

INTERNATIONAL ARTICLE

Healthy Behaviors, Lifestyle, and Reasons for Quitting Smoking Among Out-of-School Youth

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Study Objective: To investigate the relationships among healthy behavior, healthy values, social influences, and quitting smoking in adolescents not attending school.

Design: Following screening procedures, young smokers independently completed a self-report questionnaire administered by trained staff.

Setting: Vocational (TAFE) colleges and Commonwealth Employment Offices (CES) from varying socioeconomic localities were selected as sites to intercept smoking adolescents on their attitudes about quitting smoking.

Subjects: Youth attending vocational colleges or CES.

Results and Conclusions: There were no differences between the two groups of smokers (vocational students and unemployed youth). The decision to quit smoking among these youth is based on a number of factors including social and personal reasons. Health-oriented values were found to be more highly associated with quitting behavior than social influences. Programs for smoking cessation need to be focused on an overall health and improvement approach rather than only a quit-smoking approach. Society for Adolescent Medicine, 1999 © Society for Adolescent Medicine, 1999

KEY WORDS:

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Given the addictive nature of tobacco and its threat to health, methods of prevention and cessation among young smokers are in urgent need of further investigation (1-4). Recent research has shown that in Australia, tobacco use among young people, especially young women, may again be on the rise (5,6). In Australian schools, prevention programs have been the dominant strategy in reducing smoking incidence and prevalence among young people (7,8). Cessation programs have mostly been designed for adults in clinical or worksite settings (9), but for unemployed youth, access to worksite or clinical programs is denied.

Available evidence suggests that non-school youth [i.e., youth affiliated with Technical and Further Education (TAFE) and Commonwealth Employment Service (CES) settings] are more likely to be smokers than their in-school counterparts (10,11). In a Western Australian study, Lo et al. (12) found that 16-17-year-old unemployed youth were twice as likely to be regular smokers (67%) compared to students the same age, with the unemployment rate for this age group reported as 23.1%. To design intervention or cessation strategies for this special population of hard-to-reach smokers, we need to understand more about their values, attitudes, and readiness to make decisions about reducing or quitting cigarette smoking (13,14), the contextual factors operating to influence quitting, and whether cessation efforts can be built on a platform of positive health behaviors currently practiced (15,16).

Smoking is often cast as risk-taking behavior (17), but this model is insufficient to explain the reasons for smoking among all youth or to provide appropriate suggestions for prevention or cessation inter-

ventions for non-school youth (18,19). As a consequence, very little is known about the process of quitting among youth (20–21). Beliefs about being addicted, being incapable of quitting, and feeling calmer when smoking are common among young smokers (20,23,24). These studies also show that youth hold a number of positive smoking expectancies including social facilitation, stress reduction, weight loss, alleviation of boredom, and providing a sense of independence. However, very few studies have reported on the relationship between smoking and other health behaviors apart from predictors of quitting such as previous quit attempts, socioeconomic status, and peer and social influences (13,18,25).

The use of physical exercise as a replacement for smoking has resulted in inconsistent outcomes (26). Johnson et al. (27) found that leisuretime physical activity, even when it was not vigorous, was positively related to not smoking, moderate alcohol consumption, following a diet, and inversely associated with obesity. However, this study was conducted with persons 20–69 years of age. In a review of over 40 studies of the relationships between health behaviors and exercise among adults, Blair et al. (28) found a negative correlation between smoking and leisuretime activity, but a positive correlation with occupational physical activity. However, these associations were confounded by socioeconomic status. Moreover, there appears to be a paucity of literature dealing with correlates of smoking and health behaviors among children and youth. For unemployed, out-of-school youth, who represent a particular population of hard-to-reach smokers, the problem poses greater challenges.

This study, which was part of a larger study of out-of-school youth (29), operates from the rationale that healthy lifestyle factors may not be evenly distributed among the population, particularly the population of unemployed youth and youth attending TAFE colleges. It is hypothesized that youth with a higher proportion of healthy lifestyle behaviors and attitudes are more likely to be amenable to quitting than those youth with a lower proportion of healthy lifestyle attitudes and behaviors. The aim of this study was to investigate the relationship between healthy behaviors and the process of quitting among TAFE students (unemployed but in vocational training) and unemployed youth (trained and untrained youth receiving welfare payments).

Methods

Subjects

The study was conducted in the metropolitan area of Brisbane, a large city (population 1.2 million) on the east coast of Australia. Subjects recruited for the study were: (a) adolescent smokers from six CES offices selected from high, medium, and low socioeconomic regions (two from each level), and (b) samples of smoking students from each of the five TAFE colleges in Brisbane.

Subjects in this study were 211 unemployed youth and 238 TAFE college students. Demographic characteristics associated with this sample are as follows: age range, 16–20 years; 45% female; 3% Aboriginal and Torres Strait Island origin; 12% of non-English-speaking background; and 49.3% heavy smokers (11 or more cigarettes/day).

To be eligible to participate, subjects had to satisfy the following criteria: (a) smoke daily for the previous month (or at least 5 cigarettes/week for the last 3 months); (b) be between 15 and 20 years old and, in the case of unemployed youth, not employed for more than 20 h/week; (c) be unemployed or enrolled in TAFE for more than 3 months.

Procedures

Prior to the survey, qualitative interviews were conducted with a total of 20 adolescent smokers from both TAFE and CES settings. Responses from these interviews framed the basic structure for the quantitative survey. In addition, a pilot test of the survey was conducted with 23 unemployed youth and 24 TAFE students not included in the study population. Minor wording changes were made to three questions as a result of the pilot test. The items in the pilot test were derived from a survey used in an earlier study by the authors of in-school youth (1). For the main survey, TAFE students were approached at popular smoking areas which were highlighted by college administrators on a layout of the college. These areas were generally located near the cafeterias which serviced the different departments (schools) within the TAFEs. CES subjects were approached when entering or leaving one of the selected CES offices and offered a \$5 incentive for their participation in the study to ensure a representative sample of unemployed youth. All eligible subjects were asked if they could take 10 min to fill out an 81-item self-completed structured questionnaire (closed-question format) which included information on actions taken to improve health outcomes and

Table 1. Distribution of Responses and Factor Loadings Regarding Activities Aimed at Improving Health Among Out-of-School Youth ($n = 446^{\dagger}$)

"In the past 12 Months, Have You Been Doing Any of the Following Things to Improve Your Health? ??"*	Affirmative Responses		Factor Loadings	
	% CES ($n = 210$)	% TAFE ($n = 236$)	Factor 1 QL	Factor 2 HB
Reading	27	28	.61	-.05
Eating healthier foods	41	41	.55	.07
Socializing more	32	32	.51	.14
Recycling or taking care of the planet	20	21	.50	.01
Changing attitudes	18	15	.48	-.35
Watching less TV	25	25	.48	-.25
Practicing meditation, prayer relaxation	10	19	.44	-.09
Doing more work	16	23	.43	-.11
Changing friends	41	59	.41	-.27
Playing organized sport	25	36	.18	.56
Exercizing regularly	28	27	.48	.51
Stopping or drinking less alcohol	23	22	.19	-.50
Stopping or cutting down on smoking	27	17	.22	-.40
Getting a better night's sleep	23	19	.27	-.36
Haven't been doing anything	19	13	NI	NI
Variance explained by factor			17.8%	9.6%

* Subjects could check more than one answer.

[†] Three responses missing.

NI = not included in factor analysis.

preferred method of quitting. Refusal rates were <5% by the CES and TAFE subjects. During the completion of the questionnaire by participants, field staff remained in close proximity, ensuring a high rate of return. The trained field staff consisted of 1 male and 3 female final-year undergraduate students who conducted approximately equal numbers of interviews at TAFE colleges and CES offices. These field staff surveyed one location each until they had reached their individual quota of 35 questionnaires. The survey took about 6–8 weeks to complete. Ethical approval for the study was obtained through the University of Queensland, and permission to conduct the survey was obtained from the TAFE colleges and CES offices involved in the project.

Statistical Analysis

This sample was pooled to form one group ($n = 449$) after exploratory Chi-square analyses showed no differences between the TAFE and the CES groups on any of the demographic or independent variables.

As a means of a data reduction, 14 items related to health improvement and 13 items related to reasons for quitting were analyzed by principal component factor analyses to identify the extent to which the

responses to the questions could be reduced to one or two components. Based on rotated, sorted factor loadings >.40 (18), two components were derived from the list of health improvement questions (Table 1) and two components were derived from the list of reasons for quitting questions (Table 2). One item did not meet the required factor loading of .40: getting a better night's sleep (Table 1). Following the procedures of Stanton et al. (18), the respective items (Tables 1 and 2) were summed to form component scores and divided into tertiles representing high, medium, and low scores. These four conceptual components, along with demographic characteristics (age, gender, ethnicity, and smoking status), became the major independent variables in the study.

Multivariate logistic regression analyses were conducted separately for the four dependent variables representing quitting behavior: (desire to quit—"in the past 12 months, have you wanted to stop smoking?"; perceived ability to quit—"if you wanted to stop, how sure are you that you know how to do it?"; intentions to quit—"do you think you will try to quit before this time next year?"— and previous quit attempt—"in the past 12 months, what is the longest you have gone completely without smoking?" (recoded as attempted or not attempted to stop).

Table 2. Distribution of Responses and Factor Loadings Related to Reasons for Convincing Out-of-School Youth to Quit *n* = 446†

"Which of the Following Reasons Would Convince You Not to Smoke?"*	Affirmative Responses		Factor Loadings	
	% CES (<i>n</i> = 210)	% TAFE (<i>n</i> = 236)	Factor 1 HV	Factor 2 SI
Realizing I can have better health now	23	21	.64	-.05
Having better breath, taste, and smell	21	20	.55	.16
Understanding the effect of nonsmokers	6	5	.54	.23
Seeing a person ill from smoking	31	31	.52	.26
Saving money	57	57	.51	-.13
Seeing a demonstration on how addictive cigarettes are	11	7	.47	.28
Improving fitness or getting selected in a sports team	20	19	.44	.01
Feeling independent or satisfied with myself	10	14	.43	.10
Realizing how silly it looks to some people	6	4	.43	.16
Social or family pressure	13	9	-.03	.73
Friends saying not to smoke	8	10	.09	.63
Going out with a nonsmoker	30	24	.06	.59
Becoming a parent	38	34	.20	.40
None of these reasons	16	14	NI	NI
Variance explained by factor			18.1%	13.3%

* Subjects could check more than one answer.

† Three responses missing.

NI = not included in factor analysis.

Results

Factor loadings from the questions related to health improvement and reasons for quitting are shown in Tables 1 and 2. The patterns of affirmative responses to the questions in Table 1 (activities related to health improvement) and Table 2 (reasons to convince youth to quit) show the similarity of CES youth and TAFE students. The factor loadings generated four distinct components which we conceptualized as quality living (QL), healthy behaviors (HB), healthy values (HV), and social influences (SI).

Table 3 shows the percent trends for each of five demographic variables across the four health behavior components derived from the factor analyses. Compared to males, there was a trend for female smokers to be associated with higher scores on QL and more likely to report HV as reasons for quitting. Lighter smokers (<10/day) were more likely to report participation in HB than heavy smokers (>10/day). The SI component did not discriminate among levels of age, gender, ethnicity, or smoking status.

As percent trends for levels of the four components showed an even distribution across the variables of age and ethnicity, these variables were not included in further analysis. Percent trends for gender and smoking status showed variation across levels of the component scores and were included as independent variables along with the four components (QL, HB, HV, and SI) in multivariate logistic regression analyses predicting the four outcomes

related to quitting (desire to quit, perceived ability to quit, intention to quit, and quit attempts). In these analyses, the four components were treated as directional variables.

Table 4 shows the percent trends for each self-reported measures of quitting across the four components derived from the factor analyses. With the exception of perceived ability to quit, the outcomes related to quitting were predicted by different combinations of the four components. HV were strongly associated with a desire to quit in the past 12 months ($\chi^2 = 28.4; p < .001$), quit attempts longer than a week ($\chi^2 = 11.84; p < .001$), and intentions to quit in the next year ($\chi^2 = 39.25; p < .001$). SI showed a weaker association with intentions to quit ($\chi^2 = 5.34; p < .05$). Activities related to improving health included in the QL component were associated with intentions to quit in the next year ($\chi^2 = 5.18; p < .05$), as well as quitting for longer than a week ($\chi^2 = 6.34; p < .05$). Youth who had quit for a week or longer were also more likely to score higher on HB ($\chi^2 = 4.35; p < .05$). Perceived ability to quit was not associated significantly with any of the components, but males ($\chi^2 = 11.8; p < .001$) and lighter smokers ($\chi^2 = 4.2; p < .05$) were more sure of their ability to quit.

Since the measure of quit attempts appeared to be highly associated with the majority of the factor component scores, we explored a more sensitive indicator of quitting from our survey instrument. Two questions—"Have you tried to go completely

Table 3. Four Components Related to Health of Out-of-School Youth by Sociodemographic Characteristics*

	Activities Related to Improving Health (%)															
	Quality Living				Healthy Behaviors				Reasons to Convince Youth to Quit (%)							
	Low (n = 127)	Medium (n = 154)	High (n = 168)	n	Low (n = 152)	Medium (n = 142)	High (n = 155)	n	Low (n = 105)	Medium (n = 210)	High (n = 131)	n	Low (n = 294)	Medium (n = 110)	High (n = 42)	n
Demographics																
Age (yr)																
≥1	34.9	31.3	34.0	106	42.4	27.4	30.2	106	25.9	48.1	26.0	104	66.4	21.1	12.5	104
18	27.9	34.0	38.1	147	31.3	32.0	36.7	147	18.5	53.4	28.1	146	61.6	28.1	10.3	146
19	22.2	38.9	38.9	131	32.8	35.1	32.1	131	28.2	38.9	32.8	131	66.4	26.0	7.6	131
20	31.3	29.7	39.0	64	26.6	31.2	42.2	64	21.9	46.9	31.2	64	73.4	20.3	6.3	64
Gender																
Male	37.9	31.4	30.6	245	35.5	31.8	32.7	245	29.2	49.0	21.8	243	67.1	24.3	8.6	243
Female	16.4	37.8	45.8	201	31.8	31.4	36.8	201	17.0	45.5	37.5	200	65.0	25.0	10.0	200
Ethnicity																
ATSI																
No	28.2	34.5	37.3	432	34.0	32.2	33.8	432	23.1	48.0	28.9	429	65.7	25.0	9.3	429
Yes	35.7	28.6	35.7	14	28.6	14.3	57.1	14	35.7	14.3	50	14	71.4	14.3	14.3	14
NESB																
No	29.3	33.7	37.0	392	33.7	31.1	35.2	392	22.8	46.9	30.3	390	66.2	24.9	8.9	390
Yes	19.6	39.3	41.1	56	33.9	35.7	30.4	56	29.1	47.3	23.6	55	63.6	23.6	12.7	55
Cigarettes smoked daily																
<10	23.6	35.7	40.7	216	26.4	30.6	43.0	216	21.9	39.5	38.6	215	56.3	31.6	12.1	215
>10	32.4	31.9	35.7	210	43.3	32.4	24.3	210	26.0	54.3	19.7	208	77.9	17.3	4.8	208

*Numbers sometimes do not add to 449 owing to missing data. ATSI = Aboriginal or Torres Strait Island Origin; NESB = non-English-speaking background.

Table 4. Four Components Related to Health of Out-of-School Youth by Self-reported Measures of Quitting

Quitting Factors	(n) [†]	Activities Related to Improving Health (%)						Reasons to Convince Youth to Quit (%)									
		Quality Living			Healthy Behaviors			Healthy Values			Social Influences						
		Low	Medium	High	χ ²	Low	Medium	High	χ ²	Low	Medium	High	χ ²				
Desire																	
Wanted to quit in past 12 mo	No	41.2	29.7	29.1	29.1	41.9	30.4	27.7	0.75	40.1	47.0	12.9	0.08	75.5	16.3	8.2	2.72
	Yes	21.9	35.6	42.5	2.29	29.5	31.8	38.7		14.8	46.8	38.3	28.4**	61.7	28.6	9.7	
Perceived ability to quit	Sure	28.0	31.4	40.6	2.65	29.4	37.2	33.4	1.06	23.1	47.3	29.6	0.08	67.3	22.8	9.9	3.48
	Unsure	151	39.8	31.1	31.1	42.4	21.2	36.4		23.3	47.3	29.4		62.7	28.7	8.6	
Intentions to quit in next year	No	176	41.5	31.2	27.3	41.5	32.4	26.1	0.85	44.0	42.9	13.1	39.25**	78.9	13.7	7.4	5.34*
	Yes	253	19.5	38.3	42.2	27.7	31.7	40.6		10.6	49.2	40.2		56.7	32.3	11.0	
Quit attempt	No	152	42.1	32.2	25.7	46.1	29.6	24.3	4.35*	38.1	42.8	19.1	11.84**	69.1	21.7	9.2	0.35
	Yes	289	21.5	35.6	42.9	27.7	32.2	40.1		16.1	49.3	34.6		64.7	25.9	9.4	

* p < 0.05.

** p < 0.01.

† Numbers may not add up to 449 owing to missing data.

without cigarettes in the past 12 months?" (0 = none, 1 = once, 2 = two or more times), and "What is the longest time you have gone completely without smoking in the past 12 months?" (0 = not at all, 1 = up to 1 week, 2 = 2 weeks or more)—were entered in univariate Chi-square analyses with each component, QL, HB, HV, and SI. The QL ($\chi^2 = 11.7; p < .02$), and HV ($\chi^2 = 18.6; p < .001$) components were significant predictors of trying to go without cigarettes. For the second question of longest period of abstinence, QL ($\chi^2 = 23.7; p < .001$), HB ($\chi^2 = 18.7; p < .001$), and HV ($\chi^2 = 30.4; p < .001$) showed the strongest associations.

Discussion

The potential benefits arising from this study are indicated by the finding that the four components derived from the principal component analyses differentially predicted the four variables related to quitting. The most significant finding is that factors associated with health improvement, namely, QL and HB, were associated with attempts to quit smoking, whereas reasons to quit based on SI were not associated with quit attempts. In support of results which show that physical activity is related to non-smoking among adults (27,28), findings from this study show that adolescents who report they engage in other activities to improve their health are more likely to have tried to quit smoking.

It is important to note that there were no differences between the unemployed and vocational students on the four component scores. The lack of differences illustrates similarities between the two groups on a major health issue of quitting smoking that may be accounted for by the current similar socioeconomic status of the two groups rather than the potential economic level they would achieve in the next several years. The delivery of the program to the two groups may need to be addressed differently; however, the content of the program materials could be similar.

Gender and smoking status were related to activities to improve health. Trends for the measures of QL and HB, as well as HV, suggest that more female than male smokers reported engaging in health improvement activities, and may therefore be more amenable to health messages and information that use this healthy lifestyle approach. A similar trend was observed between light and heavy smokers, with lighter smokers more likely to report activities related to HB and QL. SI was accorded low impor-

tance as a reason to quit across all demographic variables. This could be reflective of a trend among adolescents and young people to adopt a more external locus of control as they mature, and be less influenced by peer groups (30,31).

The finding that health improvement components such as QL and HB predict intention to quit and a quit attempt augurs well for programs to get out-of-school youth to quit smoking using a health improvement approach. The finding that males were more sure of their ability to quit may say more about their boastfulness than any real indication of self-efficacy. Clearly, more empirical research is needed on this issue. HV was the component which strongly predicted three of four components of quitting. Items such as better health, illness from smoking, smoking demonstrates addiction, better breath, taste, and smell, saving money, and smoking may look silly appear to be justifiable platforms on which to build cessation activities for this population. SI showed moderate predictive qualities only in relation to intention to quit in the next 12 months, thus questioning the validity of considering this concept in cessation programs. This clearly is not the case in prevention programs, in which social influence is an important component. The noticeable similarity of patterns between intention to quit and quit attempt indicates a tendency for this population of young smokers to more closely resemble adult smokers in style and behavior.

This study was located within a metropolitan area of a large Australian city and used a convenience sample of TAFE students and unemployed youth, which may limit the generalizability of the outcomes. However, the settings and locations were stratified by regional socioeconomic levels to improve the representativeness of the samples. The face validity and content validity of the questionnaire were established through the piloting procedures (16) and use of the same survey conducted in school age samples (1).

Conclusion

The setting(s) in which out-of-school youth can be reached with smoking cessation programs or resources poses a dilemma. For those youth attending institution-based training courses, it would be relatively easy to implement class or group cessation programs of moderate intensity so long as the program was tailored to suit (9). With evidence of quitting alone as the most preferred method of

cessation for youth (32), the stage is set for a more comprehensive overhaul of current smoking cessation approaches (33). The social environment and living conditions for out-of-school youth are likely to be different from those who are at school. Future cessation programs will have to address these different environments, and the evidence from our research suggests that an approach which embraces quality of life and healthy values factors may have this potential.

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