Incidence of Obesity among a group of Adolescents girls in Alexandria University

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Abstract

A descriptive exploratory cross sectional study was carried out at four faculties at Alexandria University to identify incidence of obesity among a group of adolescents' girls in Alexandria University. A Stratified random sampling technique of 400 females aged up to 19 years who were available at the time of data collection at the previously mentioned settings. Data was collected using a questionnaire sheet which was developed and utilized by the researcher. The researcher met the first year students at a class after a lecture is finished at each faculty and explained the purpose of the study; then the questionnaire sheet was distributed to females who agreed to wait and participate in the study. The researcher was available to answer their inquiries. Data was collected during the first semester, academic year 2013/2014

Results: the incidence of overweight and obesity were found to be 22.0% and 17.0% respectively. The majority of the study sample was not performing regular exercises and about one third had three or more meals outside home. Only small proportion of the study sample was on diet obtained from the internet. Also, the majority of the study sample was aware about how to overcome obesity.

Conclusion: although the majority of the study sample were able to identify the comorbidities of obesity, yet around 40 % of them either overweight or obese. Also, the majority of them were able to identify how to overcome overweight and obesity. Accordingly: mass Media Sector is required to broad cast well designed messages related to healthy life style in general and how to overcome overweight and obesity in particular that target not only adolescents but also all segments of the community. Health Service Planners must develop and utilize proper tools for adolescents' obesity management

Key Words: Adolescents, Overweight, Obesity

Introduction

Overweight and obesity are defined as abnormal or excess fat accumulation that may impair health. Overweight and obesity are leading risks for global deaths. Around 3.4 million adults die each year as a result of being overweight or obese. In addition to 44% of the diabetes burden, 23% of the ischemic heart diseases burden and between 7% and 41% certain cancer burden are attributable to overweight and obesity. (1)

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. Globally there has been an increased intake of energy-dense foods that are high in fat; and an increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing mode of transportation and increasing urbanization. (1,2,3)

Adolescence is no exception to the rule of increasing overweight and obesity rate worldwide; as the proportion of adolescents who are overweight or obese is rapidly increasing. Adolescence is a vulnerable period for the development of obesity and also appears to be a critical period for establishing risk factors for some chronic diseases in adulthood. Studies have revealed that the prevalence of overweight and obesity among adolescents in Arab Countries ranges from 18% to 44%.(4)

Around 1 in 6 persons in the world is an adolescent: that is 1.2 billion people aged 10 to 19. Most are healthy, but there is still significant death, illness and diseases among adolescents. Illnesses can hinder their ability to grow and develop to their full potential. Promoting healthy practices during adolescence, and taking steps to better protect young people from health risks are critical for the prevention of health problems in adulthood, and for countries' future health and social infrastructure. (5)

Overweight and obesity has a negative impact on the health of females specially their reproductive health in addition to the chronic medical conditions. Obesity affects fertility throughout a woman's life. Excess body fat related to menstrual abnormality, infertility, miscarriage, and difficulty in performing assisted reproduction.(6)

Furthermore, overweight and obese women are at high risk of pregnancy related complications. Obesity causes complications because of the elevated risks of antepartum complications and mechanical difficulties with delivery. Pre-pregnancy obesity contributes to the development of pregnancy induced hypertension, preeclampsia and gestational

diabetes. Fetal abnormalities, such as neural tube defects; spina bifida; non-neural tube

defects of the central nervous system; a clift lip and palate; and great vessels, ventral wall and other intestinal defects have all been associated with obesity.[3,6]

The use of body mass index (BMI) for the age to define being overweight and obese in children and adolescents is well established for both clinical and public health applications, because of their feasibility under clinical settings and in epidemiological studies. BMI is the weight in kilograms divided by height in meters squared. Classifications are as follows: normal weight is classified by a BMI of 18.5 to 24.9; overweight is classified by a BMI of 25.0 to 29.9; obese class I is classified by a BMI of 30.0 to 34.9; obese class II is classified by a BMI of 35.0 to 39.9; and obese class III which is the morbid obesity is classified by a BMI over 40.0. [1,3,7]

Obesity management is an important step in the prevention and control of chronic non-communicable diseases, such as cardiovascular diseases, diabetes, hypertension, and some kinds of cancers. Furthermore, it is very important to promote women's reproductive health by ensuring adolescents' girls health. Therefore, understanding the prevalence of obesity among adolescents is essential to any strategy for combating obesity in the community.[4]

Aim of the study: To identify the Incidence of Obesity among a group of Adolescents in Alexandria University

Materials and Method

Design: A descriptive, exploratory cross sectional study design was utilized.

Setting: this study was carried out at four faculties of Alexandria University chosen randomly from the available 22 faculties; namely: faculty of engineering, science, fine arts and nursing. **Sample:** A Stratified random sampling technique of 400 females aged up to 19 years who were available at the time of data collection at the previously mentioned settings (100 from each faculty)

Tools of data collection : a questionnaire sheet was developed and utilized by the researcher to collect the necessary data. It entailed the following sections: **section I:** included socio-demographic characteristics of the study sample such as: number of family members, fathers and mothers level of education, occupation, and residence. **Section II:** included study sample clinical characteristics such as weight, height and BMI which was calculated as follows: weight in kilograms divided by height in meters squared. Classifications were categorized as: normal weight was classified by a BMI of 18.5 to 24.9; overweight was classified by a BMI of 25.0 to 29.9; obese class was

classified by a BMI of 30.0 to 34.9 [7] Section **III**: included questions about life style such as performing regular exercises, and number of meals consumed daily either at home or outside home and sleeping hours daily. **Section VI**: included questions related to study sample knowledge about what obesity means, its consequences on general health and reproductive health, how to prevent it and the ideal weight for girls at adolescence period.

Method: Official permission for data collection was obtained from concerned authorities after explanation of the purpose of the study. The questionnaire sheet was developed by the researchers. Then it was tested for content validity by five experts in the field of obstetric and community health nursing. The researcher met the first year students at a class after a lecture is finished at each faculty and explained the purpose of the study; then the questionnaire sheet was distributed to females who agreed to wait and participate in the study. The researcher was available to answer their inquiries. Data was collected during the first semester, academic year 2013/2014

Data collected were categorized, coded, computerized, tabulated and analyzed using statistical package for social science (SPSS) version 16 and presented in descriptive, forms. The necessary tables were then prepared. Frequencies; Percentages, were used for describing and summarizing categorical variables.

Ethical consideration:

The purpose of the study was explained to the sample and confidentiality of the collected data was reaffirmed and their oral consent to participate in the study was secured. They informed that they have the right to withdraw from the study at any time.

Results

Table (I) presents that the almost equal proportions (41.0 % and 41.8%) of the study samples' fathers and mothers, respectively had a university degree or more, more than one third (39.8%) of their fathers had a professional jobs while more than one half (52.8%) of their mothers were housewives.

Figure (1) shows that more than three quarters (77%) of the study sample are urban dwellers

Table (II) shows that, mean weight of the study sample was 165 ± 9.84, and mean height was 69.2 ± 15.4, while the mean of their BMI was 25.17 ± 6.42

Table (III) illustrated that 49.5 % of the study subjects consumed 2-3 meals, and 27.3% consumed more than 6 meals daily. More than one half (55.5%) had 1-2 meals at home while 30.2 had three or more meals outside home.

Figure (2) presents that 61% of the study sample had normal body weight, 22% were

overweight and 17% were obese

Figure (3) shows that slightly more than three quarters (76%) of the study sample performing physical exercises.

Figure (4) **shows that** Those who perform regular physical exercises were found to constitute only 11% of the study sample.

Figure (5) shows that Only 8% of the study sample is on diet this diet was prescribed by dietitian to half of the study sample,

Figure (6) shows that 16% consult a doctors for their diet, while 22 % followed a special diet driven from an internet sources.

Figure(7) shows that Consequences of obesity on general health as mentioned by the study sample included heart diseases / hypertension (41.2%), poor physical fitness (40.*), and diabetes mellitus (32.8%).

Figure (8) illustrate that Infertility and pregnancy and labor complications were mentioned by 22.8%, 21.5% and 19.8% of the study sample, respectively, as consequences of obesity on reproductive health.

Figure (9)The majority of the study sample stated that well balanced diet, avoidance of junk food, drinking a lot of water and performing a regular daily activity (84.8%, 77.8%, 77%, 54.8% respectively) are the strategy to overcome obesity.

Table I Distribution of the study sample according to their parents' characteristics and family members

Parents' characteristics	(n=400) No	%
Fathers' level of education		
Illiterate/ read & write	58	14.5
Basic education	49	12.2
Secondary education	129	32.3
University or more	164	41.0
Fathers' occupation		
Professional	159	39.8
None professional	241	60.2
Mothers' level of education		
Illiterate/ read & write	47	11.8
Basic education	41	10.2
Secondary education	145	36.2
University or more	167	41.8
Mothers' occupation		
Housewife	211	52.8
Working	189	47.2
Number of family members		
3-	128	32.0
5-	272	68.0

Figure (1) Percent distribution of the study sample according to their residence

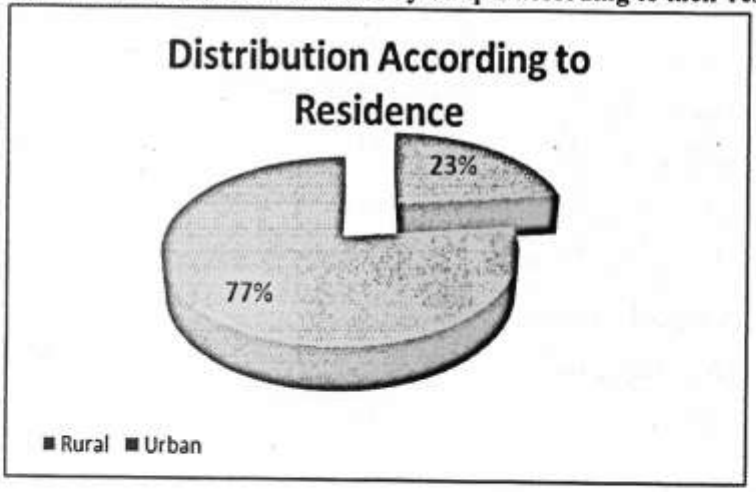


Table II Distribution of the study sample according to their clinical characteristics

Clinical Characteristics	No (n=400)
Height Mean ± SD	165 ± 9.84
Weight Mean ± SD	69.2 ± 15.49
BMI Mean ± SD	25.17 ± 6.42

Figure (2): Incidence of Obesity among a group of Adolescents in Alexandria University

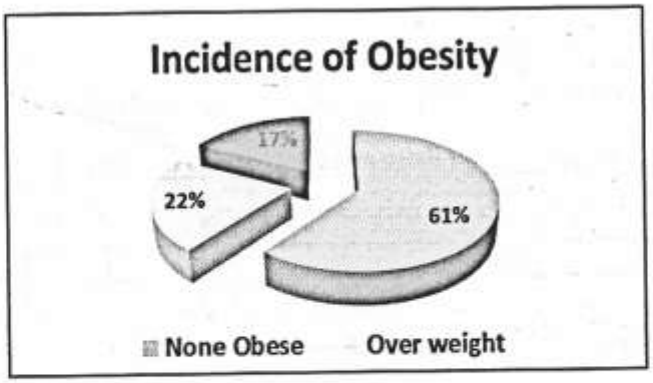


Figure (3): percent distribution of the study sample according to their performance of physical exercises

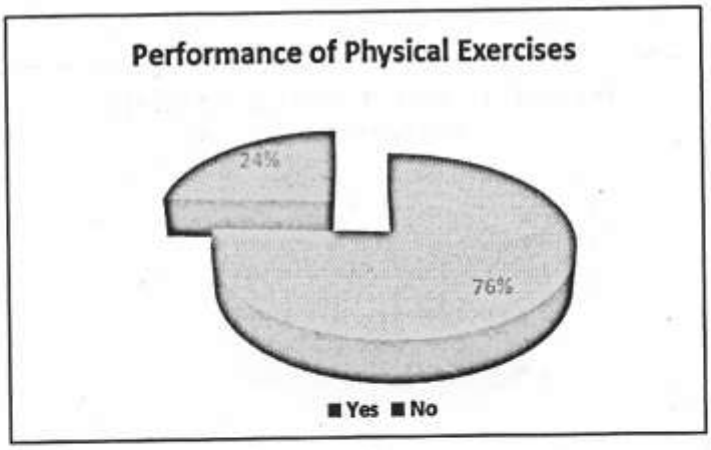


Figure 3

Figure (6): People who prescribed the special diet for the study sample

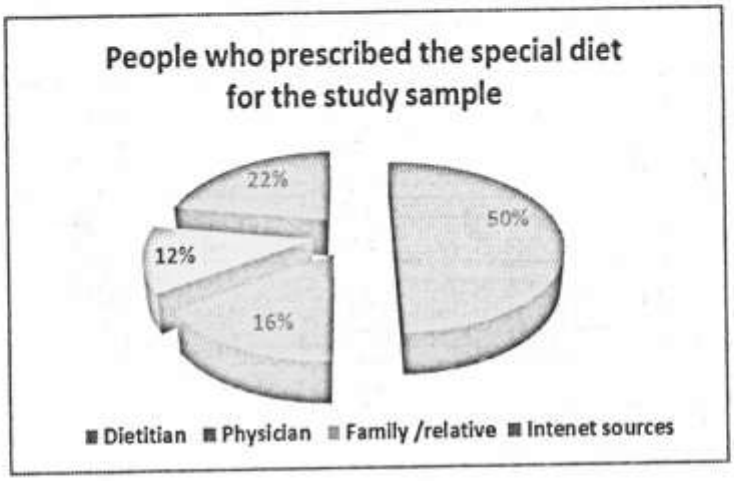


Figure (7): distribution of the study sample according to their knowledge about the consequences of obesity on general health

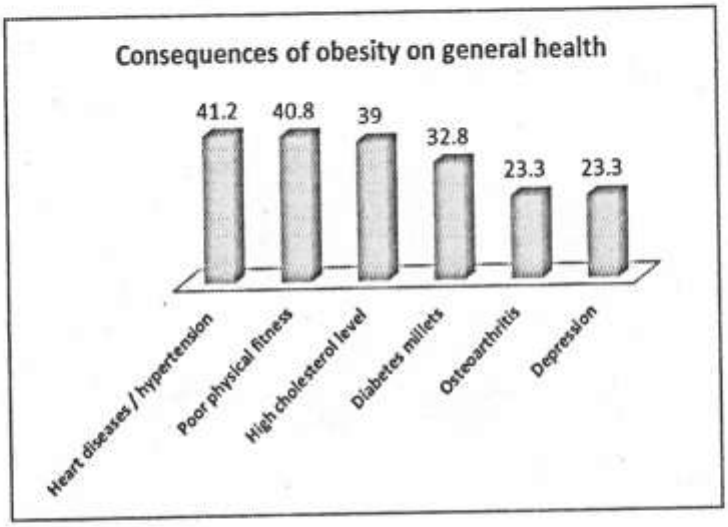


Figure (8) :Distribution of the study sample according to their knowledge about the consequences of obesity on reproductive health

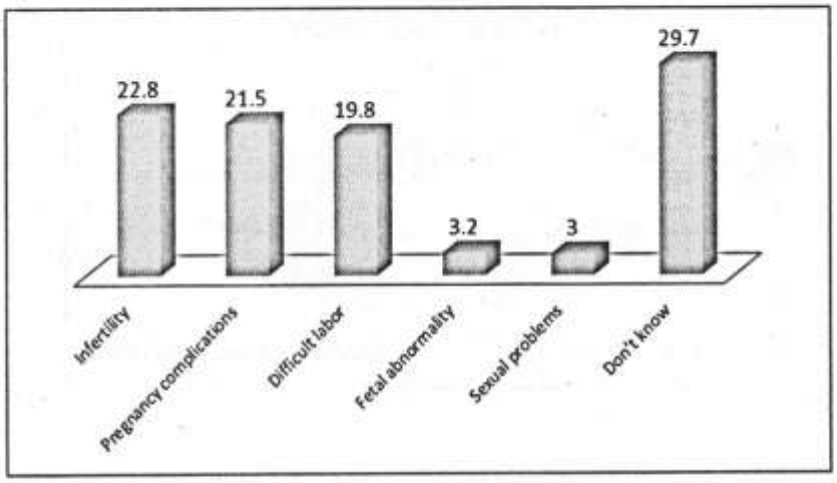
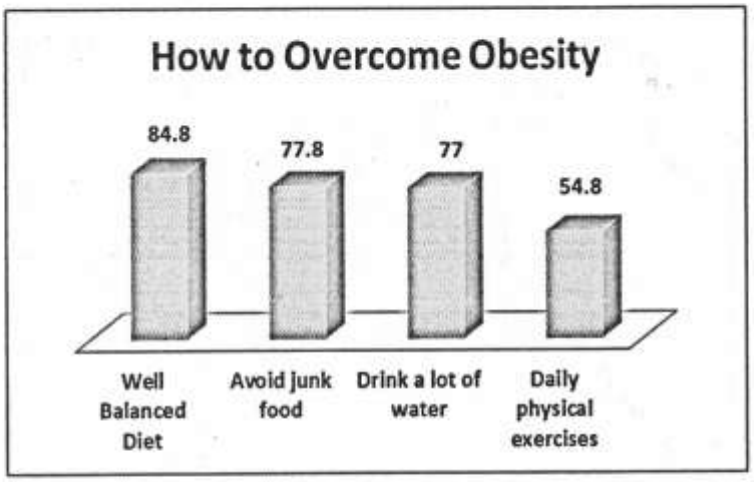


Figure (9): distribution of the study sample according to their knowledge on how to overcome obesity



Discussion

Obesity has become one of the most public health problems in the today's society. The World Health Organization (WHO) reports that more than one billion people worldwide are overweight and 300 million meet the criteria for obesity. By 2030, if current patterns persist, 58% of the world population is expected to be obese or overweight[8, 9]

In the current study 22% of the study sample considered overweight and 17%.are obese. Those who are overweight are more likely to be obese during adulthood; unlike the others who have normal body weight. This means that if their current life style does not change, around 40 % of that group is expected to have problems related to their reproductive health. This result is agreed with that of **Stimm et al 2014.** [10] Who have done a study on the prevalence of obesity in Switzerland and reported that as much as 41 % of adolescents are overweight and obese.

Another study done in seven Arab countries reported that, the highest prevalence of overweight reported among Libyan adolescents (26.6%) followed by Kuwaiti 20.8%, Syria 19.7%. and the lowest rate was reported by Algeria (15.5%). [11]

As for obesity the rate of obesity among adolescents female reported in the current study was 17% while the Kuwaiti adolescents showed the highest prevalence of obesity (20.6%), followed by Libyan adolescents (10.0%) and the lowest rate was3.5% reported among Palestine adolescents' girls as reported by **Musaiger et al** [11].

This high prevalence of overweight and obesity among adolescents in Arab countries including Egypt could be due to rapid nutrition transition' which started early in Gulf area resulted in changing nutritional habits' and lack of physical activity.

The results of the current study are inconsistence with that of **Al Nsour et al 2013.** [12] He reported that the prevalence of overweight in his study was 30% and obesity was 38.8%. The difference between the results of current study and that of Al **Nsour et al** could be attributed to the fact that in the later one the study sample's ages ranged from 18-49 which included the adolescents and adult females.

Another study done at Mangalore India and reported that more than 50 % obesity among adolescents. [13] **Cruz et al 2013** [14] who carried out a study to assess the prevalence of child and youth obesity in Spain in 2012 and found that 26.0% and 12.6% of adolescents are overweight and obese, respectively. This reflects the urgent needs to establish a global strategy to prevent and control obesity especially among children and adolescents, because childhood obesity is

associated with a higher chance of obesity in adolescents and adulthood. [1]

It is not surprising to notice that the majority of the study sample in the current study does not perform regular physical exercises and about one third had three or more meals outside home, which denotes excess intake of diet high in saturated fat, red or processed meat, refined carbohydrate and sugar. This could explain the high incidence of overweight among the study sample.

A small proportion of the study sample realize the need to be on diet to regain normal body weight, however, some of them starts depending on an internet sources of their diet recipient while others consult dietitian. Depending on special diet without consulting physicians could have a negative impact on adolescents' health, again a plan of action should be established to prevent and treat obese adolescents to protect them from future ill reproductive health.

It was positive that a considerable proportion of the study sample identified comorbidities that are associated with obesity. They stated that heart diseases/ hypertension, poor physical fitness, diabetes mellitus osteoarthritis and depression are the consequences of obesity on individual health. Furthermore, infertility, pregnancy and delivery complications, fetal abnormalities and sexuality problems and certain types of cancer stated as the consequences of overweight and obesity on reproductive health. This is relatively in line with that of **Smith et al 2012** [3], **Kulie et al 2011** [6] and **Bernier et al 2012** [15]

It is encouraging to find that a sizable proportion of the study sample were aware about how to overcome overweight and obesity. They stated that, eating well balanced health diet, drink a lot of water and daily physical exercises all are contributing factors in prevent and control overweight and obesity. This is agree with the recommendations of WHO [1] and STOP Obesity Alliance Task Force on Women. [16]

In conclusion: although the majority of the current study sample were aware of the comorbidities of overweight and obesity on general health and reproductive health,

the incidence were 22.0% and 17.0%, respectively. The majority of the study sample was not performing regular exercises and about one third had three or more meals outside home. Only small proportion of the study sample was on diet obtained from the internet. Also, the majority of the study sample was aware about how to overcome obesity.

Recommendations: based on the findings it can be concluded that:

1. Mass Media Sector is required to broad cast well designed messages related to

healthy life style in general and how to overcome overweight and obesity in particular that target not only adolescents but also all segments of the community.

2. Basic Education Sector ought to integrate healthy life style into basic education curricula
3. Medical and Nursing Education Institutions should strengthen and upgrade the content related to nutritional need of all age groups.
4. Health Service Planners must develop and utilize proper tools for adolescents' obesity management.
5. Civil Society is to set and implement nationwide programs that upgrade community awareness about comorbidities of obesity and its managements

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