

Risky health behaviors among students in Majmaah University, Kingdom of Saudi Arabia

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ABSTRACT

Introduction: Risky behaviors are those that potentially expose people to harm, or significant risk of harm, which prevent them from reaching their potential in life and which can cause significant morbidity or mortality. **Objectives:** The objectives of the study were to determine the overall prevalence of risky behaviors among university students; to determine the prevalence of smoking, drifting, fast driving and physical inactivity among university students; and to determine the associations between such behavior and demographic characteristics. **Materials and Methods:** An observational cross-sectional study conducted in three colleges. The data were randomly collected from 340 students aged 18–30 years from February to March 2015 using a self-administered questionnaire in Arabic. The data were entered using SPSS v 22.0. Mean and standard deviation were calculated for quantitative variables, and frequency and percentages were computed for categorical variables. Chi-square or Fisher's Exact test, as appropriate, were used to test for statistical significance. **Results:** The overall prevalence of risky behaviors (smoking, drifting, fast driving, and physical inactivity) among students was 47.35%. Overall, 28% of the students were smokers, 25.2% were involved in drifting, 60.9% reported driving fast, and 66.4% were physically inactive. The age between 18-20 years was significantly associated with higher rates of drifting, fast driving, and physical inactivity. **Conclusion:** The prevalence of risky behaviors among university students was high. Physical inactivity and fast driving were the most common identified risky behaviors. Increasing awareness of these risks in the youth may significantly decrease related morbidities, complications, and even mortalities.

Key words: Drifting, physical inactivity, risky behaviors, smoking, students

INTRODUCTION

Risky behaviors are those that potentially expose people to harm or significant risk of harm. These may prevent them from reaching their potential in life and can cause significant morbidity or even mortality.^[1] When students reach high school or university, the rapid changes in biological, emotional, cognitive, and social development influence their behavior. At this stage, adolescent and young people are normally curious and experiment with a

variety of things which supposedly form part of growing up. In different societies, lines are drawn at such behavior. These behaviors are unacceptable and are considered harmful to them and the society.^[1] The United States of America has a surveillance system called The Youth Risk Behavior Surveillance System that identifies and intervenes when there is such behavior. This surveillance system identifies six categories of priority health-risk behaviors in the youth and young adults. They include^[2] behaviors that contribute to unintentional injuries and violence, tobacco

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use, alcohol and drug use, problematic sexual behaviors, unhealthy dietary behaviors and physical inactivity. In Kingdom of Saudi Arabia, there is no such surveillance system for the identification of trends of these risky behaviors as is available in other countries.^[3] The burden of noncommunicable disease has been increasing, with 63% of global deaths. Attention has, therefore, turned to how nations can promote efforts that impact on the onset of risky behaviors associated with noncommunicable diseases.^[4]

A study in Kingdom of Saudi Arabia found that 73–95% of university and high school students knew that smoking was harmful to them, and 66% knew that it was harmful to others. However, the prevalence of current smoking among school students ranges from 12% to 29.8%, and 2.4–37% among university students.^[5] Another study conducted in King Saud University, Riyadh, Kingdom of Saudi Arabia, revealed the estimated prevalence of current smoking among the study participants as 4.7%.^[6] The most important independent predictors of smoking were academic performance.^[7]

Injuries resulting from road traffic accidents is the leading contributor to disability-adjusted life years in male adults in Kingdom of Saudi Arabia.^[8] A report found that almost a third of all traffic accidents in the Saudi capital, Riyadh, were due to drivers jumping red lights, followed by 18% of accidents caused by illegal U-turns. The most common dangerous driving was speeding. A study in Alabama, United States, between 2009 and 2010, reported that 41% of respondents were texting while driving and 11% drove after drinking. Overall, 58% reported that they did not wear a seatbelt; 13% drove after taking drugs; 60% reported that they routinely exceeded the speed limit; 80% had discussed safe driving with a parent.^[9] Not many studies are available on risky driving behaviors of university students in Kingdom of Saudi Arabia. The results of a study conducted in Jeddah, in which a sample of 300 drivers was interviewed, indicated that the drivers, in general, drove at higher speeds and could be considered more aggressive than drivers in the United States.^[10] Drifters in the Kingdom of Kingdom of Saudi Arabia have become so aggressive on the roads that new laws have been enacted upgrading such driving from traffic violations to criminal offense.^[11] In the year 2013, 21,405 over-speeding violations were reported, and 678 tickets were issued for drifting in the Riyadh City alone.^[12]

Morbidity and mortality from noncommunicable diseases related to lifestyle have increased in Kingdom of Saudi Arabia in last three decades because of changes in eating habits and physical inactivity. This change in lifestyle has had a strong negative impact on the health of the society. Indeed, this lifestyle transformation is thought

to be responsible for the epidemic of noncommunicable diseases and their complications in the country. Currently, there is no surveillance system for monitoring behavioral and lifestyle trends in Kingdom of Saudi Arabia.^[13] Unfortunately, a few studies on the prevalence of physical inactivity revealed that sedentary lifestyle is increasing in the Saudi population despite the awareness and efforts of different stakeholders.^[14]

Therefore, this study was planned to determine the overall prevalence of risky behaviors among Majmaah University students; to determine the prevalence of smoking, drifting, fast driving and physical inactivity among students; and to determine the associations between the risky behaviors and demographic characteristics.

MATERIALS AND METHODS

A cross-sectional study conducted in three different colleges of Majmaah University: College of Medicine, College of Applied Medical Science, and College of Business Administration from February to March 2015 using the stratified random sampling technique. Stratification was based on classes and the stratifying variable was year of study. The sampling frame of the students was available for each strata (year), and a random sample of students, proportional to size, was selected from each strata. A total of 340 male students were interviewed during this period using the direct investigation method. The students who performed at least 150 min of moderate-intensity physical activity such as walking, cycling, or sports, three or more times a week were defined as physically active and those who did physical activity twice or less in a week were defined as physically inactive. Fast driving was defined as exceeding the speed limit of a particular area. Drifting was defined as lateral slip of a car by over-steering. Smoking was defined as the habitual inhalation of tobacco smoke. The sample size was calculated using the level of precision formula. The target population was undergraduate male students between the ages of 18 and 30 years studying at university. A prevalidated questionnaire in English developed by Youth Risk Behaviour Surveillance program^[2] was translated into Arabic and used for the assessment of risky behaviors. The reliability of the questionnaire was checked through Cronbach alpha using split-half method (0.72). The first part of the questionnaire contained information on demographic data and the other part focused on risky behavior data. The data were entered and analyzed using SPSS 22.0 (Statistical package for social sciences ver 23, Chicago, IL: SPSS Inc., 2016). Mean and standard deviation were calculated for quantitative variables. Frequencies and percentages were given for qualitative variables. Pearson Chi-square and Fisher's exact tests were applied to test for statistical significance; $p < 0.05$ was considered statistically significant.

The study was approved by the Ethical Review Committee. Verbal consent for participation was taken from the students who were also briefed about the benefits of the study to them and the community.

RESULTS

The data were collected from 340 male undergraduate students studying in three colleges of Majmaah University. More than 50% of the students were aged between 18 and 20 years [Table 1]. The overall prevalence of risky behaviors in students was 47.35% in one or more of the domains such as smoking, drifting, fast driving, and physical inactivity. Overall, 28% students were smokers, 25.2% were involved in drifting, 60.9% were “over-speeders,” and 66.4% were physically inactive. Each domain of risky behavior was analyzed separately [Figure 1].

“Smoking” was significantly associated with age-group ($p < 0.05$), showing that a majority of the smokers belonged to the age group of 21–30 years. Smoking was highly prevalent among students of the applied medical sciences, 33.6%, followed by those studying in the Business Administration College, 27.5%, and College of Medicine, 11.1%. However, “College” and “Financial status” were not significantly associated with smoking status ($p > 0.05$) [Table 2].

The survey revealed that “Drifting,” was most common in the group of students aged 18–20 years, 28.4%, however, this association was not significant ($p = 0.176$). A significant association was observed between college type and drifting ($p = 0.006$), showing that the majority of the drifters belonged to the College of Applied Medical Sciences, 42.9%, followed by the Business Administration College, 38.1%, and the smallest number of drifters were from College of Medicine 19%. Again, no statistically significant association was found between drifting and financial situation ($p = 0.135$) [Table 2].

A significant association was observed between age and exceeding speed limits ($p = 0.039$), showing that a majority of “over speeders” (66.2%) belonged to the age group of 18–20 years. Similarly, a significant association was observed between college type and the inclination to exceed the speed limit ($p = 0.007$), showing that a majority of “over speeders” (53.2%) belonged to the Business Administration College. However, there was no significant association between fast driving and financial status ($p = 0.244$) [Table 2].

“Physical inactivity” was most commonly reported by those aged between 18 and 20 (69.1%), followed by 63% by students aged between 21 and 30 years; this was statistically not significant ($p = 0.235$). While 77.7% of the students in the Medical College were physically inactive, 52.6% of the students in the Applied Medical Sciences College and 67% students in the Business Administration College were physically inactive. Again, this association was not statistically significant ($P = 0.274$) [Table 2].

Logistic regression analysis was performed on all risky behaviors separately, with unadjusted and adjusted odds ratios shown in each table respectively. The adjustment was done on the basis of age, monthly income and college. The

Table 1: Sociodemographic characteristics of Majmaah university students (n=340)

	N (%)
Age groups (years)	
18-20	172 (50.6)
21-30	168 (49.4)
College	
Applied Medical Sciences	113 (33.2)
Business Administration	200 (58.9)
College of Medicine	27 (07.9)
Drifting	
Yes	42 (12.4)
No	254 (74.7)
Sometimes	44 (12.9)
Fast driving	
Yes	207 (60.9)
No	133 (39.1)
Physical activity (times/week)	
1-2	225 (66.2)
3-4	108 (31.8)
>4	7 (2.1)
Smoking	
Yes	96 (28.2)
No	244 (71.8)
Income per month (SAR)	
<5000	241 (70.9)
5000-10,000	67 (19.7)
>10,000	32 (9.40)

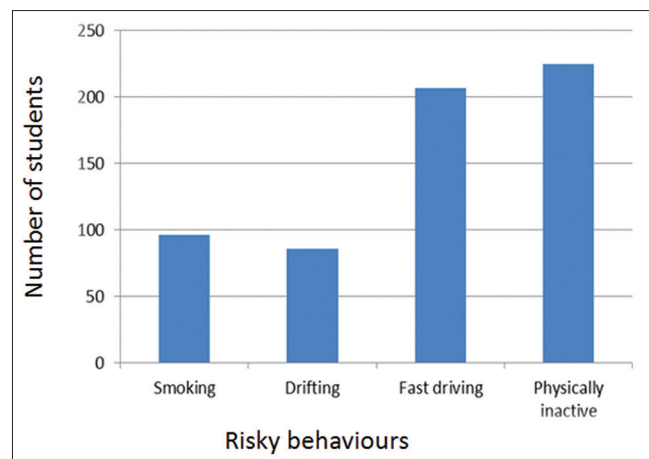


Figure 1: Distribution of risky behaviors among Majmaah university students

Table 2: Associations between risky behaviors of Majmaah university students and their sociodemographic characteristics

	Smoking		Drifting		Fast driving		Physical activity/week	
	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)	1-2 times N (%)	>=3 times N (%)
Age groups								
18-20 years	34 (35.4)	138 (56.6)	21 (57.7)	123 (48.4)	114 (55.1)	58 (43.6)	119 (52.9)	53 (46.1)
21-30 years	62 (64.6)	106 (43.4)	32 (43.2)	131 (51.6)	93 (44.9)	75 (56.4)	106 (47.1)	62 (53.9)
p-value	<0.001		0.176		0.039		0.235	
College								
Medicine	3 (3.1)	24 (9.8)	8 (19)	15 (5.9)	12 (9.8)	15 (11.3)	21 (9.3)	6 (5.2)
Applied Medical Sciences	38 (39.6)	75 (30.7)	18 (42.9)	85 (33.5)	81 (39.1)	32 (24.1)	70 (31.1)	43 (37.4)
Business Administration	55 (57.3)	145 (59.4)	16 (38.1)	154 (60.6)	114 (55.1)	86 (64.7)	134 (59.6)	66 (57.4)
p-value	0.061		0.006		0.007		0.274	
Income per month (SAR)								
<5000	74 (77.1)	167 (68.4)	29 (69)	179 (70.5)	153 (73.9)	88 (66.2)	166 (73.8)	75 (65.2)
5000-10,000	12 (12.5)	55 (22.5)	5 (11.9)	55 (21.70)	35 (16.9)	32 (24.1)	43 (19.1)	24 (20.9)
>10,000	10 (10.4)	22 (9.0)	8 (19)	20 (7.9)	19 (9.2)	13 (9.8)	16 (7.1)	16 (13.9)
p-value	0.061		0.135		0.244		0.098	

contribution of smoking was observed in addition to fast driving, drifting and physical activity. Those with an income of <5000 SAR per month were 1.44 times more likely to drive fast (OR=1.44; 95% CI: 1.031 - 2.012) [Table 3]. Age, college and income were not significantly associated with drifting. However, smokers were 2.739 times more likely to be drifters ($p < 0.001$) [Table 4]. Those with a monthly income of <10,000 SAR per month were 1.4 times more physically inactive (Adjusted OR=1.402; 95% CI: 1.001 - 1.963) [Table 5]. Students aged between 18 and 20 years were less likely to be smokers (OR = 0.412; CI: 0.25 - 0.68) [Table 6].

DISCUSSION

Risky behaviors can significantly affect the lives of the youth and those around them. As such, it is essential that parents, educators, and other concerned adults become aware of the prevalence of these behaviors and plan programs that can reduce or prevent them.^[15] In our study, the overall prevalence of risky behaviors of university students in one or more of the domains such as smoking, drifting, fast driving, and physical inactivity was 47.35%. This figure covers about half the number of students in the university and indicates a serious problem in the literate community. These university students are considered the future of the country and they are supposed to appreciate the risks in their behavior. One study suggests that medical students in Kingdom of Saudi Arabia are neither well informed about tobacco dependence nor trained in how to treat it.^[16] A comparison of our results of smoking among university students with the literature reviewed, reveals consistency between the two. In our study, 28% ($n = 96$) of the students were smokers and the prevalence of current smoking in Kingdom of Saudi Arabia ranges from 2.4% to 37% among university students.^[5,17,18]

Smoking has broad-spectrum effects on the human body, environment, social life, and even academic achievement. Education has been regarded as a vehicle for economic, social, and political development. There has also been a growing commitment to education by government, individual communities, and different autonomous bodies. Data show a negative association between risky behaviors such as tobacco use and academic achievement. This means that students with higher grades are less likely to indulge in tobacco use than their classmates with lower grades; students who do not indulge in tobacco use get higher grades than their classmates who smoke tobacco.^[19,20] Our study also reveals that a majority of students take unnecessary risks when driving, and around 25.2% of students “drifted,” and 60.9% of students reported “driving fast”. The majority of “over speeders” belonged to the age group of 18–20 years: (66.2%). The rates of car crashes increase sharply at the age at which teenagers begin to drive and remain high relative to adult levels until drivers are well into their twenties.^[21] These results in our study represent a danger not only to the students but also to other drivers and users of the roads. This high percentage of risky behaviors in driving is approximately equal to that found in the Alabama and many other studies in which 60% of participants reported routinely exceeding the speed limit.^[9,22] Although accurate local studies and statistics regarding risky driving behaviors are not available, Kingdom of Saudi Arabia is considered one of the countries with the highest death rates as a result of road traffic accidents. This behavior puts students at a higher level of the risk of road traffic accidents and the consequent morbidity and mortality. Efforts should therefore be made by various national and international institutions to curtail or reduce the high prevalence of this risky behavior. In addition to community campaigns, the

Table 3: Logistic regression analysis for factors associated with fast driving

	Unadjusted OR	p-value	Adjusted OR	p-value	95% CI for adjusted OR	
					Lower	Upper
Age	0.559	0.988	0.987	0.953	0.630	1.544
College	1.348	0.213	1.317	0.122	0.929	1.867
Monthly income	1.450	0.001*	1.440	0.032*	1.031	2.012
Smoking	0.828	0.547	0.810	0.398	0.497	1.320

*Significant at 5% level of significance. OR: Odds ratio; CI: Confidence interval

Table 4: Logistic regression analysis for factors associated with drifting

	Unadjusted OR	p-value	Adjusted OR	p-value	95% CI for adjusted OR	
					Lower	Upper
Age	1.410	0.171	1.641	0.067	0.965	2.789
College	1.428	0.058	1.421	0.074	0.967	2.089
Monthly income	0.903	0.584	0.830	0.335	0.569	1.212
Smoking	2.328	0.021*	2.739	<0.001*	1.589	4.721

*Significant at 5% level of significance. OR: Odds ratio; CI: Confidence interval

Table 5: Logistic regression analysis for factors associated with physical activity

	Unadjusted OR	p-value	Adjusted OR	p-value	95% CI for adjusted OR	
					Lower	Upper
Age	1.313	0.236	1.279	0.305	0.800	2.045
College	1.049	0.790	0.991	0.962	0.691	1.423
Monthly income	1.412	0.041*	1.402	0.050	1.001	1.963
Smoking	0.966	0.893	0.992	0.975	0.594	1.655

*Significant at 5% level of significance. OR: Odds ratio; CI: Confidence interval

Table 6: Logistic regression analysis for factors associated with smoking

	Unadjusted OR	p-value	Adjusted OR	p-value	95% CI for adjusted OR	
					Lower	Upper
Age	0.397	0.001*	0.412	0.001*	0.250	0.680
College	0.892	0.553	0.998	0.941	0.676	1.475
Monthly income	1.194	0.358	1.256	0.246	0.854	1.764

*Significant at 5% level of significance. OR: Odds ratio; CI: Confidence interval

role of the family in raising awareness of the seriousness of dangerous driving and its consequences should be paramount. Parental influence on adolescent behavior is best considered within broad social and cultural contexts. Parental influence on adolescent behavior, in general, is substantial and is crucial with respect to teenage driving.^[23]

Finally, regarding physical inactivity, 66.4% of the students were physically inactive. The findings of our study are consistent with that reported in the local literature.^[14,24,25] This represents a risk factor for many health-related problems including diabetes mellitus and hypertension. This high percentage of students with a sedentary lifestyle may result in a future rise in the prevalence of obesity, thus increasing the risk of metabolic diseases and other health-related issues with a consequent increase in the

burden of the cost of care to the health care system.^[26] There is a strong belief that besides its positive physical and mental health impact, regular physical activity can enhance brain function and cognition, thereby positively influencing academic performance.^[27]

The population of Kingdom of Saudi Arabia is around 32 million, around 30% of which are adolescents and young adults.^[28] Most of the research available on noncommunicable diseases and road traffic injuries is on adults because the burden of these diseases is increasing consistently. The majority of these noncommunicable diseases come from the risky behavior of adolescents or the youth.^[8] The only means of reducing the burden of these diseases in adulthood is early intervention of health and well-being in adolescents and young adults.

Limitations of the study

This study has number of limitations. First, the students' lack of interest in participating in the study can be explained by their lack of knowledge of the importance of participating in such studies that aim to serve the community. Second, although the reliability coefficient was high, interpretation of the results was limited since self-reported responses are prone to bias. Finally, the scarcity of similar local epidemiological studies made the search for in-depth literature difficult.

Recommendations

- Educational materials about the negative effects of the risky behaviors should be included in the curriculum of universities to improve students' perception of risky behaviors and their consequences
- There should be awareness campaigns on risky behaviors for students and the general public
- Media and social network applications should be used actively to enhance the knowledge of the general public and students about risky behaviors
- Further local studies on a larger scale focusing on risky behaviors should be conducted in cosmopolitan cities like Riyadh, Jeddah, and Dammam.

CONCLUSION

The prevalence of risky behavior of university students was high. Physical inactivity and fast driving were the most common identified risky behaviors. Drifting, fast driving, and physical inactivity prevalence was significantly higher in 18–20 age group. Increasing the awareness of the youth may significantly decrease related morbidities, complications, and even mortalities. Controlling these risky behaviors early in life may help decrease the burden of noncommunicable diseases in adult life and thus decrease the pressure on society and the health care system.

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Conflicts of interest

There are no conflicts of interest.

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