

Rising incidence of obesity in Saudi residents. A threatening challenge for the surgeons

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ABSTRACT

Objective: Obesity is thought to correlate very strongly with individuals general lifestyles. This study was conducted to determine whether lifestyle patterns were potential risk factors for morbid obesity in Saudi residents.

Methods: This descriptive cross-sectional study was conducted in Unaizah City, Qassim Region, Kingdom of Saudi Arabia, over a 1-year period from March 2013 to March 2014. The study included 646 residents from the general public of Unaizah who were selected by convenient sampling at a mall and a public sector university, regardless of age and gender, and were given questionnaires regarding the details of their lifestyle patterns. The studied variables included demographic details, dietary habits, physical activity, occupation, body mass index, and unhealthy behavioral habits. The data were collected and statistically analyzed using SPSS version 20.

Results: The study population had a mean age of 30.13 ± 12.15 years and comprised 202 (31.3%) male and 444 (68.7%) female subjects. The study subjects were students (39.2%), general public included employed (35.3%), unemployed (23.8%), and others (1.7%). Overall, 79.4% comprised Saudi nationals and the majority (48.3%) had a university-level education. A reasonably high proportion of Saudi subjects were found to have sedentary habits and with physical activity levels far below the standard. Obesity was found in 42% of the study population with low physical activity levels and unhealthy dietary habits. Varying proportions of concomitant hypertension, hyperglycemia, and hypercholesterolemia were also observed in these subjects.

Conclusion: Sedentary habits, low physical activity levels in younger populations, and unhealthy dietary habits are major factors causing obesity in the general public as well as in children and adolescents attending school and university. Serious insight into this problem at the governmental level is needed to improve the overall activity level and avoidance of a sedentary lifestyle by projecting the importance of a healthy lifestyle.

Keywords: Dietary habits, morbidity, obesity, physical activity, sedentary lifestyle

Introduction

Obesity has emerged as ever-increasing global challenges leading to alarming health problems.^[1-4] Stress and concern are lifted as for the undermining increment in weight pick up and sullen corpulence advancement in more youthful people attributable to dormant ways of life and poor dietary patterns, for example, skipping breakfast and expending quick nourishments. This change has been observed in Saudi nationals subsequent to a major lifestyle change, including minimal activity, altered eating habits, and a sedentary lifestyle, during recent years.^[5-7]

The high predominance of dormancy and stationary life among Saudi youth has been found to bring about real medical

problems, for example, undue weight increase, grim heftiness, hypertension, and diabetes mellitus like those seen in numerous different nations in this area.^[8,9] A number of factors related to lifestyle and eating habits have been found to be responsible for these changes, including an increasing trend toward spending long hours watching television; playing computer games; smoking; and eating junk food, sweets, candies, chocolates, and other dairy products, all of which contribute to and share in the increasing incidence of obesity and overweight.^[10,11]

This changing range of way of life and undesirable dietary patterns is applying significant and adverse impacts on the lives of average people. Always expanding corpulence is prompting to absolutely subordinate lives and an expanded frequency of life-debilitating issues even at extremely youthful

ages. Early mindfulness and regard for this issue are crucial for these patients to come back to typical lives and to make them beneficial individuals from society. The purpose of this study was to examine the activity levels, dietary habits, body mass index (BMI), and unhealthy behavioral habits as well as their impacts on risk factors with respect to the increasing obesity observed in residents living in Unaizah City in the Qassim region.

Methods

This descriptive cross-sectional study was conducted on 646 individuals who were selected by convenient sampling, regardless of age and gender at a shopping mall in Unaizah as well as students from a public sector university. The study subjects comprised students ($n = 253$, 39.2%), and general public ($n = 393$, 60.83%) which included employed population (35.3%), unemployed (23.8%), and others (1.7%). The employed and unemployed population included females as well as males. The selection criteria included all patients with a BMI 25 or above and who agreed to volunteer for the study while normal looking or the ones with BMR < 25 and those who did not agree to respond to our questionnaire were excluded regardless of their physical state. The data were collected by students who had been briefed about the project and study aims and had also been provided with the essential instruments to obtain the required information such as blood pressure and other vitals. The students were scattered throughout the shopping mall while the instruments to collect the subjects vital and height information were kept in a particular area in the shopping mall. The students selected individuals by convenient sampling and after explaining their purpose, gave each individual a questionnaire to read and helped them to understand the contents of the questionnaire when needed. The questionnaire contained items regarding all of the necessary details about the subject's age, sex, dietary habits, level of physical activity, frequency of junk food consumption, and hours spent watching TV, or using the computer. The lipid research clinic questionnaire was referred for physical activity which is a validated scale for this purpose. After filling out the questionnaire, the study subjects were guided to a desk where they arranged to have their weight, height, and BMI measured at the same location. A similar group of students visited a medical university in the same town, where they selected students from different educational levels and briefed them with regard to the purpose of data collection. The university subjects were also provided with the above-described questionnaires, and each subject's vital measurements, BMI, height, and weight were measured and recorded in an individual case file. Based on the collected data, we performed a statistical analysis to determine our results.

Statistical analysis

The study data included both quantitative and qualitative types. Quantitative data were expressed as means \pm standard deviations

whereas qualitative data were expressed as frequencies and percentages. The data were entered, organized, tabulated, and analyzed using SPSS version 20 software (SPSS Inc., Chicago, IL, USA). The χ^2 test was used to assess the relationships between qualitative variables and the significance level asset at 0.05.

Results

During a 1-year period, a total of 646 subjects were included in this cross-sectional study, including members of the general public from all walks of life as well as university students from a public sector university in the same area. A majority of the study subjects were Saudi nationals with reasonable qualification levels (minimum secondary to University level). 386 (59.8%) study subjects fell within the 20–40-year age range and students comprised 39.2% of the total population as shown in Table 1, which lists demographic details relevant to the study.

Table 1: Demographics

General characteristics	Frequency (%)
Age	
<20 years	108 (16.7)
20–39 years	386 (59.8)
40–59 years	152 (23.5)
Age (years, mean \pm SD)	30.13 \pm 12.15
Job	
Students	253 (39.2)
Employed	228 (35.3)
Unemployed	154 (23.8)
Others	11 (1.7)
Sex	
Male	202 (31.3)
Female	444 (68.7)
Nationality	
Saudi	513 (79.4)
Non-Saudi	133 (20.6)
Education level	
Illiterate	8 (1.2)
Primary (up to 5 th grade)	76 (11.8)
Secondary (up to grade 12)	250 (38.60)
University	312 (48.3)
Marital status	
Married	308 (47.7)
Divorced	12 (1.9)
Widowed	9 (1.4)
Single	317 (49.)
Body weight (kg, mean \pm SD)	74.75 \pm 20.73
Height (cm, mean \pm SD)	160.1 \pm 8.60
Total	646 (100.0)

SD: Standard deviation

The physical activity level varied widely among the study subjects, ranging from once or twice per week in 9% of subjects to no activity in 37%. A majority (39.3%) claimed to perform occasional light physical exercise in a month. The eating habits of vast majority of the subjects were found to be unhealthy; their diet mostly comprised fast foods instead of a healthy and balanced diet, as shown in Table 2.

The BMIs of 39.3% of the study subjects were found to be > 30 . The overall BMI of the study population tended toward overweight and obesity, as shown in Table 3.

Comorbidities further complicated the situation as well as the management of these problems. A majority of the subjects were found to have comorbidities, particularly, those who were obese and overweight with abnormally high BMIs, as shown in Table 4.

The associations of the BMI with the different categories of study subjects and the presence of obesity and overweight were found to be highly statistically significant ($P < 0.001$), as shown in Table 5.

Discussion

This study was conducted with the primary aim of determining the relationship between certain lifestyle factors and the increasing trends of obesity and undue weight gain in a general population from Unaizah City, Qassim, through the random selection of individuals from a shopping mall as well as a public sector university in the same area. The Kingdom of Saudi Arabia has undergone tremendous changes in lifestyles and dietary habits consequent to gross urbanization and the introduction of a wide variety of fast food chains nationwide, leading to an increase in obesity among native residents and particularly in children and adolescents.^[12-14] This change has exerted a very undesirable and threatening effect on the overall health status of the population. The present study found significantly low overall levels of physical activity, ranging from a totally sedentary lifestyle to occasional light exercise. This finding is in line with those of similar studies that described the deleterious effects of the low physical activity.^[15-18] The present study reported an increasing incidence of morbidity parallel to the weight gain caused by reduced activity and unhealthy eating habits, as evidenced by the serious systemic comorbidities present in the majority of the study subjects. This finding is consistent with the observations of Al-Nakeeb *et al.*,^[19] who also claimed that this predisposition to the development of serious health problems remained throughout the lives of these individuals. The present study reported BMI values ranging from 25 to > 30 kg/m² in 66.88% of the comparatively younger study population, which had a strong positive relationship with the regular consumption of fast foods. The same association has been reported in many similar studies.^[20-23] The present study found that hypertension frequently accompanied overweight and obesity in the subjects.

Table 2: Dietary habits

Dietary items consumed	Frequency (%)
Vegetables	
Once per day	134 (20.7)
Twice per day	53 (8.2)
Three times per day	47 (7.3)
Sometimes	326 (50.5)
No	86 (13.3)
Fruits	
Once per day	132 (20.4)
Twice per day	49 (7.6)
Three times per day	26 (4.0)
Sometimes	352 (54.5)
No	87 (13.5)
Breakfast	
Yes	312 (48.3)
No	151 (23.4)
Sometimes	183 (28.3)
Fast foods	
Once per week	162 (25.1)
Twice per week	95 (14.7)
Three-time per week	86 (13.3)
Daily	284 (43.96)
Smoking	
Smoker	47 (7.3)
Non-smoker	594 (92.0)
Previous smoker	5 (0.8)

Table 3: Distribution of BMI among the study subjects

BMI	Frequency (%)
Normal (≤ 24.99 kg/m ²)	201 (31.1)
Overweight (25–29.99 kg/m ²)	191 (29.6)
Obesity (> 30 kg/m ²)	254 (39.3)
Total	646 (100.0)

BMI: Body mass index

Table 4: Prevalence of comorbidities among study population

Comorbidities	Percentage
Obesity	42
Overweight	32
Diabetes Mellitus	8
Hypertension	7
Hypercholesterolemia	5
Bronchial asthma	6

This association has also been reported in other similar studies, thus confirming our observation.^[11,24,25] There have been definite increases in weight gain and obesity levels as a result of the altered lifestyle patterns, reduced physical activity, and unhealthy dietary habits, particularly among adolescents. This

Table 5: Relationship between BMI, general characteristics, and obesity/overweight

Variables	BMI			Total n (%)	$\chi^{2\#}$	P
	Normal	Overweight	Obesity			
	n (%)	n (%)	n (%)			
Age/years						
<20	57 (52.8)	20 (18.5)	31 (28.7)	108 (100)	79.40	0.000 S*
20–39	133 (34.5)	124 (32.1)	129 (33.4)	386 (100)		
40–60+	11 (7.2)	47 (30.9)	94 (61.9)	152 (100)		
Sex						
Male	45 (22.3)	88 (43.6)	69 (34.2)	202 (100)	28.84	0.000 S*
Female	156 (35.1)	103 (23.2)	185 (41.7)	444 (100)		
Job						
Student	139 (54.9)	53 (20.9)	61 (24.1)	253 (100)	134.6	0.000 S*
Employee	40 (17.5)	89 (39.0)	99 (43.4)	228 (100)		
Unemployed	22 (14.3)	40 (26.0)	92 (59.7)	154 (100)		
Other	0 (0)	9 (81.8)	2 (18.2)	11 (100)		
Nationality						
Saudi	164 (32.0)	135 (26.3)	214 (41.7)	513 (100)	13.13	0.002 S*
Non-Saudi	37 (27.8)	56 (42.1)	40 (30.1)	133 (100)		
Education level						
Illiterate	2 (25.0)	3 (37.5)	3 (37.5)	8 (100)	27.19	0.001 S*
Primary	25 (32.9)	29 (38.2)	22 (28.9)	76 (100)		
Preparatory	15 (16.7)	23 (25.6)	52 (57.8)	90 (100)		
Secondary	42 (26.2)	55 (34.4)	63 (39.4)	160 (100)		
University	117 (37.5)	81 (26.0)	114 (36.5)	312 (100)		
Marital status						
Married	42 (13.6)	115 (37.3)	151 (49.0)	308 (100)	111.2	0.000 S*
Divorced	1 (8.3)	3 (25.0)	8 (66.7)	12 (100)		
Widowed	0 (0)	1 (11.1)	8 (88.9)	9 (100)		
Single	158 (49.8)	72 (22.7)	87 (27.4)	317 (100)		

issue requires serious attention before it becomes an epidemic in this region.

Conclusion

It is time to encourage and educate people about the benefits of physical activity and its positive effects on health. A campaign to promote awareness regarding eating habits and weight gain control through lifestyles modification should also be implemented. This issue requires serious attention at the governmental level so that it is addressed before it becomes an epidemic in most areas within our region.

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