Smoking Education: Comparison of Practice and State-of-the-Art

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The purpose of this paper is to compare the content of samples of curricula in current use in the nation's schools and curricula recently developed by researchers. We describe briefly the nature of these curricula. We then provide an analysis of their content. © 1989 Academic Press, Inc.

INTRODUCTION

Educators have tried many approaches to preventing adolescents from becoming cigarette smokers. Smoking education that has focused on providing information about the consequences of smoking has not been effective in preventing adolescents from starting to smoke (1, 2). Programs that focus on social influences and resistance skills (3), or more general life/social skills (4–6), on the other hand, do appear to be effective. Yet many schools still provide little more than information about the consequences of smoking, possibly because they use improved knowledge rather than behavior change as the measure of their success. With increasing concern about cigarette smoking and other substance use/abuse, however, many school systems are anxious to provide education that leads to more healthful behavior and lifestyles as well as improved knowledge.

THE PROGRAMS ANALYZED

We consider three broad categories of smoking education/prevention programs: (a) Health agency, (b) Social influences, and (c) General skills programs.

Health Agency Programs

In a previous study (7), Bailey describes smoking education curricula in common use throughout the nation's schools. These curricula seem to focus on providing information about the severe negative consequences of cigarette smoking. They usually include only minimal consideration of other issues, such as the reasons adolescents start smoking and methods of resistance. Little evaluative data are available on the effectiveness of these programs. We analyzed the content of all those health agency programs reviewed by Bailey that were targeted for Grade 7 students. These included:

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2 To whom requests for reprints should be addressed.
“Breathing Easy” from WQED Pittsburg,
“Smart Answer” from the American Lung Association of Maryland,
“Growing Healthy” from the Centers for Disease Control and the American Lung Association,
“Let’s Talk About Smoking” from the American Heart Association, and
“Health Network” from the American Cancer Society.

Social Influence Programs

Flay (3, 6) and Botvin (4) provided reviews of psychosocial approaches to smoking prevention that recent research has found to be effective. “Social influences” curricula focus on the social influences to smoke—peer, family, and media—and provide students with skills with which to resist them.

To correct misperceptions, instructors might survey students about their own smoking behavior and their estimates of smoking by others. Students then discover that use by others is lower than commonly thought, and this reduces pressure they may feel. Peer influences are particularly important to adolescents as they attempt to develop accepted social skills. Effective peer resistance skills include, but go significantly beyond, the simple “Just say no” strategy popularized by Nancy Reagan and the mass media. In effective programs, models on film or peers in the classroom demonstrate resistance skills. Students then role-play the skills, and the instructor provides students with feedback to improve their skills. Students discover how media—exposure to celebrities on radio and television and information in newspaper and magazines—can influence their behavior without their being aware of this. They learn how to be critical viewers of entertainment programs that show drug use as a method of solving problems. They also learn to recognize and be skeptical of advertising strategies used to trick people into believing that smoking and drinking have positive consequences.

Social influence program delivery strategies may also be important. Most of those programs found to be effective in research have used the following four delivery strategies. They are usually more dialectic and socratic than didactic; that is, instructors guide students to discovery rather than lecturing them. Many programs include media materials such as videotapes of same-age peers demonstrating resistance skills. Behavioral role-play and practice of resistance skills in the classroom is important because students are unlikely to learn skills if they do not practice them. Finally, specially chosen and trained peer leaders assist specially trained teachers in the delivery of the most effective programs. Several universities and research institutes have developed and tested social influence prevention programs. Grade 8 and 9 students previously exposed to social influence programs in grades 6 or 7 use cigarettes at about half the rate of other students (3, 6, 8).3 We have analyzed the content of four social influence programs:

“Keep it Clean” from the Universities of Waterloo and Minnesota (also in use at the University of Iowa),

3 The observed rate has varied across studies. Unfortunately, we have little knowledge of the determinants of variations in success.
"PATH (Programs to Advance Teen Health)" from the Oregon Research Institute,
"Project SMART (Self Management and Resistance Training)" from the University of Southern California, and
"Feeling Fine" also from the University of Southern California.

General/Social Skills Programs

Curricula characterized by Flay (3, 6, 8) as more general personal/social skills programs also consider social influences and ways of resisting them. However, they also always include some personal skills such as stress management, self-esteem enhancement, and decision-making. The primary distinguishing feature of these approaches is that they typically include two or more of the following components (4):

(a) general problem-solving such as brainstorming and systematic decision-making skills;
(b) skills for increasing self-control and self-esteem such as self-instruction, self-reinforcement, goal-setting, and principles of self-change;
(c) adaptive coping strategies for relieving stress and anxiety through cognitive coping skills or relaxation techniques;
(d) general interpersonal skills such as beginning social interactions, complimenting, and conversational skills.

The above skills are usually taught using a combination of instruction, demonstration, feedback, reinforcement, practice of skills during class, and extended practice through homework activities.

We analyzed the content of three general/social skills curricula:

The "Life Skills Training" curriculum from Cornell is probably the most comprehensive;
The Schninke and Gilchrist curriculum, from the University of Washington, focuses on cognitive and behavioral coping skills modification; and
"Project ADVANCE," from the University of Southern California, focuses on coping with stress.

PROGRAM ANALYSIS

Table 1 shows some of the characteristics of the programs analyzed. The research curricula generally are longer (6-12 sessions) and less variable in length than the health agency curricula. Health agency curricula are, however, usually taught over multiple grades rather than one. Most research curricula use principles of distributed learning, with sessions once a week or once a month rather than every day. Most health agency curricula, on the other hand, include daily sessions (i.e., massed learning), at least within grade. Social influences programs are more likely than other types of programs to use peer leaders in some form, include homework activities, involve parents, and use media materials.
<table>
<thead>
<tr>
<th>Program type</th>
<th>Name</th>
<th>Focus&lt;sup&gt;a&lt;/sup&gt;</th>
<th>No. of Sessions</th>
<th>Boost</th>
<th>Sched&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Grade</th>
<th>Peer Lead&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Par. Invol&lt;sup&gt;d&lt;/sup&gt;</th>
<th>Home Work&lt;sup&gt;e&lt;/sup&gt;</th>
<th>Media&lt;sup&gt;f&lt;/sup&gt;</th>
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<tr>
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<td>Keep It Clean&lt;sup&gt;e&lt;/sup&gt;</td>
<td>S</td>
<td>6</td>
<td>Y</td>
<td>D</td>
<td>6</td>
<td>Y</td>
<td>2</td>
<td>5</td>
<td>4</td>
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<td></td>
<td>PATH&lt;sup&gt;f&lt;/sup&gt;</td>
<td>D</td>
<td>7</td>
<td>N</td>
<td>D</td>
<td>7</td>
<td>Y</td>
<td>1</td>
<td>5</td>
<td>9</td>
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<tr>
<td></td>
<td>Feeling Fine&lt;sup&gt;g&lt;/sup&gt;</td>
<td>S&lt;sup&gt;a&lt;/sup&gt;</td>
<td>10</td>
<td>N</td>
<td>D</td>
<td>7</td>
<td>Y</td>
<td>10</td>
<td>8</td>
<td>10&lt;sup&gt;i&lt;/sup&gt;</td>
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<td></td>
<td>SMART&lt;sup&gt;j&lt;/sup&gt;</td>
<td>D</td>
<td>10</td>
<td>N</td>
<td>D</td>
<td>7</td>
<td>Y</td>
<td>5</td>
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<td>1-10</td>
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<td>2-10</td>
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<td>D</td>
<td>12</td>
<td>N&lt;sup&gt;i&lt;/sup&gt;</td>
<td>D</td>
<td>7</td>
<td>N</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td></td>
<td>Schinke&lt;sup&gt;m&lt;/sup&gt;</td>
<td>S</td>
<td>7</td>
<td>N</td>
<td>D</td>
<td>6</td>
<td>Y</td>
<td>0</td>
<td>4</td>
<td>5</td>
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<td>ST&lt;sup&lt;l&lt;/sup&gt;</td>
<td>11</td>
<td>N</td>
<td>D</td>
<td>5</td>
<td>Y</td>
<td>2</td>
<td>7</td>
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<td>Breathing Easy&lt;sup&gt;o&lt;/sup&gt;</td>
<td>S</td>
<td>3</td>
<td>N</td>
<td>D</td>
<td>6-9</td>
<td>Y</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Smart Answer&lt;sup&gt;p&lt;/sup&gt;</td>
<td>S</td>
<td>5</td>
<td>N</td>
<td>M</td>
<td>5-6</td>
<td>Y</td>
<td>0</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Growing Healthy&lt;sup&gt;q&lt;/sup&gt;</td>
<td>SH</td>
<td>12</td>
<td>N</td>
<td>M</td>
<td>5-7</td>
<td>N</td>
<td>5</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Let's Talk&lt;sup&gt;r&lt;/sup&gt;</td>
<td>S</td>
<td>3</td>
<td>N</td>
<td>M</td>
<td>7-8</td>
<td>N</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

<sup>a</sup> Focus: S = Social, P = Physical, P = Physical and Psychologic, E = Emotional, L = Lifestyle.

<sup>b</sup> Schedule: D = Daily, I = Interim.

<sup>c</sup> Peer Lead: Y = Yes, N = No.

<sup>d</sup> Par. Invol: Y = Yes, N = No.

<sup>e</sup> Home Work: Y = Yes, N = No.

<sup>f</sup> Media: Y = Yes, N = No.

<sup>g</sup> SMART = Social, Mental, Academic, Relationship, Tobacco.

<sup>h</sup> Feeding Fine.

<sup>i</sup> PATH = Preventing Adolescent Tobacco Use.

<sup>j</sup> Social influences.

<sup>k</sup> LST = Learning Skills Training.

<sup>l</sup> General skills.

<sup>m</sup> Schinke.

<sup>n</sup> Social influences.

<sup>o</sup> Breathing Easy.

<sup>p</sup> Smart Answer.

<sup>q</sup> Growing Healthy.

<sup>r</sup> Let's Talk.
Health Network\textsuperscript{a} | SH | 43\textsuperscript{f} | N | D | 4–6 | N | 1 | 1 | 3
\hline
Mean | 13.2 | 1.2 | 1.8 | 3.4 |
Range | 3–43 | 0–5 | 0–3 | 1–7 |

\textsuperscript{a} S, smoking; D, multiple substances; SH, smoking within a health focus; ST, stress prevention.
\textsuperscript{b} D, distributed learning; M, massed learning (daily).
\textsuperscript{c} Type of peer leaders used varies a great deal.
\textsuperscript{d} Number of sessions.
\textsuperscript{e} 1983 version.
\textsuperscript{f} 1984–1985 version.
\textsuperscript{g} 1985 version.
\textsuperscript{h} Type of peer leaders used varies a great deal.
\textsuperscript{i} With mention of drugs.
\textsuperscript{j} On commercial television.
\textsuperscript{k} 1985 "SHARP" version with parent involvement.
\textsuperscript{l} 1983 version of 12 sessions.
\textsuperscript{m} A newer, and longer, version includes booster sessions in Grade 8.
\textsuperscript{n} 1984 version.
\textsuperscript{o} 1985 version.
\textsuperscript{p} 1984–1985 version (WQED Pittsburg).
\textsuperscript{q} 1982 version (ALA).
\textsuperscript{r} 1982 version (CDC/ALA).
\textsuperscript{s} 1982 version (AHA).
\textsuperscript{t} 1979 version (ACS).
\textsuperscript{u} Total number of sessions in which smoking was mentioned. Actual time equivalent to approximately 26 sessions (then mean no. sessions below = 9.8).
For each of the curricula, we recorded the number of minutes spent on different content areas and activities. The areas considered included the following:

- Information, divided into consequences, social issues, and prevalence of use;
- Behavioral skills, divided into resistance of influences from peers, family, and media;
- Self management, which includes decision-making, coping with stress, self-image enhancement, general social skills such as assertiveness or dating, general personal skills, and commitment.

Figure 1 summarizes these data, and Table 2 shows the mean number of minutes spent on each area/activity, the range across the 3–5 curricula in each group, and the percentage of total curriculum time spent on each area/activity. Despite their greater length, health agency and general skills curricula spend only half as much time on peer influences as do social influences curricula; they do not consider family influences at all; and they are much less likely to consider media influences. Health agency curricula do consider general social consequences of smoking—but they are much less likely to also consider social influences or provide skills with which to resist them.

Figure 2 and Table 3 provide more detailed breakdowns of time spent on social resistance skills. When programs include resistance skills, the proportion of time allocated to role-playing and practicing the skills is about the same. Role-playing and skills-practice take about two-thirds of the total time available for social skills development. General skills and health agency curricula devote fewer minutes (about half as many) and a smaller proportion of their total time (less than 20%
compared with almost 50% for social influences curricula) to social skills development.

**DISCUSSION**

In a simple analysis of how different smoking education/prevention curricula distribute their time, we have found that health agency curricula in common use in the nation's schools do not place enough emphasis on the social influences to
smoke and ways of resisting such influences. On the basis of the analysis provided in this paper, and previous reviews (3–6, 8), we offer the following recommendations regarding effective prevention programming.5

An effective smoking prevention curriculum probably requires 7–10 class periods (350–450 min). At least two-thirds of that time should focus on social issues. Most of that time (at least half of the total curriculum) should focus on social influences and resistance skills. Role-play and practice of the resistance skills should take at least two-thirds of the time spent on social influences (or 45% of the total time). These activities must occur throughout the total curriculum, not all at once. A minimum of one session should introduce decision-making that leads to some sort of a commitment. For example, students might commit to offering help to friends in situations requiring resistance skills, or to never pressure anyone else to use substances. Any added personal or social skills training, such as those included in the Life Skills Training approach (Botvin) would probably be helpful, but its necessity is not yet known. A minimum of one session should cover the basic information about health consequences. There is no research to suggest that this information can be omitted safely, and all the best programs devote at least one session, usually more, to providing basic health facts. Any added health or science information above the recommended minimum will not hurt, and might help by making the curriculum more attractive to schools.

Most effective curricula also include the following features: (a) socratic or dialectic, rather than didactic, teaching methods, (b) small group activities, (c) same-age or slightly older peers to help in the delivery of the curriculum and to demonstrate (role-play) skills, (d) classroom media, usually to demonstrate skills, and (e) some level of parent involvement, for example, in homework activities. General psychological and educational research supports the use of these principles. While effective programs have included these characteristics, research specific to smoking prevention has not yet determined their necessity. Programs

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<table>
<thead>
<tr>
<th></th>
<th>Explanation</th>
<th>Media</th>
<th>Role-play</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td><strong>Social influences</strong></td>
<td>X 46.5</td>
<td>12.8</td>
<td>116.3</td>
<td>175.5</td>
</tr>
<tr>
<td></td>
<td>R 13–86</td>
<td>0–30</td>
<td>87–163</td>
<td>129–221</td>
</tr>
<tr>
<td></td>
<td>% 26.5</td>
<td>7.3</td>
<td>66.3</td>
<td>(48.3(^a))</td>
</tr>
<tr>
<td><strong>General skills</strong></td>
<td>X 29.0</td>
<td>0.3</td>
<td>46.0</td>
<td>75.3</td>
</tr>
<tr>
<td></td>
<td>R 20–35</td>
<td>0–1</td>
<td>29–93</td>
<td>45–126</td>
</tr>
<tr>
<td></td>
<td>% 38.5</td>
<td>0.4</td>
<td>61.1</td>
<td>(15.9(^b))</td>
</tr>
<tr>
<td><strong>Health agency</strong></td>
<td>X 26.0</td>
<td>3.4</td>
<td>67.4</td>
<td>96.8</td>
</tr>
<tr>
<td></td>
<td>R 10–45</td>
<td>0–10</td>
<td>10–125</td>
<td>21–170</td>
</tr>
<tr>
<td></td>
<td>% 26.9</td>
<td>3.5</td>
<td>69.6</td>
<td>(19.4(^a))</td>
</tr>
</tbody>
</table>

\(^a\) Minutes of explanation, media, and role-play (mean, range, and percentage of total time).

\(^b\) Percentage of total curriculum.

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5 This section was written in June 1987. See Glynn (9) for a comparable set of recommendations derived in a consensus meeting of smoking education researchers in December 1987.
that are reinforced and expanded in several grade levels are probably also more effective, although there is not enough research yet available to be confident about this assertion.

The prevention of the onset of tobacco (and other substance) use by adolescents is an important goal for today's schools. Our analysis suggests that the most effective approaches to meeting this goal are not being used by many schools, nor promoted by many health agencies. Considering that psychosocial approaches to smoking prevention are the most effective approaches tested to date, we recommend that health agencies and school systems consider giving more extensive and careful attention to social skills development.

ACKNOWLEDGMENTS

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REFERENCES


CURRICULA ANALYZED


Smart Answer. American Lung Association of Maryland, 1982.