

Obesity Knowledge among Intermediate School Students in Majmaah, Saudi Arabia

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ABSTRACT

Introduction: Obesity is a significant public health problem affecting more than half a billion people in both developed and developing countries. Studies on obesity awareness among school students in Saudi Arabia are scanty. A study conducted among school students in Al-Madinah, Saudi Arabia showed that most of students had insufficient knowledge of obesity.

Objectives: The objectives of the study were to determine the level of obesity knowledge of intermediate school students in Majmaah, Saudi Arabia and to determine the relation between students' nutritional status and their obesity knowledge.

Methodology: The research design was cross-sectional. The sample size was calculated as 350. The data was collected by a pre-tested questionnaire and medical examination. Weight and height of the students were measured to calculate the Body Mass Index (BMI). SPSS for windows was used for data analysis.

Results: Most of the students had adequate level of obesity knowledge 214 (61.1%). The obese students who had adequate knowledge were 60 (72.3%). The overweight, the normal and the underweight students who had adequate knowledge were 63.4%, 59.6% and 47.3% respectively.

Conclusion: In Conclusion, most school students have adequate knowledge about obesity: however, knowledge of students who are obese or overweight is better than those who are normal or underweight. The study recommends more studies about students' knowledge of obesity that involve students from all regions of Saudi Arabia.

Key words: Obesity, Knowledge, Intermediate school students, Majmaah

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INTRODUCTION

Obesity is a significant public health problem affecting more than half a billion people in both developed and developing countries [1]. In the past four decades the number of obese children worldwide as risen ten folds [2,3]. Worldwide over 340 million children and

adolescents aged 5-19 were overweight or obese in 2016 [4,5].

In England between 2014 and 2015, 19.1% of children aged 10 to 11 years old were obese and a further 14.2% were overweight [6]. The estimated prevalence of childhood overweight and obesity in Africa in 2010 was 8.5% and is expected to reach 12.7% in 2020. In India the prevalence of childhood and adolescent obesity was estimated as 19.3% [7]. The prevalence of obesity among school children in the Gulf Countries ranges from 5% to 14% in males

and from 3% to 18% in females [8]. In the United Arab Emirates, the prevalence of obesity among children and adolescents is continuously increasing [9].

In Saudi Arabia, the disease is a common health problem and the prevalence among children and adolescents increased significantly [10]. The kingdom is now having one of the highest obesity and overweight prevalence rates worldwide [11]. The prevalence of obesity among the age group 5 to 18 years was 11.3%. The prevalence of the disease among females and males aged of 5-12 years was 11.0% and 7.8% respectively [12].

Regarding knowledge, studies showed that awareness of school children about obesity in Tanzania and Bahrain was moderate and enough respectively [13,14]. Studies on obesity awareness among school students in Saudi Arabia are scanty. A study conducted among school students in Al-Madinah, Saudi Arabia showed that most of students had insufficient knowledge of obesity [15].

The objectives of the study were to determine the level of knowledge of intermediate school students in Majmaah Saudi Arabia about obesity, to determine the relation between students' nutritional status and their obesity knowledge and to determine the effect of parents' education on the level of students' obesity knowledge.

MATERIALS AND METHODOS

Study design and population

The study was cross-sectional conducted on intermediate school children in Majmaah, Saudi Arabia whose age was between 12 and 17 years. Female students were excluded from the study.

Sampling

At the level of schools stratified sampling was considered and five schools were chosen. Inside the schools the sample was taken by simple randomization using the table of random selection. The sample size was calculated as 336 taken as 350.

Data collection and analysis

The data was collected by a pre-tested questionnaire and medical examination. The questionnaire respondents were school children themselves. The questionnaire consisted of

social data such as age, father and mother education. Education level of the parents was taken by asking the students and information was cross-checked by examination of the school records. If data was inconsistent contact of the parents took place to confirm the information. The questionnaire included examination section to state the BMI data. Nutritional status of the students was performed by measuring the weight and height of the students. The height of the students was measured by a measuring tape while a student is standing, looking straight and without shoes. The weight was measured by a weighing machine (GEEPAS DIGITAL PERSONAL SCALE) while a student was wearing light clothes and without shoes. The BMI was measured by the following formula: $BMI = \frac{\text{weight (Kg)}}{\text{Height (meter)}^2}$ [16].

To assess students' Knowledge regarding obesity, Likert scale was employed. Five basic questions about obesity were asked. Students who answered correctly four or five questions were considered as having adequate knowledge about obesity; those who answered correctly three questions were considered to have average knowledge while those who answered correctly less than three questions were categorized as having poor knowledge. The data were analyzed by statistical package for social sciences (SPSS), version 22 (SPSS, Chicago, Illinois, USA). Descriptive statistics was used (frequency and standard deviation). For qualitative data, comparisons between groups were done by the chi-square test. P value less than 0.05 was considered significant and all tests were 2-sided.

Ethical concern

The ethical approval was obtained from the ethical committee of the Basic and Health Research Centre of Majmaah University. Informed consent was obtained from the participant's parents or guardians. This work was coordinated with the education administration of Majmaah province along with the selected schools.

RESULTS

Table 1 shows the age distribution of the students. Students with age between thirteen and fourteen years were 187 (53.3%). Students with age between fifteen and sixteen years were 160 (48.5%). Only three students were more than sixteen years of age (0.9%).

Table 2 shows the average knowledge about nutritional status. Students with good, average and poor knowledge were 61.1%, 18.9% and 20.0% respectively.

Table 3 shows the relation between nutritional status and students' knowledge about obesity. The Obese students have the highest level of obesity knowledge (72.3%). The level of adequate knowledge of underweight, normal weight and overweight were 47.3%, 59.6% and 63.4% respectively. The relation between nutritional status and students' knowledge about obesity is significant (p=0.007).

Table 4 shows the relation between students' knowledge about obesity and parents' education. One hundred and twenty-nine (60.3%) of the students whose fathers had general education have adequate knowledge of obesity compared to 85 (39.7%) of students whose fathers had high

education (p=0.19). One hundred and thirty-three (62.1%) of the students whose mothers had general education have adequate knowledge of obesity compared to 81 (37.9%) of students whose mothers had high education (p=0.61).

DISCUSSION

In the current study we found that most of the students have adequate obesity knowledge (61.1%), this finding is inconsistent with studies conducted in Italy and India where only 8.6% and 7.0% of students had adequate knowledge about obesity [15,16]. This finding is also inconsistent with studies conducted in Riyadh and Taif in KSA which revealed inadequate Knowledge of the students regarding obesity. This finding me be explained by the fact that great effort was played by local health authorities to raise awareness of school students about health problems including

Table 1: Age distribution of the sample.

Age	No	%
13 - 14	187	53.3
15 -16	160	45.8
More than 16	3	0.9
Total	350	100

Table 2: Students' knowledge about obesity.

Knowledge	Frequency	Percent
Adequate	214	61.10%
Average	66	18.90%
Poor	70	20.00%
Total	350	100.00%

Table 3: Relation between nutritional status of the students and their obesity knowledge.

Nutrition status	Knowledge			p
	Poor No. (%)	Average No. (%)	Adequate No. (%)	
Underweight	15 (27.3)	14 (25.5)	26 (47.3)	0.007
Normal weight	42 (24.6)	27 (15.8)	102 (59.6)	
Overweight	03 (7.3)	12 (29.3)	26 (63.4)	
Obese	10 (12.0)	13 (15.7)	60 (72.3)	
Total	70 (20.0)	66 (18.9)	214 (61.1)	

Table 4: Relation between students' obesity knowledge and parents' education.

Parents' education	Students' Knowledge about obesity			Total	p
	Poor No. (%)	Average No. (%)	Good No. (%)		
	Father education				
General	49 (70.0)	47 (71.2)	129 (60.3)	225 (64.3)	0.19
High	21(30.0)	19(28.8)	85(39.7)	125(35.7)	
Total	70 (20.0)	66(18.9)	214 (61.1)	350 (100.0)	
	Mother education				
General	48 (68.6)	44 (66.7)	133 (62.1)	225 (64.3)	0.61
High	22(31.4)	22(33.3)	81(37.9)	125 (35.7)	
Total	70 (20.0)	66 (18.9)	214 (61.1)	350 (100.0)	

obesity. Majmaah school health program ranked the first in Riyadh region for the year 2017-2018. The support of college of Medicine, Majmaah University to Majmaah school health program can also play a role in this achievement [17-19]. Our results found that the awareness of students who were overweight and obese was higher than that of underweight and normal ($p=0.007$). This may be explained that obese children tend to know more about obesity, this may be guided by their parents, unlike those who are normal who show no drive to know about the condition. This finding is inconsistent with other studies which found no significant differences in nutrition knowledge between the obese and non-obese students [20,21]. A research work by Moses N in her study on school students reported an exaggerated concern with obesity regardless of body weight or nutrition knowledge [22].

Our study shows no relation between Father and mother education with their children knowledge regarding obesity ($p=0.19$ and 0.61). A study conducted in northeast India showed that obesity was more common among the students whose mothers are highly educated: however, in Egypt a study showed that lower parent's education is a risk factor for child obesity [23,24]. A study in Madina, KSA showed a relation between father education and student's obesity, most fathers of the obese students had high education level [25].

CONCLUSION

In Conclusion, most school students have adequate knowledge about obesity: However, knowledge of students who are obese or overweight is better than those who are normal or underweight. The study recommends more studies about students' knowledge of obesity that involve students from all regions of Saudi Arabia.

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CONFLICTS OF INTEREST

All authors declared no conflict of interest in this research.

LIMITATIONS OF THE STUDY

This study was conducted in Majmaah, Saudi Arabia, which is an urban setting, so the results can't not be generalized to all students in the Kingdom.

REFERENCES

- [1] Bhurosy T, Jeewon R. Overweight and obesity epidemic in developing countries: A problem with diet, physical activity, or socioeconomic status? *Scientific World J* 2014; 2014:964236.
- [2] Rivera JA, de Cossio TG, Pedraza LS, et al. Childhood and adolescent overweight and obesity in Latin America: a systematic review. *Lancet Diabetes Endocrinol* 2014; 2:321-32.
- [3] Mazidi M, Banach M, Kengne AP, et al. Prevalence of childhood and adolescent overweight and obesity in Asian countries: A systematic review and meta-analysis. *Arch Med Sci*. 2018; 14:1185-1203.
- [4] https://www.paho.org/hq/index.php?option=com_content&view=article&id=13798:obesity-trends-by-imperial-college-london-and-who-2017&Itemid=42457&lang=en
- [5] Pereira JL, Vieira DADS, Alves MCGP, et al. Excess body weight in the city of São Paulo: Panorama from 2003 to 2015, associated factors and projection for the next years. *BMC Public Health* 2018;18:1332.
- [6] <https://www.gov.uk/government/organisations/public-health-england>
- [7] Ranjani H, Mehreen TS, Pradeepa R, et al. Epidemiology of childhood overweight & obesity in India: A systematic review. *Indian J Med Res* 2016; 143:160-174.
- [8] ALNohair S. Obesity in gulf countries. *Int J Health Sci (Qassim)* 2014; 8:79-83.
- [9] Alboshi A, Shaban S, ALTUNaiji M, et al. Increased obesity rates in school children in United Arab Emirates. *Obes Sci Pract* 2016; 2:196-202.
- [10] Al-Muhaimeed AA, Dandash K, Ismail MS, et al. Prevalence and correlates of overweight status among Saudi school children. *Annals Saudi Med* 2015; 35:275-281.
- [11] De Nicola E, Aburizaiza OS, Siddique A, et al. Obesity and public health in the Kingdom of Saudi Arabia. *Reviews Environ Health* 2015; 30:191-205.
- [12] Al Dhaifallah A, Mwanri L, Aljoudi A. Childhood obesity in Saudi Arabia: Opportunities and challenges. *Saudi J Obes* 2015; 3:2-7.
- [13] Njelekela MA, Muhihi A, Mpembeni RN, et al. Knowledge and attitudes towards obesity among primary school children in Dar es Salaam, Tanzania. *Niger Med J* 2015; 56:103-108.

- [14] Atlı M, Özkan Z, Uyar B. Assessment of obesity awareness stage of secondary school students. SHS Web of Conferences.
- [15] Al-Qahtani AM, Sundogji H. Attitudes and knowledge of obesity risks among Male high school students in Al-Madinah, Saudi Arabia. *J App Pharm Sci* 2016; 6:154-158.
- [16] www.cdc.gov/nccdphp/dnpa/growthcharts/training/modules/module1/text/module1print.pdf
- [17] Turconi G, M Guarcello M, Maccarini L, et al. Eating Habits and Behaviors, physical activity, nutritional and food safety knowledge and beliefs in an adolescent Italian population. *J Am Coll Nutr* 2008; 27:31-43.
- [18] Mangalathil T, Choudhary P, Kumar V. Knowledge and attitude regarding obesity among adolescent students of Sikar, Rajasthan. *IOSR J Nurs Health Sci* 2014; 5:44-48.
- [19] Alasmari HD, Al-Shehri AD, Aljuaid TA, et al. Relationship between Body Mass Index and obesity awareness in school students. *J Clin Med Res* 2017; 9:520-524.
- [20] Thakur N, D'Amico F. Relationship of nutrition knowledge and obesity in adolescence. *Family Med* 1999; 31:122-127.
- [21] O'Dea JA, Wilson R. Socio-cognitive and nutritional factors associated with body mass index in children and adolescents: Possibilities for childhood obesity prevention. *Health Edu Res* 2006; 21:796-805.
- [22] Moses N, Banilivy M, Lifshitz F. Fear of obesity among adolescent girls. *Pediatr* 1989; 83:393-398.
- [23] Bhattacharya P, Gogoi N, Roy A. Prevalence and awareness of obesity and its risk factors among adolescents in two schools in a northeast Indian city. *Int J Med Sci Public Health* 2016; 5:1111- 1122.
- [24] Talat M, El Shahat E. Prevalence of overweight and obesity among preparatory school adolescents in Urban Sharkia Governorate, Egypt. *Egyptian Pediatr Assoc Gazette* 2016; 64:20-25.
- [25] Ali A, Al-rehaily H, Al-logmani R, et al. Prevalence of obesity among male intermediate school students in Al-Madina at 2015. *Int J Acad Scien Res* 2016; 4:38-48.