

Assessment of The Effectiveness of Lifestyle on BMI in Adult People in Saudi Arabia, 2017

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ABSTRACT

Background: food habits and lifestyle significantly affect the prevalence of overweight and obesity thus impact the body mass index (BMI) among Saudi population.

Objectives: assessments of the impact of lifestyle on the BMI among the adult population in Kingdom of Saudi Arabia (KSA). **Subjects and Methods:** a cross sectional study conducted on 1055 adult Saudi subjects aged between 20-40 years old. A predesigned questionnaire was distributed among included subjects from January 2017- May 2017 consisted of questions about subject's demographics, anthropometric measures, and lifestyle.

Results: this study included 1055 subjects from which 40.9% normal, 5.9% were underweight, 25% were overweight, 17.1% were obese, 8.4% were severely obese and 2.7% were morbidly obese. Being female, older age and smoking were significantly related to overweight and obesity. The bad lifestyle habits, lack of exercise and watching TV and video games were significantly associated with a high prevalence of obesity and overweight among studied subjects.

Conclusion: bad lifestyle habits, smoking, not practicing physical exercise and using entertainment means for a long time significantly increased the BMI thus revealing high rates of overweight and obesity.

Keywords: Lifestyle, BMI, Obesity, Adult, KSA.

INTRODUCTION

Obesity is considered as a serious health problem that increased in both developed and developing countries all over the world⁽¹⁾. The imbalance between food consumption and the energy loss was considered an important factor implicated obesity problems with the presence of environmental and genetic factors⁽²⁾.

The implications of obesity and its role in jeopardizing human race drew a lot of attention as it is considered the sixth most important risk factor for several diseases problems affecting human beings including coronary heart disease, cancer, nonalcoholic fatty liver disease, and diabetes^(3, 4).

In 2014, WHO⁽⁵⁾ stated the prevalence of overweight was found in 39% of adults, but KSA showed higher rates in 68.2% of adults. The worldwide prevalence of obesity was found in 13% of adults while in KSA it was 33.7% with a higher prevalence among females (39.5%) than males (29.5%). The percent of obese adults in KSA was 2.6× higher than the world's population (33.7% vs. 13%). Also, many studies conducted among Saudi population showed that according to the body mass

index (BMI), obesity has been rising dramatically over the past 30 years due to modernization and the obvious economic growth that affected the lifestyle and resulted in bad dietary habits^(6, 7).

Also, many studies have proposed the impact of physical activity, dietary habits, food consumption as well as the economic status as modifiable factors on the prevalence of obesity^(8, 9).

Aim of the study

The present study aimed to estimate the effectiveness of lifestyle on the BMI among Saudi adult population.

SUBJECTS AND METHODS

Study design

This was a cross sectional study that was based on a reliable questionnaire that was conducted after obtaining the approval of the ethical committee of Faculty of Medicine among adult Saudi population from January to May 2017 in KSA.

Sample size and population:

This study included 1055 adult Saudi subjects who were chosen randomly from the 13 governorates of KSA using the stratified random

sampling technique. The inclusion criteria were Saudi males and females aged from 20-50 years old, approval of subjects to participate in the study with a written informed consent obtained from all participants.

Study tools:

All participants were asked to fill up a questionnaire that was pre-tested, revised by 3 experts and translated into Arabic. The questionnaire included 3 tools:

- 1- Socio-demographics of all subjects including age, gender, smoking habits and income.
- 2- Anthropometric measurement consisted of height, weight and calculating the BMI (Kg/m^2).
- 3- Lifestyle habits as eating habits, physical exercise and using entertainment means

The study was approved by the Ethics Board of Jazan University.

Statistical analysis

The collected data were analysed using version 22 of the Statistical Package for Social Science (SPSS) program. Data were presented as proportions and percentages while Chi-square test was used to evaluate the association between BMI with life-style and demographics of included subjects. P values < 0.05 were considered statistically significant.

RESULTS

Socio-Demographic Characteristics:

This study included 711 (67.4%) were females and 344 (32.6%) were males and their ages were 20-30 in 49% of subjects, 30% were 31-40 years old and 21% aged 41-50 years old. Most of the participants were not smoking (81.6%) and only 18.4% were smoking (Table 1).

Table (1): Socio-Demographic Characteristics (n=1055)

20-30	517	49
31-40	317	30
41-50	221	21
Female	711	67.4
Male	344	32.6
No	861	81.6
Yes	194	18.4

BMI classification:

Table 2 showed that 40.9% of subjects were normal, 5.9% were underweight, 25% were overweight, 17.1% were obese, 8.4% were severely obese and 2.7% were morbid obese from which we conclude that most of the subjects were overweight (25%) and obese (28.2%).

Table (2): Anthropometric measures of the study population

Underweight (< 18.50)	63	5.9
Normal (18.50–24.99)	432	40.9
Overweight (25-29.99)	263	25
Obese (30.00–34.99)	180	17.1
Severely obese (35.00–39.99)	89	8.4
Morbid obese (≥ 40.00)	28	2.7

Lifestyle habits

The lifestyle habits of subjects were shown in table 3. Most of the participants don't practice regular exercise (60.5%) but 39.5% were on regular exercise. The majority of participants had a moderate eating habit, 31.6% had bad eating habit while only 19% had good eating habits. As for watching TV, computer or playing video games per day, 43.6% used entertainment means for 1 hr/day, 10.5% used them for 2 hr/day, 33.2% used them for 3hr/day and 12.7% used them for 4hr or more per day.

Table (3): Lifestyle habits in included subjects

Variables	Frequency	Percentage (%)
Yes	417	39.5
NO	638	60.5
Good	200	19
Moderate	521	49.4
Bad	334	31.6
1 hr /day	460	43.6
2 hrs/day	111	10.5
3 hrs/day	350	33.2
4 hrs or more/day	134	12.7

Association between socio-demographics, lifestyle and BMI:

Older age, female gender, smoking were significantly associated with higher BMI levels for overweight and obesity. Also, the bad and moderate eating habits, no regular exercise and using entertainment means for 3 hours or more per day

were significantly related with being overweight or obese (Table 4).

Table (4): Association between socio-demographics, lifestyle and BMI

20-30	312 72.2%)	82(31.2%)	90(30.3%)	0.003
31-40	110(25.5%)	60 (22.8%)	17 (39.4%)	
41-50	10(2.3%)	121(46%)	90(30.3%)	
Female	182 (42.1%)	160 (60.8%)	211(71%)	0.001
Male	250 (57.9%)	103 (39.2%)	86 (29%)	
Yes	40(9.3%)	84(31.9%)	70(23.6%)	0.021
No	392(90.7%)	179(68.1%)	227 (76.4%)	
Yes	241 (55.8%)	80 (30.4%)	88 (29.6%)	0.004
NO	191 (44.2%)	183 (69.6%)	209 (70.4%)	
Good	100 (23.1%)	60 (22.8%)	40(13.5%)	0.001
Moderate	292(67.6%)	130(49.4%)	99(33.3%)	
Bad	40(9.3%)	73(27.8%)	158(53.2%)	
1 hr /day	332(76.9%)	30(11.4%)	32(10.8%)	0.04
2 hrs/day	71(16.4%)	20(4.6%)	21(7.1%)	
3 hrs/day	29(6.7%)	123(46.8%)	200(67.3%)	
4 hrs or more/day	---	90(34.2%)	44(14.8%)	

DISCUSSION

The recent study showed that most of subjects had normal BMI, but 25% were overweight, 17.1% were obese, 8.4% were severely obese and 2.7% were morbid obese. In the same respect, many studied in KSA showed the same results^(6, 7, 10)as in Makkah, overweight was found in 15.2% and 24.9% of them were obese⁽¹¹⁾. Also, in Hail region, Ahmed *et al.*⁽¹²⁾showed that 36% out of 5000 Saudi subjects had overweight and 35.6% had obesity. The same results were shown by El-Quadah *et al.*⁽¹³⁾ in Tabuk who found that overweight and obesity were high among the studied population with higher prevalence among females.

Being female, older age and smoking were significantly related to overweight and obesity as found in many studies in KSA^(6, 10, 14).

The bad lifestyle habits, lack of exercise and watching TV and video games were significantly associated with a high prevalence of obesity and overweight among studied subjects. Physical activity and practicing sports are of great importance for normal growth and weight loss and were significantly associated with normal or abnormal BMI^(14, 15). Also, eating habits significantly impacts the BMI level as addiction to drinking carbonated water, eating at night, junk food, high carbohydrate and fat diet were associated with overweight and obesity^(14, 16). Consistent results showed that the more time spent in watching TV, the more weight is gained^(17, 18).

This study has some limitations including the BMI was calculated from the weight and height that were self-reported by the subjects. There were some limitations in the transportation as it was hard to reach all rural areas in scheduled time.

CONCLUSION

In conclusion, Bad lifestyle habits, smoking, not practicing physical exercise and using entertainment means for a long time significantly increased the BMI thus revealing high rates of overweight and obesity. Thus educational campaigns should be conducted to improve the healthy lifestyle among Saudi population for prevention of obesity.

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