

Body Weight Concern and Belief among Adolescent Egyptian Girls

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Abstract

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BACKGROUND: Body weight concern and belief in adolescent females are of great importance. They are the keys to successful dietary interventions including dietary habits' modifications to practice a healthy diet. This critical phase of transition from childhood to adulthood is the most sensitive stage of behavioural rectification.

AIM: This study was conducted with the aim to figure out the prevalence of body image dissatisfaction and the association of body image satisfaction and belief with body mass index in adolescent girls aged 16-18 years.

MATERIAL AND METHODS: Two hundred and three Egyptian adolescent females were enrolled in this cross-sectional study. Their mean age was (17.4 ± 0.64) years old. Self-administered questionnaires about the students' body satisfaction and weight belief were answered by the candidates. Their body mass index was calculated. Also, sociodemographic data were collected. Data were analysed using SPSS software version 16.0. Chi-square test was conducted for the variables.

RESULTS: Sixty-eight percent of the students were within normal weight, 3.3% were underweight, while 18.2% and 10.5% were overweight and obese respectively. Body dissatisfaction was prevalent among 37.4%. The prevalence of body dissatisfaction was higher in both obese and underweight candidates reaching (93.8% and 80%) respectively. This reflects students' awareness of their body shape.

CONCLUSION: More than one-third of adolescent females were dissatisfied with their body image. The subjective belief about self-body image matched the objective Body Mass Index measurements.

Introduction

The prevalence of overweight and obesity in the Middle East has been estimated to be the second in the world, after North America [1]. Obesity has become a problem of concern worldwide [2]. Adolescent obesity is a public health problem and is one of the major health challenges of the 21st century [3].

Obesity is highly associated with eating disorders, which include disturbed eating attitudes, body weight concern, dieting, anorexia nervosa and bulimia [4].

In the Eastern Mediterranean Region (EMR) and Arab societies, plumpness counted to be a

desirable feminine trait. On the other hand, the up to date EMR researchers showed an increased westernised vision of perfect body shape [5], where slimness is a sign of female beauty [6]. This mismatch of cultures caused by the intrusion of western ideas could increment the worries about body shape. Body image concern is defined as the degree of satisfaction about oneself as regards size, shape, and general appearance [7].

The relatives, the media, the colleagues and the community all have an impact on body shape satisfaction. But the greatest influence is that of the media and the community through standardising a "thin ideal" for female beauty and a "muscular sportive shape" for males [8].

The abnormally high ranges of BMI are accompanied with dissatisfaction about oneself body

image [9], the same thing with swings of weight [10] especially among females [11]. Body image dissatisfaction is mostly encountered in the period of adolescence [12]. Worries about oneself silhouette are associated with eating disorders and loss of self-confidence [13]. A study conducted on undergraduate students at Assuit University in Egypt found that 40% of the female students and 25.6% of male students having mild to marked body image concern [14].

Sparse studies on body image concern among young adults and adolescents in Egypt are limited which justify the present study. The purpose of the current study is to find out the prevalence of body image dissatisfaction and the association of body image satisfaction and belief with body mass index (BMI) in adolescent girls aged 16-18 years.

Subject and Method

A cross-sectional study included two hundred and three adolescent girls randomly selected from secondary schools in Giza governorate. The subjects were enrolled into the study according to the following inclusion/exclusion criteria:

Inclusion criteria: Female gender with age range of 16 to 18 years old.

Exclusion criteria: Male gender and age of less than 16 or more than 18 years old.

Self-administered questionnaires were answered by the participants. It included sociodemographic data as age, father and mother education, number of individuals per family, in addition to two main questions:

1. *About Body Weight Satisfaction:* Students were asked whether they are satisfied with their body weight, participants select one of the proposed answers (satisfied, not satisfied).

2. *About Bodyweight believes:* Students were asked (How do you feel about your body image?). Again the students select one of the proposed answers (thin or under-weight, normal, overweight and obese).

Questionnaires were distributed to the students and a week later, were collected. Parental consent was obtained before starting the study and participating in the study was not obligatory. The study protocol and the questionnaires were approved by the Research Ethical Committee at the National Research Center.

Anthropometric measurements

Weight and Height were measured, and

calculation of the body mass index was done by the equation ($BMI = Kg/m^2$) and plotted on the growth charts of the Centers for Disease Control and prevention. Accordingly, BMI for age was stratified into four categories. Underweight defined by having BMI less than 5th percentile. Normal weight defined by BMI ranging from the 5th percentile to less than the 85th percentile. Overweight defined by BMI ranging from 85th to less than the 95th percentile. Obese defined by BMI equal to or greater than the 95th percentile [15].

Statistical analysis

Analysis of data was performed by using Statistical Package for the Social Science SPSS version 16.G. [16]. Data were presented as a mean and standard deviation. Chi-square test was conducted for the variables and was used to detect the significant difference in the distribution between groups at P -value < 0.05.

Results

The study group consisted of two hundred and three adolescent girls with a mean age of (17.4 ± 0.6) ranging from (16-18 years old). The mean number of their families' members was (5.2 ± 1.2) individuals. As regards to parents' education and occupation, we considered the father job to reflect both education and economic status.

It was interesting that 72.9% of the fathers were highly professional. 5.9% of students' fathers were either retired or jobless or dead. Almost half of the mothers (49.8%) were housewives. Unfortunately, the day we took the anthropometric measurements there was refusal by some students of further participation, and there was also scholar absenteeism of some participants. Thus, the weight of only one hundred eighty-six participants out of two hundred and three and the height of only one hundred eighty-three participants out of two hundred and three was measured. The mean weight and the mean height were (62.4 ± 13.8 kg) and (163 ± 6.8 cm) respectively as shown in Table 1.

Table 1: Sociodemographic characteristics of the studied sample (n = 203)

Variable	Mean	Range
Age (n = 203)	17.4 ± 0.6	16-18
Weight (n = 186)	62.4 ± 13.8	41-120
Height (n = 183)	163 ± 6.8	145-187
Father job (n = 203)	Frequency	Percent
High profession	148	72.9%
Self-employed	24	11.8%
Low profession	19	9.4%
Others	12	5.9%
Mother job (n = 203)	Frequency	Percent
Working	102	50.2%
Housewife	101	49.8%

According to the body mass index categories, 3.3% of our students were underweight, 68% were normal, 18.2% were overweight, and 10.5% were obese Figure 1.

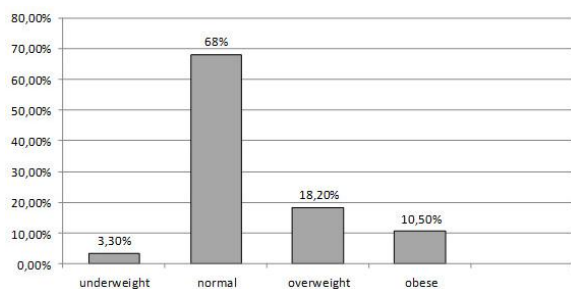


Figure 1: Distribution of BMI categories

We asked the students about their body image satisfaction and belief. Their answers revealed that 37.4% were dissatisfied and 41.4% were satisfied table 2. Since participation in the study was not obligatory, not all of the candidates answered the two main questions of the study (body satisfaction and body image concern). Those who had dropped answers were counted as missing in the data analysis.

Table 2: Body image satisfaction among students (n = 203)

Body image satisfaction	Frequency	Percent
Satisfied	84	41.4
Dissatisfied	76	37.4
Missing	43	21.2

Thirty-one percent believed to have a non-average weight, of which 11.3% believed to be thin and 19.7% believed to be fatty, Table 3.

Table 3: Weight belief among students (n = 203)

Weight belief	Frequency	Percent
Thin	23	11.3%
Average	84	41.4%
Fatty	40	19.7%
Missing	56	27.8%

After exclusion of all those who had missed values either in BMI or body image belief or satisfaction, we did cross-tabulations for BMI with body image satisfaction and body image belief, Table 4 and Table 5.

A higher percentage of those who were obese were not satisfied with their BMI, presenting 93.8% (15 out of 16 obese cases). It is worth mentioning that 80% of those who were underweight were not satisfied with their BMI, Table 4.

Table 4: Relation between BMI and body image satisfaction (n = 139)

BMI	Satisfaction		Significance
	Satisfied	Dissatisfied	
Underweight (n = 5)	1 (20%)	4 (80%)	0.00
Normal (n = 93)	61 (65.6%)	32 (34.4%)	
Overweight (n = 25)	9 (36%)	16 (64%)	
Obese (n = 16)	1 (6.2%)	15 (93.8%)	

From Table 5, we noticed that fifty-five percent of those who believed that they had a normal weight had a normal BMI. Eighty percent of those who believed being thin were truly underweight and had an abnormally low BMI. And 93.8% of the obese believed to be fatty. Thus the subjective believe about self-body image did match the objective BMI measurements in all BMI categories.

Table 5: Relation between BMI and weight belief (n = 126)

BMI	Weight belief			Significance
	Thin	Average	Fatty	
Underweight (n = 5)	4 (80%)	1 (20%)	0 (0%)	0.00
Normal (n = 85)	18 (21.2%)	55 (64.7%)	12 (14.1%)	
Overweight (n = 20)	0 (0%)	11 (55%)	9 (45%)	
Obese (n = 16)	0(0%)	1 (6.2%)	15 (93.8)	

Discussion

Adolescence is the stage of biophysical and psychosocial alterations [17] and is a vital phase for body image development due to a variety of social, cultural, physical, and psychological changes that occur between the ages of 12 years and 18 years [18].

Body image is defined subjectively by the person's satisfaction with own body measurements [19].

Young people are more prone to imitate the ideal body shape parameters. Meanwhile, those young people are in a critical stage of self-identification that is greatly influenced by accepting own physique and building self-confidence [20].

Several social, psychological and cultural factors are associated with body weight concerns [21].

The study group included two hundred and three adolescent girls attending secondary school with a mean age of (17.4 ± 0.6) ranging from 16-18 years old. This age range is matching the one found in other studies which demonstrate the high prevalence of weight dissatisfaction among adolescence [22] [23]. Father's job is considered to reflect both education and economic status of the adolescents' families; our study showed that 72.9% of the fathers were highly professional and 49.8% of their mothers were housewives. Musaiger and colleagues reported that 31.2% of the adolescents' fathers had a high level of education [24]. Socioeconomic stratification is evaluated by several parameters that differ from one study to another. Consequently, no specific association was determined between body image satisfaction and socioeconomic levels [23].

This study showed that 3.3% of the participants were underweight, 68% were normal, 18.2% were overweight, and 10.5% were obese which considered different from the prevalence of

underweight, overweight, and obesity among adolescent girls in a study conducted by Silva and colleagues, which were 23%, 10.7% and 3.6% respectively [25].

The prevalence of overweight and obesity among adolescent girls in Shandong, China in 2005 were 8.75% and 5.76% respectively [26] which are considered lower than our values.

In another study conducted by Manyaga and colleagues, in seven African countries where Egypt was one of them, the rates of underweight, overweight and obesity among adolescents in Egypt were, 12.6%, 31.4% and 9.3% respectively [27].

Cole and colleagues developed an internationally acceptable definition of child overweight and obesity where information on body mass index was obtained from six large nationally representative cross-sectional studies on growth. The upper and lower limits are useful in comparisons between different nations as regards the distribution of overweight and obesity in paediatrics where the prevalence rate is 5-18% for overweight and 0.1-4% for obesity at 2-18 years old [28]

The results of the current study are in the international reference range regarding the rate of overweight, but the prevalence rate of obesity in our study is higher than the international reference range.

The abnormally high BMI is prevalent in Egypt during the period of adolescence, which indicates a transient change in diet due to newly acquired urban habits, [29] in addition to a rise in both social and economic levels [30].

This study demonstrates the burden caused by the coexistence of obesity and underweight. It was revealed that 31% believed to have a non-average weight of which 11.3% believed to be thin and 19.7% believed to be fatty. 41.4% of our participants were satisfied with their body image, a rate similar to that found by Eduila and colleagues [23]. Those who were not satisfied with their body weight were 37.4% of the participants which agreed with the results of other studies. Al – Sabbah and colleagues reported that the prevalence of weight dissatisfaction among Palestinian females aged 12-18 years was 33.9% [22] and Musaiger had reported that 32%-39% of the participants were dissatisfied with their current weight [31].

However, Eduila and colleagues and Pelegrini and colleagues reported a higher prevalence rate of body image dissatisfaction among Brazilian adolescents (71.4%) and (61.3%) respectively especially among girls [23] [32]. These findings show that weight dissatisfaction has been increasing in prevalence worldwide.

More worries and less satisfaction about body image are found in women. As they are much more minded about slimness and much more anxious about

any added weight [33]. The influence of parents and peers, exposures to mass media and pressure to be thin have been shown to be risk factors for increased body dissatisfaction [21]. In another study conducted in Egypt, it was found that women were dissatisfied with their body weight due to the influence of fashion as shown on television and in fashion magazines [34].

The study showed that a high percentage of the included adolescent girls who were obese were not satisfied with their current weight presenting 93.8%. Similarly, Goswami and Colleagues reported that overweight students had a significantly higher prevalence of dissatisfaction [35]. Also, research done in Kuwait revealed body dissatisfaction in 81% of fatty females attending the university in comparison to dissatisfaction in only 30% of their average weight peers [36]. The high prevalence of overweight and obesity is an impotent factor which contributes to body weight concern. Also, obesity was found to decrement self-body image satisfaction [37].

Our study showed that 80% of those who were underweight were not satisfied with their weight. In contrast, Goswami and Colleagues reported that underweight participants had a highly significant rate of satisfaction [35].

Results showed that 55% of those who believed that they had a normal weight had a normal BMI. 80% of those who believed being thin were truly underweight and had a low BMI, and 93.8% of those who believed being fat were obese and had a high BMI indicating that the subjective belief about self-body image matches the objective BMI measurement in all BMI categories. These results are in contrast with other researchers. The study group in a research done by Nunes and colleagues included female candidates of teenagers up to twenty-nine years old. They detected in their study, a real self-estimation of being fatty only in one third of those with a truly high BMI [38], Duong and Roberts, also found that adolescent females with normal weight had considerably high odds of perceiving themselves as overweight; [39] meanwhile Eduila and Colleagues, noticed that 64.1% of their study group were not satisfied with their body image in spite of having normal BMI. On the other hand, 29.9% were dissatisfied and were having a high BMI [23].

Results of the scientific research have pointed to the inconsistency of nutritional status and BMI as indicators of satisfaction about body image [40] therefore, weight dissatisfaction is mainly dependent on self-body image perception [22].

Thus, body dissatisfaction among adolescent girls must be considered a critical issue and must be enlisted in health problems of adolescence [32].

In conclusion, the present results conclude that the prevalence of overweight and obesity is (28.7%) and the prevalence of underweight is (3.3%), and so highlighting the existence of the double burden

of both extremes of abnormal BMI in adolescence. The prevalence of body image dissatisfaction (37.4%) is high among adolescent girls whether they were overweight or underweight. The subjective belief about self-body image matches the objective BMI measurements.

Recommendation: Body image dissatisfaction should be considered an important public-health problem that needs preventive measures providing a real reflection of cultural concepts about body image perception that may endanger health. Scholastic programs are very useful in rectifying unhealthy eating habits, in promoting exertion and in correcting body image distortion in adolescence.

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