacco-related beliefs, attitudes, and behavior of American youth, and the effectiveness of the truth campaign. The team evaluates all internal and Legacy-funded programs. The research program also provides funding for outside research in specific areas of tobacco control.

GRANTS

Legacy's grants program is designed to build on existing tobacco control efforts, leverage resources, and spark new tobacco control initiatives. Awards totalling over 59 million have been announced to states and organizations to develop youth empowerment programs, programs to reduce disparities in tobacco control experienced by priority populations, and small innovative or research demonstration programs.

PRIORITY POPULATIONS

Legacy is committed to addressing the needs of populations that have been disproportionately burdened by the epidemic of tobacco in America. To identify promising practices, culturally appropriate approaches, and resource gaps, Legacy convened six national Priority Population forums in 2000 among tobacco control experts who represented underserved populations. Their recommendations form the basis for the Priority Populations Initiative, which makes available up to \$21 million over 3 years for capacity-building grants and innovative projects and applied research grants.

TRAINING AND TECHNICAL ASSISTANCE

Legacy is committed to providing high quality and best practices based training and technical assistance to its grantees, local and state entities, and others who are working in the tobacco control movement. In addition, Legacy's training and technical assistance team coordinates a range of Youth Activism Projects and is a major funder and collaborator for the National Tobacco Training and Assistance Consortium.

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FIRST LOOK REPORT 8

Using Multiple Strategies in Tobacco Use Prevention Education

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INTRODUCTION

Almost 97 percent of all schools in the United States, public and private, implement a substance use prevention program funded by the Safe and Drug Free Schools and Communities Act (Silvia, 2000). In most cases, these funds support the implementation of local, state, and federal smoking prevention programs. School health professionals face a major challenge when selecting the most appropriate and effective prevention programming for schools within their jurisdiction. There is an abundance of prevention curricula and programs to choose from, some of which have demonstrated effectiveness in school settings and others that have not been effective or have not been evaluated empirically. School health professionals must also determine which programs address their school's specific needs. Therefore, they must rely on theory, research, and practice in the area of smoking prevention to guide them when selecting prevention programming. When establishing a school-wide prevention program, educational professionals must consider the key components of successful tobacco use prevention programs. These components include policy development and implementation, prevention education, and structural and social changes in the school environment that promote smoke-free lifestyles.

One of the most frequently implemented components of prevention programming is classroom education that addresses youths' attitudes toward smoking and smoking behavior. Research indicates that effective educational prevention programs include several prevention education strategies that have synergistic effects not present in programs that rely on one strategy alone (Bangert-Drowns, 1988; Tobler and Stratton, 1997; CDC, 1994; Lantz et al., 2001). For example, a review of adolescent substance use prevention programs found that those with both knowledge and affective components were more effective than programs with only one of these components (Tobler, 1986; Tobler and Stratton, 1997). These multistrategy programs attempt to increase youths' knowledge about the physical consequences of smoking, alter their perception that smoking is acceptable and common among their peers, train youths in the skills necessary to resist tobacco use, and increase youths' confidence that they can remain tobacco-free.

In this report we

- determine the extent to which four types of prevention education strategies measured in the 2000 National Youth Tobacco Survey (NYTS) are being implemented in schools,
- assess whether students believe that tobacco use prevention education programs contribute to their decision not to smoke,
- compare attitudes and beliefs about smoking among those students who receive fewer smoking prevention education strategies to those who receive more, and
- determine associations between smoking status and receipt of multiple prevention education strategies.

This information will help tobacco use prevention specialists and health educators understand the prevalence of multicomponent programming. In addition, this report provides preliminary information about the impact these programs have on changing youths' attitudes and beliefs about smoking.¹

2000 NATIONAL YOUTH TOBACCO SURVEY DESIGN AND CONTENT

The 2000 NYTS was administered in spring 2000 to 35,828 students in 324 schools throughout the United States. The survey consisted of an anonymous, self-administered questionnaire that included questions about minors' tobacco use, exposure to environmental tobacco smoke, ability to purchase tobacco products, knowledge and attitudes about tobacco, and exposure to in-school antitobacco lessons and programs.

The NYTS was designed to produce a nationally representative sample of students in grades 6 to 12. Schools with substantial numbers of African-American, Hispanic, and Asian-American students were oversampled to allow for separate analysis of these subgroups. To adjust for nonresponse and varying probabilities of selection, including those resulting from oversampling, a weighting factor was applied to each student record. All estimates and 95 percent confidence intervals in the report were calculated using the sampling weights and controlling for the stratified survey design.

BACKGROUND

SCHOOL-BASED TOBACCO USE PREVENTION CURRICULA

Schools are appropriate settings for tobacco use prevention programming for many reasons. A primary reason is that schools offer the most systematic and efficient way to reach a significant number of students each year. School staff can target youths at a young age before their beliefs about smoking have been established. Schools are also appropriate settings for tobacco use prevention programs because tobacco use can hinder academic performance of many students. Students who use tobacco are less likely than nonusers to participate in extracurricular activities or get good grades (McGinnis and DeGraw, 1991; Huang et al., 2000).

One of the most widely implemented components of a school-based tobacco use prevention program is the curriculum implemented in the classrooms. Prevention curricula vary in their focus and strategy. Kumpfer (1999) categorizes such curricula into three major approaches: knowledge and affective approaches, social influences approaches, and personal and social skills training. Cognitive and affective approaches include strategies to increase knowledge about tobacco use, such as the health or social consequences of smoking. The social influences approach teaches youths to recognize and counterbalance pressures to smoke from the media, their peers, or their families. Lastly, social skills training teaches youths to adopt skills that help them refuse tobacco or adopt behaviors that reduce their risk of smoking. Tobler and Stratton (1997) suggest that knowledge and affective approaches are not as effective as more interactive strategies, such as social influences and personal or social skills training that incorporate role playing and other interactive activities.

¹We selectively present results in graphical format. Additional information, upon which tables and figures are based, is presented in the Appendix.

To understand whether effective strategies are being implemented in classrooms, the 2000 NYTS measured youths' exposure to four research-based tobacco use prevention strategies: knowledge of consequences, normative education concerning the true extent of peers' prevalence of use, understanding media and other influences to smoke, and training in skills to refuse offers to smoke. Table 1 lists questions from the 2000 NYTS that were used to analyze each of the educational strategies.

Table 1. 2000 NYTS Questions Used to Measure Educational Strategies

Short-term health consequences	Q65: During this school year, were you taught in any of your classes about the effects of smoking, like it makes your teeth yellow, causes wrinkles, or makes you smell bad?
Normative education	Q64: During this school year, were you taught in any of your classes that most people your age do not smoke cigarettes?
Reasons young people smoke	Q63: During this school year, were you taught in any of your classes the reasons why people your age smoke?
Refusal skills training	Q62: During this school year, did you practice ways to say "no" to tobacco in any of your classes (for example, by role playing)?

SHORT-TERM HEALTH CONSEQUENCES

Conventional tobacco use prevention programs have been successful in offering information and knowledge about the long-term health consequences of tobacco use. This information focuses on the biological and chemical processes associated with smoking, as well as the legal consequences of underage smoking. The overall goal of these types of prevention education programs is to increase the belief that smoking puts one at risk (Hansen, 1992). However, although these programs may be effective in changing knowledge, they have not been shown to be effective in changing smoking behavior (Tobler, 1986; Tobler and Stratton, 1997). More recent and effective information-based programs tend to focus on the immediate physiological and social consequences of use, such as shortness of breath or clothes that smell like cigarettes, rather than the severe long-term consequences, such as lung cancer and cardiovascular disease (Pentz, 1998).

NORMATIVE EDUCATION

Although the majority of youths do not smoke regularly, many overestimate the prevalence and acceptability of smoking among their peers (Donaldson et al., 1996; Shope et al., 1996; Ellickson et al., 2000).² Normative education strategies focus more on youths' opinions and misperceptions about smoking and less on facts and information to decrease the social acceptability of tobacco use. Normative education also

²In the 2000 NYTS, 89 percent of middle school students and 72 percent of high school students reported not smoking in the past month. Similar results were found in the 1999 NYTS (Farrelly et al., 2000).

highlights existing antitobacco norms and helps students understand that most adolescents do not smoke (Tobler and Stratton, 1997).

REASONS YOUNG PEOPLE SMOKE

Youths encounter influences to smoke from peers, family members, and the media. Similarly, messages from tobacco advertisements and the media communicate that smoking is a socially acceptable activity (Unger and Chen, 1999; Huang et al., 2000). An analysis of substance use prevention programs implemented during the 1980s found that 63 percent of the programs with a social influences approach had positive effects, 26 percent were neutral, and 11 percent had negative effects (Hansen, 1992).

Giving youths an opportunity to talk about why people their age smoke may help them identify the social influences to smoke. Addressing these influences can have a significant impact on their decision-making skills, helping to reduce potential motivations to smoke (Epstein et al., 2000).

REFUSAL SKILLS TRAINING

Refusal skills training programs attempt to teach youths the skills necessary to resist tobacco use. These programs help students identify and resist influences to use tobacco from peers, siblings, parents, and the media. Refusal skills training programs may include films that help youths recognize different types of pressure or role-playing activities to acquire resistance skills (Hansen, 1992; Pentz, 1998). Some researchers and practitioners suggest that teaching refusal skills is a crucial component of smoking prevention and is absolutely necessary for the other three strategies discussed so far to be effective (Kumpfer, 1999).

COMPREHENSIVENESS OF TOBACCO USE PREVENTION EDUCATION

Traditionally, many prevention programs implemented just one prevention education strategy, such as “just say no” campaigns or learning about the consequences of smoking. Currently, many smoking prevention programs focus on a combination of two or more of these strategies. Research indicates that, although some of the prevention programs that focus on just one area or strategy have had positive impacts on youth substance use, many have had no effect or even an undesirable counter effect (Mohai, 1991; Tobler, 1986; Tobler and Stratton, 1997). Therefore, researchers suggest that multistrategy and comprehensive programs may achieve more effective results than single strategy programs (American Lung Association, 1998; Bangert-Drowns, 1988; CDC, 1994; Hansen, 1992; Johnson, 1990; Mohai, 1991; Pentz, 1998; Tobler and Stratton, 1997; Williams et al., 1999). An analysis of substance use prevention programs implemented during the 1980s found that 63 percent of the programs with a social influences approach had positive effects (Hansen, 1992). In addition, by offering comprehensive programming that addresses the individual’s internal states, interpersonal skills, and environmental factors, educators can meet the prevention needs of both smokers and nonsmokers (Grimes and Swisher, 1992). Although much of the research on multistrategy programs has demonstrated success, some researchers have documented limitations of such programs (Murray et al., 1988; Peterson et al., 2000).

Some smoking prevention education curricula currently in use implement multiple strategies. Two examples are Project ALERT and the Life Skills Training programs. Project ALERT, a social influences program, is designed to help youths understand how smoking can affect them in their daily lives and social relationships by identifying pro-tobacco pressures. Youths acquire a range of strategies for resisting those pressures (Ellickson and Bell, 1990). The Life Skills Training program assumes that smoking serves a function for youths — for example, being accepted by peers, reducing stress, or claiming independence (Kumpfer, 1999). Life Skills Training programs provide youths with a wide range of skills to reduce potential motivations to use tobacco. This program attempts to enhance communication skills, provide feedback with social reinforcement, build self-esteem, improve coping skills, and increase self-awareness (Tobler, 1986; Tobler and Stratton, 1997). Botvin et al. (1998) suggest that youths with better social skills are less likely to be influenced by social and peer pressures to smoke.

The 2000 NYTS did not measure whether schools are implementing specific prevention programs, but it did assess whether schools are implementing multistrategy programs with core elements similar to those used in Project ALERT and Life Skills Training. The 2000 NYTS also measured whether students believe that the prevention education they receive in their classroom helps them feel that it is okay to refuse cigarette offers from their friends. Huang et al. (2000) suggest that perceived usefulness of school prevention programs can be used to identify youths at high risk for smoking.

METHODS

To better understand the association between tobacco use prevention education and youth smoking, we assessed attitudes and beliefs about smoking measured in the 2000 NYTS with relation to types of prevention programming youths receive. It is valuable to understand youths' attitudes and beliefs about smoking because one primary goal of prevention programming is to reinforce antismoking attitudes. Furthermore, attitudes and beliefs about smoking are intermediate outcomes that are associated with smoking intentions and behaviors (Aloise-Young et al., 1996).

More detailed findings about attitudes and beliefs about smoking are summarized in *First Look Report 2* (Evans et al., 2000). For this report, we defined antismoking and pro-smoking attitudes based on the six questions listed in Table 2.

For our analysis, a respondent is classified as having an overall antismoking attitude if the student indicates antismoking beliefs in four or more of Questions 56 to 61 (Table 2). Conversely, a respondent is classified as having an overall pro-smoking attitude if she/he indicates antismoking beliefs on three or fewer questions. These six questions about attitudes are used to aggregate youths into two groups: those with pro-smoking attitudes and those with antismoking attitudes.³

³Confirmatory factor analysis shows that each of the six attitude items is marked by high loadings on only one latent factor, suggesting that overall attitudes about tobacco can be accurately classified with these six measures available in the 2000 NYTS.

Table 2. 2000 NYTS Questions Used to Measure Attitudes About Tobacco

Q56:	Do you think tobacco companies have tried to mislead young people to buy their products more than other companies?
Q57:	Do you think NOT smoking is a way to express your independence?
Q58:	Do you think cigarette companies target teens to replace smokers who die?
Q59:	Do you think no other companies act as badly as cigarette companies?
Q60:	Do you disapprove of people smoking one or more packs of cigarettes per day?
Q61:	Do you think people risk harming themselves if they smoke one or more packs of cigarettes per day?

Although reinforcing antitobacco attitudes is a central element of most tobacco prevention education programs, their ultimate goal is to reduce the prevalence of smoking among youths. Studies conducted by Ellickson et al. (1993) and Tobler and Stratton (1997) have shown that exposure to multistrategy tobacco prevention is associated with lower smoking rates among middle school students. We explore this question using 2000 NYTS data.

Comparisons across groups are considered statistically significant if their 95 percent confidence intervals do not overlap. Demographic information is based on self-report from the 2000 NYTS. Grade level is broken into middle school (grades 6 through 8) and high school (grades 9 through 12). Smoking status is presented in two categories: nonsmokers are those who report not smoking any cigarettes in the last 30 days, and current smokers are those who smoked on 1 or more days in the past 30 days. Racial/ethnic groups are divided into White, African-American, Hispanic, and Asian-American.

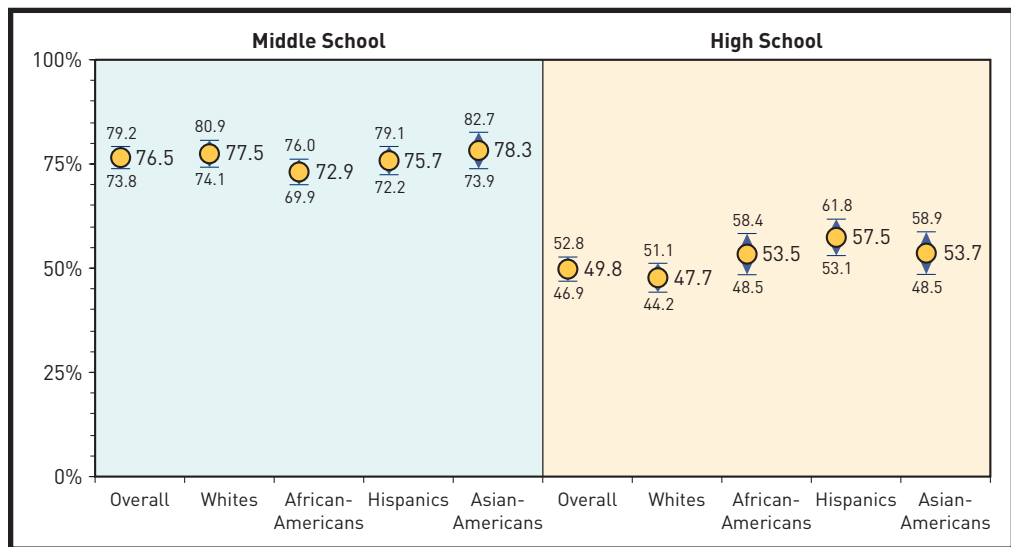
MAIN FINDINGS

In this section, we report the prevalence of exposure to educational strategies. We then create a new measure indicating whether youths were exposed to three or four of the prevention education strategies discussed above, suggesting they receive multistrategy prevention education. We compare this measure across grade level, gender, and race/ethnicity. Finally, we describe whether associations exist between prevention curricula and attitudes about smoking and smoking behavior.

SHORT-TERM HEALTH CONSEQUENCES

Figure 1 shows that a higher proportion of middle school students (76.5 percent) than high school students (49.8 percent) report learning about the consequences of smoking. In addition, we found gender differences in both middle school and high school. In middle school, 79.4 percent of females and 73.5 percent of males report learning about the consequences of smoking. In high school, 52.8 percent of females and 47.0 percent of males report this. In middle school, there are no statistically significant differences among racial/ethnic groups. However, in high school, a higher percentage of Hispanics (57.5 percent) report learning about the consequences of smoking than youths from other racial or ethnic backgrounds.

Figure 1: Percentage of Youths Who Reported Learning About the Short-term and Long-term Consequences of Smoking

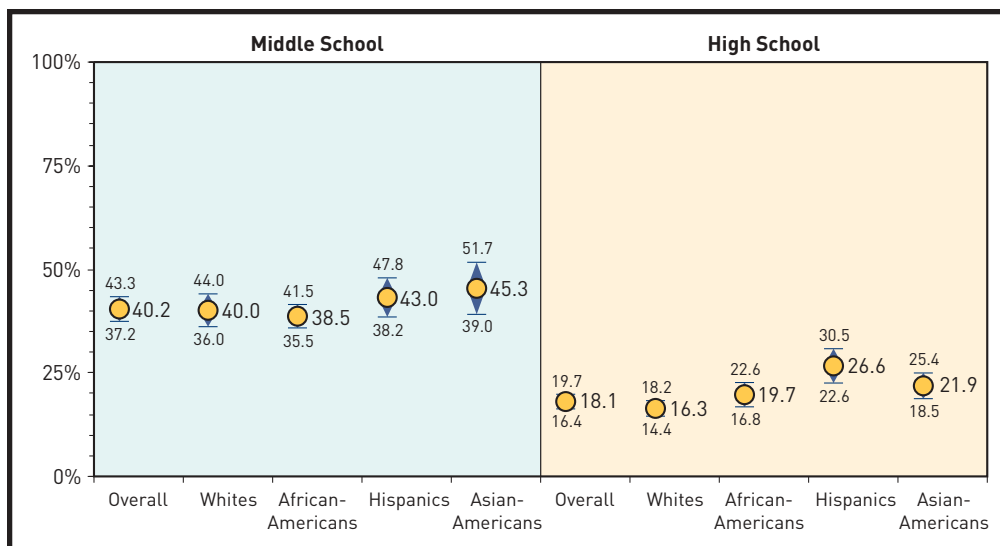


Note: Upper and lower ranges represent 95 percent confidence intervals that account for the survey design weighting.

NORMATIVE EDUCATION

In Figure 2, we examine the proportion of students who report receiving normative education prevention strategies. Overall, more middle school students (40.2 percent) than high school students (18.1 percent) learn that most people their age do not smoke. This is much lower than the proportion of youths who learn about the consequences of smoking. In middle school, there are no statistically significant differences among racial/ethnic groups. However, in high school, Hispanic students (26.6 percent) learn that people their age do not smoke more than the overall high school population (18.1 percent). There are no statistically significant differences between genders in middle school or high school.

Figure 2: Percentage of Youths Who Reported Learning that Most People Their Age Do Not Smoke

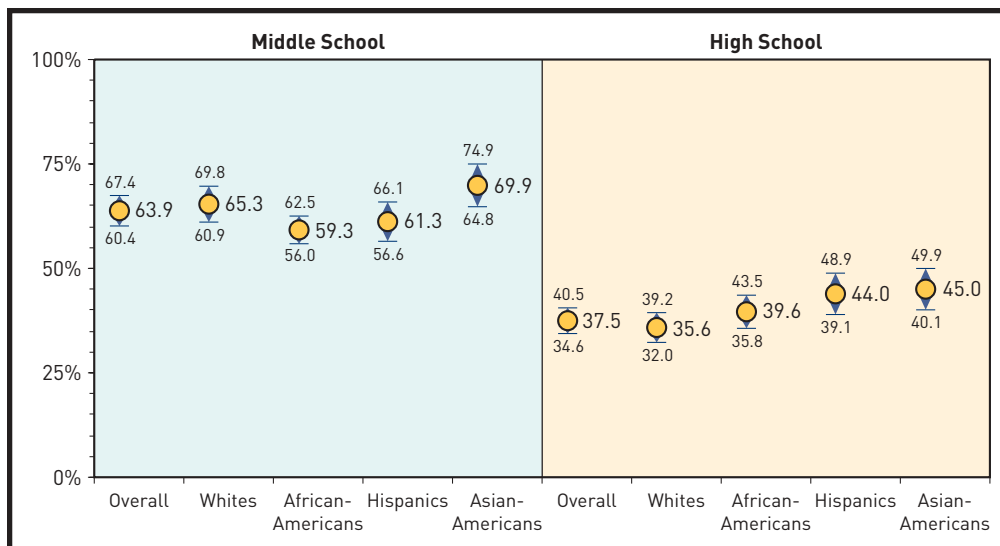


Note: Upper and lower ranges represent 95 percent confidence intervals that account for the survey design weighting.

REASONS YOUNG PEOPLE SMOKE

As expected, a greater percentage of middle school students (63.9 percent) than high school students (37.5 percent) report learning about the influences to smoke (Figure 3). In middle school, Asian-American students (69.9 percent) report learning this more than African-American students (59.3 percent). In high school, Asian-American students (45.0 percent) report learning this more than White students (35.6 percent). There are no statistically significant differences between genders in either middle school or high school.

Figure 3: Percentage of Youths Who Reported Learning Why People Their Age Smoke

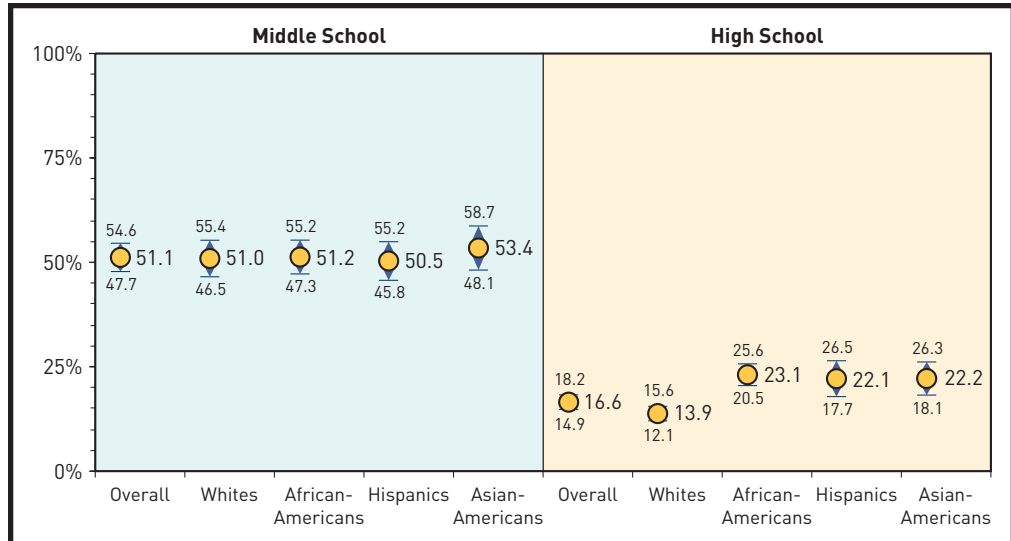


Note: Upper and lower ranges represent 95 percent confidence intervals that account for the survey design weighting.

REFUSAL SKILLS TRAINING

Figure 4 reiterates that a greater percentage of middle school students than high school students report learning various prevention strategies. Over half (51.1 percent) of middle school students indicate that they learned to say no to tobacco during the past school year compared with 16.6 percent of high school students. In high school, the prevalence of refusal skills training varies by race/ethnicity. White students (13.9 percent) report a lower prevalence of refusal skills training than African-American students (23.1 percent), Hispanic students (22.1 percent), and Asian-American students (22.2 percent). However, in middle school there were no significant differences reported by race/ethnicity. There are no significant differences between males and females in learning to say no to smoking.

Figure 4: Percentage of Youths Who Reported Practicing Ways to Say “No” to Cigarettes

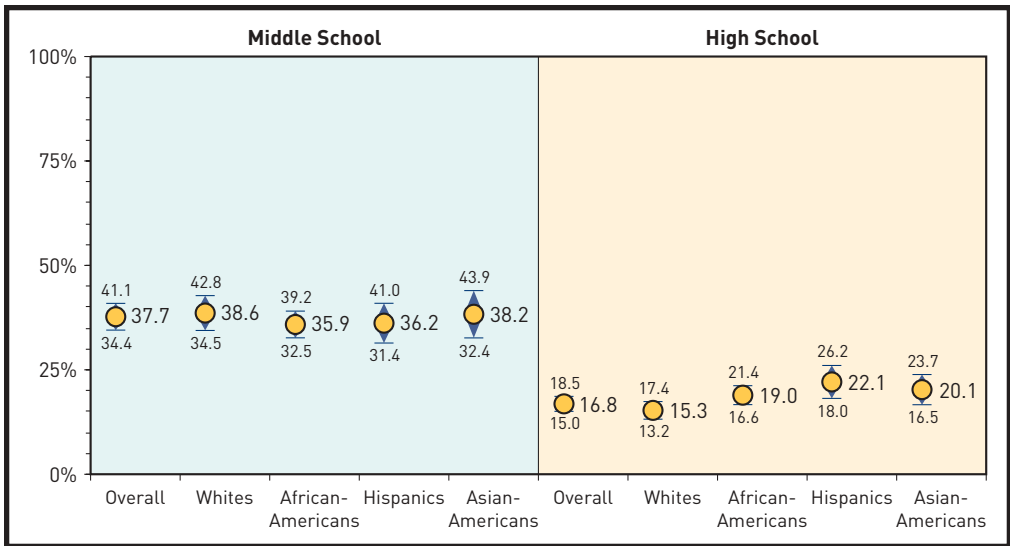


Note: Upper and lower ranges represent 95 percent confidence intervals that account for the survey design weighting.

COMPREHENSIVENESS OF TOBACCO USE PREVENTION EDUCATION

To determine whether youths are receiving comprehensive programs, data for each of the strategies discussed were aggregated into two groups based on the four questions about classroom smoking prevention education measured in the 2000 NYTS (Table 1). As discussed above, respondents were classified as receiving multistrategy prevention education if they answered yes to at least three of the four questions, and respondents who answered yes to two or fewer of those questions were classified as not receiving multistrategy prevention education. Figure 5 details the prevalence of receiving multistrategy prevention curricula among middle and high school students. Overall, the use of multistrategy education is not very common and exhibits typical variation between middle and high school students. Thirty-eight percent of middle school students report receiving a multistrategy program compared with 16.8 percent of high school students. In middle school, there are no significant differences by race/ethnicity. However, in high school, Hispanic students (22.1 percent) exhibit a higher prevalence of multistrategy education than White students (15.3 percent).

Figure 5: Percentage of Youths Who Reported Receiving Multistrategy Tobacco Use Prevention Education

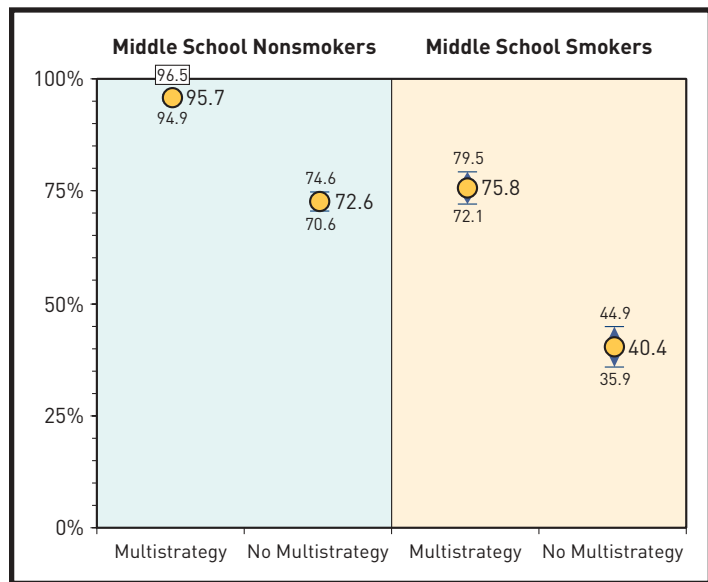


Note: Upper and lower ranges represent 95 percent confidence intervals that account for the survey design weighting.

REFUSING OFFERS TO SMOKE

Figure 6 details the percentages of middle school smokers and nonsmokers who said the prevention education they receive helped them refuse offers to smoke. Nonsmokers who receive a multistrategy approach (95.7 percent) said that their prevention education helped them feel it is okay to refuse offers to smoke compared to nonsmokers who did not receive a multistrategy program (72.6 percent). Roughly 76 percent of smokers who received a multistrategy approach said that it helps them refuse offers to smoke compared with only 40.4 percent of smokers who did not receive a multistrategy curriculum. More females (83.7 percent) than males (74.9 percent) in middle school report that the prevention education they receive helps them feel it is okay to say no to smoking.

Figure 6: Percentage of Youths With Antismoking Attitudes Who Reported Receiving a Multistrategy Prevention Education Program



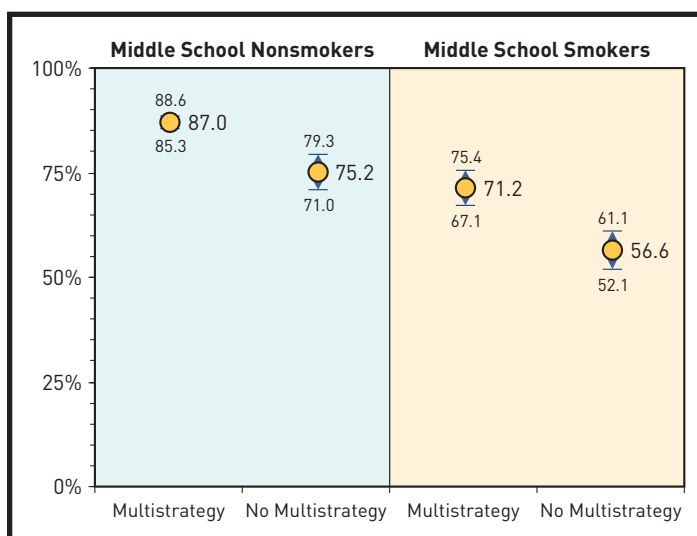
Note: Upper and lower ranges represent 95 percent confidence intervals that account for the survey design weighting.

EXPOSURE TO MULTISTRATEGY PREVENTION EDUCATION PROGRAMMING AND OVERALL ATTITUDES ABOUT SMOKING

As noted above, students are characterized as having antismoking attitudes if they report having antismoking beliefs on four or more of the questions from Table 2 and pro-smoking attitudes if they report antismoking attitudes on three or fewer of those questions. This analysis is limited to middle school students because a greater proportion of middle school students receive substance use prevention programming than other grades (CDC, 1994; Rohrbach et al., 1998) and many programs are designed to target middle school students (CDC, 2001). Students are separated by smoking status because smokers and nonsmokers generally have different attitudes about smoking before receiving prevention education. For example, 78 percent of nonsmokers indicate overall antitobacco attitudes in the 2000 NYTS compared with 57 percent of current smokers.

Figure 7 suggests that students who are exposed to multistrategy prevention programs more frequently hold antitobacco beliefs. Among nonsmokers, 87 percent of students who are exposed to multistrategy programs hold antitobacco attitudes compared with only 75.2 percent of students who have not been exposed to a multistrategy curriculum. This difference is even larger among middle school smokers. For example, 71.2 percent of middle school smokers who receive a multistrategy program indicate antitobacco attitudes compared with only 56.6 percent of smokers who do not receive a multistrategy program.

Figure 7: Percentage of Youths Who Reported the Prevention Education They Received Helps Them Feel it is Okay to Refuse Offers to Smoke

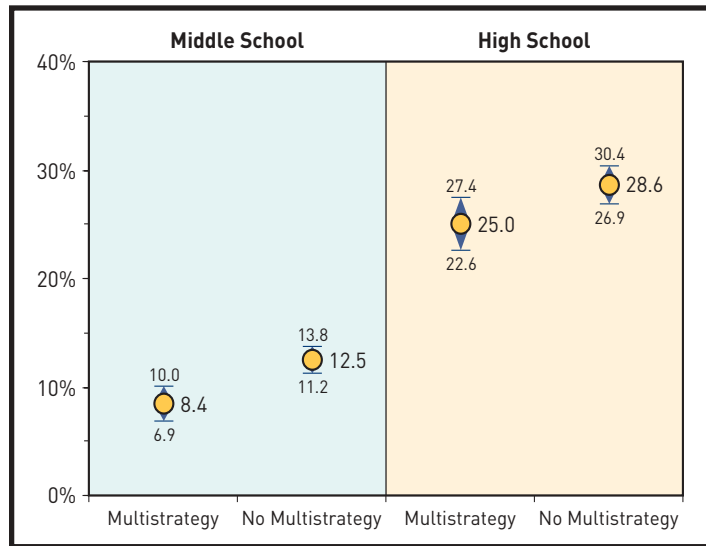


Note: Upper and lower ranges represent 95 percent confidence intervals that account for the survey design weighting.

PREVENTION EDUCATION AND SMOKING PREVALENCE

According to the 2000 NYTS, current smokers (or 30-day current smoking prevalence) are less prevalent among middle school students who receive a multistrategy prevention program (8.4 percent) than among students who do not receive a multistrategy prevention program (12.5 percent). Consistent with other studies (Ellickson et al., 1993; Peterson et al., 2000), we did not find this difference among high school smokers.

Figure 8: Percentage of Youths Who Smoked at Least Once in the Past 30 Days by Type of Tobacco Prevention Strategy



Note: Upper and lower ranges represent 95 percent confidence intervals that account for the survey design weighting.

SUMMARY

Results from the 2000 NYTS suggest that multistrategy prevention education may be effective in reinforcing antitobacco attitudes and curbing youth smoking. Research supports implementation of multistrategy prevention programs because they can result in increased knowledge about tobacco use, positive attitudes about being a nonsmoker, and overall decreased amounts of youth smoking.

Despite recommendations to implement comprehensive prevention education programs, less than half of all middle school students and less than a quarter of all high school students report receiving three or four of the educational strategies. This difference between middle school and high school students coincides with previous research suggesting that prevention should be implemented more heavily in middle school grades because smoking generally begins during the middle grades. Therefore, middle school students are more likely to receive their prevention education via a wider variety of education strategies, and high school students receive booster lessons that rely on fewer strategies. Findings from the 2000 NYTS suggest that school systems and personnel are following recommendations to emphasize prevention during the middle grades.

Among the four smoking prevention education strategies measured in this report, the knowledge of consequences component is implemented the most frequently, and normative beliefs and refusal skills are implemented the least. This finding suggests that information/knowledge programs are still the most common type of tobacco prevention education taught in the classroom, despite research that indicates that these noninteractive strategies are not as effective as interactive strategies (Tobler et al., 1997).

Generally, we find few differences among racial/ethnic groups in middle school except between African-Americans and Asian-Americans with regard to learning the social and personal influences to smoke. However, in high school, fewer White students report learning all of the strategies than any other racial or ethnic group.

In general, we see no differences between male and female students in learning these prevention strategies. The only difference is found when comparing males and females on learning the consequences of smoking; more females report learning this than males.

We find differences in attitudes about smoking between students who receive multistrategy prevention education and those who do not. Students who receive multistrategy prevention education are more likely to have antismoking attitudes. These results support the notion that reinforcement of antitobacco attitudes is an attainable goal of multistrategy tobacco prevention education.

We also found that exposure to multistrategy prevention education is associated with lower smoking rates among middle school students. This finding is encouraging but needs to be more extensively researched to consider the delivery of school-based prevention (i.e., are schools with high prevalence less likely to offer school prevention?) and the underreporting of the receipt of school-based prevention by smokers (compared to nonsmokers) because they are less attentive to antismoking messages.

These results suggest that a multistrategy approach to tobacco prevention not only has an association with antitobacco attitudes but may also influence behavior by assisting youths in their decisions about smoking. Multistrategy approaches to tobacco prevention education may also be effective in reducing the prevalence of smoking among youths. Middle schools demonstrate a stronger association between smoking prevalence and implementation of a multistrategy approach. Because this difference is not as large among high school students, high schools may need to incorporate more varied strategies into smoking prevention education programs. Other school-based components of a smoking prevention program include restrictive school policies that prohibit tobacco use by all students, staff, and visitors; peer counseling; and environmental modification (like reducing access to tobacco at stores serving the neighborhoods in proximity to the school). Many educational and health organizations, such as the CDC, the National Institute on Drug Abuse, and the American Lung Association, recommend that smoking prevention programs incorporate multiple strategies.

More rigorous research is needed to evaluate the impact of the prevention lessons schools currently offer. This report suggests that using multistrategy prevention programs may be an effective strategy for curbing smoking among middle school students and a potentially effective complement to other school and nonschool tobacco prevention efforts.

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APPENDIX A: EXPOSURE TO TOBACCO PREVENTION CURRICULA — DETAILED TABLES

Table A-1. Percentage of Youths Who Report Exposure to Tobacco Prevention Curricula — 2000 NYTS [95% Confidence Interval]

	Middle School			
	Taught About Long- and Short-Term Effects of Smoking	Taught that Most People Your Age Do Not Smoke	Taught Reasons Why People Your Age Smoke	Practiced Ways to Say “No” to Tobacco in Class
Overall (n=16,372)	76.5% [73.8–79.2]	40.2% [37.2–43.3]	63.9% [60.4–67.4]	51.1% [47.7–54.6]
Males (n=8,092)	73.5% [70.6–76.4]	41.7% [38.3–45.1]	60.5% [57.0–64.1]	48.9% [45.6–52.3]
Females (n=8,274)	79.4% [76.5–82.2]	38.8% [35.7–41.9]	67.1% [63.4–70.9]	53.3% [49.4–57.1]
Whites (n=8,351)	77.5% [74.1–80.9]	40.0% [36.0–44.0]	65.3% [60.9–69.8]	51.0% [46.5–55.4]
African-Americans (n=3,181)	72.9% [69.9–76.0]	38.5% [35.5–41.5]	59.3% [56.0–62.5]	51.2% [47.3–55.2]
Hispanics (n=3,219)	75.7% [72.2–79.1]	43.0% [38.2–47.8]	61.3% [56.5–66.1]	50.5% [45.8–55.2]
Asian-Americans (n=652)	78.3% [73.9–82.7]	45.3% [39.0–51.7]	69.9% [64.8–74.9]	53.4% [48.1–58.7]
	High School			
	Taught About Long- and Short-Term Effects of Smoking	Taught that Most People Your Age Do Not Smoke	Taught Reasons Why People Your Age Smoke	Practiced Ways to Say “No” to Tobacco in Class
Overall (n=19,420)	49.8% [46.9–52.8]	18.1% [16.4–19.7]	37.5% [34.6–40.5]	16.6% [14.9–18.2]
Males (n=10,019)	47.0% [44.0–50.0]	19.1% [17.1–21.2]	35.0% [32.0–38.0]	14.8% [13.1–16.4]
Females (n=9,394)	52.8% [49.6–56.0]	17.0% [15.3–18.6]	40.2% [37.0–43.4]	18.4% [16.5–20.3]
Whites (n=11,531)	47.7% [44.2–51.1]	16.3% [14.4–18.2]	35.6% [32.0–39.2]	13.9% [12.1–15.6]
African-Americans (n=2,732)	53.5% [48.5–58.4]	19.7% [16.8–22.6]	39.6% [35.8–43.5]	23.1% [20.5–25.6]
Hispanics (n=3,344)	57.5% [53.1–61.8]	26.6% [22.6–30.5]	44.0% [39.1–48.9]	22.1% [17.7–26.5]
Asian-Americans (n=1,090)	53.7% [48.5–58.9]	21.9% [18.5–25.4]	45.0% [40.1–49.9]	22.2% [18.1–26.3]

**Table A-2. Prevalence of Multistrategy Education and Perceptions of Effectiveness
— 2000 NYTS [95% Confidence Interval]**

	Middle School	
	Received Multistrategy Tobacco Prevention Education	Lessons Learned in School Helped You Feel It Is Okay to Say “No” to Cigarettes
Overall (n=16,372)	37.7% [34.4–41.1]	79.4% [77.6–81.2]
Males (n=8,092)	36.0% [32.6–39.4]	74.9% [72.6–77.1]
Females (n=8,274)	39.4% [35.9–43.0]	83.7% [81.9–85.5]
Whites (n=8,351)	38.6% [34.5–42.8]	79.9% [77.6–82.2]
African-Americans (n=3,181)	35.9% [32.5–39.2]	77.8% [75.6–80.1]
Hispanics (n=3,219)	36.2% [31.4–41.0]	79.1% [76.6–81.6]
Asian-Americans (n=652)	38.2% [32.4–43.9]	79.7% [75.8–83.6]
	High School	
	Received Multistrategy Tobacco Prevention Education	Lessons Learned in School Helped You Feel It Is Okay to Say “No” to Cigarettes
Overall (n=19,420)	16.8% [15.0–18.5]	49.9% [47.8–52.0]
Males (n=10,019)	15.8% [13.9–17.7]	44.0% [41.9–46.2]
Females (n=9,394)	17.8% [15.9–19.7]	56.0% [53.6–58.5]
Whites (n=11,531)	15.3% [13.2–17.4]	46.8% [44.2–49.4]
African-Americans (n=2,732)	19.0% [16.6–21.4]	54.9% [51.3–58.5]
Hispanics (n=3,344)	22.1% [18.0–26.2]	60.4% [56.8–64.1]
Asian-Americans (n=1,090)	20.1% [16.5–23.7]	55.7% [51.5–59.8]

