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The Scope of Overweight/Obesity among Medical Participants

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ABSTRACT

Background: *Obesity and overweight occurrence in individuals is regarded to be the major concern in numerous countries. The study aimed to understand the scope and identify the factors that could associate with overweight/obesity among people from different countries.* ***Methods:*** *A cross-sectional study was adapted from the period of 1st October 2013 to 30th November 2013. All male and female participants were considered for the study from different countries of the world through an online questionnaire. A self-administered questionnaire included questions about socio-demographic characteristics, medical history, life style items and academic performance. Both weight (in kg) and height (cm) were measured and body mass index was calculated.* ***Results:*** *229 participants returned filled questionnaires giving a response rate of 85.5%. Most of the participants were overweight due to their lifestyle and the way of consuming junk food on daily basis.* ***Conclusion:*** *Almost half of the participants were overweight and obese. Higher academic level participants had a higher prevalence than others. Interventional educational programs are recommended with an involvement of psychologists.*

Keywords: BMI, Medical education, Overweight, Obesity

INTRODUCTION

Obesity is defined as a medical condition in which excess adipose tissue mass is accumulated to such an extent that it may have an adverse effect on health leading to the reduction in life expectancy and increase in health problems. There has been a rising prevalence of obesity and overweight individuals in a number of countries and it has been defined as the global endemic. In 2010, 3.5 million were the estimated number of deaths that have been caused due to obesity. The prevalence and increase in the level of obesity could lead to the future turn down in life expectancy. The concerns associated with the rising obesity about the health risk have become nearly universal. The member states of WHO (World Health Organization) approved a voluntary target of an uncertain rise in the level of obesity by the year 2025. There have been regular calls for monitoring the changes in the prevalence of obesity and overweight in all population [1].

Obesity has become an epidemic in many parts of the world. The World Health Organization has warned the escalating epidemic of obesity that could put the population in many countries at risk of developing non-communicable diseases (NCD). Available studies in Eastern Mediterranean countries, including Saudi Arabia, indicate that obesity has reached an alarming level among both children and adults. Consequently, the incidence of NCD is also very high and represents more than 50% of total causes of death in the EMR [2,3].

Many factors have been implicated in aetiology of obesity like nutritional behaviour, a level of physical activity, genetic make-up, and environmental influences [4]. The combination of an excessive nutrient intake such as fast-food chains, high soft drinks, and a sedentary lifestyle are the main causes in developing obesity [4]. Changes in socioeconomic status have a significant effect on physical activity with the availability of easy transport, the increase in electrical home appliances and more involvement in office work, long periods in watching television and using the internet [5]. There is considerable evidence from clinical to cellular and molecular studies that elevated cortisol, particularly when combined with secondary inhibition of sex steroids and growth hormone secretions. It causes accumulation of fat in visceral adipose tissues as well as metabolic abnormalities [6].

The growing increase of obesity, among either adults or adolescents in Saudi Arabia, creates a great incentive to study the prevalence and factors affecting this health problem in the community [7]. There are many studies focusing on the prevalence of obesity among children, adolescents, and adults [8-10]. However, none of these studies have investigated the scope of obesity internationally.

1. Once individuals become overweight or obese, achieving and maintaining an ideal weight is exceedingly difficult; therefore, the prevention of obesity may be the best way to tackle this growing epidemic.

2. Obesity among the participants is not adequately in many countries of the world. Despite their important role to be good models regarding their weight and body built.

3. Many chronic diseases are associated with obesity; around 30% of individuals who are overweight have at least mildly elevated blood pressure as long as increased incidence of strokes and heart attacks with obesity [11].

Aim of the study

The aim of this report was to study the scope of overweight and obesity among different individuals in some different countries of the world. Following are the objectives for the study:

• To understand the scope of overweight and obesity among the individuals in different countries.

• Identify the factors that could associate with overweight and obesity

Methods

A Cross-sectional approach has been employed for retrieving outcome during the time frame of 1st October to 30 November 2013. The study was conducted through an online survey. Based on the thorough review of relevant literature, the researcher constructed a data-collection questionnaire based mainly on the daily intake and routine of individuals. The total number of questionnaire distributed through an online survey to different countries was 250. Out of 250 questionnaires 229 were received, which were completely filled.

Socio-demographic characteristics: Age, marital status, academic level, father education and mother education.

Life style items: Consumption of soft drinks, regular exercise, snacks, fast food, eating while watching TV, and studying under stress).

Both weight (in kg) and height (cm) were measured in the screening through an online survey. Body mass index (BMI) was calculated as follows; weight in kilograms divided by the height in meter square [weight (kg)/height (m^2)], BMI used to identify overweight and obesity. Participants` BMI was classified as follow:

• **Normal/acceptable weight:** BMI 18.5 ------ <25 kg/m^2

• **Overweight:** BMI>25 --------- <30 kg/m^2

• **Obesity:** BMI>30 kg/m^2

A pilot study was carried out on a purposive sample of 15 participants (whose data were included in the main study) since there was no significant difference between both. The purpose of this pilot study was to test the wording, validity, and reliability of questions. Accordingly, some questions were removed (as the quantity of soft drinks/day) or modified (as marital status) and hence, the final form of the questionnaire was adopted. All of the necessary official permissions were secured. Before starting data collection, the objectives of the present study as well as the data collection tool were fully explained to all participants. It was clearly emphasized that each participant was totally free to accept or to refuse to contribute to the study. They were advised to keep their identity anonymous, as the collected data will be used only for research. They were assured that the results of this study can never cause any harmful to them.

Statistical Package for Social Sciences (SPSS) software version 20.0 was used for data entry and analysis. Descriptive statistics (number, percentage) and analytic statistics using the Logistic Regression on the data to evaluate the impact on BMI due to the consumption of junk food and drinks on daily basis.

RESULTS AND DISCUSSION

The total responses obtained through the results were 229, who completed the questionnaire and gave responses related

to the information required. Socio-demographic characteristics showed in Table 1 have indicated the frequencies of participants with respect to age, marital status and academic level of the respondent and their parents. This has indicated the frequencies of overweight and obese participants were greater than the normal patients. These figures were higher than those reported in Sudan where a figure of 26.2% has been reported for both overweight and obesity (classified as overweight 16.8%, obese 9.4%), [5] and in Malaysia, where overweight and obesity prevalence among medical participants were 15.9% and 5.2%, respectively [12,13]. However, it was lower than those reported in Jordan by Abbas et al. [14] that revealed that the prevalence of overweight was 39%, while that of obesity was 37%, giving a total of 76%.

Table 1 Socio-demographic characteristics as predictors of overweight or obesity

Socio-demographic characteristics	Body mass index*	
	Normal	Overweight/obese
Age (years)		
<20 (n=111) a	57	54
≥20 (n=118)	10	108
Marital status		
Single (n=72) a	45	27
Married (n=157)	22	135
Academic level		
Second (n=9) a	9	0
Third (n=18)	18	0
Fourth (n=26)	18	8
Fifth (n=62)	0	62
Sixth (n=114)	22	92
Father education		
Illiterate(n=11)	11	0
primary (n=40) a	34	6
Intermediate (n=80)	15	65
Secondary (n=69)	7	62
University+ (n=29)	0	29
Mother education		
Illiterate (n=16) a	16	0
Primary (n=83)	29	55
Intermediate (n=77)	11	66
Secondary (n=35)	0	35
University+ (n=18)	11	7

Table 2 has shown the life style items as predictors for overweight or obese participants. This has indicated that the participants consuming snacks and fast foods daily along with the exercise were overweight/obese. This has provided a concept that obesity can be controlled through daily exercise along with the decrease in the consumption level of junk food. Concerning obesity in different academic levels, the study revealed that overweight or obesity among participants of the fifth academic level was 75%, compared to 43.8%among those in the second academic level. This could be attributed to the combined effect of age (older age) and stress (high academic level) and not due to age alone as in our series, age alone was not proved to be significant risk factor for overweight or obesity. The finding has been reported by Ekpanyaskul et al. in his study among Thai Medical Participants [14,15].

Table 2 Life style items as predictors for overweight or obesity

Items	Body mass index*	
	Normal	Overweight/obese
Consumption of soft drinks		
Yes (n=142) a	55	87
No (n=87)	12	75
Regular exercise/week		
Yes (n=74)	46	28

No (n=155)	21	134
Snacks/day		
Yes (n=65)	42	23
No (n=164)	25	139
Fast foods (times/week)		
Yes (n=130) a	37	93
No (n=99)	30	69
Eating while watching TV		
Yes (n= 164) a	47	117
No (n=65)	20	45
Studying under stress		
Yes (n=188) a	67	121
No (n=41)	0	41

Table 3 has indicated the analysis of logistic regression, which has shown that eating while watching TV was one of the major cause of overweight and obesity. Bakr et al., [16] reported that the most important life style factors responsible for obesity were long time spent using the computer, eating more during the time of stress and snacking between meals. The environment of studying medicine is very stressful. Stress can influence eating patterns in humans and appears to alter overall food intake, resulting in under- or overeating [16]. Chronic life stresses seem to be associated with a greater preference for energy- and nutrient-dense foods, namely those that are high in sugar and fat. Evidence from longitudinal studies suggested that chronic life stress may be causally linked to weight gain, with a greater effect seen in men. Stress-induced eating may be one factor contributing to the development of obesity [17,18]. The study revealed that participants who responded as studying under stressful conditions showed a slightly not significant higher prevalence of overweight or obesity than those who gave a negative response towards the stressful environment. These findings were in disagreement with many studies [5,13,16,19,20].

Table 3 Logistic regression test

Variables in the Equation							
Step		**B**	**S.E.**	**Wald**	**df**	**Sig.**	**Exp (B)**
Step 1[a]	Fathers education	33.753	2181.725	0	1	0.988	455968295404111.3
	Mother's Education	-16.357	1090.863	0	1	0.988	0
	Consumption of soft drink	-0.007	0.717	0	1	0.992	0.993
	Routine of Regular Exercise	18.871	1090.863	0	1	0.986	156882328.9
	Snacks on everyday basis	-0.837	0.772	1.176	1	0.278	0.433
	Consume Fast foods frequently	-0.432	0.861	0.251	1	0.616	0.649
	Eating while watching TV	-4.638	1.653	7.876	1	0.005	0.01
	Study understress	52.645	4937.454	0	1	0.991	730198347901864300000000.000
	Constant	-117.074	7903.029	0	1	0.988	0
[a] Variable(s) entered on step 1: Fathers education, Mother's Education, consumption of soft drink, routine of Regular Exercise, Snacks on everyday basis, consume Fast foods frequently, eating while watching TV, Study understress							

The data demonstrated that having a family history of obesity increased the likelihood of a student being overweight or obese, a finding consistent with previous studies in middle- and high-income countries such as Brazil and Australia [21,22]. Genetic factors are considered as one of the risk factors for overweight and obesity [22,23]. While the collect data about food consumption practice of the family members was not collected, it has been suspected that it could be the family dietary habit that contributes to weight gain among family members.

The high percentage of overweight and obesity among medical participants questions the healthy lifestyle of these subjects. Medical participants, who will deal directly with patients in the near future, should set a good example of a healthy figure. Medical advice cannot be effective in changing behaviour if health professionals do not act as health

models that will encourage their patients to behave like them. Therefore, it is recommended that health workers should practice a healthy lifestyle and use it in their medical practice. More studies on the lifestyle of health workers are recommended to compare it with the lifestyle of the general population [24].

The present research has its strengths and limitations. The most notable strength is that the study population constituted all participants from different countries. According to Carlson et al. [24], low levels of physical activity have become a major concern on public health. The findings from previous studies have indicated that physical activity levels in United Kingdom participants are low [25,26]. These levels of physical activity are lower than the levels of similar age group in other countries. It has been revealed that travelling to school/university by using active means such as cycling and walking can grant an effective way of increasing high levels of physical activities.

The obesity related theories have increased the understanding of social and environmental approach that extend opportunities for weight increase and reducing healthy lifestyle options. A range of alternative approach and clarifications, which includes biological variables and genetic factors have been underpinned in the theories related to obesity. Different means of transportation have affected significantly on obesity. However, many developed countries have found that walking is an effective mean for participants to university. The increased rate of physical activity and decreasing rate of obesity is the reason behind preference of walking. Majority of countries are promoting transportation means as a physical activity along with walking.

CONCLUSION

The study concluded that majority of the participants were overweight and obese. Higher academic level participants had a higher prevalence than low academic level participants, but the study did not reveal a statistical significance between obesity and age. Dietary habits were not significant predictors of overweight or obesity among the study group. Following are certain recommendations in regards of the future implications:

Encourage the healthy lifestyle, healthy food habits, and a physically active daily routine, among the medical participants.

1) The high prevalence of obesity emphasizes the need for interventional programs for preventing and reducing obesity, since weight control is effective in ameliorating most of the disorders associated with obesity and psychologists may be useful to be consulted and involved in these programs.

2) Analytical studies are highly recommended to investigate in depth the relation between obesity and stress among the medical participants.

3) The inclusion of female participants for comparison is needed.

DECLARATIONS

Ethics approval and consent to participate

This research has been conducted complying with all ethical standards and under the IRB Number: SAU-2013-FM-12/09/PI; granted by Salman Bin Abdul-aziz University - Committee of Scientific Research and Publication.

Consent for publication

Not applicable.

Availability of data materials

The datasets used or analysed during the current study available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Author Contribution

The authors have analysed the scope of overweight and obesity among medical participants.

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