

# Attitudes and Beliefs of Adolescents Toward the Use of Tobacco: A 16 Year Follow-up

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## Abstract

*This study investigates the beliefs and evaluations of those beliefs for adolescents intending and not intending to smoke cigarettes at two intervals over a 16 year period. Elicited beliefs and evaluations of the intenders and nonintenders were compared to determine if significant differences existed for the smoking of cigarettes. Comparisons were then made between the beliefs and evaluations, of intenders and nonintenders, in the 1980 and the 1996 groups. Over 450 students in 1980 and over 100 students in 1996, attending high schools in northeastern Ohio, were surveyed using a Likert type closed format questionnaire utilizing a +3 to -3 scale. T tests were used to ascertain whether significant differences existed between intenders and nonintenders.. Having obtained significant T's, simultaneous confidence intervals were used to detect significant differences between intenders and nonintenders on specific beliefs. The results showed that those intending and those not intending to smoke cigarettes held significantly different beliefs. Those adolescents intending to smoke believed that this behavior would lead to relieving tension, relaxation, looking cool, and feeling older, . Those not intending did not believe these would occur as a result of smoking. Comparisons of the beliefs from the 1980 survey and the 1996 survey showed consistent results. In the 1980 survey, however, students who did not intend to smoke felt that smoking would lead to trouble with their parents. The intenders in that survey did not believe this to be a result of smoking. By identifying the beliefs which serve as key determinants of this behavior health educators can better promote positive health behaviors.*

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## Introduction

Tobacco use is responsible for more than one of every six deaths in the United States and is the most important single preventable cause of death and disease in our society (Office on Smoking and Health, 1989). A multitude of research has documented that the use of tobacco causes heart disease; cancers of the lung, larynx, esophagus, pharynx, mouth, and bladder; and chronic lung disease. Cigarette smoking also contributes to cancer of the pancreas, kidney, and cervix. Smoking during pregnancy can result in spontaneous abortions, low birthweight, and sudden infant death syndrome. Tobacco related diseases result in over 400,000 deaths among adults in the United States per year (USDHHS, 1998). The use of cigarettes by adolescents has, within the 90's, showed a substantial increase over the previous two decades. The use of tobacco by adolescents decreased in the 70's and 80's, but according to 1979 figures, six million teenagers between the ages of 13 and 19, still smoked regularly (U.S. Dept. Of HEW; USDHHS, 1998). Even more alarming, however, is the recent data from

CDC's Youth Risk Behavior Survey, and other studies, which revealed an increase in the rate of smoking, among high school aged students, from 27.5% in 1991 to 36.4% in 1997 ( MMWR, 1998; Wills & Cleary, 1997). Arday et al (1995) also report over 3 million adolescents smoke more than half a billion cigarettes each year.

The majority of Americans are also aware that smoking of cigarettes is responsible for serious health consequences in non-tobacco users. Each year approximately 3,000 nonsmokers die of lung cancer and 150,000 to 300,000 children suffer from lower respiratory infections due to exposure to second hand smoke (USDHHS, 1998). A primary concern among health experts is not only the impact of second hand smoke but the influence that smoking, by significant others, can have on the initiation of smoking by adolescents. Increases in adolescent initiation of tobacco use has been link to peers' and sibling use, approval of tobacco use by these two groups, and a lack of parental involvement (USDHHS, 1994). Once adolescents initiate smoking the potential for quitting is uncertain at best. The decision to smoke cigarettes

typically occurs during the adolescent years, and because of the habit forming characteristics of tobacco, continues into adulthood. In the article “Kicking the teenage habit” the Food and Drug Administration reported that approximately 1 in 3 kids who become smokers will die as a result of their smoking habit (Lancet, 1995). Presently, the number of proven interventions for tobacco cessation among teenagers is almost zero (USDHHS, 1998). A variety of programs, aimed at reducing or eliminating the use of cigarettes, have fared badly and more needs to be known about the reasons why adolescents begin to smoke. Glover (1999) goes as far as to say that school based prevention and education programs, in the past, have not worked and the 3,700 new young people who initiate smoking daily reflect this lack of effectiveness. This premise takes on added significance when compared to information from previous studies which suggested that back as far as 1975 some 3,200 adolescents, between the ages of 12 and 18, took up smoking each day (Albino & David, 1975).

Currently, the primary focus in the United States is the prevention of initiation of tobacco use and reduction of environmental tobacco smoke (USDHHS, 1998). In determining the process of initiation and the establishment of tobacco use by adolescents five key stages have been identified by the Department of Health and Human Services (1994). They are: (1) the formation of attitudes and beliefs about tobacco; (2) first trying tobacco; (3) continuing experimentation with tobacco; (4) regularly using tobacco; and (5) becoming addicted to tobacco. The first stage, which addresses the formation of attitudes and beliefs about tobacco use, is the focus of this research. Previous research has shown that those adolescents who intend to smoke have significantly different beliefs about tobacco use than those who do not intend to smoke (Ragon, 1980). This can be important because people act on their beliefs, and because they do, and because beliefs are potentially modifiable, changing certain inappropriate health behaviors may be accomplished by changing inappropriate beliefs (Mendelsohn, 1981).

**Procedures**

The instrument used was a Likert-type closed format questionnaire which was based on the responses of an open-ended elicitation survey. The purpose of the elicitation questionnaire was to obtain a number of beliefs concerning the different drinking and smoking behaviors which were salient for the group being

investigated. The elicitation questionnaire (Figure 1) was administered to a subsample of 40 students, in both the 1980 survey and the 1996 survey, at one of the schools. The students answered the open ended questions in long hand. Figure 2 shows the beliefs of the students which were obtained from a content analysis of both the elicitation procedures regarding the advantages and disadvantages of smoking. These beliefs were then included in the final questionnaire. The final questionnaire format utilized was based on a semantic differential technique developed by Osgood, Suci, and Tannenbaum (1951). Measures were scored on a +3 to -3 scale. The responses from the elicitation questionnaires were converted to a semantic differential by designing a belief statement for each elicited belief on a seven point Likert scale from likely to unlikely. Evaluation questions were designed by matching the same elicited beliefs in a seven point Likert scale from good to bad. Examples of the types of questions used are as follows:

Evaluations:  
 My forgetting about problem is  
 good \_\_\_: \_\_\_: \_\_\_: \_\_\_: \_\_\_: \_\_\_: \_\_\_: bad  
 Beliefs:  
 My smoking would help me forget about my  
 problems  
 likely \_\_\_: \_\_\_: \_\_\_: \_\_\_: \_\_\_: \_\_\_: \_\_\_: unlikely

**Figure 1**  
**ELICITATION QUESTIONS**  
**QUESTIONNAIRE**

- 1. What do you think are the advantages of your smoking cigarettes?**
- 2. What do you think are the disadvantages of your smoking cigarettes?**
- 3. Do you have any other feelings about your smoking cigarettes?**
- 4. Which people, or organization that you know, would approve of your smoking cigarettes?**
- 5. Which people or organizations that you know, would disapprove of your smoking cigarettes?**

Mean score vectors of the intenders and nonintenders were tested to determine whether there was a significant difference between the means. This was actualized by use of two tailed independent T tests

as reported in Table 1 for the 1996 data and Table 2 for the 1980 data. The predetermined level of significance was  $p < .05$ . Over 450 students in 1980 and over 100 students in 1996, attending high schools in northeastern Ohio, were surveyed. Respondents in the 1996 survey were from two of the original three high schools used in the 1980 survey.

The results of the  $T$  analysis indicated that mean vectors of the intenders were significantly different, ( $p < .01$ ), from those of nonintenders. This showed that overall, beliefs and evaluations of those who intended to smoke were different from those who did not.

The beliefs, which significantly differentiated intenders to smoke from nonintenders, in the 1980 survey and the 1996 survey, were those concerning the beliefs that smoking is relaxing, relieves tension, is cool around peers, and is a sign of being grown up (make me feel older in the 1996 survey). In the 1980 survey alone, significant differences between intenders and nonintenders were found for increases chances of fitting into the group, keeps weight down, would leave stains on teeth and fingers, would lead to trouble with parents, would make them cough, would help them feel accepted, and cause them to have bad breath. In the 1996 survey becoming addicted was the only belief that was significantly different for intenders and nonintenders.

**Results**

Those students who intended to smoke believed that the behavior would lead to relief of tension and relaxation. The scores for the intenders in the 1996 survey, for these two beliefs, were considerably higher than the 1980 survey (relieve tension 2.03 to .92 and relax me 2.10 to 1.04, respectively). Those students who did not intend to smoke, felt that these consequences would not occur as a result of smoking. The nonintenders in the 1980 survey believed it quite likely that smoking would cause them to have bad breath, make them cough, and leave stains on their teeth and fingers. The intenders also believed these to be likely, although they were not as convinced as the nonintenders. None of these beliefs were significant in the 1996 survey and the belief that smoking would make me cough was not even identified in the elicitation questionnaire.

**FIGURE 2**

**Response from Elicitation Questionnaire Concerning The Advantages and Disadvantages of Smoking**

<b>Advantages of Smoking 1980</b>	<b>Disadvantages of Smoking 1980</b>
Relieves tension	Increase chance of cancer
Relaxation	Parental trouble
Fit in with group	Bad for my health
Dieting	Cost
Helps get friends	Bad breath
Feel accepted	Lung disease
More grown-up	Addiction
	Cough
	Stain teeth & fingers
<b>Advantages of Smoking 1996</b>	<b>Disadvantages of Smoking 1996</b>
Relaxation	Destroys liver
Fun	Have accident
Helps forget problems	Addiction
Feels good	Get drunk
Proves that you're grown-up	Lose friends
Feel accepted	Punished for breaking laws

Neither intenders nor nonintenders, in both survey's, believed that smoking would make them look cool around peers, or appear grown-up. In the 1980 survey alone, neither intenders nor nonintenders believed smoking would increase the chances of fitting in with the group, keeping their weight down, or help them feel accepted. In all cases the nonintenders were more convinced that these particular consequences would not be an outcome of smoking. In the 1980 survey students who did not intend to smoke believed that smoking cigarettes would lead to trouble with their parents. The intenders did not believe this to be a result of smoking. In the 1996 survey intenders believed that smoking would lead to their becoming addicted, while the nonintenders agreed they were considerably less convinced.

There were also several significant differences between smoking intenders and nonintenders on the evaluations. Both survey groups agreed that the following consequences were bad: increasing the chance of cancer, being harmful to health, and becoming addicted. The 1980 group felt that increasing the chance of having a heart attack was bad while the 1996 group identified increasing the chance of lung disease, and too expensive as bad. The nonintenders; however, were significantly more negative about each of these consequences than were the intenders. The one good evaluation that was significantly different was found in the 1996 survey where both intenders and nonintenders felt relieving tension was good with intenders scores higher.

TABLE 1: Mean Scores on Beliefs and Evaluations of Those Beliefs for Those Who Intended and Those Who do not Intend to Continue/Start to Smoke 1996

Consequences	Belief Scores		Evaluation Scores	
	(Likely-Unlikely) <sup>a</sup>		(Good-Bad)	
My continuing /starting to smoke cigarettes would:	Intended <sup>b</sup>	Did Not Intend <sup>c</sup>	Intended	Did Not Intend
relieve tension	2.03	-1.56**	2.66	2.01*
relax me	2.10	-1.71**	2.66	2.35
make me look cool	-0.72	- 2.28**	1.28	0.97
make me feel older	-1.14	-2.08**	0.52	0.22
increase chances of cancer	1.52	1.84	-2.41	-2.87*
harms health	1.76	2.17	-1.62	-2.40**
too expensive	2.14	2.19	-1.07	-2.76**
bad breath	1.93	2.19	-2.57	-2.41
increase chance of lung disease	1.52	1.80	-2.41	-2.81 *
becoming addicted	1.93	0.95*	-2.10	- 2.79**
stains teeth and fingers	1.76	2.09	- 2.41	- 2.47

<sup>a</sup> - scales range from +3 to -3

<sup>b</sup> - number = 75

<sup>c</sup> - number = 29

\*p< .05

\*\*p< .01

TABLE 2: Mean Scores on Beliefs and Evaluations of Those Beliefs for Those Who Intended and Those Who do not Intend to Continue/Start to Smoke 1980

Consequences  My continuing /starting to smoke cigarettes would:	Belief Scores  (Likely-Unlikely) <sup>a</sup>		Evaluation Scores  (Good-Bad)	
	Intended <sup>b</sup>	Did Not Intend <sup>c</sup>	Intended	Did Not Intend
relieve tension	92	-1.85**	1.44	1.67
relax me	1.04	-1.88**	2.06	2.18
increase my chances of fitting in with the group	-0.54	-1.48**	1.47	1.32
keep my weight down	-0.14	-1.56**	1.29	1.48
make me cool around peers	-1.09	-1.69**	0.72	0.66
help me make new friends	-1.49	-1.77	2.30	2.18
help me feel accepted	-1.30	-1.87*	1.87	1.84
be a sign of being grown-up	1.66	-2.22**	1.87	1.84
increase my chances of getting cancer	2.06	1.94	-1.30	-2.06**
be harmful to my health	2.13	2.04	-1.33	-2.02**
be expensive	1.70	1.70	- .06	- .07
cause me to have bad breath	1.30	1.86*	-2.10	-2.00
increase my chances of getting lung disease	2.07	2.00	-2.02	-2.39
increase my chances of becoming addicted	1.69	1.27	-1.92	-2.37*
make me cough	1.03	1.54*	-1.14	-1.06
leave stains on my teeth and fingers	0.61	1.47	-1.50	-1.81
lead to trouble with my parents	-0.48	1.08**	-1.55	-1.65
increase my chances of having a heart attack	1.47	1.75	-1.66	-2.15 *

<sup>a</sup> - scales range from +3 to -3

<sup>b</sup> - number = 109

<sup>c</sup> - number = 293

\*p < .05

\*\*p < .01

## Conclusions

The primary purpose of this study was to discover the beliefs and evaluations of adolescents intending and not intending to smoke cigarettes through two studies over a 16 year period. By comparing the intenders with the nonintenders in both studies, many differentiating beliefs were found. The value of this information lies in the premise that behavior may be modified by adapting the underlying beliefs that serve as key determinants to behaviors. Armed with this information, health educators may be able to develop more effective educational approaches to reduce the use of cigarettes. By working to change negative beliefs and promoting positive ones, health educators may have a better chance at ultimately influencing health behavior.

In both the 1980 study and the 1996 study individuals who intended to smoke held beliefs quite different than did individuals who did not intend to smoke. Those who intended to smoke believed that smoking would relieve tension, be relaxing, make them look cool, and be a sign of being grown up/feel older. The nonintenders did not believe this to be true. It was found, upon investigating the evaluations in both studies, that the intenders were much less negative than nonintenders in regard to increasing chances of lung cancer, being harmful to health, and becoming addicted.

In designing an education strategy to reduce the use of cigarettes among adolescents, health educators might choose to offer students alternative methods of relieving tension and relaxing, other than smoking.

The increase rates from the 1980 study to the 1996 study also suggest that relieving tension and relaxing is even more important today than 16 years ago. The health educator might also want to address peer related issues of looking cool and feeling older as they were the only other significant beliefs that were identified in both studies. Possibly emphasizing the unsightly (uncool) effects of smoking such as, bad breath, coughing, and stains on teeth and fingers, and the negative effect poor personal appearance may have on relationships, would be valuable. From the smoking evaluations, it is apparent that intenders are not as convinced as the nonintenders of the negative health consequences of smoking. The health educator may want to emphasize the particular negative consequences of harming your health, cancer, and becoming addicted.

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## **Attitudes and Beliefs of Adolescents...**

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