



Assessment of Obesity and its Relation to Other Diseases Among the Students of Faculty of Applied Medical Sciences in Albaha University, KSA

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Abstract

Background: Obesity has been identified an epidemic in Kingdom of Saudi Arabia and yet the numbers of overweight and obese adults and children continue to grow. The disease is associated with several serious health conditions including: diabetes mellitus type 2, heart disease, high blood pressure, Cancer, Hypoxia, Sleep apnea, Hernia and Arthritis.

Objectives: To assess the effect of obesity on other diseases like hypertension, diabetes mellitus, cholesterol levels, heart disease, insomnia, eating habits, exercise and family history of gout among university students.

Materials and methods: This study was done among 300 students from different departments of the Faculty of Applied Medical Sciences, Albaha University. The descriptive analytical method was used which is based on the interview and observation and collection of information through a questionnaire.

Results: The results showed hypertension in 11% of obese students, while 9% of them have diabetes mellitus. Further findings among these 300 students showed 7% high cholesterol level, 14% heart diseases, 20% sleep disorders, 85% do not exercise, 19% eats more than three times a day, 17% prefers fast food and 86% does not have meals with group, 15% of students have obesity in their families while 2% have the history of obesity related disease (gout).

Conclusion: Obesity is the possible predictor of diseases like hypertension, diabetes and sleep related disorders among the university students.

Keywords

Obesity; Hypertension; Diabetes mellitus; Heart disease; Albaha

Introduction

Obesity has reached epidemic proportions globally, with more than 1 billion adults overweight at least 300 million of them clinically obese and is a major contributor to the global burden of chronic disease and disability [1]. Often coexisting in developing countries

with under-nutrition, obesity is a complex condition, with serious social and psychological dimensions, affecting virtually all ages and socioeconomic groups. Increased consumption of more energy-dense, nutrient poor foods with high levels of sugar and saturated fats, combined with reduced physical activity, have led to obesity rates that have risen three-fold or more since 1980 in some areas of North America, the United Kingdom, Eastern Europe, the Middle East, the Pacific Islands [2]. Obesity and overweight pose a major risk for serious diet-related chronic diseases, including type 2 diabetes, cardiovascular disease, hypertension and stroke, and certain forms of cancer [3]. Obesity is most commonly caused by a combination of excessive food energy intake, lack of physical activity, and genetic susceptibility, although a few cases are caused primarily by genes, endocrine disorders, medications, psychiatric illness or insomnia [4]. Evidence to support the view that some obese people eat little yet gain weight due to a slow metabolism is limited. On average, obese people have greater energy expenditure than their thin counterparts due to the energy required to maintain an increased body mass [5].

Dieting and exercising are the main treatments for obesity. Diet quality can be improved by reducing the consumption of energy-dense foods, such as those high in fat and sugars, and by increasing the intake of dietary fiber. With a suitable diet, anti-obesity drugs may be taken to reduce appetite or decrease fat absorption. If diet, exercise, and medication are not effective, a gastric balloon may assist with weight loss, or surgery may be performed to reduce stomach volume and/or bowel length, leading to feeling full earlier and a reduced ability to absorb nutrients from food [6,7]. Obesity is a leading preventable cause of death worldwide and one of the most serious public health problems of the 21st century among children and adults [2]. Obesity is stigmatized in much of the modern world (particularly in the Western world), though it was widely seen as a symbol of wealth and fertility at other times in history and still is in some parts of the world [8].

In 2013, the American Medical Association classified obesity as a disease [9]. The surgical literature breaks down "class III" obesity into further categories whose exact values are still disputed: [10] 1) Body Mass Index (BMI) ≥ 35 or 40 kg/m^2 is severe obesity. 2) BMI of $\geq 35 \text{ kg/m}^2$ and experiencing obesity-related health conditions or $\geq 40\text{-}44.9 \text{ kg/m}^2$ is morbid obesity. 3) BMI of ≥ 45 or 50 kg/m^2 is super obesity. Excessive body weight is associated with various diseases, particularly cardiovascular diseases, diabetes mellitus type 2, obstructive sleep apnea, certain types of cancer, osteoarthritis and asthma as a result, obesity has been found to reduce life expectancy [4]. Large-scale American and European studies have found that mortality risk is lowest at a BMI of 20-25 kg/m^2 in non-smokers and at 24-27 kg/m^2 in current smokers, with risk increasing along with changes in either direction [11]. In Asians risk begins to increase between 22-25 kg/m^2 [12]. BMI of 30-35 kg/m^2 reduces life expectancy by two to four years, while severe obesity (BMI $>40 \text{ kg/m}^2$) reduces life expectancy by ten years [13]. Obesity increases the risk of many physical and mental conditions. These co morbidities are most commonly shown in metabolic syndrome [4], a combination of medical disorders which includes: diabetes mellitus type 2, high blood pressure, high blood cholesterol, and high triglyceride levels [14]. Health consequences fall into two broad categories: those attributable to the effects of increased fat mass (such as osteoarthritis, obstructive sleep apnea, and social

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Received: February 11, 2021 Accepted: February 25, 2021 Published: March 03, 2021

stigmatization) and those due to the increased number of fat cells (diabetes, cancer, cardiovascular disease, non-alcoholic fatty liver disease) [4]. Hence, the objective of the present study was to assess the effect of obesity on other diseases like hypertension, diabetes mellitus, cholesterol levels, heart disease, insomnia, eating habits, exercise and family history of gout among the Students of Faculty of Applied Medical Sciences in Albaha University, Kingdom of Saudi Arabia (KSA).

Materials and Methods

Descriptive analytical method was used which is based on the interview and observation and collection of information through a standard questionnaire. The study was done in the Faculty of Applied Medical Sciences, Albaha University, Albaha, KSA in the month of January-March, 2020. Informed consent forms were obtained from the study participants, who were willing to participate on a voluntary basis. The 300 obese students in different ages and department are included irrespective of any other demographic data. Standard questionnaire were used to collect information from the students. Questionnaire was based on the blood pressure (yes/no), diabetes mellitus (yes/no), cholesterol levels (high/normal), Heart Diseases (yes/no), sleep disturbances (yes/no), physical Exercises (yes/no), meals per day (frequency), Fast Food per day (yes/no), Obesity in family history (yes/no), Diseases associated with obesity (yes/no). Body Mass Index (BMI) measurement obtained by dividing a person's weight by the square of the person's height, exceeds 30 kg/m², with the range 25-30 kg/m² defined as overweight. The data acquisition of the BMI was determined by the following ranges: BMI=25-29.9 kg/m² (overweight), BMI ≥ 30 kg/m² (obesity) and BMI ≥ 40 kg / m² (severe obesity).

Statistics

Data obtained was entered in a MS-Excel spreadsheet and statistical analysis done using distribution of responses for frequencies and percentages.

Results

Table 1 showed 33 (11%) of the obese students were suffering from hypertension (abnormal blood pressure), while normal blood pressure was found in 267 (89%) of obese students. Table 2 showed 274 (91%) obese students were without diabetes, while 26 (9%) of them have diabetes. In Table 2, 21 (7%) of obese students showed hyper cholesterol level and 279 (93%) of them have normal cholesterol level. It showed 41 (14%) of obese students have heart diseases. It showed 60 (20%) of obese students have sleep disorders and 240 (80%) of them do not have any sleep related disease. It showed 255 (85%) of obese students do not exercise. It showed 57 (19%) of obese students have habit of more than three meals a day, while the rest of the students i.e. 243 (81%) have meals three or less. It showed 51 (17%) of obese students prefer to fast food while 249 (83%) students do not prefer it. It showed 46 (15%) of the students have the family history of obesity and the rest 254 (85%) does not have obesity in their family. It showed 6 (2%) of students have the history of obesity related disease (gout), 18 (6%) of the students do not know, and 276 (92%) do not have the history of gout.

Table 1: Relation between obesity and blood pressure of students.

Element	Frequency	Percentage %
Normal blood pressure	267	89

Hypertension	33	11
Total no. of students	300	100

Table 2: Relation between obesity and diabetes mellitus.

Element	Frequency	Percentage %
Normal blood glucose	274	91
Diabetes Mellitus	26	9
Total no. of students	300	100

Discussion

In the present study, 300 obese students from all the departments of Faculty of Applied Medical Sciences, Albaha University, Albaha, KSA participated using self-administered pre-tested questionnaire. In present study 33 (11%) obese students showed abnormal blood pressure values (hypertension). In a study conducted by Seravalle and Grassi [15] found that obesity is associated with various alterations at inflammatory, endothelial and hormonal level. These alterations induce a stimulation of several other mechanisms that contribute to the hypertensive state. Large-scale population studies have shown that obesity is the most important independent risk factor for insulin resistance and diabetes mellitus [16,17]. In present study also found that 26 (9%) obese students were diabetic. High cholesterol level is reaching higher prevalence rates in KSA [18]. This finding may suggest that heart diseases will be a major health problem. In present study also showed 7% hyper cholesterol level and 14% heart diseases among university students. Twenty percent obese students were suffering from sleep disturbances in present study. Koren and Taveras[19] showed insufficient sleep is associated with increased risk of obesity, diabetes mellitus, hyper cholesterol level and the metabolic syndrome; this study is in agreement with our results. There are 255 (85%) obese students not doing exercise, 57 (19%) have habit of eating more than 3 times a day and 51 (17%) prefer fast food. Exercise, in conjunction with diet, is critical to losing weight and maintaining health in obese patients. While it can be challenging for an obese person to transition to a healthy lifestyle, the physical and emotional benefits of a regular exercise program make it worth the effort [20]. Reduction in obesity by adopting healthier eating habits, and increasing physical activity are of considerable importance to the students of Albaha University [18]. In present study 46 (15%) and 6 (2%) of the obese students have the family histories of obesity and obesity related disease (gout). It may be due to family history of obesity is the major predictor of obesity and the metabolic abnormalities on amino acids, acylcarnitines, inflammation and insulin resistance [21]. The university should initiate policies to reduce obesity and obesity-related conditions through inter-university programs, technical assistance and training, leadership, surveillance and research, intervention development and evaluation, translation of practice-based evidence and research findings, and partnership development. These initiatives will make healthy choices in nutrition and physical activity available, affordable, and easy likely prove most effective in combating obesity of university students.

Conclusion

The possible risks like hypertension, diabetes, sleep related disorders, heart diseases increased with obesity. Over weight and obesity are the results of variety of social behavioral, cultural, environmental and physiological factors. Addressing nutrition and

physical activity jointly is essential in prevention and treatment of obesity.

Conflict of Interest

None declared

Source of Support

Nil

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