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Health risk behaviors among university students in Qassim, KSA

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Abstract
Background: Many adolescents' health problems are predominantly caused by risk behaviors which contribute to the main causes of morbidity and mortality in this age group. The adverse health consequences of these behaviors have been recognized as important public health issues.
Objective: The objective of this study was to estimate the prevalence of health risk behaviors among University students in Qassim University, KSA.
Methods: Cross-sectional study was conducted among 400 female students from different colleges in Qassim University. Data were collected on risk behavior for health issues in the previous 12 months using an anonymous standard Youth Risk Behavior Survey (YRBS). The YRBS monitors priority health-risk behaviors (behaviors that contribute to unintentional injuries, behaviors that contribute to violence, behaviors related to attempted suicide, tobacco use, alcohol use, other drug use, sexual behaviors, dietary behaviors, physical activity and sedentary behaviors, and weight management).
Results: The results showed that 88% of participants were 19 years old or more and most of them (41%) were from Business College. Regarding the psychological risk behaviors; 46.4% of students felt so sad for two or more weeks and 9.8 % of them attempted suicide often during the past 12 months. Among students of Computer College, 38.3% were fasted 24 hours or more to lose or maintain weight compared to 22% of Business students and 20% of dentistry students. About twenty-nine percent of participants used medication twice without doctor's prescription during the past six months and 30% of them adopted on a friend recipe for specific medicine and used it. About 33.9% of participants incorrectly classified their weight status, with 21.6% underestimating and 12.3% of them overestimating their weight.
Conclusion: This study highlighted the relatively high prevalence of health risk behaviors including physical inactivity, sad feelings, suicidal attempted, unhealthy weight control behaviors and usage of medications among female students in Qassim University, KSA.

Keywords: Health Risk Behaviors, Health status, University students, Kingdom of Saudi Arabia

Introduction
Adolescence is a critical period of development during which a range of health risk behaviors may begin that can negatively affect health status and both social and academic functioning. In many cases these behaviors will continue into adulthood (Fox *et al*., 2010) [1]. With the increasing burden of non-communicable disease, adolescence is viewed as an opportune time to prevent the onset of certain behaviors and promote healthy states. Although adolescents comprise a considerable portion of Saudi Arabia's population, they have received insufficient attention and indicators of their health status, as a first step in a prevention cycle are unavailable (Al Buhairan *et al*., 2015) [2]. Health-risk behavior can be defined as any activity undertaken by people with a frequency or intensity that increases risk of disease or injury (Steptoe & Wardle, 2004) [3].
The Centers for Disease Control and Prevention (CDC) addresses six priority health-risk behaviors of youth that research shows contribute to the leading causes of death and disability among adults and youth. These behaviors are usually established during childhood, and are preventable. In addition to causing serious health problems, these behaviors also contribute to educational and social problems (Brener *et al*., 2013) [4]. These six priority health-risk behaviors are: alcohol and other drug use, behaviors that contribute to unintentional injuries and violence (including suicide), tobacco use, unhealthy dietary behaviors, physical inactivity and sexual behaviors that contribute to unintended teen pregnancy and sexually transmitted infections, including HIV and those behaviors

Contributing to unintentional injuries and violence (Centers for Disease Control and Prevention, 2013a) [5]. Early identification of health risk behavior is increasingly relevant to health educators because chronic, multi etiologic diseases such as cardiovascular disease, cancer, diabetes, and obesity represent some of the leading causes of death and disability in the United States (Centers for Disease Control and Prevention, 2013b) [6].

Adolescence a time of opportunity that many physical, cognitive, emotional, and social developmental changes occur during this period and experimentation and risk behaviors may begin (Albuhairan *et al*., 2012) [7]. The conservative communities of gulf populations only recently gave the chance for statistical studies on health behavior, effect of modern life style and invasion of foreign life style. The most important factors associated with this risk were found to be environmental, as well as individual's lifestyle that has been noted to play a major role in the onset and progression of these risks (Al –Nabulssy *et al*., 2009) [8]. Globally there are 1.2 billion adolescents, one fifth of world population. Due to present demographic trends their number is increasing. The Kingdom of Saudi Arabia (KSA) has a population exceeding 27 million, and 25% of its population is adolescents and young adult aged 10-24 years (US Census Bureau, 2014) [9]. Literature addressing the health needs and risks of adolescents in KSA are lacking, with none representative of national needs. National indicators of adolescent health those are necessary for guiding policy and decision makers in establishing the required services (Albuhairan *et al*., 2015) [2]. Risk behavior categories among youth and young adults includes; drugs and alcohol abuse, unhealthy dietary behaviors, risky sexual behaviors, unhealthy weight control, inadequate physical activity and suicidal attempt, such behaviors which contribute to the leading causes of morbidity and mortality among youth and adults are often established during childhood, adolescence, and extend into adulthood (Eaton *et al*., 2012) [10].

One of the most frequent risky adolescent behaviors involves substance use. Adolescents often experiment with smoking cigarettes, drinking alcohol, and using illegal drugs. For example, Eaton *et al*., [11] have indicated that although only 54.3% of teenagers have tried cigarettes, 23.0% of teenagers continue to smoke cigarettes on a regular basis.

An unhealthy diet is one of the major risk factors for a range of chronic diseases, including cardiovascular diseases, cancer, diabetes and other conditions linked to obesity. Based on that, improving dietary habits is a societal, not just an individual problem. Therefore it demands a population-based, multi-sectoral, multi-disciplinary, and culturally relevant approach (WHO, 2013a) [12]. The purpose of the present study is to estimate the prevalence of health risk behaviors among female University students in Qassim University, KSA.

Significance of the study

Priority health-risk behaviors, which are behaviors that contribute to the leading causes of morbidity and mortality among youth and adults, often are established during childhood and adolescence, extend into adulthood and are interrelated and preventable. Although adolescents constitute a significant portion of Saudi Arabia's population, little is known about their health status. This nationally representative study has identified the high prevalence of health risk behaviors which will serve as adolescent health indicators.

Study Methodology

Study design

A cross-sectional study was conducted in order to explore current health-risk behaviors among female students in Qassim University. The proposal was reviewed and approved by the research Center of college of Nursing, Qassim University.

Participants and setting

The study was conducted in female section of Qassim University, KSA. The participants were 400 female University students, their age ranged between 19 to 22 years. The sample was calculated statistically based on the total number of University students. All University colleges were represented according to the number of students in each college.

The data were collected during the second semester of the academic year 2013/2014. The study protocol and procedure were approved by the Research Center of the College of Nursing, Qassim University. In addition, students' oral approval was obtained during conducting the data collection. Youth Risk Behavior Survey (YRBS) was utilized as a uniform questionnaire for the present study which distributed to students of seven colleges in addition to the preparatory year. The study sample represented these colleges as the following:18% of the students of Preparatory year, 23% of college of Nursing, 8% of College of Medicine, 20% of college of Pharmacology, 19% of College of Applied Medical Sciences, 10% of college of Dentistry, 9% of college of business and 12% of students of college of computer.

Research Instrument

Youth Risk Behavior Survey (YRBS) was utilized in the present study. The YRBS was developed by The Centers for Disease Control and Prevention (CDC) in 1990 to monitor priority health risk behaviors that contribute markedly to the leading causes of death, disability, and social problems among youth and adults in the United States. The YRBS monitors priority health-risk behaviors as behaviors that contribute to unintentional injuries, behaviors that contribute to violence, behaviors related to attempted suicide, tobacco use, alcohol use, other drug use, sexual behaviors, dietary behaviors, physical activity and sedentary behaviors, and weight management (Eaton *et al*, 2012) [10]. Some of these items as those related to sexual behaviors, tobacco and Alcohol use were excluded due to cultural sensitivity in KSA. The present study examined 5 domains of risk behaviors including: drug abuse, unhealthy dietary behaviors, unhealthy weight control, inadequate physical activity and behaviors related to attempted suicide, such behaviors that contribute to the leading causes of morbidity and mortality among adolescents and young adults. The first section of the YRBS dealt with the socio-demographic data of students; including questions related to age, family income, educational level (Preparatory/ University), mother's and father's education. The second section consisted of 38 items categorized under these previously mentioned domains. The physical activity part was measures the frequency and intensity of light to moderate physical activities during a typical usual week and it including household and sporting activities. Regarding the drug use, the survey included questions addressing participants' knowledge on dosage, duration and frequency of analgesic

use. Respondents who took analgesics were asked whether the analgesic was prescribed by their physician, pharmacist or clinical health unit. Multiple choice questions in which it is possible to choose more than one answer as well as closed questions which needing "Yes or No" were asked. Those who refused to answer a question were not included in the analysis.

Anthropometric measurements

After the students completed the survey, the researchers calculated the Body Mass Index (BMI) based on measuring the weight and height for each participant. Measurements were performed in the morning by trained researchers using standardized procedures. Body weight was measured to the nearest 100 g, with minimal clothing and without shoes, using a calibrated portable scale. Height was measured to the nearest cm with the subject in the full standing position without shoes using calibrated portable measuring rod. Body mass index (BMI) was calculated as body weight in kg divided by height squared in meters. The BMI reference values were used World Health Organization classification to define, overweight and obesity (<18.5 kg/m2 underweight, 18.5-24.9 kg/m2normal weight,25-29.9 kg/m2 overweight, 30-39.9kg/m2obeseand ≥40extra obese)(WHO,2013b)[13].

Data collection procedure

Participation in the study was voluntary and students were assured regarding the confidentiality of their data. Questionnaire was self-completed and before answering the questions, the researchers explained the purpose of the study and the procedure of data collection. Questionnaires were distributed by researchers in the absence of class teachers and each questionnaire took about 5-10 minutes to complete. Regarding the anthropometric characteristics (weight, height and BMI), it measured by trained professionals and all anthropometric measures were taken in the morning, using a calibrated portable scale. As regards to statistical analyses, only those students with complete responses to questionnaire items were included and to ensure data quality, the researchers screened all returned questionnaires before starting data entry procedure.

Results

Descriptive statistics of the sample are presented in table 1; the participants distributed from different University Colleges and most of them (41%) were from Business College. Most of the sample (88%) was 19 years old and more. Seventy-four percent of participants were from under graduates and the rest were from the preparatory year (the year before the stage of the under graduates). Thirty-two percent of mothers and forty-eight percent of fathers had at least college education, with a greater proportion of fathers compared to mothers having a college education or more.

The majority of the sample reported perceiving their weight as "Around the ideal weight", with 16% of students reporting themselves to be 'very overweight', while the majority of the sample (54.5%) classified in accordance with World Health Organization (2013b) [13] weight classification guidelines as "normal weight". Only 5% of participants perceiving their weight as "Obese" however 10.8% were actually obese and extra obese. About 33.9% of participants incorrectly classified their weight status, with 21.6% of participants underestimating and 12.3% of participants overestimating their weight (table 2).

Regarding the psychological risk behaviors, almost 46.4% of students, as shown in figure 1, felt so sad for two or more weeks in a row during the past 12 months that they stopped doing some usual activities. The same figure illustrated that 57.3% of participants felt bored of everything and 9.8 % of them attempted suicide often during the past 12 months.

Regarding weight control behavior, figure (2) showed a relatively high percentage (38.3%) of Computer students fasted 24 hours or more to lose or maintain weight compared to 22% of Business students and 20% of dentistry students. The same figure illustrated that 11.1% of nursing students took diet pills to lose or maintain weight followed by 10.6% of Computer College' participants. The higher percentages (21.3 %) of students that vomited or took laxatives to lose weight were among the Computer students followed by Business students (17.7%). Health risk behaviors are shown in Table 3; among University students the prevalence of certain risk behaviors is particularly high; however 29.3% of participants used medication twice without doctor's prescription during the past six months and 30% of them adopted on a friend recipe for specific medicine and used it. Regarding unhealthy dietary behaviors; the percentage of students who did not ate fruit or drank 100% fruit juices during the seven days before the survey was 25% and 39% did not drink milk. In addition, 43.8% of participated students ate in fast-food restaurants once per week and drank energy drinks during the seven days before the survey. The same table reported the health risk behaviors related to physical inactivity where 45.9% did not participated in at least 60 minutes of physical activity on any day and 32.8% did not practicing walk.

Table 1: Personal data of the participants

Variable	Frequency (n=400)	Percentage
College		
Preparatory year	75	18.8
Nursing	18	4.5
Medicine	25	6.3
AMS	22	5.5
Computer	47	11.8
Business	164	41.0
Pharmacy	34	8.5
Dentistry	15	3.8
Age		
< 19 yrs	48	12.0
19 yrs	133	33.2
> 19 yrs	219	54.8
Income in SR		
< 5,000	28	7.0
5,000-10.000	164	41.0
> 10,000	208	52.0
Educational level		
Preparatory year	104	26.0
Under graduate	296	74.0
Mother education		
Illiterate	33	8.3
Elementary	82	20.2
Middle school	71	17.8
Secondary school	85	21.3
University & post graduate	129	32.3
Father education		
Illiterate	21	5.3
Elementary	43	10.8
Middle school	56	14.0
Secondary school	86	21.5
University & post graduate	194	48.5

Figure 1: Prevalence of psychological risk related behaviors in percentage

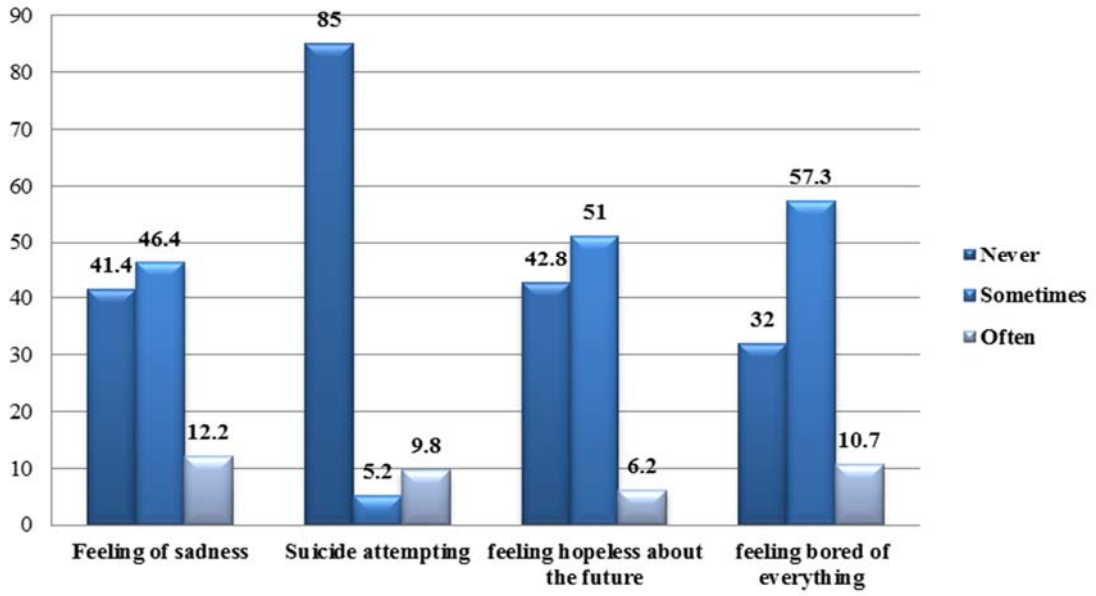

Figure 2: Prevalence of unhealthy weight control risk behaviors in percentage

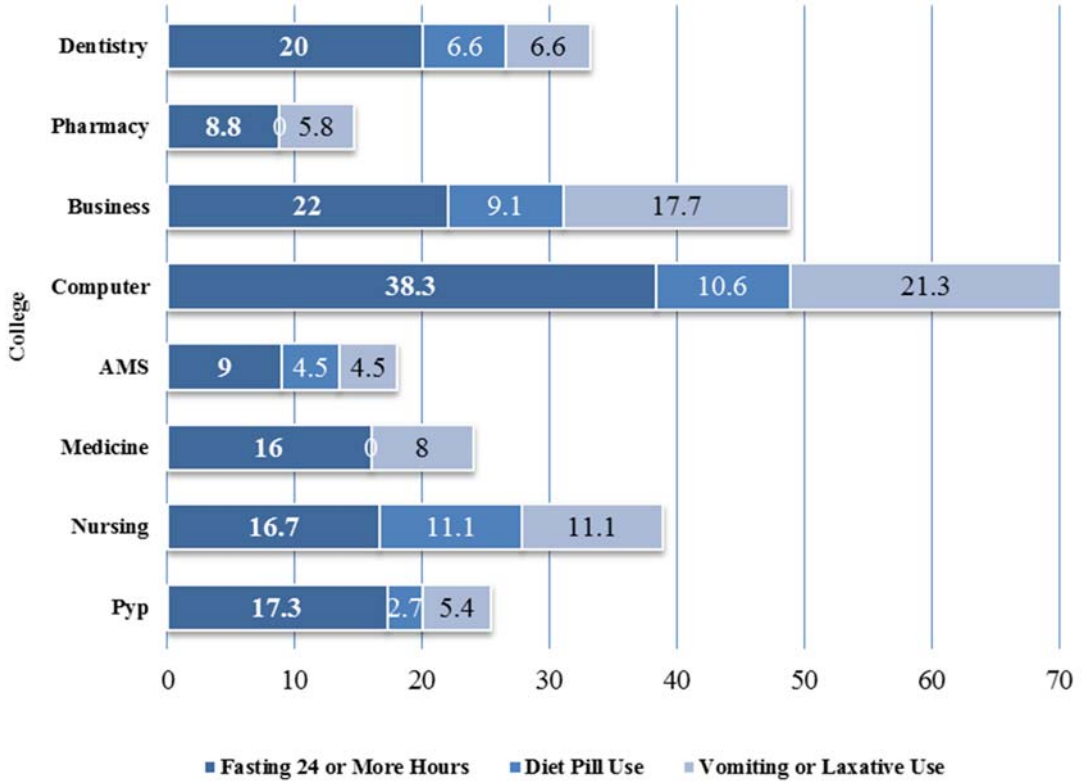

Table 2: Comparison of self-evaluation of weight status with classification of BMI by WHO standards (N=400)

Body Mass Index(BMI)*	Self-evaluation of weight status					Total n (%)
	Very underweight n (%)	Underweight n (%)	Around the ideal weight n (%)	Overweight n (%)	Obese n (%)	
Underweight	14(3.5)	33(8.3)	13(3.3)	1(0.3)	1(0.3)	62(15.5)
Normal weight	4(1)	29(7.3)	157 (39.3)	27(6.8)	1(0.3)	218(54.5)
Overweight	0 (0)	0 (0)	25(6.3)	49(12.3)	3(0.8)	77(19.3)
Obese	0 (0)	2(0.5)	4(1)	20 (5)	13(3.3)	39 (9.8)
Extra obese	0 (0)	0 (0)	0 (0)	2(0.5)	2(0.5)	4(1)
Total	18(4.5)	64 (16)	199 (49.8)	99 (24.8)	20 (5)	400 (100)

*<18.5 (Underweight), 18.5-24.9 (normal weight), 25-29.9 (overweight), 30-39.9 (obese) & 40+ (extra obese).

Table 3: Prevalence of Health Risk Behaviors among university students

Health Risk Behaviors	Frequency(n=400)	Percentage
Usage of Medications		
Ever use medication without a doctor's prescription (during the past 6 months)	221	55.4
Use medication twice without a doctor's prescription (during the past 6 months)	117	29.3
Use medication three to four times without a doctor's prescription (during the past 6 months)	35	8.8
Use medication more than five times without a doctor's prescription (during the past 6 months)	26	6.5
Adopted on a friend recipe for specific medicine and used it (yes)	120	30.0
Unhealthy dietary behaviors		
Did not eat fruit or drink 100% fruit juices*	100	25.0
Ate fruit or drank 100% fruit juices one time per day*	112	28.0
Ate fruit or drank 100% fruit juices two times per day*	146	36.5
Ate fruit or drank 100% fruit juices three times per day*	42	10.5
Did not drink milk	156	39.0
Drank one to three glasses of milk per day*	153	38.3
Drank more than three glasses of milk per day*	91	22.8
Did not eat vegetables (green salad, potatoes [excluding French fries, fried potatoes, or potato chips], carrots, or other vegetables)	98	24.5
Ate vegetables one to three times per week*	204	51.0
Ate vegetables four to six times per week*	98	24.6
Did not eat in fast-food restaurants (e.g. McDonald's)	57	14.3
Ate in fast-food restaurants once per week*	175	43.8
Atein fast-food restaurants twice per week*	99	24.8
Atein fast-food restaurants three to fourtimes per week*	46	11.5
Atein fast-food restaurants three to fourtimes per week*	23	5.8
Drank energy drinks*	40	10.0
Physical inactivity		
Did not participate in at least 60 minutes of physical activity on any day	183	45.9
Physically active at least 60 minutes once per week	90	22.6
Physically active at least 60 minutes twice per week	47	11.8
Physically active at least 60 minutes 3 to 4 times per week	56	14.0
Physically active at least 60 minutes more than four times per week	23	5.8
Did not participate in hard household work	130	32.5
participated in hard household work once per week	91	22.8
participated in hard household work twice per week	72	18.0
participated in hard household work three to four times per week	66	16.5
participated in hard household work more than four times per week	41	10.3
Did not practicing walk*	131	32.8
Practicing walk once per week	87	21.8
Practicing walk twice per week	58	14.5
Practicing walk three to four times per week	76	19.0
Practicing walk more than four times per week	48	12.0

Discussion

The present study is one of the few studies that assessing the health risk behaviors among university students in Arab countries. The findings of this research indicate that health risk behaviors are prevalent among female students of Qassim University.

Suicide is one of the major manners of death worldwide and an important public health problem (Cash & Bridge, 2009) [14]. Our findings demonstrated that 9.8 % of students attempted suicide often during the past 12 months and 46.4% of them, as shown in figure 1, felt so sad for two or more weeks in a row during the past 12 months that they stopped doing some usual activities. In addition,57.3% of participants felt bored of everything; these results corresponds with the results of the recent national study of Almansori *et al*.,(2015)[15], who analyze the characteristics of 86 patients with paracetamol overdose King Fahad hospital in Dammam region and revealed that 80% were attempts suicide and 70% of those patients were young females.

Results regarding nutrition were not different from those reported by previous studies (Yahia *et al*., 2008; Salameh *et al*., 2014) [16,17]that indicated low consumption of fruits and vegetables, where quarter of the sample did not eat fruit or drink 100% fruit juices (table 3). According to Gonsalves *et al*. (2014) [18], unhealthy weight control behaviors may be precursor to eating disorders; therefore it is important to identify these actions. Similar to previous study (Farrow & Fox, 2011) [19], this study showed a relatively high percentage of participants used unhealthy weight control behaviors like fasting for 24 hours or more, taking laxatives and diuretics or pills. For physical activity, slightly less than half of our sample reported that they did not participate in physical activity on any day and they engaged in sedentary behaviors. This result is in accordance with the results of Musharrafieh *et al*. (2008) [20].

The prevalence of physical inactivity in the Kingdom of Saudi Arabia (KSA) has been escalating to levels that are threatening the public health of the entire KSA population, especially the female population (Khalaf, 2014) [21]. The physical inactivity prevalence (46.2%) found in AboZaid & Farahat (2010) [22] and (40.6%) found in Al-Hazzaa (2004) [23] studies appear not far different from what we have reported (45.9%) in current study. These findings support the previous studies on the prevalence of physical inactivity which confirmed that a sedentary life style among Saudi

population is on the rise (Al-Hazzaa *et al*., 2011; El-Gilany & El-Masry, 2011) [24,25].

This study has limitations that must be acknowledged. First, self-reported survey data were used, which is subject to respondent bias. Second, only female students were enrolled and therefore the results not representative for male students. In addition, the health risk behaviors in the present study were restricted to those related to unhealthy dietary behaviors, weight control, usage of medications and physical inactivity. Other health risk behaviors as alcohol drinking, tobacco use, carrying weapon and sexual behaviors were excluded due to culture sensitivity in Kingdom of Saudi Arabia. Thus the assessment of health risk behaviors has been underestimated in our study. Future research should focus on gaining a better understanding of factors that contributing to risk behaviors and its prevention as well as researches that assess all health risk behaviors without restrictions.

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Ethical considerations

The objective and procedure of the study were submitted to the research Center of College of Nursing, Qassim University. It was made clear that the study would be anonymous, that the consent of the students would be sought to participate, and that non-participation would not be penalized. Ethical approval was subsequently granted.

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