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TOBACCO CONSUMPTION AMONG PRIMARY SCHOOL TEACHERS IN NAIROBI.

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ABSTRACT

Objective: To determine the extent, pattern and the attendant risk factors of cigarette smoking and tobacco consumption among primary school teachers in Nairobi.

Design: A descriptive cross-sectional study.

Setting: The study was carried out among randomly selected Nairobi City Council primary schools in 1996.

Participants: All the teachers in the selected primary schools were included in the study.

Results: Out of 910 teachers contacted, 813 responded (a response rate of 89.3%). A total of 800 teachers completed the questionnaire correctly and are the subject of the present analysis. Fifty per cent of male and three per cent of female teachers were cigarette smokers at the time of the study. The median age for starting to smoke was between 15 and 24 years. At this age, the teachers were secondary school and tertiary college students. It was observed that the age of smoking initiation seems to determine the individual's smoking status later in life.

Conclusion: Since 57% of smokers started smoking during their secondary school days, secondary school students seem to be at a higher risk of initiating smoking. It is therefore important to target them for smoking control initiatives before they start the habit. A number of smokers were willing to quit smoking but did not know how to go about it. External assistance is therefore required for them to achieve their wish. It is also important to emphasise the need by the relevant authorities to initiate programmes for anti-smoking

education in secondary schools and colleges in the country.

INTRODUCTION

Tobacco has been used by man in different forms since the sixth century. But tobacco use is dangerous, lethal and has significant ill health effects. It is known that over three million people worldwide die prematurely because of tobacco consumption in the form of cigarette smoking. It is estimated that, on average, each cigarette smoked reduces the life span of the smoker by about five minutes(1). Tobacco is the only known lethal product to the consumer when used exactly as intended by the manufacturers. It is also the greatest cause of preventable death in the world. Cigarette smoke contains 4,700 chemical compounds including 200 known poisons and forty three cancer causing agents(2,3).

There is evidence that manufactured cigarettes marketed in developing countries contain higher levels of tar/nicotine than in developed countries(3,10). Health hazards related to tobacco consumption may therefore be greater in developing than developed countries. Tobacco consumption is associated with many health hazards, which include high morbidity and mortality in ischaemic heart disease, high prenatal morbidity and mortality in peripheral vascular diseases(3).

There is no safe level of cancer causing agents in cigarette smoke. Cigarette smoke causes 90% of lung cancer deaths, 30% of all cancers, 80% of chronic bronchitis and emphysema and 20-25% of coronary heart disease and stroke deaths(3).

Several studies have shown that tobacco consumption is widespread among men and women in lower socio-economic classes particularly in developing countries(4,5). Of the three million deaths related to tobacco consumption annually, one million are from developing countries. On average, 40-60% of males and two to ten per cent of females in developing countries and 30-40% of males and 20-40% of females in the developed countries consume tobacco in cigarette form respectively(2,3).

Although the outcome of a study conducted by Pobee *et al*(4) in Ghana, showed that cigarette smoking was confined to male adults, majority of whom were not heavy smokers, the habit of smoking among females seems to be quite significant in some parts of the world, for example, a study done by Pandey *et al*(5) in Nepal found that the prevalence of smoking was almost equal in men (85%) and women (72%) in rural areas. A study by Lore in Kenya in 1987 among 139 (42%) out of 329 medical students who responded to a questionnaire found that 25 (18%) of them were regular smokers, three (2%) smoked only occasionally and 73 (80%) were non-smokers(6). All the smokers were male students who smoked at the rate of one to ten

National Hospital found that 365 (54.4%) of them were regular smokers out of whom only eight per cent were females. Nearly all the smokers used commercial cigarettes while 28% of the non-smokers had smoked cigarettes previously(7). The study also found that the smoking habit among the study population started at the age of 15-20 years. Cigarette smoking among African children is reported in Nigeria to be on the increase with rates among adolescent secondary school children of 40% for boys and 8.4% for girls(8). A similar study in Uganda found the rates among a similar age group to be 33.4% for males and seven per cent for females(9).

A study by Kwamanga in Nepal focussing on children aged 0-5 years found the children of smokers, especially those aged 0-1 years to be at a higher risk of developing acute respiratory infection (ARI) than the children of non-smokers. Strong association between passive smoking and ARI episodes among the infants was also observed(10).

Although tobacco consumption may be as common in Kenya as it is in many other developing countries, more studies are needed to confirm this. Currently there is concern that an increasing number of young people in developing countries are taking up cigarette smoking. In Kenya, like some of the developing countries, the general extent of smoking particularly among school teachers, who are likely to be significant role models to the school children they teach, is not documented. Advertisements in the electronic and print media that enhance peer pressure have been noted to have strong effect in the increase(11).

Since it is well known that prevention is better than cure, a developing country like Kenya can ill afford to allow entrenchment of smoking-related diseases before the eradication or effective control of preventable infectious diseases.

To institute preventive strategies for the control of tobacco consumption, particularly among the young members of the society, the extent, pattern and determinants of smoking initiation and sustenance needs to be known. Since the only accurate method of obtaining data on the prevalence of smoking is a sample survey, we carried out a questionnaire-based study in which primary school teachers in Nairobi were interviewed on their tobacco consumption habit in order to describe the prevalence, pattern and risk factors of tobacco consumption among them.

MATERIALS AND METHOD

The study was a descriptive cross sectional one that was carried out among Nairobi City Council primary school teachers using a WHO standard self-administered questionnaire, modified for quick response and simplicity. The respondents remained anonymous.

Study area: Nairobi: This is the cosmopolitan capital city of Kenya. It is also the major industrial and commercial centre of the country. It is estimated that over three million people (10% of the total population of Kenya) work and live here. Basic education system in Nairobi, like in all other provinces in the country, is divided into public schools run by the central government through the city council which cater for over 80% of all the pupils in the city and the private schools run by private individuals and non-governmental organisations.

Smoking status: For the purposes of this study, smoker: is a person who has smoked at least 20 packs of cigarette or at least one cigarette per day for at least one year in a lifetime.

A current smoker is a person who has smoked any tobacco product daily for the last seven days or more and was still smoking at the time of the study. Ex-smoker is any smoker who had stopped smoking more than a month prior to the time of the study. Non-smoker is a person who has never smoked or had only experimented with smoking but stopped thereafter.

Sampling: Estimated prevalence was based on the outcome of the study carried out at the Kenyatta National Hospital on similar subjects from whom 58% of the respondents were found to be regular smokers(7). In order to be reasonably sure that this study falls within a precision of 2 and $\alpha = 5$, Epi-Info 6 Epi-table for sample size, single proportion, at 95% confidence interval, 80% power was used. A calculated sample of 1012 teachers from about 6800 was selected. Assuming an estimate of 20 teachers per school, a sample of 50 randomly selected Nairobi city council primary schools out of 189 was included in the study. The higher proportion of female teachers as compared with male teachers in Nairobi was taken into account during analysis.

The study was conducted by Centre for Respiratory Diseases Research in 1996 after scientific and ethical approval by the relevant National and Kenya Medical Research Institute committees and permission granted by the City Education Department.

Data management: All questionnaires were processed and analysed using Epi-Info 6 statistical package. Calculations of proportions, χ^2 for linear trend, p-values and odds ratios were done.

RESULTS

A total of 910 teachers from 50 primary schools in the City of Nairobi were contacted by visiting them in their schools. Of these, 813 (89.3%) responded by filling in and returning the questionnaires. Due to some omissions in the forms of such vital information as sex, age of smoking initiation and smoking status, data from 13 teachers were omitted at the analysis stage and therefore only data from 800 (87.9%) teachers are included in this report. A total of 596 (74.5%) female and 204 (25.5%) male teachers were included in the analysis.

The teachers' ages ranged between 20 and 53 years with a median age of 35 years. Seven hundred and fifty eight (94.8%) of the teachers had secondary education, 29 (3.6%) and 13 (1.6%) of them had primary and university level of education respectively. The overall prevalence rate of current smokers was seven per cent and that of previous smokers was 8.4%. The low prevalence rate of smokers was due to the predominance of female teachers in the city. Smoking was significantly associated with gender. A statistically significant number of male teachers (50%) as compared with female teachers (3.5%) were smokers: (OR=24.00, 95% CI 7.71-83.24.). Level of education at the smoking initiation time seems to influence sustenance of smoking.

Majority of study population (52.3%) started smoking at ages 18-24 years while they were in Forms 4 and 6 in secondary schools and tertiary colleges while a substantial number of teachers started smoking at a younger age than 18 years. One hundred and thirteen (92.6%) of the smoking teachers used commercially processed cigarettes, five (4.1%) used hand rolled cigar, four (3.3%) and five (4.1%) used pipe and other forms of tobacco consumption respectively.

A total of 28.7% of male smokers consumed between one and five cigarettes per day while 30.7% of them smoked between six and ten cigarettes a day. About 62% of females smoked less than five cigarettes a day, 24% smoked between six and ten cigarettes per day and only 14% smoked more than ten cigarettes in a day.

Of the teachers who were smokers, 65% of the males and 57% of the females reported that their initiation into smoking was as a result of peer influence instigated by commercial advertising of cigarettes. Direct enticement to individual teachers from commercial advertisement accounted for 20% for males and 24% for females. Ten per cent of male and five per cent of female teachers indicated that parental smoking practices had influenced their taking up the habit (Table 1). The modal age for starting to smoke was between 15 and 24 years. Over 37% of teachers started smoking before their eighteenth birthdays and only 10% of them started smoking at the age of over 24 years. The rest of them started smoking at ages 18 - 24 years as shown in Figure 1.

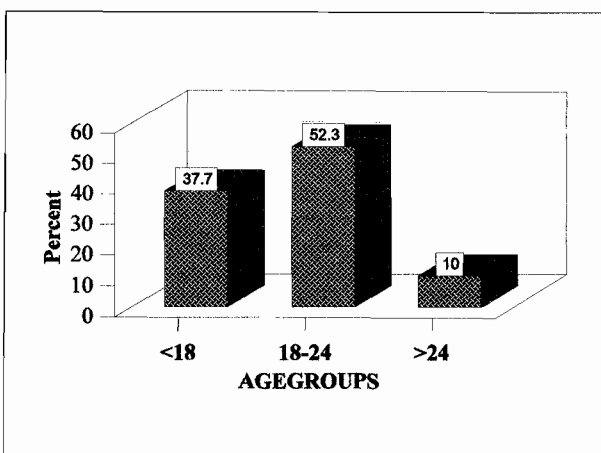
Table 1

Factors that influenced smoking initiation by gender

	Males No (%)	Females No (%)	Total No (%)
Peer pressure	65 (65%)	12 (57%)	77 (63%)
Advertisements	20 (20%)	5 (24%)	25 (21%)
Parental smoking	10 (10%)	1 (5%)	11 (9%)
Others reasons	6 (5%)	3 (14%)	9 (7%)
Total	101 (100%)	21 (100%)	122 (100%)

Figure 1

Age at smoking initiation



Many and varied reasons were given for continuing to smoke. The most common reasons given were smoking out of mere habit (36.7%) and addiction (25.4%). Smoking to gain personality and to cope with stress in life accounted for 18.0% and 15.6% respectively. About four per cent of the teachers smoked to get pleasure (Figure 2). A total of 67 (54.9%) out of the 122 smokers, had stopped smoking at the time of the study. More teachers aged above 34 years

(61.1%) had stopped than those aged below that age (48.2%). In proportion, more female smokers (71.1%) than male smokers (51.5%) had reportedly stopped smoking. Those who stopped smoking gave their reasons for stopping as economic hardship, social rejection and health problems. A number of them also stopped for religious reasons as shown in Figure 3.

Figure 2

Reasons for smoking

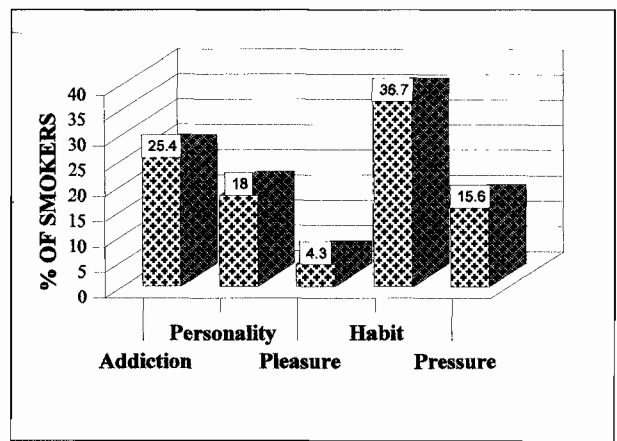
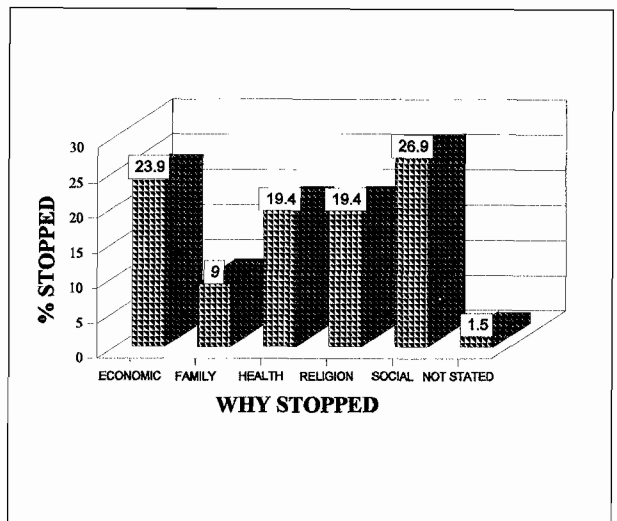


Figure 3

Reasons for stopping to smoke



Both male and female teachers who started smoking at age eight years were among those who stopped the habit. In general, half (50%) of those who started smoking while over 17 years had stopped smoking and only 34.8% of those who started smoking at younger ages stopped the habit.

Analysis for linear trend shows that the younger a person is at the time he starts smoking the less likely he is to stop the habit (Table 2).

Table 2*Relationship between age at smoking initiation and cessation*

Start-age (in years)	Stopped-smoking		Total No (%)	OR
	Yes No (%)	No No (%)		
<18	16 (34.8)	30 (65.2)	46 (100)	1.00
18 - 24	31 (49.2%)	32 (50.8%)	63 (100)	1.78
≥24	7 (53.8%)	6 (46.2%)	13 (100)	2.18
Total	54	68	122	

Analysis for linear trend in proportions
 χ^2 for trend = 7.24; p=0.007 highly significant

Table 3*Association between daily cigarette consumption and smoking termination*

No. of cigarettes	Stopped smoking			Odds ratio
	Yes No (%)	No No (%)	Total No (%)	
≤5	21 (61.8)	13 (38.2)	34 (100)	1.00
6-10	18 (50.0)	18 (50.0)	36 (100)	0.61
11-15	5 (33.3)	10 (66.7)	15 (100)	0.30
16-20	6 (37.5)	10 (62.5)	16 (100)	0.38
21-25	12 (92.3)	1 (7.7)	13 (100)	7.05
Total	66 (54.1)	56 (45.9)	122 (100)	

Analysis for linear trend in proportions:
 χ^2 for linear trend = 9.29 p<0.002 highly significant

Ninety two per cent of the heavier smokers who consumed more than 20 cigarettes per day and 62% of the lighter smokers who consumed less than six cigarettes a day had stopped smoking as compared to 40.6% of the average smokers who had also stopped smoking. This shows a significant trend in relation to the number of cigarettes smoked per day and smoking cessation (Table 3).

DISCUSSION

This study found that the prevalence of cigarette smoking among school teachers in Nairobi is quite similar to the observations made by other studies among the general population in some developing countries(2). Although a strong association was observed between gender and smoking among the teachers, no inference can be drawn to the Nairobi general population or teachers elsewhere in Kenya because the number of female and male teachers in Nairobi was not comparable. There were three times as many female teachers in Nairobi as there were male ones. Most teachers in Nairobi smoked commercially manufactured cigarettes. They were moderate smokers who were largely influenced into smoking by peer group pressure and such commercial advertisements as attractive cigarette packets, billboards, electronic media, print media and sports sponsorship and promotion materials. Parental

smoking habit was also indicated as having played a part in the smoking initiation.

Over 62% of smokers are hooked to it by habit and addiction, 33% smoke to cope with stress in life and only four per cent of them smoked to get pleasure. These findings are contrary to the argument advanced by the Tobacco industry that all smokers do so to get pleasure. It also indicates that most smokers, including the children who start experimenting with smoking, get hooked to the smoking habit without having made any mature and informed decision to smoke.

As school children, the teachers spent most of their formative period of about 14 years with their own teachers in schools. It is therefore believed that smoking habit of their teachers at this level may also have had a significant influence on them although the question was not directly included in the questionnaire then. However, the second phase of this study that involves secondary school teachers and students will address the issue.

Smoking initiation started among the teachers at a similar tender age of 15 years as reported in other studies in Kenya(6,7). This is the critical age at which experimentation and hero-worshipping is rampant. It was observed that smoking among the teachers started as early as age eight years. However, the two reported cases were thought to be isolated because there were no other cases between this age and age 12 years. Although many teachers started smoking at the age of 15 years, smoking peaked at between ages 18 and 24 years. It is therefore imperative that any control measures aimed at curbing smoking be directed to this group of people that are targeted by the tobacco industry's advertising, promotion and sponsorship to not only entice them to start smoking but also for those who are already smoking to continue the practice and even smoke more cigarettes. The industry is known to be taking the advantage of the secondary school and college age groups through sponsorship and promotion of sporting activities that the youth wish to identify themselves with. The industry targets this group also because it knows that experimenting with many life habits are rampant during this age group. Stopping to smoke was found to be related to the age at which a person started to smoke. There was high tendency to stop smoking if the age of smoking initiation was above 17 years. Smoking cessation was also associated with the number of cigarettes one consumed per day as most of the heavier smokers had reportedly stopped smoking on their own giving varied reasons for their decision and actions. Some of such teachers expressed willingness to quit but did not know how to go about it or did not have enough will power to quit.

This encouraging trend of voluntary willingness to quit smoking shows that if external assistance is given to the smokers, some current light smokers who also started smoking at younger ages may quit smoking. It is therefore very important for the relevant authorities and organisations, both governmental and non-governmental, to initiate programmes for cigarette smoking control that targets secondary school and college students before they

start smoking. The initiative should include anti-smoking education in the institutions.

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