Pattern of smoking among parents of schoolboys

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ABSTRACT

Objective: The objective of this study was to study the pattern, prevalence, knowledge and practice of smoking among parents of 6-15 years old schoolboys in Al-Khobar City, Saudi Arabia.

Methods: This is a cross-sectional study. The methodology included the distribution of a self-administered questionnaire, which was filled out by 2964 parents of 1482 schoolboys who satisfied the selection criteria of the study.

Results: The overall rate of smoking among parents of this sample was 18% (32% among fathers and 4% for mothers). A combination of heavy smoking and smoking for a long duration was the prevailing pattern of smoking. The overall sample knowledge about smoking was generally satisfactory, but smoking parents were found to have significantly higher rates of knowledge about smoking than non-smokers did. There was a significantly increased risk of smoking related diseases and symptoms among smoking parents.

Conclusions: Based on the results of this study, parental smoking should be considered a major health problem in Al-Khobar City with dangerous impacts. Despite evidence of satisfactory knowledge about smoking among smokers, anti-smoking efforts should continue. However, it appears that the only sure way is to ban the import of this poison. This study may be considered as a baseline for further and larger studies in Saudi Arabia in the future.

Keywords: Parental, smoking, schoolboys, impact, prevalence, pattern.

Saudi Medical Journal 2000; Vol. 21 (8): 735-739

In Saudi Arabia, tobacco was first introduced during the Ottoman Empire.[1] Despite the fact that Saudi Arabia has no contribution to the world's production of tobacco, its imports of tobacco have multiplied more than 250 times during the period from 1961 (1,061 tons) to 1987 (41,440 tons).[2] Consequently, the money spent on importing tobacco has raised from Saudi Riyals (SR) 7,844,263 to SR 917,165,108 (an increase by 117 fold) during the same period. Saudi Arabia ranked 52nd in the world for the import of tobacco during the period between 1970 and 1972 but it had moved up to the 23rd position by 1990 to 1992.[2,3] Prevalence studies of smoking in Saudi Arabia have shown a dangerous trend,[1-6] the recommendations that were suggested by these studies though, have not changed the situation.[2] More than one third (37%) of university students smoke and more than one half (58%) of them smoke more than 15 cigarettes per day and 36% started smoking between 10 and 15 years of age.[2] Saudi smokers were shown to have higher prevalence of diseases and symptoms such as cough, hypertension, diabetes mellitus, heart disease and peptic ulcer than non-smokers.[1] Moreover, parental smoking was documented to have harmful effects in pre-school[7-9] and older children.[10-12] This includes increased prevalence of cough, asthma, wheeze and respiratory diseases. To the best of the investigators' knowledge, no study was carried out in Saudi Arabia to assess the knowledge, magnitude and health impact of smoking on a smoking parent. Determination of these parameters is essential for individual patients' management and for public health planning. The objective of this study was to

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Received 26th March 2000. Accepted for publication in final form 14th May 2000.

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study the pattern, prevalence, knowledge and practice of smoking among parents of 6-15 years old school boys in Al-Khobar City, Saudi Arabia.

Methods. Parents of Saudi boys in elementary and preparatory schools in Al-Khobar City were the subjects of this cross-sectional study during 1995. Al-Khobar City is located on the Arabian Gulf coast in the Eastern province of the Kingdom of Saudi Arabia. A total of 22077 schoolboys were identified at elementary (15829 (72%)) and preparatory (6248 (28%) schools in Al-Khobar City. A sample of 7% of the total number of schoolboys was randomly selected. A total sample of 1550 schoolboys (elementary = 1110 (72%) and preparatory = 440 (28%)) was drawn from 7% of schools selected by simple random sampling (4 elementary + 2 preparatory schools). The total number of sample students in each school was in accordance with the ratio they represent in relation to the total number of students in all schools (in each level of education). In each school the sample was drawn evenly from different classes. The non-inclusion of school girls' parents in this study was due to difficulties in gaining access to these schools, a limitation that previously faced some other investigators.[6,13] The methods used included a self administered pre-tested and pre-coded questionnaire directed to parents. This questionnaire was previously standardized and validated for the Saudi community.[1,13] The questionnaire used in this work was subjected to a reliability test, which was based on psychometric analysis using the split-halves method and the general Spearman-Brown formula,[14] which indicated a reliability of 95%. The selection criteria used included that a smoker was defined as any parent who is currently a cigarette smoker. Current smoker was defined as a cigarette smoker for a duration of at least one month, at the time when this study was conducted. While current-ex-smoker, was defined as a previous cigarette smoker who gave-up smoking for a duration of not less than 6 months, at the time of conduct of the study. Ex-smokers were identified and subsequently excluded from the study. Only parents living both and together with their child(ren) in Al-Khobar city were selected. Families were classified into upper, middle and lower socio-economic class based on an aggregate score of the father's (of a schoolboy) education, occupation and monthly income.[15] The parents were requested to give details of personal data such as age, sex, area of residence, level of education, occupation and income. In addition, information regarding details of smoking such as types, frequencies, duration and practice of smoking was obtained. Heavy smoker was defined as a current smoker of no less than 20 cigarettes but no more than 30 cigarettes per day. Current smoker of more than 30 cigarettes per day was defined as a moderately heavy smoker. Data included the parent history of current symptoms, doctor diagnosis of diseases including bronchial asthma, allergic rhinitis, eczema, cough (chronic cough for more than one month), hypertension, diabetes mellitus, heart disease and peptic ulcer. Knowledge about certain aspects of smoking was also assessed. This included the type of smoking most serious to health, health problems due to smoking, most serious aspect of smoking, result of stopping smoking and the effect of passive smoking on adults and children. Each of these aspects of knowledge consisted of a series of questions. A high score of knowledge is considered if the subject could reach 70% or more of correct answers. The sample was grouped into smokers and non-smokers. Comparisons between these were made regarding the age, sex, socio-economic class, knowledge of smoking and diseases or symptoms related to smoking. Data was analyzed using an IBM compatible personal computer. The Statistical Program SPSS/PC was used to calculate Chi-squared differences, odds ratios and to assess the statistical significance of the observed difference in contingency tables.

Results. ***Sample characteristics.*** A total of 3100 parents (1550 fathers and 1550 mothers) were invited to participate in this study. The total returned filled questionnaires was 3030 with a response rate of (98%). Sixty-six parents out of 3030 respondents (2%) were found to be ex-smokers and therefore they were excluded. Finally, a total of 2964 parents fulfilled the selection criteria. The ages of the sample ranged between 35.8 and 50.2 years and 41.6 to 52.4 years for smoker and non-smoker fathers. For mothers, the ages ranged between 31.8 and 42.2 years and 34.7 to 43.3 years for smokers and non-smokers. There was no statistical difference in mean age among smoking and non-smoking fathers or mothers (Table 1). Two hundred and twenty three (15%) of families were found to belong to upper socio-economic class families compared with 756

Table 1 - Smoking status in relation to sex, age and socio-economic status of the sample.

Variable	Smokers	Non-Smokers	P-value
Age (mean±SD) year			
Fathers (n=1482)	43 ± 7.2	47 ± 5.4	NS
Mothers (n = 1482)	37 ± 5.2	39 ± 4.3	NS
Smoking rate			
Fathers (n=1482)	478 (32%)	1004 (68%)	<0.05
Mothers (n=1482)	62 (4%)	1042 (96%)	
Socio-economic class			
Upper (n=223)	86 (18%)	137 (14%)	
Middle (n=756)	220 (46%)	536 (53%)	NS
Lower (n=503)	172 (36%)	331 (33%)	
Total	478 (100%)	1004 (100%)	

NS - Not significant

Table 2 - Prevalence rates of symptoms and diseases among smokers and non-smokers.

Variable	Smoker No.	Smoker %	Non-Smoker No.	Non-Smoker %	OR	95% C.I.	P
A. Among Fathers (n=1482)	n= 478	32.0	n= 1004	68.0			
1. Hypertension (n=187)	86	18.0	101	10.0	2.0	(1.5, 2.6)	<0.05
2. Diabetes mellitus (n=216)	96	20.0	120	12.0	1.9	(1.5, 2.5)	<0.05
3. Heart Disease (n=103)	52	11.0	51	5.0	2.3	(1.6, 3.2)	<0.05
4. Peptic ulcer (n=90)	43	9.0	47	5.0	2.0	(1.4, 2.8)	<0.05
5. Asthma (n=197)	123	26.0	74	7.0	4.4	(3.7, 5.4)	<0.05
6. Rhinitis (n=113)	76	16.0	37	4.0	4.9	(3.8, 6.4)	<0.05
7. Eczema (n =85)	31	6.0	54	5.0	1.2	(0.8, 1.8)	NS
8. Cough (n=134)	61	13.0	73	7.0	1.9	(1.5, 2.5)	<0.05
B. Among Mothers (n=1482)	n=62	4.0	n=1420	96.0			
1. Hypertension (n=187)	17	27.0	170	12.0	2.8	(1.6, 4.8)	<0.05
2. Diabetes mellitus (n=139)	96	18.0	128	9.0	2.2	(1.2, 4.2)	<0.05
3. Heart disease (n=80)	9	14.5	71	5.0	3.2	(1.5, 6.7)	<0.05
4. Peptic ulcer (n=65)	8	13.0	57	4.0	3.5	(1.7, 7.5)	<0.05
5. Asthma (n=140)	15	24.0	125	9.0	3.3	(1.8, 6.0)	<0.05
6. Rhinitis (n=116)	12	19.0	104	7.0	3.0	(1.6, 5.7)	<0.05
7. Eczema (n=73)	7	11.0	66	5.0	2.6	(1.2, 5.7)	<0.05
8. Cough (n=237)	27	43.5	210	13.0	4.4	(2.8, 7.0)	<0.05

NS - Not significant; OR - Odds ratio

(51%) and 503 (34%) in the middle and lower socio-economic classes, with no statistically significant differences among smoking and non-smoking families (Table 1).

Prevalence of smoking among sample parents. The overall prevalence of current smoking in the sample was 18%. Gender wise the rate was 32% amongst fathers and 4% amongst mothers. Those who smoke were further found to be heavy, moderately heavy and light smokers in 62%, 17% and 20% of the sample. Smoking for more than 15 years, between 10 and 14 years, between 5 to 9 years and less than 4 years was found to be 37%, 26%, 21.5% 16%. The overall prevalence of current ex-smokers in the sample was 2%. Gender wise the rate was 82% and 18% among fathers and mothers. It was interesting to find those all-smoking mothers in the sample to be married to smoking husbands (fathers).

Association between smoking and parent diseases or symptoms. Table 2 shows smoking parents to be at significantly higher risk of developing most of the symptoms and diseases compared to non-smokers. The strength of this significant association was ranging between 1.9 and 4.9 fold among fathers and between 2.2 to 4.4 among mothers. 'Rhinitis' and 'cough' scored the highest odds ratio among fathers and mothers.

Sample knowledge about smoking. Table 3 shows in general the sample rates of high knowledge concerning smoking to be satisfactory and ranging from 50% to 84% with the highest for the effect of

Table 3 - Rates of high knowledge scores about smoking in smokers and non-smokers.

Variable	Smoker (n=540) No.	Smoker (n=540) %	Non-Smoker (n=2424) No.	Non-Smoker (n=2424) %	OR	95% C.I.	P
1. Type of smoking most serious to health	405	75.0	1697	70.0	1.3	(1.2, 1.4)	<0.05
2. Health problems due to smoking	346	64.0	1673	69.0	0.8	(0.7, 0.9)	N.S.
3. Most serious aspect of smoking	281	52.0	1188	49.0	1.1	(1.0, 1.2)	<0.05
4. Result of stopping smoking	308	57.0	1357	56.0	1.0	(0.9, 1.3)	N.S.
5. Effect of passive smoking	465	86.0	2036	84.0	1.2	(1.1, 1.2)	<0.05

NS - Not significant; OR - Odds ratio

passive smoking and the lowest for the most serious aspect of smoking. Smokers were found to have significantly higher rates of knowledge concerning the type of smoking most serious to health, the most serious aspects of smoking and the effect of passive smoking. However, there was insufficient evidence to support significant differences in knowledge concerning health problems due to smoking and the result of stopping smoking among smokers and non-smokers.

Discussion. The high response rate of 98% in this study was probably due to the ease of the method used (being non-invasive) and to the cooperation of schools' administrations and families. The overall prevalence rate of smoking in this study was 18%. This rate was diluted by the relatively low rate of smoking among mothers. This rate was close to the 22% reported earlier from the region.[1] However, this rate was generally less than 30% and 29% which were reported in community based studies from Eastern and Southern Saudi Arabia,[1] and was much less than rates reported from Asian and Arab countries.[3] Smoking rate among fathers (32%) was comparable to 34% and 35% reported in 2 studies conducted in the region.[1,12] This rate was however less than what was reported from Eastern[1] and Southern[1] Saudi Arabia and was less than the rate of 41% but was more than the rate of 29% reported from Jeddah and Riyadh.[12] This variation may be explained by the nature of the populations under study. Fortunately, in this study prevalence of smoking among mothers was comparatively low (4%). This rate compares well with 6% found earlier in 2 studies in the region,[1,5] and to the low prevalence of smoking among females in the Eastern countries in general.[3] The Saudi community, due to its religious and socio-cultural reasons, forbids smoking and considers it distasteful.[12] From comparison with rates from other studies, this study proves that rate of parental smoking in Al-Khobar city may not be necessarily different from that of the general population. The importance of this finding is related to the strong association already established between parental smoking and its harmful effects on children.[7-12] In this study, the overall sample knowledge about smoking was generally satisfactory. This result supports earlier findings that knowledge about the ill effects of smoking in general and of passive smoking in particular were found to be satisfactory among smokers and non-smokers in Saudi Arabia, including Al-Khobar City.[1,4-6] Smoking parents in this study were found to have higher rates of diseases and symptoms related to smoking despite their higher knowledge about smoking. Similar findings were reported earlier from Saudi Arabia, but with less magnitude, diversity of symptoms and diseases.[1] This may indicate that sufficient knowledge among smokers (about ill effects of smoking) may not be enough to change their practice. Discrepancy between knowledge and practice of smoking was documented in Saudi Arabia.[1,4-6] Our results also support earlier findings that Saudi smokers start smoking in early adolescent life, smoke heavily and for a long period of time.[1,4-6] Smoking in this study was not found to be associated with specific socio-economic class, indicating that all community social strata are at risk. It also means, that the association between smoking and a smoking related disease or symptom is not being confounded by the variation in the socio-economic class. This study is consistent with previous reports, that smoking is associated with higher risks of diseases or symptoms among smokers.[1-6] However, and to the best of the investigators' knowledge, this study has shown for the first time in Saudi Arabia, that the strength of this risk was significantly large among both smoking parents. This has its important practical implications for decision-makers as to consider smoking a public health problem that should be prevented. Meanwhile clinicians should consider this fact when managing smoking parents or their children presenting with these diseases or symptoms.

In conclusion, the smoking rate and pattern among parents in this study were comparable to those reported earlier indicating an on-going problem. The overall sample knowledge about smoking was generally satisfactory but smoking parents were found to have significantly higher rates of knowledge about smoking. It was shown in this study that there is an increased risk of smoking related diseases and symptoms among smoking parents. Based on the results of this study, asymptomatic smoking parent(s) should be considered at a higher risk of developing smoking related diseases and they better be screened for this. Management of smoking parent(s) presenting with these diseases or symptoms should include inquiry about exposure to smoking. Smoking parents should be educated and persuaded to give up smoking. Despite evidence of satisfactory knowledge about smoking among smokers, anti-smoking efforts should continue. This study may be considered as a baseline for further and larger studies in Saudi Arabia in the future. There is a need for a cohort or case-control studies for better estimation of the magnitude of association between smoking as a risk factor and smoking related diseases and symptoms in the Saudi population. Smoking should be considered a public health problem with dangerous impacts. Despite methods suggested to reduce smoking in Saudi Arabia,[1,2] it appears that the only sure way, whatever extremist or unrealistic it may look at this stage, is to ban the import of this poison.[2]

Acknowledgment. The investigator expresses his thanks and gratitude to all children and their parents who participated, and to the school authorities in the region for their cooperation in this study.

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