

Prevalence, attitude, and factors associated with risky health habits and behavior of secondary school students, Almajardah, Saudi Arabia

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Abstract

Background: Adolescents make up to 20% of the world's population. However, they have traditionally been neglected as a distinct target group and subsumed under the proportion of family, women, and child's welfare and health.

Objective: To study the prevalence of and attitude toward selected health-risk behaviors (smoking, alcoholism, substance abuse, and violence) and their possible associated risk factors among secondary school students, Almajardah, KSA.

Materials and Methods: A cross-sectional study among male Saudi adolescents enrolled in secondary schools at Almajardah city during the scholastic years 1434–1435. Data were collected using an Arabic-validated self-administered questionnaire. The questionnaire was based on State and Local Youth Risk Behavior survey and Global School-based Student Health survey.

Result: The study included 442 male secondary school students. Their age ranged between 16 and 22 years with a mean of 17.8 and standard deviation of 1.1 years. More than one-third of the studied students (36.9%) reported at least one history of quarrel (violence) during the last year, and 8.4% of them required medical and/or hospital care as a result of quarreling. Thirty-seven students (8.4%) carried an arm at school during the last month. Smoking was reported by 22.6% of the studied students. Almost one-sixth (16.5%) of the students used to drink alcohol, and 4.1% of them reported having done it all the days of the last month. About one-sixth (16.7%) of the students were taking addictive substances. The substances used were mostly hashish and sedatives (59.5% and 40.5%, respectively). Student's academic achievement was negatively predicted by all of the studied risky practices. Students' age and their paternal education and/or job were among the important predictors for practicing risky behaviors.

Conclusion: Secondary school male students in Almajardah, KSA, have a number of risky behaviors. The most important one is violence. Although alcohol drinking, smoking, and use of addictive substances are less, they constitute a major concern. Almost 38% of the studied students did not practice any risky behavior. Safety practices are lacking, and the rates of exposure to accidents or injuries are high.

KEY WORDS: Risky behaviors, adolescents, prevalence, attitude, Saudi Arabia

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Introduction

Adolescence is a transitional stage of physical and psychological human development generally occurring during the period from puberty to legal adulthood. It is a time of rapid change. In a span of just a few years, teens undergo a transition dramatically in almost all realms of their lives. Physically, they grow in leaps and bounds and start to appear like mature adults. Cognitively, their thinking becomes more

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sophisticated. Teenagers develop the capacity to form deep intimate social relationships with others.^[1] At the same time, there is a change in the roles that they occupy in society. Partly, because teenagers start to look more mature, those surrounding them sometimes begin to deal with them as adults, giving them mature responsibilities and adult expectations.

While significant development occurs during the teen years, full maturity is by no means complete. Studies show that neurological development is not complete until the early twenties. Decision-making and future-oriented thinking are not fully developed. Thus, while teens are entering into adult roles and while they may physically appear to be mature, teens might not be fully equipped to deal with these new tasks and challenges.^[1,2]

For these various reasons, the teen years can be an especially stressful and fragile time, making adolescents more susceptible to engaging in risky behaviors and be unable to weigh their risks and benefits.^[2]

Smoking, physical inactivity, poor nutrition, and immoderate alcohol use are the major behavioral contributors to premature morbidity and mortality in the developed world.^[3,4] Traditionally, most studies have focused on the significance of a single health-risk behavior for morbidity or mortality. However, research has shown that there is a considerable clustering of health-risk behaviors.^[5-8] For example, smokers seem to be at an elevated risk for other risk behaviors, making smoking an indicator of an overall unhealthy lifestyle.^[5,7,9,10] The prevalence of clustered risk behaviors is especially alarming among adolescents and young adults.^[11-13]

Most of what is known about early adolescent health-risk behavior is based on studies of middle- or high-school students. The Youth Risk Behavior Surveillance (YRBS) monitors five categories of health-risk behaviors: tobacco use, alcohol and other drug use, dietary behaviors, physical activity, and behaviors contributing to intentional and unintentional injuries; however, the survey has been limited largely to youth in high school.^[14] Moreover, health-risk behaviors tend to cluster together (e.g., substance use, school dropout, and violence) in adolescents.^[15-17] Health-risk behaviors frequently lead directly to negative health outcomes such as motor vehicle accidents and suicide, which comprise the major morbidities and mortalities in adolescence. Interventions that focus on reducing vulnerability, increasing protection, or altering their interaction may contribute to more favorable health outcomes for youth.

Health-risk behavior takes place within the sociocultural context of families in their neighborhoods. Families, schools, and peers have been shown to strongly influence the initiation and progression of health-risk activity among young adolescents.^[18,19] Resnick et al.^[20] found that school factors could potentiate or ameliorate health-risk behaviors.^[20]

Both theory and research suggest that violent behaviors are not isolated events in the life of adolescents. Jessor's Problem Behavior Theory describes health-risk behaviors, such as drinking, marijuana use, delinquency, and sexual intercourse, as a syndrome among adolescents.^[21] School

failure is a strong predictor of teenage and adult violence and of male delinquency. Low academic achievement is associated with higher levels of violent behaviors. Evidence of covariation between health-promoting behaviors and violence-related behaviors among youth is less strong.

Materials and Methods

A cross-sectional study was carried out among male Saudi adolescents enrolled in secondary schools at Almajdah city during the scholastic years 1434–1435. Almajdah city is situated in Asir Province. It is located 150 km north to Abha city with a population of more than 100,000, according to 2010 census data.^[22]

A total number of 1,334 adolescent male students are registered (grades 1–3) in eight secondary schools in Almajdah city during the study period. Three male secondary schools were selected by simple random method. In each randomly selected school, levels 2 and 3 were selected. Therefore, it gave a total of approximately 15 classes. Each class was considered as a cluster. All students of the levels 2 and 3 were selected. The total sample size was approximately 500 students.

Data were collected using a self-administered questionnaire. The questionnaire was created based on the following standardized international questionnaires available for use without specific permission on the Internet. State and local YRBS^[23] and Global School-based Student Health Survey (GSHS).^[24] They were mainly used to develop the health-risk behaviors part of the study questionnaire. The questionnaire was translated into Arabia and validated in a study conducted in Taif, Saudi Arabia.^[25]

The studied risky behaviors included alcohol and addictive substance use, smoking, violence, and safety and injury (intentional and unintentional). Data were collected on school performance, scholastic achievement, and background data such as age, educational grade, marital status, parents' education, job, and income.

Permissions from the education director in Almajdah city and school headmasters were obtained. A verbal consent was obtained from all students.

Data Entry and Statistical Analysis

Data entry and analysis were done using statistical software package (SPSS software, version 20.0). Revision of data entry was done to decrease data entry errors. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and range, mean, and standard deviations (SDs) for quantitative variables. Analytic statistics were done using χ^2 -test to test for the association and/or the difference between two categorical variables. Fisher exact test was utilized whenever appropriate (i.e., small frequencies). A p equal or less than 0.05 was considered statistically significant.

Each one of the five studied risky behaviors (violence, smoking, alcohol intake, and substance abuse) was treated

as a dependent variable in multivariate logistic regression analysis. Significant sociodemographic variables in univariate analysis were treated as independent categorical variables for each risky behavior. A separate model was computed for each risky behavior. Multiple associations were evaluated in multiple logistic regression model based on the backward stepwise selection, where significant variables from the univariate analysis were included. This procedure allowed the estimation of the strength of the association between each independent variable, while taking into account the potential confounding effects of the other independent variables. The covariates were removed from the model if the likelihood ratio statistic based on the maximum likelihood estimates had a probability of >0.10 . Each category of the predictor variables was contrasted with the initial category (reference category). The adjusted measure of association between predictor factors and risky behavior was expressed as the odds ratio (OR) with 95% confidence interval (95% CI). Adjusted or crude ORs with 95% CI that did not include 1.0 were considered significant.

Result

The study included 442 male secondary school students. Their age ranged between 16 and 22 years, with a mean of 17.8 and SD of 1.1 years. Table 1 illustrates the personal and school characteristics of the students in the study sample. It indicates that 39.8% and 41.6% of them were aged 17 years or younger and 18 years, respectively. Only 14 students (3.2%) were married. More than half of them (56.8%) were in the second grade, while the remaining 43.2% of them were in the third grade, and the highest percentage (31.9%) showed a very good level of academic achievement. Concerning parents' characteristics, the highest percentage of fathers had completed primary education (30.5%) or was illiterate (27.6%). Regarding their job, 19.9% were manual workers, 17.9% were retired, and 17% were civil employees. Similarly, the highest percentage of mothers was illiterate (44.6%) or had completed primary education (34.4%), but the majority were housewives (88.7%). Fifty students (11.1%) did

Table 1: Personal and school characteristics of students in the study sample ($n = 442$)

Personal and school characteristics	Variables	Frequency	Percentage
Age (years)	≤17	176	39.8
	18	184	41.6
	>18	82	18.6
School level	Second	251	56.8
	Third	191	43.2
Academic achievement	Weak/fair	51	11.5
	Good	126	28.5
	Very good	141	31.9
	Excellent	124	28.1
Marital status	Single	428	96.8
	Married	14	3.2
Father job	Unemployed	71	16.1
	Civil employee	75	17
	Military	66	14.8
	Business/trading	63	14.3
	Manual worker	88	19.9
	Retired	79	17.9
Father education	Illiterate	122	27.6
	Primary	135	30.5
	Intermediate	88	19.9
	Secondary	57	12.9
	University+	40	9
Mother job	Housewife	392	88.7
	Working	50	11.3
Mother education	Illiterate	197	44.6
	Primary	152	34.4
	Intermediate	36	8.1
	Secondary	33	7.5
	University+	24	5.4
Income (SR/month)	≤5,000	228	51.6
	5,000–10,000	88	19.9
	>10,000	76	17.2
	Unknown	50	11.3

not know their fathers' income. Among those who knew their fathers' income, more than half of them (51.6%) reported that it was SR 5,000/month or less.

More than one-third of participants (38.7%) reported a history of riding a motorcycle. Most of them (74.3%) never wore a helmet, whereas only 8.3% of them reported that they always used helmet while riding the motor cycle.

The majority of the participants (92.1%) reported driving a car. Of them, 78.1% did not use seat belt during driving a car. Slightly less than half of them (46.9%) reported a history of car accidents while driving, and 9.8% of them reported more than four accidents. Meanwhile, 46.4% of the participants reported car accidents as passengers, and 2.3% of them reported more than four accidents.

More than half of the participants (53.2%) reported a history of hospitalization owing to dangerous injury of any cause. About 10% percent of them reported more than four times of hospitalization. Almost one-third of the participants (32.7%) were mimicking risky action movies.

More than one-third of the participants (38%) carried an arm during the last month at least once, and 15.3% of them did this risky behavior more than four times. Moreover, 37 students (8.4%) carried an arm at school during the last month.

About one-fifth (19.7%) of the students were absent from school for at least 1 day during the last month owing to safety concerns, and 7.9% of them were exposed to intended violence. More than one-third (36.9%) of the studied students reported at least one history of quarrel (violence) during the last year, and 8.4% of them required medical and/or hospital care as a result of quarreling.

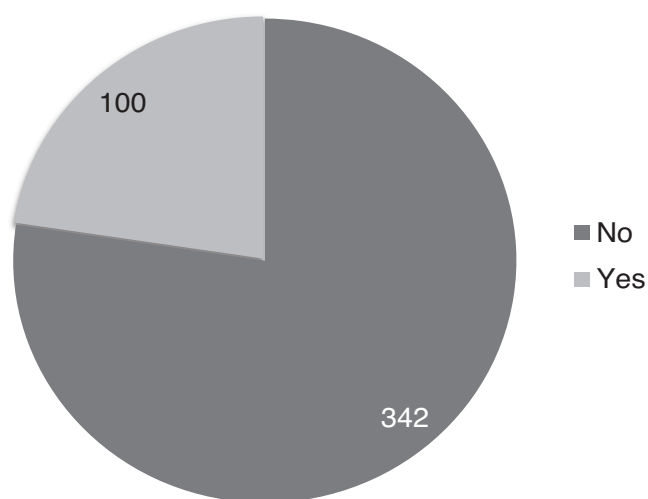


Figure 1: History of smoking among male secondary school students in Almajadah city.

Figure 1 illustrates that 22.6% of the studied students reported a history of smoking.

With regard to students' attitude toward alcohol intake, Table 2 shows that most of the students (73.5%) strongly disagreed with alcohol intake, and 18 students (4.1%) have decided to drink alcohol in the future. In addition, Table 3 shows that almost one-sixth (16.5%) of the students used to drink alcohol and 4.1% of them reported having done it all days of the last month. The number of drinks per day was mostly one (67.1%), and the main sources of alcohol were friends (35.6%) and purchasing by self (32.9%). About one-eighth of the students reported having being drunk 10 times or more during their lifetime (13.4%), and 12.2% of them reported quarrels or absenteeism from school owing to drinking.

Table 2: Practice of and attitude toward alcohol drinking among students in the study sample (n = 442)

Subject	Frequency	Percentage
Attitude toward alcohol		
Strongly disagree	325	73.5
Disagree	14	3.2
Do not care	94	21.3
Agree	2	0.5
Strongly agree	7	1.6
Would you decide to drink alcohol in the future	18	4.1
History of drinking alcohol	73	16.5
Number of times last month		
0	50	68.5
1-3	17	23.3
4-6	3	4.1
7-21	0	0
All days	3	4.1
Number of drinks per day		
1	49	67.1
2	12	16.4
3	7	9.6
4	3	4.1
5+	2	2.7
Source of alcoholic beverages		
Purchased by self	24	32.9
Purchased by another person	7	9.6
From a friend	26	35.6
Other	16	21.9
Lifetime numbers of being drunk		
0	61	83.6
1-9	2	2.7
10+	4	13.7
Number of quarrels/school absence owing to alcohol		
0	64	87.6
1-2	2	2.7
3-9	5	6.8
10+	2	2.7

Regarding students' attitude toward addictive substances, Table 3 shows that most of the students (76.7%) disagreed with drug addiction and 28 students (6.3%) decided to abuse addictive substances in the future. About one-sixth (16.7%) were taking addictive substances. The substances used were mostly hashish and sedatives (59.5% and 40.5%, respectively); meanwhile, 13.5% of them were taking heroin. The main route was smoking (67.6%). Almost two-thirds (66.2%) of them reported intake of such substances once, whereas 12.2% of the students reported intake of such substances more than three times.

Overall, Figure 2 illustrates the practice of various risky behaviors in the study sample. The most commonly reported was violence (36.9%), followed by smoking (22.6%), whereas drugs and alcohol were the lowest, 16.7% and 16.5%, respectively. Regarding the number of risky behaviors practiced by male students in the study sample, about one-third of them (31.4%) reported practicing one of the studied risky behaviors. Twenty students (4.5%) reported practicing all studied risky behaviors. Meanwhile, 38.2% did not practice any risky behavior, and consequently, the remaining 61.8% practiced at least one of the studied risky behaviors.

The relation between students' practices of risky behaviors and their academic achievement is presented in Table 4. Almost two-third of students who practiced violence or smoking (60.8% and 62.7%, respectively), more than half of students who practiced drug abuse (52.9%), and 43.1% of those who practiced alcohol intake showed a weak or poor academic performance. The associations between academic performance and practice of such risky behaviors were statistically significant, $p < 0.001$.

In multivariate logistic regression analysis, students aged 18 years were at 49% lower risk for violence compared with those aged 17 years or younger (OR = 0.51, 95% CI: 0.29–0.81). Those of the third level were at 41% lower risk for violence compared with those of the second level (OR = 0.59, 95% CI: 0.28–0.88). Compared with students whose fathers were illiterate, students whose fathers were educated higher had a higher risk for violence, being fivefold among those whose fathers were secondary school educated (OR = 5.50, 95% CI: 2.55–9.29). Students whose mothers were working showed almost threefold risk for violence compared

Table 3: Practice of and attitude toward addictive substances among students in the study sample (n = 442)

Subject	Frequency	Percentage
Attitude toward addiction		
Strongly disagree	339	76.7
Disagree	22	5
Do not care	70	15.8
Agree	8	1.8
Strongly agree	3	0.7
Would you decide to drink alcohol in the future	28	6.3
History of intake of addictive substances	74	16.7
Types		
Heroin	10	13.5
Hashish	44	59.5
Sedatives	30	40.5
Colla/paint (inhalants)//	5	6.8
Amphetamine	2	2.7
Route		
Ingestion	21	28.4
Sniffing	15	20.3
Injection	5	6.8
Smoking	50	67.6
Number of times		
1	49	66.2
2–3	16	21.6
>3	9	12.2

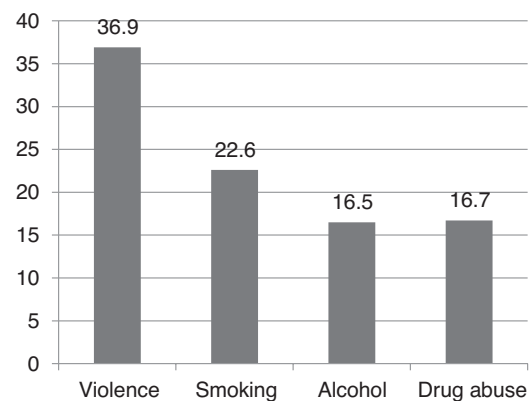


Figure 2: Total practice of risky behaviors among male secondary school students in Almajardah city.

Table 4: Association between students' practices of risky behaviors and their academic achievement

Risky behavior	Scholastic achievement				p*
	Poor/fair, N = 51, N (%)	Good, N = 126, N (%)	Very good, N = 141, N (%)	Excellent, N = 124, N (%)	
Violence	31 (60.8)	33 (26.2)	50 (35.3)	49 (39.5)	<0.001
Smoking	32 (62.7)	37 (29.4)	17 (12.1)	14 (11.3)	<0.001
Alcohol intake	22 (43.1)	14 (11.1)	26 (18.4)	11 (8.9)	<0.001
Drug abuse	27 (52.9)	21 (16.7)	13 (9.2)	13 (10.5)	<0.001

* χ^2 -test.

with those whose mothers were housewives (OR = 3.46, 95% CI: 1.99–6.25) [Table 5].

In multivariate logistic regression analysis, students aged 18 years were at almost sixfold risk for substance abuse compared with those aged 17 years or less (OR = 6.30, 95% CI: 3.09–11.29). Married students were at almost fourfold risk for substance abuse compared with single students (OR = 4.22, 95% CI: 2.09–12.28). Compared with students whose fathers were illiterate, students whose fathers were higher educated had lower risk for substance abuse. Students whose fathers were university educated revealed 81% lower risk for substance abuse (OR = 0.19, 95% CI: 0.10–0.66). Considering students whose fathers were unemployed as a reference category, students whose fathers were civil employees showed a lower significant risk for substance abuse (OR = 0.26, 95% CI: 0.14–0.92) while those whose fathers were retired showed almost fivefold risk for substance abuse (OR = 4.69, 95% CI: 2.08–9.55) [Table 6].

In another multivariate logistic regression analysis, compared with students whose fathers were illiterate, students whose fathers were educated higher presented a lower risk for smoking. Students whose fathers were educated up to university were at 81% lower risk for smoking (OR = 0.19, 95% CI: 0.10–0.66). Comparing students whose fathers were unemployed as a reference category, students whose fathers were civil employees were at

Table 5: Predictors of violence among male secondary school students in Almajardah city: multivariate logistic regression analysis

	Adjusted OR	95% Confidence interval	p
Age (years)			
≤17 (n = 176) ^a	1	—	—
18 (n = 184)	0.51	0.29–0.81	0.008
>18 (n = 82)	0.71	0.40–1.16	0.262
School level			
Second (n = 251) ^a	1	—	—
Third (n = 191)	0.59	0.28–0.88	0.024
Father education			
Illiterate (n = 122) ^a	1	—	—
Primary (n = 135)	2.83	1.77–5.23	<0.001
Intermediate (n = 88)	1.88	1.03–8.09	0.049
Secondary (n = 57)	5.5	2.55–9.29	<0.001
University+ (n = 40)	1.61	0.78–5.08	0.26
Mother job			
Housewife (n = 392)	1	—	—
Working (n = 50)	3.46	1.99–6.25	<0.001

Term of mother's education was removed from the final logistic regression model.

^aReference category.

Table 6: Predictors of substance abuse among male secondary school students in Almajardah city: multivariate logistic regression analysis

	Adjusted OR	95% Confidence interval	p
Age (years)			
≤17 (n = 176) ^a	1	—	—
18 (n = 184)	1.32	0.69–2.81	0.459
>18 (n = 82)	6.3	3.09.40//–11.29	<0.001
Marital status			
Single (n = 428)	1	—	—
Married (n = 14)	4.22	2.09–12.28	0.003
Father education			
Illiterate (n = 122) ^a	1	—	—
Primary (n = 135)	0.34	0.19–0.72	0.003
Intermediate (n = 88)	0.14	0.06–0.22	<0.001
Secondary (n = 57)	0.08	0.02–0.19	<0.001
University+ (n = 40)	0.19	0.10–0.66	0.002
Father job			
Unemployed (n = 71)	1	—	—
Civil employee (n = 75)	0.26	0.14–0.92	0.028
Military (n = 66)	2.58	0.89–12.08	0.127
Business/trading (n = 63)	2.26	0.93–9.09	0.148
Manual worker (n = 88)	2.98	0.75–4.22	0.355
Retired (n = 79)	4.69	2.08–9.55	0.005

Term of mother's education was removed from the final logistic regression model.

^aReference category.

a significantly lower risk for smoking (OR = 0.01, 95% CI = 0.003–0.11), while those whose fathers working in business or trading and those whose fathers were retired were at higher significant risk for smoking (OR = 2.82, 95% CI: 1.24–8.75 and OR = 2.51, 95% CI: 1.68–10.02, respectively) [Table 7].

Finally, multivariate logistic regression analysis revealed that compared with single students, married students showed almost seven-fold risk for alcohol intake (OR = 7.45, 95% CI = 2.50–22.17). Students whose fathers were educated up to university were at 97% lower risk for alcohol intake compared with those whose fathers were illiterate (OR = 0.03, 95% CI: 0.007–0.11). Students whose mothers were educated up to university were at a significantly higher risk for alcohol intake compared with those whose mothers were illiterate (OR = 21.70, 95% CI: 3.79–42.29) [Table 8].

Table 7: Predictors of smoking among male secondary school students in Almajadah city: multivariate logistic regression analysis

	Adjusted OR	95% Confidence interval	p
Father education			
Illiterate (n = 122) ^a	1	—	—
Primary (n = 135)	0.34	0.19–0.72	0.003
Intermediate (n = 88)	0.14	0.06–0.22	<0.001
Secondary (n = 57)	0.08	0.02–0.19	<0.001
University+ (n = 40)	0.19	0.10–0.66	0.002
Father job			
Unemployed (n = 71)	1	—	—
Civil employee (n = 75)	0.01	0.003–0.11	<0.001
Military (n = 66)	0.61	0.81–9.28	0.327
Business/trading (n = 63)	2.82	1.24–8.75	0.012
Manual worker (n = 88)	0.79	0.73–5.16	0.558
Retired (n = 79)	2.51	1.68–10.02	0.023

Terms of age and marital status were removed from the final logistic regression model.

^aReference category.

Table 8: Predictors of violence among male secondary school students in Almajadah city: multivariate logistic regression analysis

	Adjusted OR	95% Confidence interval	p
Marital status			
Single (n = 428)	1	—	—
Married (n = 14)	7.45	2.50–22.17	<0.001
Father education			
Illiterate (n = 122) ^a	1	—	—
Primary (n = 135)	0.61	0.39–4.09	0.252
Intermediate (n = 88)	0.68	0.40–3.88	0.414
Secondary (n = 57)	0.07	0.02–0.21	0.001
University+ (n = 40)	0.03	0.007–0.11	<0.001
Mother education			
Illiterate (n = 197) ^a	1	—	—
Primary (n = 152)	1.4	0.68–5.02	0.399
Intermediate (n = 36)	1.83	0.91–7.22	0.313
Secondary (n = 33)	22.86	4.08–41.37	<0.001
University+ (n = 24)	21.7	3.79–42.29	0.001

Terms of mother's job, father's job, and school level were removed from the final logistic regression model.

^aReference category.

Discussion

Concern has been mounting about the increasing numbers of adolescents who engage in risky behaviors. There is an increasing recognition that adolescents have special health-related vulnerabilities. Among the major causes of morbidity and mortality in young people are road accidents and tobacco use. Furthermore, behavioral patterns acquired during this period tend to last throughout the adult life. Hence, adolescence is a time when the primary causes of mortality and morbidity are closely related to the behavioral choices of the individual. Consequently, establishing positive health behaviors during adolescence holds a great potential for reducing health problems in later life. In addition, adolescents are statistically overrepresented in almost every type of risk-taking behavior. Therefore, this study aimed to identify what adolescents perceive as a risky behavior and to explore the factors that they feel to influence their decisions to engage in or avoid risky behaviors.

In this study sample, more than one-third of the students used to ride a motorcycle, and majority of them were driving. They reported many risk behaviors related to violence such as having carried an arm during last month, having quarreled during the last year, and mimicking risky action movies.

Riding motorcycles per se is a risk, in addition. Rutter et al.^[26] found that youth was a more important factor than experience in predicting risky behavior among motorcyclists in the UK. In general, motorcyclists tend to travel faster than a matched group of car drivers.^[27] Moreover, safety is not a predominant value for motorcyclists' choices in traffic,^[28–30] and risk is conversely regarded as a positive value.^[26] The riders' own perception of their abilities within the system is the dominating factor in their driving behavior—motorcyclists rely entirely on themselves. Very often, motorcyclists, as a group, are viewed as having an irresponsible attitude to risk, because their transportation goal is the road itself.^[31] In addition, most of the students in our study reported that they never put a helmet while riding a motorcycle.

This study has also investigated the history of exposure to accidents and injuries among adolescent students. The results demonstrated that almost half were previously exposed to at least one car accident and were exposed to some type of dangerous injury or accident. These accidents led to hospitalization and absenteeism from school. In agreement with these findings, it has been reported that teens in the United States have 3–4 times the risk of being involved in a motor vehicle crash than people in their early twenties.^[32] Those aged 16–19 years show the highest motor vehicle fatality rates of all age groups. They are the drivers involved in 15% of fatal crashes even though their driving accounts for only 3% of all miles driven.^[33] The presence of two or more teenage passengers riding with a teenage driver is associated with a higher percentage of at-fault crashes.^[34] Explanations include a teen's

lack of driving experience, the increased risk-taking behavior in this age group, and poor seat belt usage.^[35]

According to this study, exposure to accidents was negatively associated with students' academic achievement. The number of risky behaviors and the number of harmful purposes of the use of media were the positive predictors of the number accidents. In agreement with these findings, it has been demonstrated that many adolescent morbidities, such as trauma related to motor vehicle crashes and interpersonal violence, result in part from risk-taking behaviors.^[36]

With regard to safety practices, this study results revealed that only a very small minority of the participants who were motorcycle riders reported wearing helmets most of the times, and only a few of the students were using seat belt. Similar to the findings of this study, studies show that resistance to helmet use is common among adolescence.^[37] Previous research has identified numerous factors related to the use of helmet among adolescents, including past helmet use behavior, role modeling, parental encouragement, attitudes, and having friends who use helmets.^[38] Furthermore, safety considerations, compulsory helmet wearing by law, and educational campaigns have been associated with the increased use of helmets.^[39]

As we know, the most common causes of morbidity among adolescents are behavioral,^[40] and the most risky behavior patterns start in adolescence. Among these risky behaviors is smoking: it has been found that over three-fourth of smokers begin to smoke as teenagers.^[41]

Cigarette smoking is a bad habit. Its prevalence rate in this study among Saudi male secondary school students was 22.6%. This figure is comparable with what has been reported in other Saudi Arabian studies (19%–29%),^[42–44] in the United Arab Emirates (19%),^[45] and in Yemen (19.6%).^[46] It is much higher than what has been reported in Oman (4.5%).^[47]

Adolescents' use or misuse of alcohol has been recognized as a major public health problem and has become an important social concern worldwide.^[48] Although about one-sixth of the students in this study reported to be used to drinking alcohol, this percentage is considered very high in an Islamic conservative community, where alcohol is strictly forbidden. Moreover, a considerable percentage of them reported having consumed it all the days of the last month preceding the survey, having been drunk 10 times or more during their lifetime, and having quarreled or absented from school because of drinking. In an attempt to explain a similar finding of observed growth of alcohol consumption by adolescents, Okulicz-Kozaryn and Borucka^[49] related it to a change in social attitude toward alcohol use by minors. Such attitudes become more and more permissive. In addition, the American and western-based literature provides support for the concept that substance abuse among adolescents occurs in a series of stages, beginning with lower alcohol content beverages and tobacco (gateway drugs) before moving on to higher content beverages or illegal drugs, such as marijuana, cocaine, and heroin.^[32] According to the stage theory, adolescents progress from nonuse to the use of beer and wine

(stage 1), to hard liquor and/or cigarettes (stage 2), marijuana (stage 3), and other illicit drugs (stage 4).

According to the findings of this study, the number of drinks per day was mostly one, but it reached more than five in some cases. In addition, the frequency of drinking was very variable. The main source of alcohol was purchasing by self or from a friend, which highlights the role of peers in risk behaviors. The findings are in congruence with Brook et al.,^[50] who mentioned that studies on adolescent alcohol use have found variability in drinking patterns. For most people, these patterns change between adolescence and young adulthood and then stabilize.

The rate of lifetime use of alcohol in this study was 17.4%. The rate is higher than that reported in Iran, where Poorasl et al.^[51] reported a lifetime alcohol use among 12.7% of the participants. However, the rate in this study is lower than that reported by Ayatolhi et al.,^[52] also in Iran, where 32.0% of adolescents reported having drunk alcohol at least once during their lifetime.

Another related risk behavior investigated in this study was the intake of addictive substances. It was found that more than one-sixth of the sample were taking addictive substances, mostly hashish and, to a less extent, heroin. In congruence with these findings, Arevalo et al.^[53] mentioned that drug abuse is a worldwide problem affecting both developed and developing countries, particularly the youth. However, the percentages of users in this study are quiet lower than those in US, where substance use was reported as normative among adolescents. Nearly half of all subjects aged 16–17 years participating in the National Household Survey on Drug Abuse (NSDUH) reported a history of illicit drug use.^[54]

The rates of substance abuse in this study turned to be higher than those reported in Iran, where lifetime drug abuse rates were 2%.^[51,52] However, they are slightly lower than those in national surveys in France, where approximately 20% of French aged 16–18 years regularly used cannabis.^[55] More recently, Melchior et al.^[56] reported that, among French youth, 42% had used cannabis.

Although a small percentage of adolescents in this study reported using heroin, the finding is still alarming given its deleterious effects. In this regard, Hopfer et al.^[57] have emphasized that heroin use among adolescents appears to have increased in recent years. Clinical and descriptive studies indicate that many heroin-using youth are intravenous drug-users (IDU) with histories of polysubstance use, psychiatric dysfunction, and criminality.^[57,58]

Bad habits lead to more bad habits because of peer pressure. In this study, almost 30% of students revealed more than one bad habit.

Attitude is based on a set of behavioral beliefs about the perceived likelihood that performance of the behavior will lead to a particular outcome. In this study, assessment of students' attitudes toward risky behaviors revealed a high degree of disagreement. Overall, about 10% were agreeing upon risky behaviors. Moreover, 4–6% of the students expressed their future intention to use alcohol and/or addictive substances.

Consistent with this study findings, Melchior et al.^[56] in France, found that the rates of adolescent alcohol use and abuse increased with age. However, substance use may decrease during the transition to adulthood, when youth enter the labor market and establish stable romantic relationships.^[59] Moreover, in another research, it has been shown that there is a strong association between the adolescent age and substance abuse.^[60]

Adult supervision of school-age children is associated with a decrease in risky or antisocial behavior such as skipping school, using alcohol or drugs, and smoking.^[61] In agreement with this, working mother was proved to be a risk predictor for violence among students in this study. Balance between work demands and family responsibilities are highly recommended especially among women.

Lastly, students' academic achievement and its relation to various risky behaviors were investigated in this study. In conclusion, students with poor achievement showed a significantly higher prevalence of all studied risky behaviors.

Among limitations of this study, it should be noted that the data are based on self-reporting of risky behaviors that lead to often underestimation of the problems particularly those related to risky behaviors. Second, the school-based sample used in the study may not have included some of the most high-risk youth, those who are frequently absent, or those have dropped out of school. Finally, there was a noninclusion of female students in the current study because of cultural barriers.

Conclusion

In the light of the main study findings, it is concluded that secondary school male students in Almajadah, KSA, have a number of risky behaviors. The disagreeing attitude toward risky behavior is sufficient. Risky behaviors showed a significant negative impact on students' academic achievement.

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