

RESEARCH ARTICLE

Survey on Knowledge and Attitudes Related to the Relation between Tobacco, Alcohol Abuse and Cancer in the Northern State of Sudan

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Abstract

Background: The aim of this study was to determine the epidemiology of tobacco smoking, toombak dipping and alcohol consumption as risk factors for cancer in the adult population of the northern state of Sudan. **Materials and Methods:** A cross-sectional survey from March to April 2010, covering 963 adults, was performed. **Result:** Only 207 had responded, and the male female prevalence was 20.8% and 0.73%. Out of 207 respondents, 29.5% had smoked tobacco in their lifetime, 38% were toombak dippers, while 14% were consumers of alcoholic beverages. **Conclusions:** The prevalence of toombak dipping was higher than tobacco smoking among the adult population in the northern state of Sudan. Female participation in tobacco and alcohol related studies was found to suffer from major obstacles since these habits are considered as social stigma. Appreciation of the full impact of smoking on population health will definitely make a major contribution to improvement of the poor public health situation in Sudan.

Keywords: Tobacco - toombak dipping - alcohol consumption - cancer risk factors - Northern Sudan

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Introduction

Tobacco and alcohol use contribute significantly to mortality and morbidity in many countries (Lopez, et al., 2006; Begg et al., 2007). Tobacco use is the prime cause of death worldwide, resulting in millions of deaths annually, more than HIV/AIDS, tuberculosis and malaria (WHO, 2008). Tobacco smoking is an important public health concern worldwide leading to pulmonary disease, various cancers including those of the respiratory, digestive, and genitourinary systems, and certain forms of leukemia and premature death (Office of the Surgeon General, 2004).

Socioeconomic factors influence tobacco use worldwide (Bobak et al., 2000). In the developed world, a strong inverse relationship between socioeconomic status and smoking exists such that the poorest and least educated populations are more likely to smoke (Laaksonen et al., 2005; Wipfli and Samet, 2009).

In the Sudan, snuff, locally known as toombak, was introduced approximately 400 years ago. It is always processed into a loose moist form and its use is widespread in the country. Tobacco used for manufacture of the toombak is of the species *Nicotiana rustica* and the fermented ground powder is mixed with an aqueous solution of sodium bicarbonate. The resultant product is moist, with a strong aroma, highly addictive and its use is widespread particularly among males (Ahmed and Mahgoob, 2007). The use of Toombak has been stated

to play a major role in the etiology of oral cancer in the Sudan and is suspected to be associated with neoplasm of salivary glands (Elbeshir et al., 1989; Idris et al., 1994; 1995).

Alcohol-abuse is a major cause of mortality and morbidity in both developed and developing countries (Santanu et al., 2012). Alcohol consumption can cause chronic diseases, such as cancer of the mouth, esophagus and larynx, liver cirrhosis, and pancreatitis, social consequences, such as road-traffic accidents, workplace-related problems, family and domestic problems, and interpersonal violence (WHO, 2002). Therefore, alcohol consumption has been receiving more public or research attention in recent years.

The present study was undertaken with the objectives to identify the frequencies of tobacco use and alcohol intake among different population settings in Northern state of Sudan to provide data, so that it might be beneficial in planning, implementation, and evaluation of appropriate programmes for the elimination of these harmful habits.

Materials and Methods

This is a community-based, cross-sectional study was conducted in North State of Sudan, during the period from March to April 2010. Data was collected as a part of cancer awareness campaign that covered an area inhabited with 40,000 individuals. People were gathered in certain

centers (Schools, Clubs Health centres), then were asked to fill the questionnaire about tobacco and alcohol habits and other information regarding their attitudes towards these factors.

Statistical analysis

Statistical analysis was performed by proportion. The Microsoft Excel Office 2007 and the SPSS software (version 16) were used for statistical analysis.

Ethical consent

Written informed consent was obtained from each respondent, ensuring strict anonymity. The Ethical Committee of the Department of Histopathology and Cytology, FMLS, University of Khartoum approved the study.

Results

Out of 963 persons only 207 adults have responded giving a response rate of 21.5%, and the male female prevalence was 20.8% and 0.73%. Out of 207 subjects 200 (97%) were male and 7 (3%) were female giving a male to female ratio of 28.6:1. The age range of respondents was 10-78 years with a mean of 34.12±1.3 years. In this survey 59 (29.5%), 76 (38%) and 28 (14%) of the respondents had smoked tobacco, dipped Toombak and consumed alcohol, respectively in their lifetime. Out of which, 39 (19.5%), 55 (27.5%) and 19 (9.5%) were current smokers, Toombak users and alcohol abuse, respectively. On the other hand 139 (69.5%), 124 (62%) and 173 (86%) never smoked tobacco, never used toombak and never used alcohol, respectively in their lifetime. Of the 139 (69.5%) never smoked tobacco, 50 (35.9%) were living with tobacco smokers, as shown in Table 1.

The majority of smokers have smoked tobacco for duration of ≤5 years representing 15 (48.4%) followed by duration of 11+ constituting 9 (29%). Most Toombak dippers have used it for a duration of 11+ representing 29 (53%) followed by ≤5 years constituting 15 (27%). The numbers of persons used alcohol were similar for durations ≤5 years and 6-10 years representing 7 (37%), as indicated in Table.2

Table 1. Distribution of the Study Population by Tobacco and Alcohol Use

Category	Yes	Current users	Quit	None	Total	Decline
Smoking	59	39	20	139	200	7
Toombak dipping	76	55	21	124	200	7
Alcohol abuse	28	19	9	173	201	6
Live with smoker	0	0	0	50	183	24

Table 2. Distribution of the Study Population by Duration of Tobacco and Alcohol Use

Variable	≤5 years		6-10		11+		Total
	No	%	No	%	No	%	
Smoking	15	48.4	7	22.6	9	29	31
Toombak dipping	15	27	11	20	29	53	55
Alcohol abuse	7	37	7	37	5	26	19

In regard to age, toombak use was higher among older people, among age groups 50+, 40-49, 30-39 and 18-29 years, toombak use was 50%, 43%, 31% and 14% respectively. Among tobacco smokers higher percentages were observed among middle age groups, 30-39 and 40-49 years, constituting 31% and 30% respectively. Higher alcoholic consumption was observed among older age groups, 50+ and 40-49 years representing 17% and 13% respectively, as shown in Figure 1.

Table 3 Summarizes, tobacco and alcohol habits among different education levels. Individuals at secondary levels represent the highest proportions in smoking, toombak dipping and alcohol drink constituting, 26/70 (37%), 31/67 (46.3%) and 13/63 (20.6%), respectively, followed by people at basic school level representing, 15/53 (28.3%), 18/54 (33.3%) and 9/53 (17%) among smokers, toombak dippers and alcoholic in this order, as indicated in Figure 2.

Table 4 summarizes tobacco and alcohol habits by occupation. Since, labors and housewives, representing the great majority of the study subjects, housewives revealed the lowest percentage of smoking, toombak

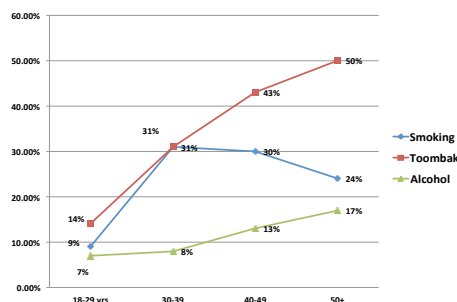


Figure 1. Description of the Tobacco and Alcohol use by Age

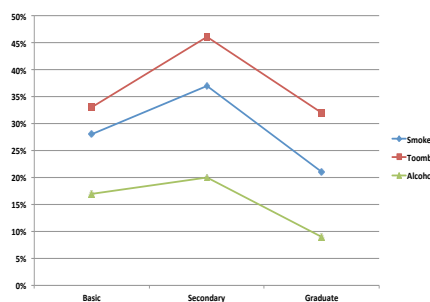


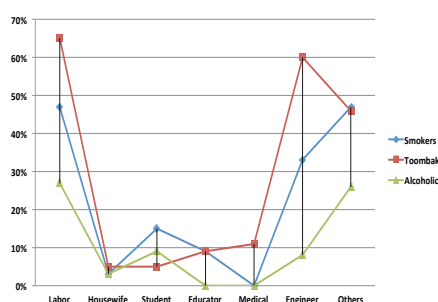
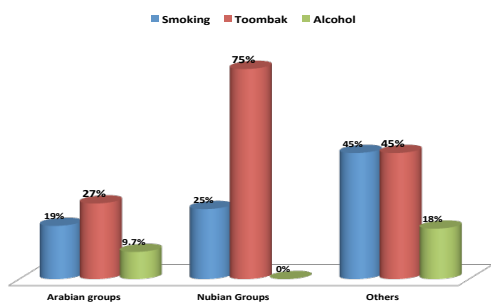
Figure 2. Tobacco and Alcohol Habits by Education

Table 3. Distribution of the Study Population by Education and Tobacco and Alcohol Habits

Variable	Category	Basic	Secondary	Graduate	Post-grad	Total
Smoking	Current	10	17	10	0	37
	Quit	5	9	5	0	19
	None	38	44	55	2	139
	Total	53	70	70	2	195
Toombak	Current	13	23	15	0	51
	Quit	5	8	8	0	21
	None	36	35	49	2	123
	Total	54	67	72	2	195
Alcohol	Current	5	10	4	0	19
	Quit	4	3	2	0	9
	None	44	50	61	2	157
	Total	53	63	67	2	185

Table 4. Distribution of the Study Population by Occupation and Tobacco and Alcohol Habits

Variable:	Labor	Housewife	Student	Educator	Medical	Engineer	Others
Smoking:							
Current	18	1	3	1	0	3	10
Quit	13	0	0	0	0	2	4
None	35	38	17	10	8	10	16
Total	66	39	20	11	8	15	30
Toombak:							
Current	31	2	1	1	1	7	9
Quit	12	0	0	0	1	2	4
None	23	37	19	10	7	6	15
Total	66	39	20	11	9	15	28
Alcohol:							
Current	10	1	2	0	0	1	5
Quit	6	0	1	0	0	0	2
None	43	38	19	11	8	12	20
Total	59	39	22	11	8	13	27

**Figure 3. Tobacco and Alcohol Habits by Occupation****Figure 4. Tobacco and Alcohol Habits by Tribes**

dipping and alcohol use constituting, 1/39 (2.6%), 2/39 (5.2%) and 1/39 (2.6%), respectively. On the other hand, the highest percentage of users were observed among labors constituting, 31/66 (47%), 43/66 (65.2%) and 16/59 (27%), of smokers, toombak dippers and alcoholic respectively. Smoking and toombak dipping were relatively elevated among engineers, representing, 33.3% and 60% respectively, as shown in Figure 3.

According to the ethnic groups, the ratios of Northern Arabian groups to Northern Nubian groups and to other scattered tribes were 39:1:5. Although, the ratio of the Northern Nubian groups is very small, but they revealed the highest percentages of tobacco use, followed by Northern Arabian groups, that represent the great majority of the study subjects, as shown in Figure 4. When asking participant about the relation between tobacco use or alcohol consumption and cancer, 96%, 98.2% and 95% agreed that smoking, toombak and alcohol, in this order, can cause cancer.

Discussion

There is a lack of population based data on tobacco and alcohol use in the northern Sudan, it is important to do studies to provide data to improve the local understanding of tobacco and alcohol burden which is a solution to appropriate control strategy. Therefore, the aim of this study was to carry out an epidemiological survey on tobacco and alcohol use in Northern state of Sudan which is strict area inhibited by small population. However, there is only one study on tobacco survey had been performed in Sudan. The study was carried out in 1998 (Idris et al., 1998), and reported that, among children and adolescents (4-17 years) prevalence of tobacco use was quite low (2%, range 1-2%), but there was an abrupt increase up to 25% in late adolescence. Among the adult population aged 18 years and older the prevalences of toombak use (34%) and cigarette smoking (12%) among males were significantly higher than among females (2.5 and 0.9%, respectively). The prevalence of toombak use among the male population aged 18 years and older was significantly higher in the rural than in the urban areas (35% vs 24%), while cigarette smoking had a higher prevalence in urban areas (18% vs 12%). The highest rates of toombak use were found in rural areas among the male population ages 30 years and older (mean 46.6%, range 45-47%). Although, the findings of the current survey showing similar findings regarding the domination of toombak use, but our findings showing higher prevalences both in toombak dipping and tobacco smoking. Due to absence of existing tobacco control policies and activities in Sudan, the prevalence of toombak dipping and smoking is increasing, particularly among the young population, although the current data showing that toombak is more prevalent among adults. However, this might not indicate decreased use among younger population, but may contribute that most of toombak dipper will not quit up death. Moreover, the use of tobacco is increasing among females, though it is considered as social stigma and this disclose why females refused to participate in this survey.

Many factors have contributed to favor smoking initiation among Sudanese population, lack of awareness among the public about the hazards of tobacco use, weak support from the government and strong resistance from the tobacco providers are major reasons for the lack of effective tobacco control efforts that supported by Non-governmental Organizations. Successful intervention efforts are urgently needed. Commitments from the government are essential in tobacco control. Strict action should be taken on tobacco control issues at different levels including a reduction in tobacco supply, increased tobacco taxation, increased education, tobacco advertising limitations, decreased second-hand smoke exposure and smoking cessation support. The health-care community should also play a leading role in anti-tobacco campaigns and take a more active role in smoking cessation programmes.

In the current study, it was observed that most tobacco users are among less educated people, as well as among labors, although there is a considerable tobacco smoking among engineers. Socioeconomic factors influence

tobacco consumption worldwide (Bobak et al., 2000). In the developed world, a strong inverse relationship between socioeconomic status and smoking exists such that the poorest and least educated populations are more likely to smoke (Flint and Novotny 1997; Reijneveld 1998; Laaksonen et al., 2005; Wipfli and Samet, 2009). While the few studies characterizing tobacco use in the developing world are unclear, they generally support the findings observed in the developed world (Wipfli and Samet, 2009). Moreover, it has been suggested that tobacco use has become widely prevalent in developing countries and the public health significance of smoking-related morbidity and mortality will continue to grow (Wipfli and Samet, 2009).

The problem of alcohol consumption in Sudan has widely obscured, since its use is illegal by Sudan Law. However, the number of alcoholic presented in this study might not be the exact number, since most of users refuse to indicate their habits. The presence of a considerable proportion of alcohol-dependents in Northern state of Sudan may subject it to be emphasized for the successful implementation of intervention programmes. The intervention programmes should include preventive strategies and screening programmes to identify different patterns of drinkers and treatment intervention for alcohol-dependents.

A limitation of this study is its cross-sectional design. Longitudinal studies of this population in the future might give up insight into developments in the outcomes of existing and future tobacco control measures. Another limitation of this study is that data were obtained via self-report. In the future use of quantitative measures of tobacco exposure such as exhaled carbon monoxide, urine or saliva nicotine would allow a more definitively characterized tobacco exposure in this population. However, self-reported smoking status is the primary measure of smoking status for research and policy, and it provides both a cheaper and widely accepted indicator.

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