



The prevalence of obesity and the awareness of its complications among adolescent in Hail city Saudi Arabia

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General Note



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ABSTRACT

Background: Obesity is the accumulation of excess fat in the body and represents a public health problem globally, including Saudi Arabia. Therefore, this study aimed to estimate the prevalence of obesity among adolescents at intermediate and secondary schools in Hail city and to determine the level of awareness about its complications. **Methods:** A descriptive cross-sectional study has been

conducted between 19 March 2019 and 18 April 2019. *Results:* The study included 400 students; the ratio of male to female was 1:1 with a mean age $\pm$ SD of 16 ± 1.6 years. Approximately, 59.8% of participants were found to be aware of obesity and its complications. The main source of information was social media indicated by 67.4% of individuals. The factors that significantly affected the awareness of students were age ($P=0.0001$), gender ($P=0.0001$), weight ($P=0.0001$), BMI ($P=0.0001$), waist circumference ($P=0.0001$), mood ($P=0.0001$) and school achievements ($P=0.0001$). *Conclusions:* The prevalence rates of obesity and overweight presented one-third of the participants in this study and the level of awareness among students regarding obesity complications was indicated in two-third of participants, and the social media derived as the first source of awareness.

Keywords: Awareness, Obesity, School students, Hail.

1. INTRODUCTION

According to world health organization (WHO), obesity is defined as "a state of accumulation of excessive fats in the body over the normal health body limits and usually associated with increased health risk" (WHO, 2011). Body Mass Index (BMI), issued as a standard screening tool for determining whether an individual is overweight or obese. (BMI is usually calculated by dividing body weight in kilograms divided by the square of height in meters. Individual fitness should be considered when assessing values of BMI. Normal BMI is ranging from 18.5 to <25 . Fewer than 18.5 are considered underweight and 25 -30 are considered as overweight. Additionally the BMI value of 30.0 and above is an indication of obesity. Furthermore, the Obesity is normally subdivided into different categories: Class 1: BMI of 30 to <35 , Class 2: BMI of 35 to <40 , Class 3: BMI of 40 or higher. The third is the most severe type in obesity categories (CDC, 2017). The most concerning obesity related health issue is that associated with childhood and adolescent. This study is identified when the individual is above the normal or healthy weight for his or her age and height. Gaining of excess weight is usually the same in children and adults. Mostly associated with a person's behavior and genetics factors (Cote et al., 2013). More Immediate Health Risks of Obesity during childhood can harm the body in a variety of ways. Obesity may lead to several medical conditions including, high blood pressure, high cholesterol; which are risk factors for cardiovascular disease (CVD), increased risk of impaired glucose tolerance, insulin resistance, and type 2 diabetes, breathing problems, such as asthma and sleep apnea, joint problems and musculoskeletal discomfort, fatty liver disease, gall stones, and gastro-esophageal reflux (i.e., heart burn) (Lloyd et al., 2012; Baur, 2002). The prevalence of obesity has become hugely increasing in the world over the past few decades (Renew Bariatrics, 2017; Alotaibi et al., 2016). Furthermore, in Saudi Arabia, especially in the last three decades, obesity became a major health problem, increased significantly due to a sedentary lifestyle, and decreased physical activity (Withrow and Alter, 2011). Obesity may lead to several co-morbidities such as diseases of gastrointestinal, cardiovascular, endocrine, gall bladder, arthritis and it causes obstructive sleep apnea (ALNohair, 2014). Several studies conducted worldwide revealed that the majority of the population reported low knowledge about obesity and its co-morbidities (Al-Hazzaa, 2004; Al-Almaie, 2005). In KSA, the awareness about obesity and its complications has been reported to be varying. For example, the awareness was found to be low from the Al-Taif region while as it was found to be higher in the Madinah region respectively (Alotaibi et al., 2016; Al-Qahtani, 2016). Therefore, this study aimed to estimate the prevalence of obesity among adolescents at intermediate and secondary schools in Hail city and to determine the level of awareness about its complications.

2. MATERIALS AND METHODS

This is a descriptive cross-sectional study in Hail Region; Northern Saudi Arabia. The data was collected during the period between 19 March 2019 and 18 April 2019. Four schools were selected, 2 for males and 2 for females (covering the area of Hail from the middle to west and north to south geographical area). All students in the 4 selected schools were included in the study. A purposeful self-administered questionnaire was employed including demographic characteristics of the study population as well as information related to obesity measures. Obtained data were entered a computer software (SPSS) and analyzed to produced frequencies and percentages.

Ethical issues were considered by formal approval taken from "the general administration of research and studies" and also from "the general schools' administrations" in addition to oral consent taken from each participant before filling the survey.

3. RESULTS

The present study included 400 participants, 200(50%) of them were males and 200(50%) of them were females. the range of age of participants was 6 years (between 13-19 years old) with a mean $\pm$ SD of 16 ± 1.6 , the most dominant age group was the age group

of those with 16-17 years old 190(47.5%). The mean $\pm$ SD of weight, height, and BMI was 57.2 ± 14 Kg, 158.5 ± 8 cm and 23.1 ± 4.8 respectively as seen in figure 1.

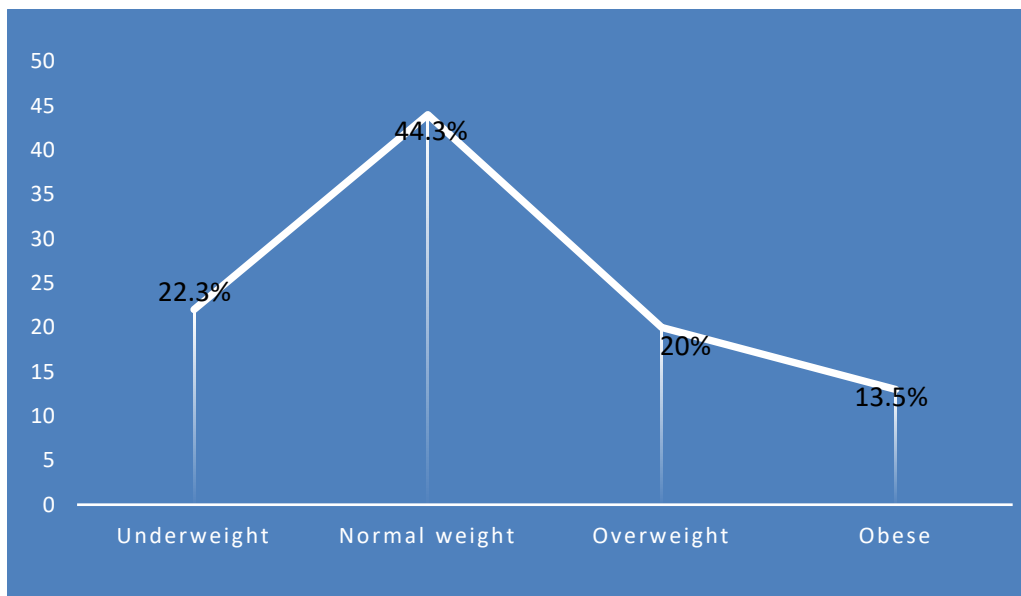


Figure 1 half of the participants were normal weight and overweight were less than half.

Participants with normal weight were more dominant among all participants 177(44.3%) than for underweight 89 (22.3%) followed by overweight 80 (20%) and lastly for obese 54 (13.5%) (Figure 1). The mean $\pm$ SD of waist circumference was 73.2 ± 9.2 . Around two-thirds of participants, 277(69.3%) had a good mood and 175(43.8%) had excellent academic achievements. There were 177(44.3%) reported having 3 meals per day, the most common meal content was rice 198 (49.5%), followed by bakery products 93(23.3%). For fast food consumption; 175(43.8%) reported consuming fast food one per week, and 119 (29.8%) consume soft drinks one per week, the most favorite fast food reported was burger 161(40.3%). Concerning information about the danger of obesity, there were 59.8% had information about obesity complications see figure 2.

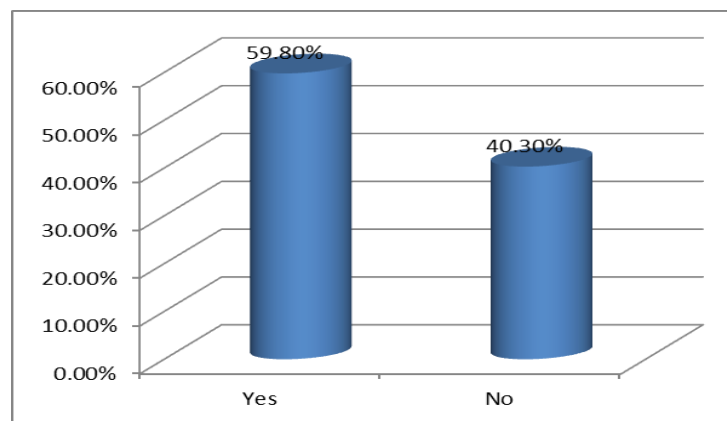


Figure 2 Showed that more than half reported having information about complications of obesity and less than half were didn't

As shown in Table 1 More than half 256 (64%) reported performing physical activity (once or twice weekly) and 119 (46.5%) reported performing it less frequently. The most common type of physical activity performed was walking 144(56.3%).

Table 1 physical activity

Characteristics	Frequency	Percentage
Physical activity		
Yes	256	64
No	144	36

Frequency of Physical activity/week		
Once	56	21.9
Twice	81	31.6
Less than twice per week	119	46.5
Type of physical activity		
Walking	144	56.3
Aerobics	10	3.9
Swimming	40	15.6
Others	62	24.2
Duration of physical activity		
30 min	153	59.8
1 hr	37	14.5
> 1 hr	66	25.8

Table 1 showed that two-third of the student was found to do physical activity. Almost half of them do it less than twice per week. And half of the students use to walking more than other sports. On the other hand, the majority of 366 (91.5%) reported using social media applications, about three quarters (73.5%) reported using it more than 2 hours as appeared in Figure 3.

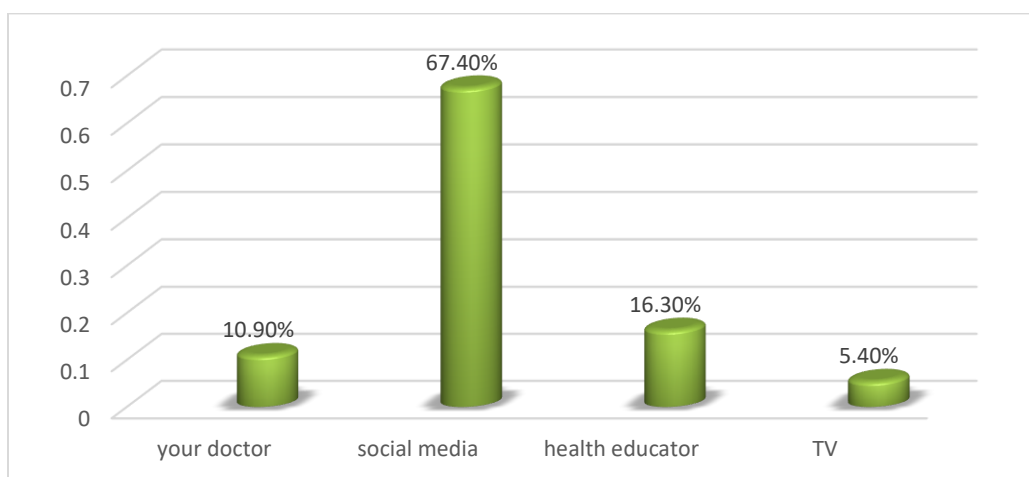


Figure 3 The main source of information was social media, followed by a health educator and around a quarter of them from doctors.

4. DISCUSSION

The prevalence of obesity in the current study 33.5% (20% for overweight and 13.5% for obese) it's almost similar to the prevalence of obesity among adolescents in the U.S. (12–19 years) (20.6%). That was done in 2017 (Hales et al., 2017). In another study on 2016 in Canada, 12.9% 10- to 14-year-olds and 18.2% 15- to 17-year-olds are obese, total adolescent obesity is 31.1% (Rao et al., 2016) is higher than a similar study done in Taif, 2016 (11.2% for overweight and 12.4% for obese) (Alotaibi et al., 2016). While in a study done in Riyadh, 2005; it was reported that the prevalence was 13.8% for overweight and 20.5% for obese (Almohsen et al., 2017). A study from UAE in 2007 reported a prevalence of 21.5% and 13.7% for overweight and obesity among 5-17 years that showed almost the same result as the current study (Malik, 2007). Similar study from Egypt has reported prevalence rates of 7.7% and 5.1% among students at intermediate schools (Kamel, and Ibrahim, 2011). Same to India, the prevalence of overweight and obesity was 14.3% and 2.9% respectively among male schools (Goyal et al., 2010). In the current study there were 59.8% had information about obesity complications and the main source of information was social media 67.4%, this percentage is higher than the findings reported from a study done in ALTAIF where a study from Taif where only 12% of students knew obesity complications (Alotaibi et al., 2016). Also in a study done in AL Madinah showed that 76.7% of students had insufficient knowledge regarding obesity complications (Al-Qahtani, 2016). Another study conducted among secondary school students in Nigeria in 2017 demonstrated that more than half of 58.2% knew obesity complications (Omotola, 2017). Strange enough that no one of the previous studies reported the source of students' information, in the current study; it was found that the main sources were social. Another study done in 2017

by Alasmari reported that awareness was associated with school students who are male and older on high school students (Alasmari et al., 2017). A study from Madinah revealed that the knowledge of students about obesity complications wasn't associated with age or BMI and in our study; we found that there is an association with BMI and age (Al-Qahtani, 2016).

5. CONCLUSION & RECOMMENDATIONS

The study concludes that the presence of awareness among students regarding obesity complications was associated with obesity and those who have high waist circumference. Also Good academic achievement and having a good mood were associated with the presence of knowledge about complications. Also, the main source of information was social media followed by the health educator on the school then doctors. Therefore, programs and plans to regularly screen the obesity and its complication of students should be implemented. Moreover, there is a strong need to implement educational programs for the students at schools through raising of the role of the family physician in the community, as well as, the health educator in schools.

Limitations of the study

There were difficulties concerning distributing and getting the questionnaires for the female schools. Also, there were some difficulties the time of the study was in coincidence with the exams dates at schools.

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Conflicts of Interest: The authors declare no conflict of interest.

Ethical Approval

Approved by IBR Registration Number with KACST, KSA: H-08-L-074.

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