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Prevalence and Types of Health Risk Behaviors among Omani Adolescents

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Abstract: Adolescents go through excessive physical and psychosocial changes that prepare them for adulthood, and during this developmental stage, they engage in risky behaviors. This study measures the prevalence of health risk behaviors among Omani adolescents and whether the difference in these behaviors is based on adolescent demographics. A cross-sectional design was used to collect data from 1,165 adolescents using the Rapid Assessment for Adolescent Preventive Services (RAAPS) questionnaire. The results showed that the first five most prevalent health risk behaviors out of 23 were: failing to use a helmet, when necessary (59.9%), feeling depressed (57.7%), loss of control (48.1%), unsafe driving-unfastened seat belt (44.4%), and dietary (43.8%). Only 18 students from the total sample had no risk behaviors, 159 students had five, and two had 19. In conclusion, despite the average and low prevalence of risk behaviors among Omani adolescents, the need for community intervention is crucial to maintain and further reduce the current low risk. Regular screening and tailored counseling services for the risk have been recommended. This study is novel to researchers in Oman and the Middle East as there is a dearth of research investigating health risk behaviors among adolescents. The results of this study will add some information that can be used for developing appropriate counseling and preventive measures.

Keywords: health risk behaviors, adolescents, students, cross-sectional design.

阿曼青少年健康风险行为的患病率和类型

摘要：青少年会经历过度的身体和社会心理变化，为成年做好准备，在这个发展阶段，他们会从事危险行为。本研究衡量阿曼青少年健康风险行为的流行程度，以及这些行为的差异是否基于青少年人口统计数据。横断面设计用于使用青少年预防服务快速评估(RAAPS)问卷收集1,165名青少年的数据。结果显示，在 23 人中，前五种最普遍的健康风险行为是：不戴头盔、必要时 (59.9%)、情绪低落 (57.7%)、失控 (48.1%)、不安全驾驶-

不系好座椅腰带(44.4%)和饮食(43.8%)。总样本中只有18名学生没有危险行为，159名学生有5名，2名学生有19名。总之，尽管阿曼青少年的危险行为发生率平均且较低，但社区干预的需要对于维持和进一步减少目前的低风险。建议定期筛查风险并提供量身定制的咨询服务。这项研究对阿曼和中东的研究人员来说是新颖的，因为缺乏调查青少年健康风险行为的研究。这项研究的结果将添加一些信息，可用于制定适当的咨询和预防措施。

关键词：健康风险行为，青少年，学生们，横截面设计。

1. Introduction

Adolescence is a period of growth and development that occurs after childhood and ends with adulthood, at

10 to 19 years old [1]. Adolescents go through excessive physical and psychosocial changes that prepare them for adulthood. They engage in risky

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behaviors during this developmental stage, including unhealthy diet, sedentary lifestyle, drug misuse or abuse, alcohol consumption, smoking, unsafe sex, and suicidal ideation as part of the experimental nature and decision-making process [2]. Other examples of risky health behaviors are unsafe driving, weapon carrying, gang involvement, and aggressive behaviors [3]. Research has linked these adolescent risk behaviors with future health status during adulthood [4]. Surveys among American youth have revealed an association between unwanted health outcomes in young and middle adulthood and unhealthy or risky behavior, such as substance abuse and dependence, poorer academic and work achievement, and physical inactivity and mental illness [5]. Efforts should be made to identify adolescents who are at risk.

Many works have explored the prevalence of different risk health behaviors among adolescents worldwide [2, 6]. National databases are being developed by surveying adolescents periodically to measure prevalence, influence causes, demographic characteristics, and gender differences for risky health behaviors. For example, the Centers for Disease Control and Prevention in the US (CDC) established the Youth Risk Behavior Surveillance System (YRBSS) in 1990. This system aims to track several health risk behaviors that contribute noticeably to death rates, disabilities, and social problems among youth in the United States. These behaviors include violence and unintentional injuries, risky sexual behaviors, drug and substance misuse, tobacco use, and unhealthy lifestyle behaviors related to diet and physical activity. From 1991 through 2015, the YRBSS collected data from more than 3.8 million high-school students in more than 1,700 separate data collection incidences [7]. Similarly, the World Health Organization (WHO) some 30 years ago established the Health Behavior in School-Age Children (HBSC) cross-national survey system and collected data every four years in 45 countries and regions across Europe and North America [8].

Despite these facts, there is still a dearth of knowledge about the prevalence and types of risky health behaviors among Omani adolescents, especially over the last 15 years, as the previous research conducted in this area was in 2006 [9]. It is important in the Omani context, given that 50% of the Omani population is under 24 years old [10]. There are few studies on risky health behaviors among Omani school children. Most of them were conducted on pupils younger than 16 and included general health behaviors like exercise and diet [9]. Therefore, this timely descriptive study explores the prevalence of risky health behaviors among Omani adolescents and whether differences in these behaviors are based on adolescents' demographics. Based on its results, interventions will be designed to promote Omani adolescents' awareness and knowledge regarding risky

and unsafe behaviors and prevent morbidity and mortality caused by practicing these behaviors.

2. Research Design

A non-experimental, cross-sectional descriptive design with self-administered questionnaires was adopted.

2.1. Sample

Using a multistage sampling technique, researchers randomly selected 12 public schools (six males and six females) from Muscat governorate, the capital and most populated governorate in Oman. An equal number of male and female secondary schools were selected to ensure the equal distribution of gender, and researchers also considered the geographical distribution of the schools. Then, convenience sampling of students aged 16 and older and registered at these schools was applied to select those to participate in the study. There are 216,747 Omani students aged between 15 and 19 years [10]. The sample size was calculated using Slovin's formula ($n = N / (1 + N e^2)$), where n = Number of participants, N = Total population and e = margin of error (0.05). Therefore, a minimum number of 399 school students was required in the current study. For the survey, 1,700 questionnaires were distributed, and 1156 adolescents completed them, a response rate of 68%.

2.2. Ethical Considerations

The study obtained ethical approval from the Research and Ethics Committee at the College of Nursing, SQU (Protocol number 17/2017, 03 October 2017) and the Omani Ministry of Education (Ref. No. 281976208). Anonymity and voluntary participation were maintained. Since the survey includes some sensitive questions about smoking and sex, the researchers made a deliberate decision to waive the parental consent form, under the direct approval and supervision of the Omani Ministry of Education, the official guardian of the pupils; all participants were senior students and were able to give their consent.

2.3. Data Collection

The survey was conducted between January 1, 2018 and December 31, 2019. The researchers sent a formal letter to the Ministry of Education in the Muscat governorate for permission to collect data from the 12 randomly selected secondary schools. The letter explained the aim of the study, the sample, and the data collection process. After a few revisions to the survey items recommended by the Ministry's research ethics committee members, permission was granted, and emails to the selected secondary schools were sent.

An envelope including the information sheet, researchers' contact information, consent form, and copy of the questionnaire was sent to the adolescents themselves. The researchers approached participants in

their free classes. Participants left the completed questionnaires in a closed box in each school for collection by the researchers.

2.4. Measures

A structured survey was used to collect information about: (1) adolescents' socio-demographic data, including age, gender, district, family income, and parents' level of education; and type of household (2) responses to the Rapid Assessment for Adolescent Preventive Services (RAAPS) questionnaire.

2.5. The Rapid Assessment for Adolescent Preventive Services (RAAPS) Questionnaire

The questionnaire was developed in [11]. It is a standardized, valid, and evidence-based questionnaire consisting of 23 yes/no questions to identify adolescents' risky and unsafe health behaviors. It covers nine forms of risky health behavior: eating/weight, physical activity, safety/violence, tobacco, alcohol, drugs, development, emotions, and friends/family. It can be completed in 5-7 minutes, has a concise format, is easy to use, comprehensive in assessing the significant risky behaviors, available in paper and online versions, and is valid and reliable [12].

2.6. Data Analysis Plan

The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS version 20). Descriptive statistics were used to analyze the demographics. Inferential statistical analysis, including the independent T-test and One-way ANOVA, was applied to explore the average differences between the mean scores of the total number of risks and place of living, family members and income, and parents' education levels. Pearson correlation was conducted to measure the association between age, number of family members, and the total number of risk behaviors. The level of significance was set at P-value < 0.05.

3. Results

The survey was completed by 1,165 participants with a mean age of 16.12 (SD = 2.91). A majority (678, 58.2%) were female, most were single (1104, 94.8%), and a third lived in Al Seeb (395, 33.9%). Two-fifths of the participants (492) had an average family income of more than 1,000 Omani rials (Table 1).

Table 1 Distribution of sample based on their demographic characteristics

Variable		
Age M(SD)	16.12 (1.88)	
Gender	n	%
Male	487	41.8
Female	678	58.2
District		
Al Seeb	396	33.9

Bosher	187	16.1
Mattrah	197	16.9
Muscat	194	16.7
Al Amerat	191	16.4
Income*		
Less than 500	192	16.5
500-1000	373	32.0
More than 1000	492	42.2
Father's level of education**		
Illiterate	44	3.8
Primary	248	21.3
Secondary	283	24.3
University	557	47.8
Mother's level of education***		
Illiterate	92	7.9
Primary	298	25.6
Secondary	373	32.0
University	374	32.1
Household****		
With parents	969	81.57
With mother only	100	8.42
With father only	22	1.85
With no parents	42	3.54

Notes: *108 missing data; **32 missing data; ***28 missing data; ****32 missing data

Of the 23 risk behaviors, the most frequently reported was "not wearing a helmet while biking, rollerblading, motorcycling, etc." (59.9%), and the least was "driving a car while drunk" (2.4%) (Table 2).

Table 2 Prevalence of risk health behaviors among participants

Item	Yes		No	
	n	%	n	%
1. Have you taken diet pills or laxatives, made yourself vomit?	266	22.4	894	75.3
2. Do you eat some fruits and vegetables every day?	644	54.2	520	43.8
3. Are you active after school or on weekends (walking, running, dancing, swimming, biking, playing sports)?	792	66.7	373	31.4
4. When driving or riding in a car, truck, or van, do you always wear a lap/seat belt?	638	53.7	527	44.4
5. Do you always wear a helmet when you ride a bike, rollerblade, skateboard?	453	38.1	712	59.9
6. Have you been threatened, teased, or hurt by someone (on the internet, by text, or in person) during the past month, causing you to feel sad, unsafe, or afraid?	241	20.3	922	77.6
7. Has anyone ever abused you physically?	178	15.0	986	83.0
8. Has anyone ever abused you emotionally?	246	20.7	918	77.3
9. Has anyone forced you to have sex or be involved in sexual activities when you did not want to?	72	6.1	1092	91.9
10. Have you ever carried a weapon (gun, knife, club, other) to protect yourself?	350	29.5	814	68.5
11. In the past three months, have you smoked any form of tobacco?	98	8.2	1066	89.7
12. In the past 12 months, have you driven a car while drunk or high?	29	2.4	1135	95.5
13. In the past 12 months, have you driven a car while texting?	219	18.4	945	79.5
14. In the past 12 months, have you ridden in a car with a driver who was drunk or texting?	401	33.8	764	64.3
15. In the past three months, have you drunk more than a few sips of alcohol?	33	2.8	1132	97.2
16. Have you used marijuana, other street drugs, steroids, or sniffed/huffed household products in the past three months?	34	2.9	1131	95.2
17. Have you used someone else's prescription drugs to sleep, stay awake, concentrate, calm down, or get high in the past three months?	183	15.4	982	82.7

18.	Did you often feel sad or down during the past month as though you had nothing to look forward to?	686	57.7	479	40.3
19.	Do you have any serious problems or worries at home?	221	18.6	943	79.4
20.	Do you have any serious problems or worries at school?	190	16.0	975	82.1
21.	In the past 12 months, have you seriously thought about killing yourself, tried to kill yourself?	178	15.0	987	83.1
22.	Do you have at least one adult in your life that you can talk to about any problems or worries?	815	68.6	350	29.5
23.	When you are angry, do you do things that get you in trouble?	572	48.1	593	49.9

Figure 1 depicts the top five risk behaviors reported by the participants in the current study: “not wearing a helmet when riding two-wheelers” 59.9%; “feeling sad and down” 40.3%; “committing things that put them in trouble when they come angry” 48.1%; “not wearing the seat belt” 44.4%; and “not wanting to eat fruit and vegetables every day” 43.8% (Figure 1).

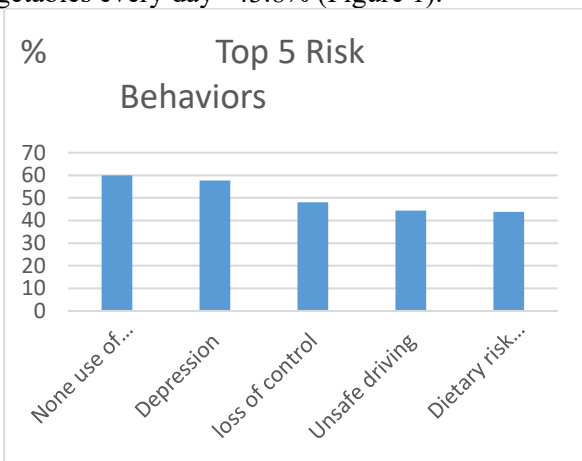


Fig. 1 Bar diagram showing the top five risk behaviors among the adolescents

3.1. Total Risk Behaviors and Frequency among the Adolescents

Only 18 students from the total sample reported no-risk behaviors; 159 each had a total of five risk behaviors, while only two reported 19. Considering 23 is the total number of risk behaviors, five is the mode for this data set. Out of the total sample, 38.5% reported 1 to 4 risk behaviors and 46.2% 6 to 19 risk behaviors. No one reported more than 19 risk behaviors (Figure 2).

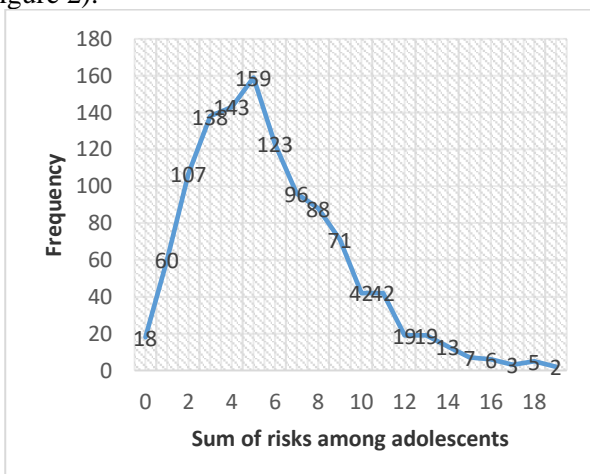


Fig. 2 Frequency polygon showing the sum of risk behaviors among the adolescents

3.2. Differences between the Total Number of Risks Based on District, Household, Family Income, and Parents’ Education Levels

Adolescents living with both parents reported significantly fewer risk behaviors ($M = 5.7$; $SD = 3.44$) than those living with only their father ($M = 7.9$, $SD = 3.72$) [$F(3, 1157) = 3.528$, $p = 0.014$]. Participants from Matrah Wilayat reported fewer risk behaviors (Mean= 4.7157, SD=2.89), while those from Al-Seeb Wilayat reported the highest level ($M = 6.1320$, $SD = 3.43$) [$F(4, 1164) = 6.668$, $p = .0001$]. Adolescents whose parents could read and write ($M = 5.4$; $SD = 3.78$) or who had a university degree ($M = 5.6$; $SD = 3.18$) reported lower risk behaviors than the other groups [$F(5, 175.358) = 2.728$, $p = .048$], although this is not reflected in the confidence interval results (see Table 3 for more detail).

Table 3 Bivariate analysis to total risk behaviors based on selected demographics

	Mean	SD	P-value
Age	16.12	1.8	0.121
Total family members	7.38	2.91	0.697
Gender			.825
Male	5.82	3.46	
Female	5.77	3.41	
Household			.014
With parents	5.70	3.44	
With mother	5.99	3.05	
With father	7.91	3.73	
With no parents	6.36	3.55	
District			< 0.01
Al Seeb	6.13	3.43	
Bosher	5.66	3.12	
Matrah	4.72	2.90	
Muscat	6.02	3.75	
Al Amerat	6.12	3.67	
Family income			0.57
< 500 OMR	5.92	3.80	
501-1000	5.73	3.42	
>1001	5.88	3.34	
Father’s level of education			.048
Illiterate	6.45	4.19	
Read and write	5.40	3.78	
Primary	5.64	3.06	
Secondary	6.37	3.75	
Higher	5.59	3.18	
Mothers’ level of education			0.32
Illiterate	5.99	3.74	
Read and write	5.32	3.81	
Primary	6.24	3.34	
Secondary	5.83	3.22	
Higher	5.74	3.42	

4. Discussion

This study aimed to explore the prevalence of risky behaviors among Omani adolescents. The findings indicate the importance of the family in the adolescent’s life. Adolescents living with their parents have fewer risky behaviors than those living with only their fathers. The importance of the structured and normal family in guiding and reducing risky behaviors among adolescents is well established in the literature [13]. Families have a direct impact on adolescents’

self-esteem and a general feeling of self-efficiency [13]. School nurses and counselors need to communicate with parents and reassure them about the importance of adolescents living within a well-functioning family to encourage them to share their concerns and improve their self-esteem.

The findings also showed that Omani adolescents have unsafe driving habits such as not wearing a helmet when riding two-wheelers (59.9%), not wearing the seat belt (44.4%), and driving a car while texting (18.4%). These results are in line with previous research. For example, the majority of the adolescents (77%) in a Michigan study were also reported as not usually using protective gear or helmets while riding rollerblades, bikes, or skateboard [14]. An earlier Omani study reported that 33.4% of Omani adolescents drove without a license, and 33.9% liked to speed up [9]. Similar findings were reported in a recent Australian study in which adolescents used their mobile phones while driving [15]. This behavior puts the adolescents at high risk, as the three leading causes of road traffic accidents in Oman are negligence, lack of control, and speeding [16]. These findings shed light on the importance of education and counseling for this age group concerning these kinds of health risk behavior.

The present study showed that 20.3% of the adolescents had been exposed to physical or psychological abuse at a certain stage of their life. These findings are in line with previous research conducted in Oman in which 20% had been involved in a physical fight within the previous month, 8.2% had been punished physically, and 66% had witnessed violence within their families and among their friends often [9]. These findings are also similar to the Caribbean teens who were reported as carrying a weapon to school (10%) and almost always wanting to kill or injure someone (5%) [17]. Brazilian adolescents also took part in violent fights (16.2%) [18]. Physical and psychological violence among adolescents is an international phenomenon [19, 20]. Although there are differences in the rates and severity of these populations' behaviors, these differences could be attributed to various extraneous factors such as parent-child relationships, home environment, culture and society, school environment, or the adolescent's emotional quotient [21]. There is a need to study these factors in the Omani context to develop a culturally sensitive intervention to reduce the incidence of these cases. In the current study, 22.4% of the adolescents reported using diet pills or laxatives after eating, or starving, to lose weight (Bulimic behavior) and not to eat some fruits and vegetables daily (Dietary risk behavior) (43.8%). These findings are similar to South African teens reported as having eating disorders or being overweight or obese [22]. Similar findings of bulimic risk behavior (24.2%) were found among adolescents in Iran [23]. On the other hand, a higher risk (42.0%) of bulimic behavior was reported by

Brazilian female adolescents [24], but eating disorders are linked significantly to females [25]. The current study results suggest the need for counseling services and education for adolescents in dietary and physical activity health risk behaviors.

Almost one-third of the adolescents in the current study were not active after school or at weekends. Physical inactivity is high among Arab adolescents [26] and in Western countries [27]. A Brazilian study found that approximately one-third (36.5%) of the adolescents were inadequately active [28], while in another recent study, physical inactivity among Brazilian adolescents was found to have almost doubled [18]. Currently, adolescents use their mobile phones and tablets, play online games, and watch television most time [29]. Physical inactivity is linked to poor physical and mental health [30]. Decision-makers need to design programs and campaigns to encourage adolescents to engage in more physical activities.

The present study revealed that few adolescents had smoked cigars, black or mild, hookahs, vape pens or used smokeless tobacco (8.2%), and drunk more than a few sips of alcohol (2.8%), and used marijuana, other street drugs, steroids, or sniffed/huffed household products (2.9%) in the previous three months. We can see that there is a modest increase in the rate of smoking among adolescents, whereas the trend of alcohol (4.3%) and drug abuse (4.6%) seems to have decreased [9]. The prevalence of smoking, drug misuse, and alcohol drinking is far less among Omani adolescents than in other countries [18]. The lower rates of these health risk behaviors might be attributed to the conservative culture and religious rules in Arab and Islamic countries, which strictly forbid such behaviors. Nevertheless, the results are alarming, and all possible preventive measures should be explored and offered for this age group.

5. Conclusion

In conclusion, this study revealed low to average health risk behaviors among Omani adolescents. However, in conservative communities, these risk behaviors are usually under-reported and should come to the attention of researchers, community leaders, and policymakers. There were a few reports on risky health behaviors among Omani pupils, but none has studied and investigated this specific age group. It is highly recommended to run regular screening programs of health risk behaviors for this critical age group, as it is an essential part of the community intervention strategies. Tragic incidents and consequences of these risk behaviors usually come suddenly without prior notice or warnings and cause a terrific impact on individuals, family and the community. Despite the lower prevalence of risk behaviors, the need for community intervention is crucial, with a regular screening of adolescents to identify these behaviors.

On the other hand, the results showed that only 18 out of 1,168 adolescents (1.5%) had no health risk behaviors, which means that most participants (more than 98%) needed behavioral counseling and specific preventive measures. This screening will make the results more valid, reliable, and dependable in evaluating all implemented preventive measures. Counseling and early interventions tailored to individuals at school would be a reliable strategy for adolescents who need help. The Possibilities have used the tool applied in this study (RAAPS) for Change Organization which delivers practical, evidence-based behavioral intervention technology tools (BIT) and training to help professionals more effectively identify and reduce risk behaviors in adolescents and young adults. Therefore, the results of this study might support the policymakers to link all schools and counselors to this organization for its training and services.

5.1. Limitations and Further Research

This study is not without limitations. For example, all the selected participants lived in Oman's capital, with more urbanization and modernization than in rural areas. However, the large sample size may compensate for this weakness. Lack of randomization for the selected participants may increase the inference of irrelevant demographic factors and yield biased statistical results. Therefore, this study might be considered a call for further survey studies using the same tool recruiting adolescents randomly from all over Oman to validate and confirm the current study's findings. Moreover, qualitative studies might be considered to explore the association between socioeconomic variables and health risk behaviors among Omani adolescents. Thus, there is a need to repeat the current study recruiting adolescents from all over Oman to validate and confirm the current study's findings.

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Data Accessibility

Data is available to all researchers who meet the College of Nursing, Sultan Qaboos University's ethical requirement.

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