

Prevalence of Risk-taking Behaviors

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Objective: The aim of this study is to determine the prevalence of self-reported risk-taking behaviors among male school students and their teachers in Al Khobar, Saudi Arabia.

Design: This was a cross-sectional study conducted in Al Khobar area, Eastern Province of Saudi Arabia.

Setting: Intermediate and secondary schools for boys.

Method: The target population consisted of third grade intermediate and all three grades of secondary school male students. A multistage stratified sampling design was adopted. All students in the selected classes (1240) as well as all teachers (142) in the selected schools were included. Two sets of self-administered questionnaires were used: one for students and the other for teachers. The questionnaires contained characteristics data and data on smoking, practice of physical activity, and use of seat belt.

Result: A total of 162 (13.1%) male students were current cigarette smokers while 108 (8.7%) were shisha smokers. About 17% of teachers were current smokers. About half of students stated that their main motive for smoking was to know what smoking was like. A significantly higher proportion of students than their teachers practiced physical exercise (91% vs. 72.5% respectively). Less than 50% of students and teachers practiced regular physical exercise. Both male students and their teachers had lower seat belt use. Almost half of the students and more than half of the teachers did not use seat belts at all.

Conclusion: Strategies for disease prevention should be included as part of the school curriculum. Emphasis should be put on disease risk factors such as smoking, obesity, physical inactivity, and non-compliance with use of seat belt.

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Cigarette smoking is one of the major causes of diseases and death today^{1,2}. It causes various types of cancer, pulmonary obstructive disease and cardiovascular disease^{1,3}. In developing countries between 40% to 60% of men and 2% to 10% of women use tobacco and these figures are generally on the increase⁴. Experimentation with cigarettes usually starts at an earlier age during childhood and adolescence⁴.

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Epidemiological studies have revealed several reasons for the initiation and prevalence of cigarette smoking in children including the influence of peer pressure, family models and other environmental factors in the home and at school^{5,6}. In Saudi Arabia, several studies have shown a high prevalence of cigarette smoking among male junior and secondary school students⁷⁻⁹.

Several studies have shown the association of leisure-time physical activity and the risk of cardiovascular disease^{10,11}. Observations and current studies indicate that today's children are probably less fit than children decades ago^{12,13}. Children tend to be more overweight and sedentary than earlier. Al Refaee and Al-Hazza in their study of 1333 Saudi males 19 years and older had shown that over 53% of Saudi males were totally physically inactive, and another 27.5% were irregularly active. Only 19% of the entire sample was active on a regular basis¹⁴. Results of heart rate telemetry of Saudi boys during and after school time indicated that Saudi boys spent on the average limited time on activities that raise the heart rate above 159 beats per minute¹⁵.

A study of seatbelt utilization in Saudi Arabia and its impact on road accident injuries showed that seatbelt use rate in two Riyadh suburbs were 33% and 87%, respectively, for drivers and 4% and 41%, respectively, for front seat passengers¹⁶. The study also showed that there was a significant drop in certain types of injuries due to traffic accidents after the enactment of the seatbelt law. Several studies in the United States also showed a low seatbelt use rate^{17,18}.

The aim of this study was to determine the prevalence of self-reported risk-taking behaviors mainly cigarette smoking, physical inactivity, and seatbelt use among male school students and their teachers in Al Khobar, Saudi Arabia.

METHOD

This was a cross-sectional study conducted in Al Khobar area, Eastern Province of Saudi Arabia at the end of 2001. The target population consisted of third grade intermediate and all three grades of secondary school male students and their teachers in Al Khobar area. A multistage stratified self-weighting sampling design was adopted. Each school was divided into government and private and further classification was made on the basis of intermediate and secondary level. At first stage, a systematic random sampling procedure (probability proportional to size) was used to select schools. At the second stage the classes were selected at each level using simple random sampling design. All students in the selected classes were included in the study. The total number of selected students was 1240. All teachers in the selected schools were included in the sample. There were 142 male teachers, of whom 75.4% belonged to government and 24.6% to private schools,

Two sets of self-administered questionnaires were used: one for male students and the other for teachers. The questionnaires were part of a comprehensive survey on life-style, knowledge and self-reported behaviors among school students and teachers in Al Khobar schools. The questionnaires contained questions on personal characteristics, smoking behavior, knowledge and practice of physical activity such as benefits, frequency, duration, and use of seat belt.

Three male physicians participated in the data collection under standardized conditions. A similar questionnaire was also administered to female students and female teachers and this will be reported in a separate paper. A "current smoker" was someone who, at the time of the survey, smoked any tobacco product either daily or occasionally; an "ex-smoker" was someone who was formerly a daily smoker but currently did not smoke at all; a "non-smoker" was someone who, at the time of the survey, did not smoke at all. Physical activity was defined as any bodily movement produced by skeletal muscles that resulted in energy expenditure above the basal level¹⁹. Effective physical activity was defined as regular exercise three or more times per week for at least 20 minutes²⁰. A pilot study was conducted to test the questionnaires and organizational procedures. The field work took about eight weeks. Those who were absent, or on vacation, were interviewed during this period, so a response rate of 100% was obtained. Approval and permission for the study was taken from the Medical College and Ministry of Education. The Statistical Package for Social Sciences (SPSS-PC) computer software was used for data analysis. Difference between two proportions (χ^2 -test) was used to detect any significant difference between students and teachers. Level of statistical significance was taken as <0.05 throughout the study. Test-retest method was used to check for reliability of the questions. Kappa statistic was found to range from 0.4 to 0.7. This was considered as fair to good reliability²¹.

RESULT

Personal characteristics of students and teachers were shown in Table 1. About three-quarters of the selected schools were government schools. Students in the secondary schools comprised 59% while the majority of teachers (62.7%) were in the intermediate schools. The majority of students and teachers were Saudis. The mean age of the students was 16.5 ± 1.8 years while that of teachers was 35.1 ± 8.8 years respectively.

Table 1: Distribution of Male Students and their Teachers

Demographic Characteristic	Students (n=1240)		Teachers (n=142)	
	No	%	No	%
Type of school:				
Government	928	74.8	107	75.4
Private	312	25.2	35	24.6
School level:				
Intermediate	508	41.0	89	62.7
Secondary	732	59.0	53	37.3
Nationality:				
Saudis	866	69.8	88	62.0
Non-Saudis	374	30.2	54	38.0
Age in years: (Mean \pm 1 SD)	16.5 ± 1.8		35.1 ± 8.8	

A total of 162 (13.1%) male students were current cigarette smokers while 108 (8.7%) were Shisha smokers (Table 2). The proportion of teachers who currently smoked was higher than that for students (16.9% vs. 13.1% respectively). However, the difference was not statistically significant. There were 151 (12.1%) male students who were ex-smokers (both cigarettes and shisha) compared to 15 (10.6%) teachers. The majority of students (86.1%) practiced smoking for six months or less. Regarding the duration of abstinence from smoking, 91.5% of all ex-smokers were not smoking for six months or less, while 8.5% only continued as ex-smokers for more than six months.

Table 2: Smoking Behavior of Male Students and their Teachers

Smoking behavior	Students (n=1240)		Teachers (n=142)		p-value (x ² -test)
	No	%	No	%	
Current Smokers:					
Cigarettes	162	13.1	24	16.9	NS*
Shishah	108	8.7	6	4.2	NS
Ex-smokers:					
Cigarettes	101	8.1	14	9.9	NS
Shishah	50	4.0	1	0.7	0.046

* NS = Not Significant

About half of students stated that their main motive for smoking was to know what smoking was like, while 15.3% (8.8% + 6.5%) smoked to imitate their fathers and other family members, and 14.3% smoked in imitation of their peers (Table 3).

Table 3: Reasons for Starting Cigarette Smoking for Male Students

Reasons	Number	Per cent
To know what is smoking	140	47.3
To imitate my father	26	8.8
To imitate other family members	19	6.5
To imitate my friends	43	14.3
To imitate a screen actor	14	4.7
To feel mature	10	3.4
Other reasons	42	14.2

A significantly higher proportion of students than their teachers reported that they practiced physical exercise (91.0% vs. 72.5% respectively; p< 0.001) as shown in Table 4. The frequency and duration of practice of effective physical activity were also significantly better in the case of students than their teachers. The main types of exercise for students were football (69.8%), swimming (39.6%), walking (32.7%), and jogging (27.7%). For teachers, it was mainly walking (58.5%), football (27.5%), swimming 26.8%), and jogging (15.5%). Gymnasium was the least type of activity practiced by both students and teachers (7.1% vs. 6.3% respectively).

Table 4: Self-reported Practice of Physical exercise by Male Students and their Teachers in Al Khobar Area

Practice of physical exercise	Male Students (N= 1240)	Male Teachers (N= 142)	p-value (x ² -test)
	No (%)	No (%)	
Those who practiced physical exercise	1129 (91.0)	103 (72.5)	< 0.001
Frequency of practice of physical exercise:			
Three or more times/week	565 (45.6)	27 (23.1)	< 0.001
Time spent in practice of physical exercise:			
Half an hour or more	884 (71.3)	52 (36.6)	< 0.001

Logistic regression analysis was used to identify the determinants of the practice of physical activity among male students while controlling for other variables. Nineteen independent variables were entered into the model. The only two variables found to be significantly associated with the practice of physical activity were age and the knowledge that exercise protects from obesity. Younger students were 7% more likely to practice physical activity than older students. Students who knew that exercise protects from obesity were 7 times more likely to practice physical activity than students who had no such knowledge (Table 5).

Table 5: Logistic Regression Analysis Showing Determinants of Practice of Physical Activity among Male Students

Variable	B Coefficient	S.E. of B	Odds Ratio	95% CI of Odds ratio	p-value
Age	-.3874	.1858	.68	0.47-0.98	.037
Knowledge that exercise protects from obesity	1.9245	.7146	6.85	1.69-27.80	.007
Constant	7.4237	3.1182	-	-	-

Further analysis showed that there was a statistically significant, steady and consistent decline in the level of exercise habits with age from third grade intermediate up to third grade secondary school (96.8% practice at age 14 years compared to 85.1% at age 18 years). This decline was also coupled with inadequate knowledge about the benefits of physical activity.

Both male students and their teachers had lower seat belt use as shown in Table 6. Almost half of the students and more than half of the teachers did not use seat belts at all. None of the teacher and 1.2% of the students used seat belt when traveling for long distances.

Table 6: Use of Car Seat Belts by Male Students and their Teachers in Al Khobar Area

Use of car seatbelts	Males Students No. (%)	Teachers No. (%)	p-value (χ^2 -test)
Always	102 (8.3)	5 (3.7)	0.054
Occasionally	337 (27.5)	45 (32.8)	NS*
Rarely	206 (16.8)	9 (6.6)	0.002
Only when traveling For long distances	15 (1.2)	0 (0.0)	NS**
Did not use seatbelts at all	567 (46.2)	78 (56.9)	0.017
Total	1227 (100.0)	137 (100.0)	-

* NS = Not Significant

** = Fisher's exact test

DISCUSSION

In this study the prevalence of smoking among both students and teachers was high. This was consistent with several studies among Saudi populations which showed an increasing prevalence of smoking among adolescents^{7,8}. Several studies in KSA showed a high prevalence of smoking among adults aged 15 years and above (21.1%-34.4%)^{5,22}. Maziak et al study in Syria found that 52.1% of male teachers were current smokers²³. Other studies also showed that cigarette smoking was highly prevalent in the Gulf countries^{24,25}. These high figures are alarming and may have serious implications in undermining the anti-smoking messages and other efforts to reduce students' smoking prevalence. This is especially important in the light of increasing adult smoking in KSA and other Gulf countries.

The most common reason for starting smoking in this study was the desire to know what smoking was. This result was higher than that found by Al-Faris in his study among secondary school boys⁸. Al-Faris reported that the most common reasons for smoking were desire (32%), idleness (28%), imitation (22%) and enjoyment (20%). Al-Damegh et al in their study of 2203 male secondary school students found that the most common reason for cigarette smoking behavior was the influence of friends (63.5%) and family factors, especially the brother's smoking habit (24.8%)⁹. Jarallah et al in their study of 1382 male students ages 12-19 years found that smoking allowed in the presence of friends or brothers, and previous smoking were statistically significant determinants of current smoking²⁶.

The practice of physical activity was claimed by large proportions of students and was significantly more than their teachers. However, less than 50% of students and teachers practiced regular physical exercise (3 or more times/week). This finding was

similar to other studies in KSA^{27,28}. A study of 1333 Saudi males 19 years and older revealed that over 53% were totally physically inactive, another 27.5% were irregularly active, and only 19% were active on a regular basis¹⁴. The prevalence of regular physical activity in Saudi boys seems to be considerably lower than those reported from other countries^{29,30}. On the other hand, the practice of physical activity among teachers was less than that among their students. This finding could be partly due to being busier and partly because of the effect of age or lack of health education.

Possible reasons for younger students practicing physical activity more than older students were that older students might be spending most of their time using the internet, watching television, or playing videogames. Another reason might be due to the high prevalence of obesity among older students. This study showed a significant association between knowledge that exercise protects from obesity and the practice of physical exercise. A similar study in the USA found a significant relation between physical activity and eating healthy foods³¹. The steady decline in the level of exercise habits of students with age and with class level was consistent with many findings from Saudi Arabia and Western countries^{32,33,34}.

Seat belt use has been shown to reduce injuries in the event of a crash. The finding of a lower rate of seat belt use by both male students and their teachers was alarming as both of them will be at high risk of severe injuries and even death from accidents. This result was similar to other studies from Saudi Arabia. Shanks et al audit of road traffic accidents in KSA over a one-year period revealed that out of 361 victims, 16% were aged less than 10 years and 47% between 11 and 30 years. None of those involved in accidents were wearing a seat belt³⁵. A study of seat belt utilization in two Riyadh suburbs, after the enactment of seat belt law on 5 December 2000, showed that seat belt use rates were 33% and 87%, respectively, for drivers and 4% and 41%, respectively, for front seat passengers¹⁶. The study also showed that there was a significant drop in certain types of injuries due to traffic accidents after the enactment of the seat belt law. A similar study in Kuwait after the enactment of seat belt law in January 1994 showed that seat belt use has had a positive effect in reducing both road traffic fatalities and multiple injuries³⁶. A study of 800 vehicle drivers, seen and treated in two general hospitals in United Arab Emirates showed that the rate of constant seat belt usage among drivers was 10.5% and the rate of frequent seat belt usage was 5.8%³⁷. A similar pattern of low seat belt usage has been observed in other countries¹⁷. There is a need for more strict laws regarding the use of seat belt. More studies are needed in Saudi Arabia to identify the determinants and factors associated with the non-compliance to seat belt use.

CONCLUSION

This study shows a high prevalence of risk-taking behaviors (cigarette smoking, physical inactivity, and low or non-use of seat belt) among school students and their teachers. The author recommends the following:

١. **Initiation of smoking prevention and smoking cessation programs in schools. This could be done through the school health services in collaboration with other sectors. Strategies should include health education, counseling and special programs for smokers.**
٢. **Health promotion and disease prevention strategies should be included as part of the school curriculum. Emphasis should be put on risk factors for heart**

disease and cancer such as smoking, dietary habits, obesity and physical inactivity.

3. More intensive measures to promote physical activity and a healthy life-style should be instituted including more "sports classes", extra-curricular physical exercise, and availability of playing grounds. In this time of intense television watching by all age groups, and its related state of sedentary life style, encouragement of physical activity will no doubt be very beneficial.

4. There is a need for stricter enforcement of seat belt legislation with continuous supervision and monitoring by the road traffic authorities.

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