

## A B S T R A C T

Interventions that are efficacious and appeal to youth are needed to help adolescents quit smoking. High school smokers (N=585) completed surveys about their smoking cessation preferences. When asked which of 13 quitting options they would most prefer to use, 28.2% selected quit contracts with friends, and 7.6% endorsed self-help programs. Nicotine replacement therapy, group programs and web-based programs were preferred by 4.9%, 3.9%, and 1.0% of respondents, respectively. Most students wanted proof of the intervention's effectiveness. Confidentiality and ease of use were favourably associated with self-help and pharmacological interventions, while social support was associated with group programs. Findings suggest that self-directed interventions, offered as part of a school-wide challenge, with prizes awarded to students who quit, are attractive to youth. More research is needed to determine how to engage adolescent smokers in the quitting process.

## A B R É G É

Il faut des interventions efficaces et attrayantes pour les adolescents si l'on veut les aider à cesser de fumer. Des élèves fumeurs du secondaire (N=585) ont rempli des questionnaires sur leurs méthodes préférées de renoncement au tabac. Sur les 13 choix possibles, 28,2 % des élèves ont choisi les pactes de renoncement entre amis, et 7,6 %, les programmes d'auto-assistance. Les traitements de substitution de la nicotine, les programmes de groupe et les programmes accessibles sur Internet ont eu la préférence de 4,9 %, 3,9 % et 1,0 % des répondants, respectivement. La plupart des élèves voulaient des preuves de l'efficacité des interventions. La confidentialité et la facilité d'utilisation étaient associées positivement aux programmes d'auto-assistance et de pharmacologie, tandis que le soutien social était associé aux programmes de groupe. Les résultats portent à croire que les interventions auto-dirigées dans le cadre d'un défi dans toute l'école, avec des prix pour les élèves qui cessent de fumer, sont très attrayantes pour les jeunes. Il faudrait pousser la recherche pour déterminer comment enclencher chez les adolescents le désir de renoncer au tabac.

# Adolescent Smokers' Preferred Smoking Cessation Methods

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Despite at least two decades of anti-smoking messages and interventions for youth, a large proportion of Canadian adolescents become smokers.<sup>1,2</sup> Most of these young smokers express serious intentions to give up smoking and many make repeated quit attempts, however few successfully quit on their own.<sup>3-7</sup> This situation points to a need for smoking cessation interventions that are efficacious, and appealing to youth.

In response to this need, a number of smoking cessation interventions have been created for teens. Most of these interventions are aimed at students, and most follow a group format.<sup>8,9</sup> There is some evidence that these approaches help teens quit smoking, however participation rates for most interventions – and especially group programs – remain discouragingly low.<sup>8-15</sup> Given that the population impact of a smoking cessation intervention depends on its efficacy and the number of smokers using it,<sup>16,17</sup> strategies to enhance participation rates warrant further attention.

One potential avenue for enhancing participation rates is to ensure that interventions appeal to, and thus will be used by youth. Findings from the handful of studies specifically addressing adolescent smokers' preferences indicate that teens prefer self-directed approaches over the more regimented format of group programs.<sup>10-12,15</sup> Questions remain, however, about the specific self-directed approaches young smokers prefer, how and when to offer them, and what method of program delivery is preferred. Additionally, given that there are some adolescent smokers for whom

group programs, or other assisted methods of quitting smoking may be more suitable, questions about preferred characteristics of these interventions also require attention. This study of adolescents' preferred approaches to quitting addresses these questions.

## METHODS

### Participants

Participants were 1,340 (54.5%) female and 1,117 (45.5%) male secondary school students. They ranged in age from 13 to 20 years old (M = 16.7). Just over half were in grades 9 or 10 (28.0% and 26.2%, respectively), 20.3% were in grade 11, 18.1% were in grade 12, and 7.4% were in grade 13.

### Measures

Using a paper-and-pencil survey, respondents provided basic demographic data, and self-identified their smoking status using a series of categories ranging from "non-smoker who has never smoked" to "heavy smoker". Questions to confirm respondents' smoking status were selected from a recent field test of surveillance items.<sup>18</sup> These items asked whether the respondent has smoked more than 100 whole cigarettes in their lifetime, and how often and how much they smoked in the past 7 and 30 days.

To determine what smoking cessation approaches they find appealing, teen smokers chose from a list of 13 options (shown in Table I), all the methods they would use, and the one method they preferred most of all.

To assess preferences related specifically to group, self-help, and pharmacological/alternative approaches to quitting, respondents answered questions about: the composition, scheduling, and leadership of

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school-based group programs; the specific pharmacological/alternative and self-help approach they preferred; and, the qualities of each approach that were most important to them. Teens also indicated why they would use group and self-help programs, and how best to promote those interventions to smokers.

Finally, respondents answered questions about the use of school-wide challenges, prize incentives, and time of year as motivations for quitting smoking.

### Procedures

With approval of a regional school board in southeastern Ontario, ten principals volunteered their schools for the study. From these volunteers, four geographically-dispersed schools were selected. To be eligible to participate, the school had to agree to distribute and collect consent forms, allow researchers to administer questionnaires to all classes simultaneously during regular class time, and help monitor classrooms during the 30-minute survey. All schools agreed except one which limited participation to grades nine and ten. Another school was contacted to replace this school.

Approximately 90% of students at each school participated, with most missing data attributable to absenteeism, and withdrawal of whole classes due to pre-scheduled tests.

## RESULTS

### Sample characteristics

#### Identifying Smokers

Students were classified as smokers if they met one of these three criteria: smoked more than 100 cigarettes in their lifetime and identified themselves as light, moderate or heavy smokers; smoked more than 100 cigarettes in their lifetime and smoked in the past month; smoked more than 5 cigarettes in the past week. Five hundred and eighty-five (23.0%) of the 2,546 students surveyed were classified as smokers. Based on their self-reported status, 68.7% were moderate or heavy smokers, 30.1% were occasional smokers, and 1.2% were in the process of quitting. On average, they smoked 77.5 cigarettes per week (SD = 40.0).

**TABLE I**  
Methods of Smoking Cessation that Adolescent Smokers are Willing to Use, and Prefer to Use

| Method of Quitting                               | Willing to Use* |      | Prefer to Use |      |
|--|-----------------|------|---------------|------|
|  | n               | %    | n             | %    |
| Use a self-help stop-smoking program             | 172             | 31.7 | 33            | 7.6  |
| Use the internet to get information on smoking   | 50              | 9.2  | 1             | 0.2  |
| Read a pamphlet about the dangers of smoking     | 96              | 17.7 | 5             | 1.1  |
| Make a deal with a friend to quit together       | 326             | 60.1 | 123           | 28.2 |
| Call a hotline                                   | 43              | 7.9  | 1             | 0.2  |
| Get a group of friends to quit together          | 260             | 48.0 | 77            | 16.6 |
| Attend a group program at school                 | 103             | 19.0 | 17            | 3.9  |
| Ask a teacher/coach for help                     | 38              | 7.0  | 2             | 0.5  |
| See a doctor to get "the patch"                  | 64              | 11.8 | 12            | 2.8  |
| Use nicotine "gum"                               | 106             | 19.6 | 9             | 2.1  |
| See a doctor to get Zyban                        | 68              | 12.5 | 17            | 3.9  |
| Use hypnosis/laser/acupuncture                   | 51              | 9.4  | 12            | 2.8  |
| Quit independently using nothing, telling no one | 280             | 51.7 | 127           | 29.1 |

\* Percents sum to greater than 100 because respondents selected all options that applied.

**TABLE II**  
Adolescent Smokers' Reasons for Using Assisted Methods of Quitting

| Reason  | Self-help Programs |      | Group Programs |      |
|---|--------------------|------|----------------|------|
|   | n                  | %    | n              | %    |
| Having proof that it helps smokers quit                       | 276                | 56.4 | 265            | 50.2 |
| Because teachers want them to use it                          | 7                  | 1.4  | 2              | 0.4  |
| Because friends want them to use it                           | 19                 | 3.9  | 26             | 4.9  |
| Seeing their friends using it                                 | 33                 | 6.7  | 48             | 9.1  |
| Knowing other students developed it                           | 8                  | 1.6  | 18             | 3.4  |
| Realizing they are addicted to nicotine                       | 41                 | 8.4  | 30             | 5.7  |
| Realizing that their past attempts to quit have not succeeded | 52                 | 10.6 | 64             | 12.1 |
| Would not use it for any reason                               | 53                 | 10.8 | 75             | 14.2 |

Note. Respondents were asked, "What would make you want to [use a self-help, stop-smoking program / go to a stop-smoking group program]?"

### Smokers' preferred methods of quitting

The number of smokers providing data for the remaining questions varies from a low of 432 indicating their preferred self-help method to a high of 530 stating their preferred pharmacological intervention.

#### General Preferences

Smokers indicated which smoking cessation techniques they were willing to use, and preferred to use (see Table I). Contracts with friends, unassisted quitting, and self-help programs were favoured by most respondents.

#### Preferences Specific to Self-help Approaches

When respondents were asked to identify their preferred self-help option, 50.7% chose quitting on their own without telling anyone or getting any assistance, 31.3% identified making a deal with a friend, and 8.6% selected self-help programs. Web-based programs, pamphlets, asking adults for help, and hotlines, were preferred by 3.0%, 2.8%, 2.8% and 0.9% of the

respondents, respectively. Almost all smokers (91.6%) wanted self-help interventions to be available all the time, while 8.4% preferred limiting availability to events such as health fairs.

#### Preferences Specific to Group Programs

Responding to questions about school-based group programs, 64.7% of the students wanted only smokers serious about quitting to be in the group, 18.7% wanted only their friends, 10.1% wanted same-sex groups, and 6.5% wanted grade-specific groups. Respondents indicated that the ideal group would include 17 people ( $M = 16.92$ , mode = 10) and would meet 21 times ( $M = 20.95$ , mode = 10). (Most students supported 1 to 30 meetings, but several wanted as many as 90 meetings). Many respondents (39.8%) wanted a student to lead the group, or no leader at all (39.2%). Other choices for leaders were, teacher (2.5%), school nurse (8.0%), and adult such as a coach (10.6%). Most respondents believed the group should be

**TABLE III**  
**Characteristics of Smoking Cessation Interventions that Appeal to Adolescent Smokers**

| Method of Quitting           | Self-help |      | Group |      | Pharmacological |      |
|------------------------------|-----------|------|-------|------|-----------------|------|
|                              | n         | %    | n     | %    | n               | %    |
| Low or no cost               | 83        | 18.1 | 76    | 14.1 | 23              | 4.4  |
| Easy to use                  | 48        | 10.5 | 52    | 9.7  | 217             | 41.1 |
| Increases chance of success  | 99        | 21.6 | 130   | 24.2 | 109             | 20.6 |
| Reduces discomfort           | 21        | 4.6  | 29    | 5.4  | 62              | 11.7 |
| Accelerates quitting process | 68        | 14.8 | 30    | 5.6  | 51              | 9.7  |
| Confidential*                | 139       | 30.3 | –     | –    | 66              | 12.5 |
| Provides social support†     | –         | –    | 221   | 41.1 | –               | –    |

Note. For each of the three approaches (self-help, group, pharmacological), respondents were instructed to think about using it, then answer this question, "What is your most important reason for wanting to use it?"

\* This was not provided as an option for group programs.

† This was not provided as an option for self-help or pharmacological interventions.

**TABLE IV**  
**Promotional Strategies Adolescent Smokers Prefer for Self-help and Group Smoking Cessation Interventions**

| Preferred Promotional Strategy  | Self-help Programs |      | Group Programs |      |
|---|--------------------|------|----------------|------|
|   | n                  | %    | n              | %    |
| Regular PA announcements about it   | 501                | 33.5 | 189            | 37.0 |
| Teacher announcements in class  | 64                 | 12.8 | 35             | 6.8  |
| Announcements at assemblies   | 29                 | 5.8  | 35             | 6.8  |
| Posters with information about it   | 84                 | 16.8 | 115            | 22.5 |
| Posters and announcements on the PA in class, and at assemblies           | 110                | 22.0 | 118            | 23.1 |
| Make the program/registration available at meetings of teams, clubs, etc. | 16                 | 3.2  | 12             | 2.3  |
| Make the program/registration available at health fairs                   | 30                 | 6.0  | 7              | 1.4  |

Note. Respondents were asked, "What is the best way for your school to remind you to [use a self-help, stop-smoking program / sign up for a stop-smoking group program]?"

held during or after school (47.8% and 40.7%, respectively), while the rest chose before school (3.1%) or at lunch (8.5%).

#### *Preferences Specific to Pharmacological/Alternative Approaches*

From a list including only pharmacological/alternative approaches, 33.4% of respondents identified nicotine gum, and 21.9% marked herbal products as their quitting preference. Transdermal NRT, Zyban, hypnosis, and acupuncture were preferred by 18.3%, 14.2%, 9.6%, and 2.6% of teen smokers, respectively.

#### **Reasons for using assisted methods**

Many smokers suggested that proof of effectiveness would persuade them to use self-help or group interventions (see Table II). When asked which qualities of self-help, group, and pharmacological interventions were most appealing, respondents generally emphasized features unique to the approach (see Table III).

#### **Ways to promote school-based interventions**

As shown in Table IV, smokers generally believed that regular PA announcements were the best way to promote self-help and group interventions. Additionally, 53.9% agreed that their school "should hold a challenge, where everyone tries to quit at the same time, using whatever method they want." Many smokers (57.3%) said they would be more likely to quit if they could win a prize. Among these smokers, 32.9% supported the option of "medium-sized" prizes (e.g., sweatshirt or CD) awarded to anyone who successfully quit, and 25.8% supported a draw among successful quitters for a "large" prize (e.g., CD player or mountain bike). Only 16.6% wanted "small" prizes awarded to everyone who attempted to quit.

Finally, 35.3% of the smokers felt they would be most likely to quit smoking in December, while 27.3% and 10.7% said January and November, respectively. Only

3.3% would quit in May, June and July, and 23.4% would quit at other times during the year.

#### **DISCUSSION**

In this study of adolescent smokers' preferred approaches to quitting, self-directed methods were clearly favoured. Overall, quitting methods that the greatest number of respondents would be willing, and would prefer to use, included contracting with friends to quit together, and quitting without any assistance or support. Among other options – such as web-based programs, counselling, group programs, hot-lines, and pharmacological aides – only self-help programs obtained meaningful levels of support. Almost two thirds of the smokers surveyed were willing to use self-help programs, and 8% preferred this approach. On the other hand, barely one fifth of the smokers were willing to use group programs offered at school and only 4% preferred this quitting method. These findings help explain the low participation rates typically associated with group programs.

Up to 4% of students expressed overall preferences for pharmacological or alternative approaches, while counselling and hot-line services were each preferred by less than 1% of these smokers. Web-based programs were also among the least preferred methods of quitting: 1 in 10 students would use them, but less than 1% preferred this option. It may be that teens are unfamiliar with or unable to access websites. Alternatively, they may be worried that their visits to a website will be noticed by adults from whom they are hiding their smoking. Websites offering a more comprehensive approach to health might be more appealing to this group by providing another reason to be there. In any case, these findings demand further investigation, particularly in light of the resources that have been expended to develop web-based programs and transfer well-known, widely-available interventions to the web.

When respondents were asked specifically about self-help, group, and pharmacological/alternative approaches, results were similar to overall preferences. Among self-help approaches, smokers preferred quit-

ting independently or with a friend, over self-help or web-based programs. Among pharmacological/alternative approaches, easily-accessible products such as nicotine chewing pieces and herbal products gained more support than higher-cost or prescription products. Finally, in terms of group programs, these young smokers favoured peer-led, multi-session programs held during or after school.

The low cost and confidentiality of self-help interventions, the social support of group programs, and the ease of use of pharmacological aids are important to teens. Additionally, as in an earlier study of young adults' preferences,<sup>12</sup> these adolescent smokers identified "enhanced likelihood of quitting" as an important quality of any type of intervention. In fact, despite their preference for unaided quit methods, more than half of the respondents said proof of effectiveness would help persuade them to use self-help or group programs offered in school, but endorsements from friends or teachers, or involvement of friends or peers in the programs, would not.

Students' preferences for regular PA announcements, or a combination of posters, PA and in-class announcements, as ways to promote school-based interventions are consistent with current practices, however it should be noted that the latter approach is usually a more effective recruitment strategy.<sup>19</sup> Given that half of the respondents supported a school-wide challenge to quit, and a similar proportion believed prize incentives would enhance their motivation to quit, these may also be useful strategies for encouraging participation in a range of smoking cessation interventions. Finally, it may be advantageous to promote interventions between November and January, when students prefer to quit.

Together, these findings suggest that group, web-based, and hotline interventions have limited appeal among teen smokers. Quit contracts, interventions for groups of friends, and self-help programs may be more appealing, especially when promoted as effective and inexpensive, and made easily accessible. Whether these results apply to teens outside the traditional school setting is an empirical question. Furthermore, more research is needed to explore the possibility of enhancing an intervention's appeal by modifying specific features (e.g., making quit contracts central features of self-help programs). A better understanding of "market segmentation" would also help ensure that interventions are targeted to teens most likely to use them. Finally, by monitoring adolescents' actual use of these quitting methods, and the relative efficacy of these interventions, we might better understand how to maximize the population impact of smoking cessation interventions.

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