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# Body weight perception among adolescents in Dubai, United Arab Emirates

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## Abstract

This study investigated the body image perceptions among adolescents in Dubai, United Arab Emirates (UAE). A cross-sectional survey was conducted amongst 661 adolescents (324 males; 337 females) aged 12-17 years selected from government schools using a multistage stratified random sampling technique. A pretested validated questionnaire was employed to determine the perception of adolescents toward their weight status. A nine figure silhouette illustration was used to measure perceptions of their ideal body image and how it compares with their current body weight. The results revealed that overweight (18.5%) and obesity (27.2%) were higher among males than in females (13.1% and 20.5% respectively). A high proportion of overweight males and females considered themselves as average (45.0% and 52.3%, respectively). Similarly, 56.9% of obese male and 46.4% of females considered themselves as average weight. Of non-overweight/obese males and females, 27.6% and 39.3% respectively, were pressured by parents to gain weight ( $p > 0.000$ ). In general overweight and obese adolescents were more likely to face pressure from their parents and teased by friends than non-overweight/obese adolescents. Compared to their current body image, overweight and obese adolescents chose a significantly lighter figure as their ideal ( $p < 0.000$ ). It is suggested that the current health education curriculum should include information related to healthy body weight and appropriate diet and lifestyle so as to minimize risk of developing distorted body image concerns in adolescence and beyond.

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Key words: *Adolescents. Perception. Ideal body weight. Current body weight. UAE.*

## PERCEPCIÓN DEL PESO CORPORAL EN LOS ADOLESCENTES DE DUBAI, EMIRATOS ÁRABES UNIDOS

### Resumen

Este estudio investigaba la percepción de la imagen corporal en los adolescentes de Dubái, Emiratos Árabes Unidos (EAU). Se realizó una encuesta transversal entre 661 adolescentes (324 chicos; 337 chicas) con edades de 12-17 años, seleccionados de colegios públicos utilizando una técnica de muestreo aleatorio estratificado en varias etapas. Se empleó un cuestionario validado y previamente testado para determinar la percepción de los adolescentes con respecto a su peso. Se usó la ilustración de una silueta de los nuevos para medir las percepciones de su imagen corporal ideal y cómo se comparaba con su peso corporal real. Los resultados mostraron que el sobrepeso (18,5%) y la obesidad (27,2%) fueron superiores entre los chicos que entre las chicas (13,1% y 20,5%, respectivamente). Una proporción alta de chicos y chicas con sobrepeso se consideró a sí mismos en el promedio (45,0% y 52,3%, respectivamente). De forma similar, el 56,9% de los chicos obesos y el 46,4% de las chicas obesas se consideraron dentro del promedio. El 27,6% y el 39,3% de los chicos y chicas, respectivamente, sin sobrepeso ni obesidad eran presionados por sus padres para ganar peso ( $p > 0,000$ ). Por lo general, los adolescentes con sobrepeso u obesidad tenían una mayor probabilidad de recibir presiones de sus padres y burlas de sus compañeros que los adolescentes sin sobrepeso ni obesidad. En comparación con su imagen corporal actual, los adolescentes con sobrepeso u obesidad eligieron un número significativamente menor como su peso ideal ( $p < 0,000$ ). Se sugiere que el currículo educativo sanitario actual debería incluir información relacionada con el peso corporal saludable y una dieta y estilo de vida apropiados para minimizar el riesgo de desarrollar preocupaciones sobre una imagen corporal distorsionada en la adolescencia y más allá.

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Palabras clave: *Adolescentes. Percepción. Peso corporal ideal. Peso corporal real. UAE.*

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## Introduction

Adolescence represents a period of marked physical changes that are associated with changes in body perception.<sup>1</sup> Body image focuses on both how we feel about the size and shape of our bodies and how accurately we perceive our body size.<sup>2</sup> Perception towards body weight is a strong determinant of the dietary habits and weight management amongst adolescents.<sup>3</sup> The perception of being overweight rather than actually being overweight has been associated with eating disorder tendencies.<sup>4</sup> It has now become more apparent that body image disturbance and concerns about body shape and size are formed very early in life and are often well formed by mid childhood.<sup>5</sup> There is overwhelmingly evidence that body image is intrinsically linked with self-esteem<sup>6</sup> and the society's emphasis on how we look also seems to affect the way people feel about themselves.<sup>7</sup>

Studies in Western countries have shown that there are many socio-cultural, biological and interpersonal factors that influence body dissatisfaction with gender difference.<sup>8-10</sup> In the Arab culture, thinness has been regarded as socially undesirable, whereas plumpness is regarded as a symbol of fertility and womanhood.<sup>11</sup> However in the past three decades, the oil rich Arab Gulf countries, including the United Arab Emirates (UAE), has undergone rapid and extensive economic and socio-cultural modernization. This has resulted in a clash of cultures, and studies indicate that a clash between a traditional culture and adopted culture may heighten the risk for eating and body image disturbances in susceptible individuals.<sup>12</sup>

While most previous studies in the UAE have focused on high prevalence of overweight and obesity among adolescents,<sup>13-15</sup> few studies have investigated the weight related beliefs and body perceptions amongst this population. In the UAE, one of the early evidence of eating disorder as a result of increasing globalization was reported by Abou-Saleh, et al.<sup>16</sup> A body image perception study among adolescents in Bahrain showed that many overweight and obese adolescents failed to perceive themselves as such, and many normal weight adolescents reported previous attempts at weight loss.<sup>17</sup> A study by Nasser<sup>18</sup> among Egyptian secondary school girls has confirmed that morbid eating patterns are emerging in Egyptian culture, with similar rates to those in western society.

Addressing issues of body image are important since body image disturbance is a fairly stable belief pattern, as children who exhibit higher levels of body dissatisfaction will tend to continue to express this into adolescence and young adulthood, which could ultimately result in eating disorders.<sup>19</sup> Hence, we have sought to examine body weight perception and some associated factors among adolescents attending preparatory and secondary government schools in Dubai, UAE. This may identify areas to formulate suitable intervention

strategies and promote healthy body image among the adolescent population.

## Materials and methods

### *Sampling*

The study population included Dubai national male and female adolescents aged between 12 to 17 years selected from the government schools. A sample of these children (324 males and 337 females) was selected by means of a multistage stratified random sampling technique in schools and stratified by sex and type of school (preparatory and secondary). Dubai was first divided into four administrative areas. One preparatory and one secondary school for each sex were then selected by a simple random method from each area. One class from each educational level (3 for preparatory and 3 for secondary) were then selected from each school by a simple random method, and only Emirati adolescents were included in the study. Student reported age and date of birth were verified against the school records, which in turn were based on the birth certificate. The study was approved by the Research Ethics Committee of the Ministry of Health, Dubai Medical District. All adolescents, parents and teachers were clearly informed about the purpose and content of the study and written consent was obtained from parents.

### *Anthropometric measurements*

Weight and height were measured as described by Gibson.<sup>20</sup> Weight was measured to the nearest 0.1 kg using an electronic portable scale (Seca). To ensure accuracy in measurement the scale was checked for zero reading before each weighing and calibrated with a known weight on the morning of each data collection. Student height was measured, in the standing position, to the nearest 0.1 cm using a portable stadiometer which was attached to the "Seca" weighing scale. The student was asked to stand without shoes and socks, back against the scale, heels together and head in the upright position. The movable headboard was lowered until it firmly touched the upper part of the subjects head and a direct reading of height was obtained. From these measurements the body mass index (BMI) (weight in kilograms divided by height in meters squared) was computed.

### *Questionnaire*

The participants were given a questionnaire previously validated and used by Al-Sendi et al.<sup>17</sup> among adolescents in Bahraini (an Arab Gulf country) to assess the adolescent's perceptions of their body

**Table I**  
Prevalence of weight status using BMI categories among adolescents in Dubai, UAE

Weight status	Males		Females		p-value
	n	%	n	%	
Non-overweight/obese	192	59.3	224	66.4	> 0.1859
Overweight	60	18.5	44	13.1	
Obese	72	22.2	69	20.5	
<b>Total</b>	<b>324</b>	<b>100.0</b>	<b>337</b>	<b>100.0</b>	

image. Perceptual body image was explored with questions aimed towards assessing the adolescent's knowledge of their weight status, height, parents and friends attitudes towards their body size. To measure adolescent's perceptions of ideal body image and how it compares with their current body image, we used the nine figure silhouettes developed by Stunkard, et al.<sup>21</sup> Illustrations of male and female body shapes ranging from very thin to grossly obese were shown to the adolescents, and they were asked to circle the male/female that looks most like them now (current), and the male/female that they wanted to look like (ideal). The subjects were asked to select only one silhouette which was coded from one (thinnest) to nine (heaviest).

#### Statistical analysis

Data were entered and analyzed using the SPSS statistical package. The association between perception of weight and actual weight status was examined using contingency tables. Based on the World Health Organization recommendations<sup>22</sup> and using the age and gender specific BMI data of the NHANES1<sup>23</sup> the participants were classified into three groups according to their BMI percentile categories as follows: non-overweight/obese: < 85<sup>th</sup> percentile of BMI for age; Overweight: 85<sup>th</sup> to < 95<sup>th</sup> percentile of BMI for age and Obese: ≥ 95<sup>th</sup> percentile of BMI for age. Due to small sample size of underweight adolescents, they were combined with normal weight, and called non-overweight/obese adolescents.

The means and standard deviations of the adolescent's perceptions of their current and ideal figures, as measured by the nine figures silhouettes of Stunkard et al.<sup>21</sup> were then calculated, and the difference between perceived current and ideal body figure were tested for statistical significance using students paired t-test

#### Results

The prevalence of weight status among the Dubai adolescents by age and sex is presented in table I. The percentages of overweight (18.5%) and obesity (27.2%) among males were higher than that among females (13.1% and 20.5% respectively).

The perceptions and attitudes towards body weight amongst male and females adolescents are presented in table II. Among males, about 45% of overweight considered themselves as average and 22% as obese. Similar was the case with 52.3% of overweight females were considered themselves as an average and 20.4% as obese. As weight status of adolescents increased, the pressure of parents of adolescents to lose their weight increased. Of overweight adolescents, 25% of males and 31.8% of females forced by parents to lose weight. The proportion increased to 52.8% and 53.6% among obese males and females, respectively. Additionally, 33.3% and 36.4% of overweight and 50% and 47.8% of obese males and females, respectively were teased by friends about their weight status ( $p < 0.000$ ). Of overweight males and females, 51.7% and 70.5% had undertaken dietary programme. The proportion reached to 63.9% and 68.1% of obese males and females, respectively. In general, the association of weight perception and weight status was statistically significant in all items.

Tables III and IV show the perceptions of adolescent's current and ideal body shape preference according to the nine figure silhouette for males and females, respectively. Most of the non-overweight/obese boys perceived themselves as normal (32.2% and 26%, selected figures 4 and 5, respectively), in contrast 26.2% and 35.2% of non-overweight/obese girls perceived themselves as thin (selected figs. 2 and 3, respectively). Overweight boys were more likely to perceive themselves as overweight than girls. As for ideal body weight preferred by adolescents, figures number 4 and 5 were mostly selected by boys (27.9% and 45.1%), whereas in girls, figures number 3 and 4 were the most ideal figures preferred (39.9% and 30.7% respectively). In general, girls were more likely to select thinness figures than boys with surprising results that a high percentage of non-overweight/obese girls preferred the thin figures (figs. 1, 2 and 3). This phenomenon was very low among boys.

The mean and the standard deviations of the adolescent's perceptions of their current and ideal figures measured using the nine figure silhouettes are presented according to actual weight category in table V. Compared to their current body image, non-overweight/obese adolescent males chose a significantly heavier body figure as their ideal ( $p < 0.002$ ), but this was not the case for girls, as they selected similar figure. In the overweight

**Table II**  
Perceptions of/and attitudes to body weight among male and female adolescents in relation to their actual weight status (BMI percentile)

Perception/attitudes	Adolescent's actual weight status						p-value
	Non-overweight/obese		Overweight		Obese		
	n	%	n	%	n	%	
<b>Male adolescents</b>							
<i>How do you consider yourself?</i>							
Don't know	29	16.0	8	14.0	10	14.0	< 0.6895
Thin	27	14.1	12	20.0	10	14.0	
Average	92	48.0	27	45.0	41	56.9	
Obese	44	22.9	13	22.0	11	15.1	
<i>Parents force you to lose weight</i>							
No	178	92.7	45	75.0	34	47.2	< 0.0000
Yes	14	7.3	15	25.0	38	52.8	
<i>Parents force you to increase weight</i>							
No	139	72.4	55	91.7	69	95.8	< 0.0000
Yes	53	27.6	5	8.3	3	4.2	
<i>Friends tease you for being obese</i>							
No	175	91.1	40	66.7	36	50.0	< 0.0000
Yes	17	8.9	20	33.3	36	50.0	
<i>Did you do any dietary programs before to reduce your weight?</i>							
No	160	83.3	29	48.3	26	36.1	< 0.0000
Yes	32	16.7	31	51.7	46	63.9	
<b>Female adolescents</b>							
<i>How do you consider yourself?</i>							
Don't know	27	12.1	4	9.1	12	17.4	< 0.7395
Thin	35	15.6	8	18.2	12	17.4	
Average	104	46.4	23	52.3	32	46.4	
Obese	58	25.9	9	20.4	13	18.8	
<i>Parents force you to lose weight</i>							
No	211	94.2	30	68.2	32	46.4	< 0.0000
Yes	13	5.8	14	31.8	37	53.6	
<i>Parents force you to increase weight</i>							
No	136	60.7	43	97.7	62	89.9	< 0.0000
Yes	88	39.3	1	2.3	7	10.1	
<i>Friends tease you for being obese</i>							
No	211	94.2	28	63.6	36	52.2	< 0.0000
Yes	13	5.8	16	36.4	33	47.8	
<i>Did you do any dietary programs before to reduce your weight?</i>							
No	166	74.1	13	29.5	22	31.9	< 0.0000
Yes	58	25.9	31	70.5	47	68.1	

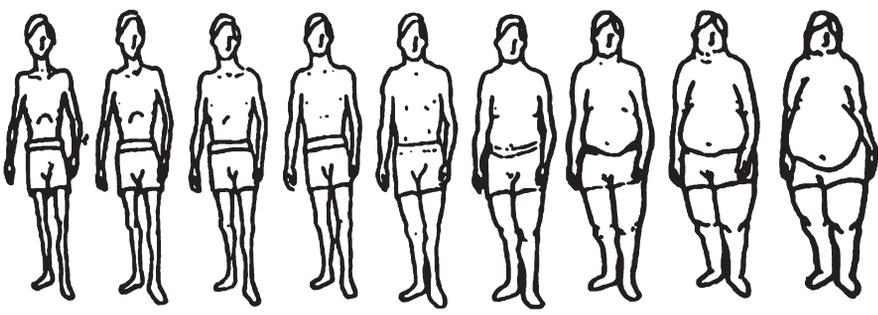
and obese category both set of genders chose a significantly lighter figure as their ideal ( $p < 0.000$ ).

## Discussion

The trends towards higher BMI status amongst the Dubai adolescents as seen in this study have been well documented by many researchers in the region.<sup>15,17,24</sup> It is clear from the results of the current study that conscious weight perceptions and weight concerns are present among adolescents in Dubai. Both overweight and

underweight concerns have public health importance. Of particular concern is that this study supports the finding that there is a tendency for teenagers to overestimate/underestimate their body weight as evident by normal weight adolescents perceiving themselves as obese or thin. Previous studies among Bahraini adolescents have reported similar existence of a distorted body image as reflected by failure of many overweight or obese adolescents to perceive themselves as such.<sup>17</sup> It has been reported that, in girls, the strongest predictor of body dissatisfaction was internalization, while for boys the strongest predictor was pressure.<sup>25</sup>

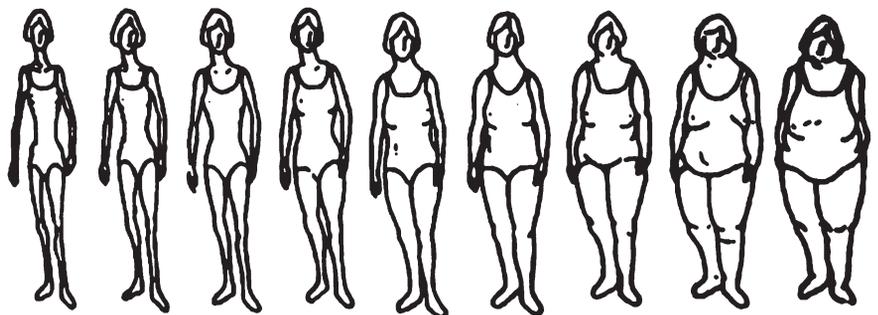
**Table III**  
*Percentages of adolescents' current body weight status and ideal body figure preference by male adolescents in Dubai, UAE*

										
		1	2	3	4	5	6	7	8	9
Body status (No.)		%	%	%	%	%	%	%	%	%
Non-overweight/obese (192)	Current	2.5	10.4	21.3	32.3	26.0	6.3	1.2	0.0	0.0
	Ideal	3.1	4.7	10.0	26.1	49.5	5.7	0.0	0.0	1.0
Overweight (60)	Current	1.7	0.0	1.7	10.5	40.6	37.2	8.3	0.0	0.0
	Ideal	1.7	6.7	18.9	28.9	38.9	5.0	0.0	0.0	0.0
Obese (72)	Current	1.4	0.0	0.0	2.8	9.7	36.7	35.1	14.3	0.0
	Ideal	6.9	1.4	12.5	31.9	40.3	5.6	0.0	1.4	0.0
Total (324)	Current	2.2	6.2	12.7	21.7	25.7	19.2	9.6	2.8	0.0
	Ideal	3.7	4.3	12.4	27.7	45.1	5.6	0.3	0.3	0.6

Another interesting finding of this study and an area of concern was that parents of about 27.6% and 39.3% of non-overweight/obese, males and female adolescents wanted them to gain weight. Haines et al.<sup>26</sup>

suggest that parents may indirectly teach their adolescents to be dissatisfied with their bodies by modeling body dissatisfaction and dieting behavior. It is reported that society provides message about how people should

**Table IV**  
*Percentages of adolescents' current body weight status and ideal body figure preference by female adolescents in Dubai, UAE*

										
		1	2	3	4	5	6	7	8	9
Weight status (No.)		%	%	%	%	%	%	%	%	%
Non-overweight/obese (224)	Current	5.9	26.2	35.2	24.6	7.1	1.0	0.0	0.0	0.0
	Ideal	10.6	16.5	42.9	23.6	5.4	1.0	0.0	0.0	0.0
Overweight (44)	Current	2.3	0.0	2.3	20.5	36.4	31.8	6.8	0.0	0.0
	Ideal	2.3	9.1	38.6	50.0	0.0	0.0	0.0	0.0	0.0
Obese (69)	Current	0.0	0.0	2.9	5.8	20.8	36.6	25.2	2.9	5.8
	Ideal	4.3	7.2	30.5	39.7	12.6	4.3	1.4	0.0	0.0
Total (337)	Current	4.2	17.6	24.7	20.9	13.4	11.9	5.6	0.6	1.2
	Ideal	8.0	13.8	39.9	30.7	5.9	1.5	0.3	0.0	0.0

**Table V**  
Means and standard deviations for male and female adolescent's perceptions of current and ideal body figure

Actual weight category	n	Body image (mean ± SD)		p-value
		Current	Ideal	
<i>Males</i>				
Non-overweight/obese	192	3.8 ± 1.41	4.28 ± 1.39	< 0.000
Overweight	60	5.00 ± 1.68	3.85 ± 1.49	< 0.000
Obese	72	6.03 ± 1.85	4.21 ± 1.28	< 0.000
<i>Females</i>				
Non-overweight/obese	224	2.98 ± 1.10	2.93 ± 1.11	< 0.6321
Overweight	44	5.11 ± 1.13	3.36 ± 0.75	< 0.000
Obese	69	5.72 ± 1.90	3.51 ± 1.37	< 0.000

ideally look and parental message were the strongest influence on body image.<sup>9</sup> Hodes, et al.<sup>27</sup> in their study to determine cultural variation in mothers' attitudes to children's body shape have reported that mothers of adolescents in non-Western countries express more positive attitudes regarding the need for children to gain. This finding is especially important to health professionals as the existing problems of overweight and obesity are quite high amongst the UAE adolescents. On the other end of the spectrum is the fact that more than one-half of the obese adolescents in this study were forced by their parents to lose weight. This could indicate changing attitudes in the Arab communities towards fatness, which so far was generally considered as desirable. In recent years the UAE has undergone rapid socioeconomic transition and adoption of western lifestyle could have brought about this change.<sup>28</sup>

Another outcome from this study was that there was a greater concern with body shape and a desire to be thin in females than in males as evident from the silhouettes<sup>21</sup> used to obtain information about ideal and current body image. It should be noted that although the scales used here are more for adults rather than for adolescents, the figures have been used previously in numerous studies as they adequately demonstrate the shape of the body among adolescents.<sup>17,29</sup> This preference for western thin body image as obvious amongst the normal weight adolescents in this study has also been made among other Arab women in the region.<sup>30,31</sup> Until the early 1990s, it was generally accepted that the thin body ideal, and widespread body dissatisfaction, were culturally linked phenomena that were limited to Western Europe and North America. Non-Western societies, particularly African and Middle Eastern, were thought to be relatively free from body dissatisfaction, disordered eating, and obsessions with weight.<sup>32</sup> However, in the past three decades, the Arab Gulf region has undergone rapid and extensive economic and socio-cultural modernization, resulting in a Western influence on the Arab adolescent's lifestyle. This adoption of a thin body figure due to

westernization has been demonstrated in a study by Ford, et al.<sup>33</sup> where it was found that Arab students indicated a clear preference for thinness as a result of exposure to Westernized society thereby causing internalization of Western attitudes concerning eating and body shape. As reported by Gleaves et al.<sup>34</sup> awareness of a thin western ideal is becoming more accessible to non-western cultures through mediums like the internet, television, movies, direct travel accessibility, and music. As this dissemination of information occurs, western cultural values and attitudes spread to non-western cultures, which often results in an adoption of some aspects of westernisation. Although the data in this study indicates preference for a lighter weight among females than essential, it does not allow concluding that there is evidence of eating disorder amongst the female adolescents.

In contrast to the girls who wanted a lighter weight, boys preferred heavier weight as their ideal. Studies indicate that adolescent boys although are concerned about body weight and shape, wish to increase weight and thereby muscularity, rather than lose weight.<sup>35</sup> It is however important to note that many adolescent boys may find themselves pursuing a body type that is impossible to obtain the consequence of which could be an eating disorder such as bulimia, or an image disorder, such as muscle dysmorphia.<sup>36</sup> Finally, it is important to keep in mind that poor body image is associated with unhealthy weight control behaviors among both the children and adolescents.<sup>37</sup>

Studies in the UAE and other Arab Gulf countries have shown that that obesity has reached an epidemic level and potential for increase in obesity level continues to rise as the UAE continues to urbanize further.<sup>15</sup> Hence, the finding in this study that boys and parents alike favored a heavier weight needs to be dealt with at the earliest. In contrast, the findings that girls favour a lower body weight could be a step in the right direction, although it needs to be noted that in recent years there are reports of the emergence of abnormal eating behavior among adolescents in this region.<sup>38,39</sup> It is suggested that health education related to an awareness of a healthy

body weight, appropriate eating and exercise behavior should be integrated within the current health education curriculum, to minimize risk of developing distorted body image concerns in adolescence and beyond.

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