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Research Article

Psychological and Physical Correlates of Body Image Dissatisfaction among High School Egyptian Students

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ABSTRACT

Background: Body image is one of the most important psychological factors that affects adolescents' personality and behavior. Body image can be defined as the person's perceptions, thoughts, and feelings about his or her body.

Objectives: to identify the prevalence of body image concerns among secondary school students and its relation to different factors.

Subjects and methods: A cross-sectional study conducted in which 796 secondary school students participated and body shape concerns was investigated using the body shape questionnaire (BSQ-34).

Results: The prevalence of moderate/marked concern was (21.6%). Moderate/ marked body shape concern was significantly associated with unemployed fathers and mothers, low level of maternal education, lower socioeconomic status, concern with body weight or problematic eating, increased BMI, increased anxiety and depression.

Conclusions: The high prevalence of moderate/marked dissatisfaction with body shape and its possible relation to subsequent hazards such as eating disorders, depression, and anxiety should be of concern.

Background

Adolescence extends from puberty to legal adulthood and is characterized by marked progression in physiological, psychological, and social development (1). Body image is one of the most important psychological factors that affects adolescents' personality and behavior (2). Body image can be defined as the person's perceptions, thoughts, and feelings about his or her body (3). Its construct may involve two and often three dimensions; how the individual "thinks" (cognitive dimension), "feels" (emotional dimension) he or she looks and lastly how an individual "wants" to look (idealistic dimension) (4).

Dissatisfaction with physical appearance and body image seems to be more the rule than the exception. Traditionally, in the Eastern Mediterranean Region (EMR), plumpness was a sign of female beauty and femininity (5). Recently, media has had a negative impact on adolescent body image as it influences adolescents' perspectives on their own bodies and pressures them to conform to the Western views of physical appearance increasing the risk of

body image concerns and Eating Disorders (ED) among young people (6).

Body image can have critical implications for people's physical and emotional well-being . Body image dissatisfaction (BID) or concern (BIC) is a serious mental health problem affecting mainly more girls than boys (7). Various factors are associated with BID/BIC where unhealthy body image is associated with obesity and physical inactivity and plays a critical role in the development of eating disorders during adolescence (8,9,10,11,12).

BID/BIC is also associated with body mass index (BMI) (13).In an Egyptian study, moderate/marked body image concern was found in 63% of obese adults compared to 0% among nonobese students (14).

There is a correlation between BID/BIC and internalizing symptoms, such as anxiety and depression in adolescents, in which girls appear more at risk than boys (15,16).

This study aimed to measure the prevalence of body image concern among secondary school students and its relation to different factors.

Subjects and Methods

Participants

This is a descriptive cross-sectional study that was conducted among high school students in Beila district, Kafr El-Sheikh governorate, Egypt.Beila district consists of Beila city and 262 affiliated villages, of which there are 6 high schools according to the Directorate of education. The study extended for two academic years, 2015-2016 and 2016-2017.

Sample size

Sample size was calculated online (www.dssresearch.com). From a previous study (17), the prevalence of body dissatisfaction was found to be 28.8% and by considering the worst acceptable value as 33.8, the sample size was 523 with 95% confidence level and 80% study power and for the design effect, the number of students increased to reach 796 students.

Procedure and sampling method

A stratified cluster sampling method was used where the sample was distributed proportionally between all the 6 schools in the district. In each school, the students were stratified into three grades and one class (cluster) was randomly chosen by lottery from each grade (strata). All the students were included in the assessment with the exception of absent students, non- cooperative students or students with uncompleted questionnaire's data.

Instruments used for collecting data

The participants were administered:

1. A questionnaire that included the following parts:

a. Social and personal data:

1. Personal history of the students which included; name, age, gender, residence.

2. Socioeconomic status according to El-Gilany et al.(18).

b. Body shape questionnaire (BSQ-34):

The test was originally developed by Cooper et al (19), which measures individuals' degree of concern and satisfaction with their body shape. The items are rated on a Likert-type scale from 1 to 6 and the score is ranging between 34-204 points. Higher scores point to an increased level of concern with body shape. A score of less than 80 indicates no body shape concern, 80 to 110 shows mild,111 to 140 signifies moderate body shape concern and more than 140 indicates marked body shape concern. These were re-coded again into no/mild and moderate/marked body shape concern.

c. Eating attitude test-26:

The EAT-26 is a self-report questionnaire. The questions examine attitudes, beliefs and behaviors related to food, body shape and weight. The scale is rated on four-point Likert scales from 0 to 3. A total score and three subscales (dieting, bulimia and oral control) are generated. A score of 21 or above denotes the existence of negative eating attitudes and behavior (20).

d. International physical activity questionnaire-short form:

Participants self-reported the frequency and duration of their physical activity during the previous week using the short form International Physical Activity Questionnaire (www. Ipaq.ki.se) Physical activity was classified as follows:

- low ─ no activity is reported, or some activity is reported but not enough to meet physical activity levels 2 or 3.
- moderate ─ any of the following 3 criteria: 3 or more days of vigorous activity of at least 20 minutes per day or 5 or more days of moderate-intensity activity and/or walking of at least 30 minutes per day or 5 or more days of any combination of walking, moderate or vigorous intensity activities achieving a minimum of at least 600 MET (Metabolic Equivalent) - minutes/week.
- High ─ any one of the following 2 criteria: vigorous-intensity activity on at least 3 days and accumulating at least 1 500 MET-minutes/week or7 or more days of any combination of walking, moderate-vigorous intensity activities accumulating at least 3 000 MET-minutes/week.

E. The Hamilton Rating Scale for Anxiety (HAM-A):

The Hamilton Anxiety Rating Scale (HAM-A, sometimes termed HARS), dating back to 1959, is one of the first rating scales to measure the severity of perceived anxiety symptoms. The HAM-A is a clinician-based questionnaire; consists of 14 symptom-defined elements and caters to both psychological and somatic symptoms. Each item is scored on a basic numeric scoring of 0 (not present) to 4 (severe): less than 17/56 is taken to indicate mild anxiety; from18 to 24 indicate mild to moderate severity; 25 to 30 is considered moderate to severe (21).

F. The Hamilton Rating Scale for Depression (HRSD):

The Hamilton Rating Scale for Depression (HRSD), also called the Hamilton Depression Rating Scale (HDRS), abbreviated HAM-D, is a 17- item questionnaire that is scored on a 3- or 5-point scale, depending on the item, and the total score is 52. Scores of 0–7 are considered normal; 8–16 suggest mild depression, 17–23 moderate depression and scores over 24 are indicative of severe depression (22).

2. Anthropometric measurements

The body weights and heights of the participants were measured, from which Body mass index was calculated (BMI: weight/height2, kg/m2).

Ethical considerations:

The Study was approval by Medical Research Ethics Committee., College of Medicine, Mansoura University. Informed verbal consent was obtained from each participant sharing in the study after assuring confidentiality.

Data analysis:

Data was coded, processed and analyzed through SPSS (Statistical Package for Social Sciences Inc., Chicago, IL, USA, Standard version release 17.00).

Results

This study included 796 secondary school students; mainly females (67.7%), their mean age in years was 15.7± 0.71. More than half of the students were from rural areas (54.5%) and had income that meets their needs (64.7%). Approximately 1.3% of the students' fathers were not working, 3.1% had illiterate fathers and 5.2% had illiterate mothers. The sample was about equally distributed (27%, 23.5%, 27.6%, 21.9%) between the different levels of socioeconomic status (very low, low, middle, and high) respectively, see Table 1.

The prevalence of body shape concern as shown in figure (1) was as follows, no concern (57.0%), mild concern (21.4), moderate concern (11.3%), and marked concern (10.3%). These were re-coded into no concerns/mild concern (78.4%) and moderate/marked concern (21.6%). Moderate/marked concern was higher among Girls than boys (23% versus 18.8%).

Tables 1 and 2 report the association between body shape concern levels and different socio-demographic and clinical characteristics. Moderate/ marked body shape concern was significantly associated with non-working fathers and mothers, lower level of maternal education, and lower socioeconomic status. At the same time, it was significantly associated with concern with body weight or problematic eating, increased BMI, and increased risk for anxiety and depression.

As shown in table 3, a logistic regression analysis adjusting for clinical and socio-demographic factors showed that moderate/ marked body shape concern was positively associated with nonprofessional work status of mothers, (OR= 1.25 (0.65-2.199) for Skilled/unskilled workers and OR= 1.95 (1.12-3.39) for non-working mothers), increased level of depression (OR= 7.34 (4.377-12.293)for Mild/moderate depression and OR =55.56 (18.39-167.83) for Severe/very severe depression), increased anxiety level (OR= 7.389 (4.29-12.74) for mild to moderate anxiety and OR =17.42 (7.43-40.83) for moderate to severe anxiety), and the presence of concern with body weight or problematic eating (OR=1.75 (1.06-2.896)). The previous adjusted model predicted 88.2% of the variations in the body shape concern levels.

Discussion

During Adolescents there is heightened awareness of body shape and how an adolescent is perceived by others. Body image is shaped as a result of numerous factors such as culture, social upbringing, community, family, media, and friends (23).

Egypt, like many other developing countries, has witnessed changes related to globalization. These changes have resulted in lifestyle shifts manifested by a sedentary lifestyle and changes in the eating patterns from traditional Eastern Mediterranean diet to fast food (24). Moreover, dressing styles have also shifted to western modern styles (25). All of these factors have an impact on the body image ideals of Egyptian adolescents and may contribute to maladaptive attitudes and eating disorders (26).

In this study, we found that moderate/marked body shape concern manifested in 21.6 % of our sample while no/mild body shape concern was found in 78.4%. this was in agreement with some Egyptian studies conducted in different regions all over the country (12.23 % (5) in Assiut, upper Egypt, 18.9 % (27) in Tanta, Western Delta).

Similar rates (21.2, 22.5 and 23.8%) were also found in other studies from developing countries including Jordan, UAE and India (26, 28, 29) respectively.

However, Yahia et al, in a study conducted among a sample of students (n=252) from the Lebanese American University in Beirut, Lebanon found that BSQ scores indicate that the 41% of students were worried about their body shape perception (30). While Elsherif and Abdelraof, , found that among nursing students in Tanta, Egypt 92.5% of students in their first year and 85.5% of those in their fourth year reported high body image dissatisfaction (31). Our study found lower restates two studies as they were conducted among university students while our study was among secondary school students. Freshmen male (32) and female students (33) enter college with some fear of body image and concerns about their physical appearance that is associated with this new stage in their lives.

In this study, body shape concern was significantly associated with lower socioeconomic status. This was in line with a previous study of American schoolchildren found that youth from low socioeconomic backgrounds were at greater risk for disordered eating than youth from higher socioeconomic backgrounds (34). Children from low SES families in the previous study, particularly boys, were not only more likely to be overweight and to regularly skip breakfast, but they were also more likely to see themselves as 'too thin' and to be currently trying to gain weight compared to their higher SES counterparts. Previous studies (35,36) have suggested that certain cultural and ethnic groups have a desire for a rounder, fuller body or a greater body size than those reflected by Western ideals and that they reject the Western ideal of slimness. Becker et al., 2004 investigated changes in prevalence of overweight and obesity and in body image among ethnic Fijian women in Fiji during a period of rapid social change over a 9.5-year period from 1989 to 1998. They found that the prevalence of overweight and obesity was significantly different between the cohorts, increasing from 60% in 1989 to 84% in 1998 ($p = 0.014$). In addition, the age-adjusted mean BMI was significantly higher in 1998 compared with 1989 ($p = 0.011$) (37).

Further studies of children and adolescents from various ethnic, cultural and SES backgrounds should aim to clarify these relationships.

As for gender differences, we found that a higher percentage of females reported body image concerns which is in line with other studies (2,31,39). It is possible that the higher rates of BID among females are attributable to the rapid weight gain (mainly in the form

of fat) that occurs in this phase which could make girls more vulnerable than boys to social pressure to mold their bodies to fit the ideal of slenderness (39). In contrast Chaudhari et al reported markedly higher rates of BIC in males compared to females, this may be due to their concerns about their physical appearance, as boys wish to gain weight and increase muscle mass (29).

In this study, marked concern with body shape increased significantly with increases in BMI and this is in line with previous studies indicating that underweight & average –weight adolescents are mostly satisfied with their body image, whereas overweight and obese adolescents of both genders are mostly dissatisfied with their body image (29, 40, 38, 28,)

In our sample, no significant association was observed between the level of physical activity and perceived body image. This is in line with others studies (41). However, Ansari et al., 2014 reported that marked BIC was lower in physically active students (5), Kantanistaet al.stated that higher levels of physical activity in adolescents had a protective effect on BD, which is independent of BMI or gender (7). Similarly, Añez et al.reported that adolescents with more positive body image may engage in physical activity because they do not perceive barriers to exhibit their bodies in public settings (8).

In this study, there is a significant association between body weight concerns and eating disorders, these findings are in line with other studies in adolescents (28). Also, Chaudhari et al. reporting body image as a predictor for eating disorders (29).

The intense concern about body image would cause unfavorable outcomes such as poor health status, anxiety, depression, low self-esteem, and poor quality of life which eventually lead to body shape dissatisfaction (42). Our findings showed that there is a significant relationship between depression & body image dissatisfaction. This is in line with others (5,43).

Our results showed that there was a strong relationship between body image dissatisfaction & anxiety for both males and females. This agrees with many studies where adolescents tend to exhibit strong correlations between body image dissatisfaction and overall anxiety symptoms (44). Duchesne et al.examined self-esteem as a mediator between body image dissatisfaction and psychological disorders whereas negative perception of one's body image has the effect of lowering self-esteem, which in turn influences psychological distress manifesting as depression and anxiety (45).

Limitations

The present study has some limitations need to be considered while interpreting the study findings. First, this study was conducted only in Beila district, Kafr El-Sheikh governorate and therefore is not representative for the Egyptian general population. Second, being a cross-sectional study, we were unable to establish any temporal relationships between body shape and its correlates. Finally, the selected body size measure in the present study is not a comprehensive one, and it provides a partial assessment of adolescent's body size concerns.

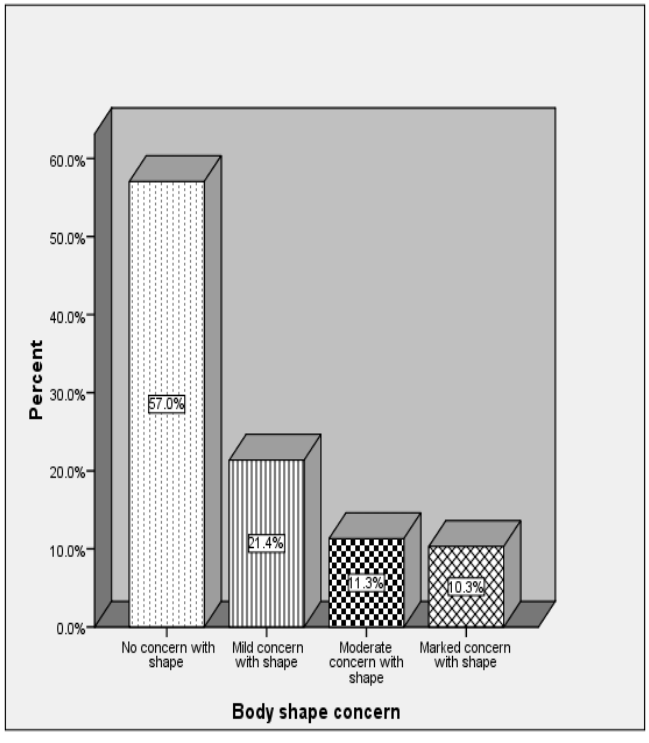

Figure 1: The prevalence of body shape concern measured by Body shape questionnaire (BSQ-34) among the studied group (796).

Conclusions & Recommendation

The prevalence of moderate/marked dissatisfaction with body shape was found in almost one of five adolescents in our sample. This problem was related to other health concerns such as eating disorders, physical inactivity, depression, and anxiety. These overall results highlight the importance of prevention, early identification and treatment. Furthermore, interventional education programs, as well as counseling targeted to this group should be available to provide knowledge about countering negative body shape perceptions and managing any associated health risks.

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Conflict of Interest

No conflict of interest.

Table 1: Socio-demographic characteristics of the studied group (N=796) by their body shape concern measured by Body shape questionnaire (BSQ-34) (2015-2017).

		No/ mild concern		**Moderate/marked concern**		**Total**		**Test of significance**	**OR (CI)**
		N	**%**	**N**	**%**	**N**	**%**	**U test P value**	
Age	Mean±SD (CI)	15.6±0.71 (15.6-15.7)		15.7±0.69 (15.6-15.8)		15.7±0.71		0.24	1.2(0.9-1.5)
		No/ mild concern		Moderate/marked concern		Total		Chi-square (X2) P value	
Sex	Male	209	81.3%	48	18.7%	257	32.3%	0.09	
	Female	415	77.0%	124	23.0%	539	67.7%		1.3(0.89-1.89)
Residence	Urban slum	137	72.9%	51	27.1%	188	23.6%		1.79(1.07-2.97)
	Rural	343	79.0%	91	21.0%	434	54.5%	0.07	1.27(0.81-2.01)
	Urban	144	82.8%	30	17.2%	174	21.9%		
Income*	Indebt	22	84.6%	4	15.4%	26	3.3%		
	Just met routine expenses	139	74.3%	48	25.7%	187	23.5%		1.89(0.62-5.79)
	Met routine and emergences expenses	255	77.7%	73	22.3%	328	41.2%	0.26	1.57(0.53-4.71)
	Can save/invest money	208	81.6%	47	18.4%	255	32.0%		1.24(0.1-3.78)
Father occupation	Not working	4	40.0%	6	60.0%	10	1.3%		5.7(1.6-20.8)
	Skilled/unskilled workers	311	78.5%	85	21.5%	396	49.7%	0.02	1.04 (0.7-1. 47)
	Semiprofessional/professional/clerk	309	79.2%	81	20.8%	390	49.0%		
Mother occupation	Not working	390	75.6%	126	24.4%	516	64.8%		1.7 (1.2-2.6)
	Skilled/unskilled workers	29	78.4%	8	21.6%	37	4.6%	0.02	1.5(0.63-3.5)
	Semiprofessional/professional/clerk	205	84.4%	38	15.6%	243	30.5%		
Father Education	Illiterate	19	76.0%	6	24.0%	25	3.1%		1.27(0.49-3.31)
	> secondary	331	77.2%	98	22.8%	429	53.9%	0.59	1.19(0.84-1.69)
	University and higher	274	80.1%	68	19.9%	342	43.0%		
Mother Education	Illiterate	33	80.5%	8	19.5%	41	5.1%		1.23(0.54-2.81)
	>secondary	338	74.8%	114	25.2%	452	56.8%	0.02	1.71(1.18-2.47)
	University and Higher	253	83.5%	50	16.5%	303	38.1%		
Socioeconomic status (SES)	Very low	161	74.9%	54	25.1%	215	27.1%		1.99(1.18-3.38)
	Low	143	76.5%	44	23.5%	187	23.5%	0.06	1.83(1.07-3.15)
	Middle	171	77.7%	49	22.3%	220	27.6%		1.71(1.01-2.90)
	High	149	85.6%	25	14.4%	174	21.9%		

*Monte Carlo test used for testing the statistical significance. SD (standard deviation)

Table 2: Clinical characteristics scales of the studied group (N=796) by their body shape concern measured by Body shape questionnaire (BSQ-34) (2015-2017).

		No/ mild body shape concern		**Moderate/ marked body shape concern**		**Total**		**Test Of significance**	**OR(CI)**
		N	%	N	%	N	%	Chi-square (X2) P value	
Eating disorders (EAT-26)	No concern with body weight	476	88.3%	63	11.7%	539	67.7%	0.00	
	Concern with body weight or problematic eating	148	57.6%	109	42.4%	257	32.3%		5.6 (3.9-7.9)
Physical activity (IPAQ- short form)	Inactive category	110	81.5%	25	18.5%	135	17.0%	0.47	
	Minimally active	144	75.8%	46	24.2%	190	23.9%		1.4(0.8-2.4)
	(HEPA) active	370	78.6%	101	21.4%	471	59.2%		1.2(0.7-1.9)
BMI*	Low body weight	66	94.2%	4	5.8%	70	8.8%	0.00	
	Normal weight	427	84.7%	77	15.3%	504	63.4%		2.98(1.1-8.4)
	Over weight	100	63.7%	57	36.3%	157	19.7%		9.4(3.3-27.2)
	Obesity	31	47.6%	34	52.6%	65	8.2%		18.1(5.9-55.5)
HAM-A (Anxiety)	Mild anxiety	543	92.3%	45	7.7%	588	73.9%	0.00	
	Mild to moderate anxiety	70	43.8%	90	56.2%	160	20.1%		15.5(10.0-23.9)
	Moderate to severe anxiety	11	22.9%	37	77.1%	48	6.0%		40.6(19. 4-84.9)
(HRSD) (Depression)*	No depression	543	93.0%	41	7.0%	584	73.4%	0.00	
	Mild/moderate depression	76	41.8%	106	58.2%	182	22.9%		18.5(11.9-28.5)
	Severe/very severe depression	5	16.7%	25	83.3%	30	3.8%		66(24.1-182.0)

*Monte Carlo test used for testing the statistical significance.
Abbreviations: IPAQ (International physical activity questionnaire), The EAT-26 (Eating attitude test-26), HAM-A (Hamilton Anxiety Rating Scale) and HAM-D (Hamilton Depression Rating Scale).

Table 3: Crude and adjusted OR of different factors associated with moderate/marked body shape concern measured by Body shape questionnaire (BSQ-34).

		logistic regression analysis, Model 1		**logistic regression analysis, Model 2**		**logistic regression analysis, Model 3**	
		B	Adjusted OR(CI)	B	Adjusted OR(CI)	B	Adjusted OR(CI)
Mother occupation	Non-working					0.67	1.95 (1.12-3.39)
	Skilled/unskilled workers					٠.44	1.25 (0.65-2.19)
	Semiprofessional/professional/clerk						
Father occupation	Non-working	1.845	6.33 (1.69-23.72)				
	Skilled/unskilled workers	0.088	0.916 (0.64-1.31)				
	Semiprofessional/professional/clerk						
Mother education	Illiterate	0.084	1.088 (0.45-2.63)				
	>secondary	0.582	1.790 (1.22-2.64)				

		logistic regression analysis, Model 1	logistic regression analysis, Model 2		logistic regression analysis, Model 3		
	University and higher						
(HRSD)	No depression						
(Depression)	Mild/moderate depression		1.89	6.613 (3.99-10.95)	1.99	7.34	(4.38-12.29)
	Severe/very severe depression		3.97	52.48 (17.7-157.65)	٢4.0	55.56	(18.39-67.83)
HAM-A	Mild anxiety						
	Mild to moderate anxiety		2.00	7. 4 (4.30-12.71)	2.00	7.39	(4.29-12.74)
	Moderate to severe anxiety		2.85	17.3 (7.42-40.43)	2.86	17.42	(7.43-40.83)
EAT-26	No concern with body weight9						
	Concern with body weight or problematic eating		0.58	1.79 (1.08- 2.95)	0.56	1.75	(1.06-2.896)
	Constant		-3.34	0.036	-3.81	0.022	
		Model Chi-square = 16.69. p=.000. Predicted group membership (R2) is78.6%	Model Chi-square =361.1. p=.000. Predicted group membership (R2) is88.2%		Model Chi-square =369.3. p=.000. Predicted group membership (R2) is88.2%		

Abbreviations: as mentioned in Table 2

* Model 1 adjusted for the socio-demographic variables mainly father and mother occupation, mother education and socioeconomic status, model 2 adjusted for clinical variables namely and model 3 adjusted for both socio-demographic and clinical variables

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