

Cigarette Smoking among Medical Students

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Abstract: A survey of first and second year medical students at Saint Louis University revealed that only 6 per cent were current cigarette smokers. This represents a continuation of a downward trend in the percentage of smokers among American medical students as reported in earlier, independent surveys. Implications for improved health status and for better preventive care for patients by these future physicians are discussed. (*Am J Public Health* 70:169-171, 1980.)

Despite the mounting evidence in reports relating smoking to disease, rates of morbidity and mortality attributable to cigarette smoking have increased. Even more discouraging is the increase in the prevalence of smoking among adolescent females and a lowering of the age at which smoking begins. However, this is counterbalanced by decline in the proportion of adults, especially males, who smoke cigarettes.¹ Of special interest is the decrease in the percentage of smokers among most health professionals, particularly physicians. The latest available data show the percentage of smokers among physicians in 1975 to be 21 per cent compared to 30 per cent in 1967.² This downward trend in smoking among physicians is due to a higher percentage of physicians who never smoked rather than to an increased percentage of quitters. This trend is paralleled by a decline among medical students. The most recently reported data show that only 14 per cent of medical students were smokers.³ In a survey of freshman and sophomore medical students attending Saint Louis University, we observed a remarkably low prevalence of smokers and report the results below.

Methods

Data were obtained from self-administered questionnaires answered anonymously by first- and second-year students at St. Louis University School of Medicine in 1978. Freshmen completed the questionnaire as part of a larger investigation during their first class in a Human Biology and Ecology course; the response rate was 94 per cent. Soph-

omore students completed the questions about cigarette smoking at the beginning of their study of pulmonary disease; the response rate was 88 per cent. In addition to current smoking status, students answered questions concerning the following: 1) smoking among friends and first degree relatives, 2) attitude toward the physicians' responsibility to patients regarding smoking, 3) attitudes toward regulation of smoking in public places, and 4) knowledge of health consequences of smoking. The data were analyzed by year in school and smoking status.

More objective measures of cigarette smoking such as serum or saliva thiocyanate or carboxyhemoglobin concentration were not employed; however we have no reason to suspect inaccurate reporting. Since the survey was anonymous, information on nonrespondents could not be obtained.

Results

Principal findings of this survey are shown in Table 1. Other than the measure of knowledge ($p < .001$), there are no important differences between the freshman and sophomore students. The remarkable finding, however, is the very low percentage of these students who currently smoke cigarettes and even fewer (both nonsmokers and current smokers) who expect to be smoking in the near future. These students also feel strongly that physicians have a major responsibility to encourage nonsmoking among patients and that smoking in public places should be severely restricted.

Since there were no important differences between the two classes (except for knowledge), smokers from the two classes were combined and compared with nonsmokers to examine these data for how the smoking habit might influence their attitudes and opinions on smoking, and for factors associated with smoking status. There were no statistically significant differences between the smokers and nonsmokers. However, even with both classes combined, the number of smokers is still relatively small. The largest difference was in attitude toward regulation of smoking in public places. Current smokers were less favorably inclined towards increased regulation. Other differences, although smaller, were also in the expected direction. Current smokers were less emphatic than nonsmokers about the physicians' responsibility. Nonsmokers also scored better on knowledge of health hazards of smoking than did current smokers. Students who presently smoke reported having more friends who also smoke than did nonsmokers. There were no differences among the groups with respect to parents who currently smoke. Too few students were married to evaluate the influence of the spouse.

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TABLE 1—Smoking Status and Selected Characteristics of Medical Students

Characteristic	Freshmen (N = 147)		Sophomore (N = 137)	
Smoking Status (%)				
Current smokers	6.1		5.1	
Former smokers	12.2		13.1	
Never smoked	81.7		81.8	
Expect to be smoking in future (%)	2.1		1.5	
	<i>Mean</i>	<i>s.d.</i>	<i>Mean</i>	<i>s.d.</i>
Attitude toward physician responsibility ¹	12.57	1.9	12.47	1.8
Attitude toward regulation of smoking ²	12.07	5.9	12.04	2.0
Knowledge of health consequences ³	5.67*	1.5	6.60*	1.4

*p < .001 (t test).

¹Maximum score of 15 = physician has responsibility to influence patient's smoking behavior.

²Maximum score of 15 = favoring strong regulations limiting smoking in public places.

³Maximum score = 10.

Discussion

Relatively little attention has been paid to the smoking habits of medical students and many of the earlier reports came from the United Kingdom. Knopf concluded from interviews with a sample of British medical students that the observed increased prevalence of smoking among students in clinical years was due to stress of training coupled with the lack of an "anti-smoking climate" in the medical school.⁴ Brunskill, however, showed that the prevalence of smoking among British medical students was not significantly different from that of graduate students in biology.⁵ Lester reported in a study of British medical students that the decline in prevalence of smoking between 1967 and 1975 paralleled the decline among all professional people and remained much lower than for the general public.⁶

A comparison of one British and one American medical school revealed a much lower rate in the latter, 35 per cent and 14 per cent, respectively.³ The lower rate for American medical students is consistent with the trend reported in a review of several independent surveys of smoking among medical students in the United States.⁷ This trend is summarized in Table 2. The last row has the data from the present study indicating that a very low percentage of medical students are currently smoking cigarettes. This finding confirms and extends the trend noted in these previous reports. We believe that our data reflect a true decrease in smoking prevalence. Although the results could be spurious, the similarity of the data from each of the two classes makes this unlikely. Furthermore, analysis of demographic information obtained from these students shows them to be fairly representative of medical students enrolled in American schools.⁸ It is likely, therefore, that our findings are an accurate reflection of a very low prevalence of cigarette smoking among medical students in the United States.

A recent report by Burgess, et al, indicates that relatively low rates of smoking are not limited to the medical profession. In their survey of Rhode Island lawyers, 25 per cent were current smokers and 39 had never smoked compared to 44 per cent and 25 per cent respectively for the general population of Rhode Island males. Of the Rhode Island male

physicians, only 19 per cent were current smokers and 46 per cent had never smoked. They concluded that the relatively high percentage of those who never smoked among both lawyers and physicians indicates that medical education, per se, is not the principal reason why physicians have a low rate of cigarette smoking.⁹ This is consistent with the observation that the majority of smokers begin smoking before age 20 years, before completing college or entering graduate school. Male college graduates have been previously shown to have a lower prevalence of smoking than those with less education.¹⁰ Thus, nonsmoking is due more to those factors of which education is a manifestation than to any specific occupational orientation.

Regardless of the reason, some personal health benefits can be expected to accrue to these medical students because

TABLE 2—Percentages of Smokers among Medical Students

Study	Year	N	Per Cent Smokers
Thomas ¹	1948-1957	637	31
Foley, et al ²	1967	771	23
Udall ³	1969	248	13
Slaby, Schwartz ⁴	1970	188	24
Lipp, Turkleuber ⁵	1970	1063	17
Purvis, Smith ⁶	1972	75	8
Purvis, Smith ⁷	1973	187	12
Purvis, Smith ⁸	1974	371	11
Birkner, Kunze ⁹	1977	238	14
Coe, Cohen ¹⁰	1978	284	6

¹Thomas CB: Characteristics of smokers compared with nonsmokers in a population of healthy young adults. *Ann Int Med* 53:697-718, 1960.

²Foley WD, McGinn ME, Amos HE: Cigarette smoking among medical students. *N Eng J Med* 280:1284-1285, 1969.

³Udall JA: Cigarette smoking among medical students. *Curr Ther Res* 11:316-319, 1969.

⁴Slaby AE, Schwartz AH: Changing attitudes and patterns of behavior among emerging physicians. *Psychia Med* 2:270-277, 1971.

⁵Lipp M, Turkleuber BS: Medical students' use of marijuana, alcohol and cigarettes: a study of four schools. *Int J Addict* 7:141-152, 1972.

⁶⁻⁸Purvis J, Smith DL: Smoking among medical students. *South Med J* 69:413-416, 1976

⁹Birkner FE, Kunze M: Smoking patterns at a British and at an American school. *Med Educ* 12:128-132, 1978.

¹⁰The present study.

of the low prevalence of cigarette smoking. It may also be expected that a larger percentage of these future physicians will take a more active stance than their predecessors with respect to advising and encouraging patients to quit smoking since fewer of the physicians themselves will smoke cigarettes.¹¹ We are encouraged by these findings and by the possibility that a higher percentage of nonsmoking physicians will contribute to a lower percentage of smokers in the general public and eventually to reduced rates of morbidity and mortality from smoking-related diseases.

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The Relationship between Elevated Blood Pressure And Obesity in Black Children

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Abstract: Blood pressures, heights and weights were measured in 1,692 elementary school black children. Elevated blood pressure (EBP) was defined as a systolic or diastolic reading above the 90th percentile for age, and weights were categorized into five classes based on weight for height norms. Systolic EBP children, whether boys or girls, were three times as likely to be obese as black children in the total population, and a similar relationship held for diastolic EBP children. (*Am J Public Health* 70:171-173, 1980.)

Obesity has been identified as an important factor in predicting hypertension in adults. It has been suggested that many of the factors responsible for primary hypertension in adults begin in childhood.¹⁻⁶ Nevertheless, little information exists on the linkage between elevated blood pressure (EBP) and obesity in children, particularly, in black children. This observation is surprising since hypertension is known to be more prevalent and more severe among blacks than whites.^{7, 8} The present study was undertaken to investigate

the relationship between the prevalence of elevated blood pressure and obesity in a sample of black elementary school children ages five through eleven.

Methods

Subjects for the study were obtained through a one-stage cluster sampling design that involved all public elementary classrooms, kindergarten through sixth grade (N = 177), in a metropolitan city located in central North Carolina. This single-stage sample design was carried out using random selection among clusters (in this study, classrooms) and then including every black child that was present on the day of data collection within those selected clusters (sample N = 82). Only 1-2 per cent of the children were absent, and, therefore, not included in the study. Complete usable data were available for 1,692 black children, 52 per cent boys and 48 per cent girls.

Data collected on the children during a three-week period included age, sex, height, weight, and a single blood pressure reading. The children removed their shoes, sweaters and coats prior to being weighed and measured.

Normative weight for height values were derived from the 1976 growth charts developed by the National Center for Health Statistics.¹² The children were placed into the following five weight categories:

- Normal weight—the median weight for height by sex plus 10 per cent or minus 6 per cent of that median

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