

# Body Image Perceptions and Body Image Dissatisfaction among Medical Students in Oman

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**ABSTRACT: Objectives:** This study aimed to examine body image perceptions and body image dissatisfaction and their relationship with body mass index (BMI) among medical students in Oman. **Methods:** This cross-sectional study was conducted among students of the College of Medicine and Health Sciences, National University of Science and Technology, Sohar, Oman, between September and December 2019. The data (including self-reported weight and height) were collected through a questionnaire-based survey. Body image perception and satisfaction were assessed using the Stunkard Figure Rating Scale. **Results:** A total of 351 medical students (response rate: 70.2%) participated in the study with a mean age of  $21.6 \pm 2.2$  years and a mean BMI of  $22.7 \pm 4.3$  kg/m<sup>2</sup>. Most students were within normal ranges of BMI (63%), 12% were underweight and 25% overweight/obese. Approximately, 66% of students perceived their body image correctly; students at both BMI extremes were more accurate about their body image perceptions. Body image dissatisfaction was high (80%) among the respondents with 73.5% of those dissatisfied desiring to be thinner. The association between self-reported BMI with perceived BMI and body image dissatisfaction was significant ( $P < 0.001$ ). Only 18.2% of students felt 'attractive'. The association between body image perception and body image dissatisfaction was statistically significant ( $P < 0.05$ ). **Conclusion:** A high degree of body image dissatisfaction and incorrect body image perceptions exists among medical students. There is an increased desire to be thinner and the majority of this study's participants feel unattractive. There is a need to foster healthy body image perceptions among students of health sciences as they are the future in healthcare and can influence the health beliefs in our society.

**Keywords:** Body Image; Body Image Dissatisfaction; Body Mass Index; Medical Students; Oman.

## ADVANCES IN KNOWLEDGE

- A high prevalence of body image dissatisfaction exists among medical students in Sohar, Oman.
- Only two-thirds of the students evaluated in the present study had correct body image perceptions.
- Students at both extremes of the body mass index (underweight and obesity) had better perception of their image.
- Dissatisfaction was more likely in students with obesity and those who were overweight; most of the dissatisfied students desired to be thinner.
- Very few students felt attractive.

## APPLICATION TO PATIENT CARE

- There is a need to review professional medical training as a starting point for developing healthy body awareness and satisfaction.
- Medical students should be targeted for health education programmes related to an awareness of appropriate body image, healthy lifestyle and appropriate eating and exercise behaviour.
- Early adoption of healthy behaviours by medical students will enable a lifelong commitment towards positive body awareness for patients' health and practices as well.
- Medical students can influence peers on a large scale, through health awareness campaigns in schools, colleges and professional institutions.

**B**ODY IMAGE REFERS TO "A PERSON'S PERCEPTIONS, thoughts and feelings about his or her body". The discrepancy between one's perceived and ideal body image has been defined as body image dissatisfaction (BID).<sup>1</sup> This dissatisfaction may vary in intensity among individuals and its influence on an individual's life may range from benign to severe social concerns—such as depression, poor self-esteem and eating disorders—with pervasive consequences on the quality of life.<sup>2</sup> Due to the growing emphasis on physical attractiveness and preoccupation with one's body image and an increase in techniques to

counteract dissatisfaction such as cosmetic surgery, use of anabolic steroids, diet pills, Botox, etc., research on body image has become increasingly valuable.<sup>1</sup>

With modernisation, Westernisation and increased media exposure, adolescents and youth are increasingly susceptible to BID. This has been observed in a meta-analysis and systematic review of BID in adults, as well as studies in children and adolescents.<sup>2,3</sup> Adolescents are especially vulnerable due to significant physical and psychological changes associated with puberty.<sup>1</sup> Though body image is not studied extensively in medical students, studies from India, Pakistan, Brazil and

Iran have revealed high prevalence of incorrect body size/body image perceptions (BIP) and BID among their medical and health science students (33–65%).<sup>4–9</sup>

Obesity has reached epidemic proportions throughout the globe and has also impacted people in Arabic-speaking countries. The prevalence of obesity in children and adolescents in these higher-income, oil-producing countries ranges from 5% to 14% in males and from 3% to 18% in females.<sup>10</sup> Body dissatisfaction has been reported to be higher in individuals with obesity.<sup>2</sup> Thus, BID is not only a disorder of Western culture but has also been observed in Middle Eastern Arab countries. The increase in body weight concerns and dissatisfaction among adolescents and university students has been noted in Egypt, United Arab Emirates, Bahrain, Jordan, Oman and Syria.<sup>11–13</sup>

Oman is a developing, rapidly acculturating country with both traditional and Western values. The overall incidence of obesity among children and adolescents has been found to be 13%, with increased risk of developing BID.<sup>14</sup> Studies focusing on BIPs and its relation to body weight, especially in medical students are lacking in Oman and other Middle Eastern countries. To bridge this gap, the authors planned to study the magnitude of BID among medical students, note their BIP and study its relationship with actual body mass index (BMI) values.

## Methods

This cross-sectional study was conducted in the College of Medicine and Health Sciences, National University of Science and Technology, Sohar, Oman, between September and December 2019.

Undergraduate medical students from year 1 to year 6 were enrolled for the study. Students were further grouped based on their medical and clinical exposure as pre-medical (years 1 and 2), pre-clinical (years 3 and 4) and clinical (years 5 and 6). All students who gave consent to participate were eligible and were enrolled based on convenience sampling. The survey was conducted using an English-language questionnaire that was administered to the students during breaks between classes. Oral instructions and clarifications for the questionnaire and its contents were provided by medical students trained to facilitate the research study.

BIP was measured using the Figure Rating Scale (FRS), adapted from Stunkard *et al.*<sup>15</sup> FRS has good overall validity and test-retest reliability based on previous research.<sup>15,16</sup> Participants had to choose a male or female silhouette that matched their body, depending upon their gender; there were nine silhouettes ranging from very skinny (1) to very obese

**Table 1:** Characteristics of the medical students participating in this study (N = 351)

Study variable	n (%)
Mean age in years + SD	21.6 + 2.2
<b>Gender</b>	
Female	308 (88)
Male	43 (12)
<b>Year of study</b>	
Pre-medical (years 1–2)	129 (27)
Pre-clinical (years 3–4)	112 (32)
Clinical (years 5–6)	110 (31)
<b>BMI (WHO classification) in kg/m<sup>2</sup></b>	
Underweight	42 (12)
Normal	221 (63)
Overweight	63 (17.9)
Obese	25 (7.1)
<b>Perceived BMI classification</b>	
Underweight	66 (18.8)
Normal	182 (51.9)
Overweight	52 (14.8)
Obese	51 (14.5)
<b>Ideal/desired BMI classification</b>	
Underweight	69 (19.6)
Normal	272 (77.5)
Overweight	8 (2.3)
Obese	2 (0.6)
<b>Attractiveness image</b>	
Underweight	32 (9.1)
Normal	273 (77.8)
Overweight	43 (12.3)
Obese	3 (0.8)

SD = standard deviation; BMI = body mass index; WHO = World Health Organization.

(9). They had to choose their perceived body image (i.e. how they saw themselves), their ideal body image (i.e. how they wanted to look) and which image they thought their opposite gender peers found attractive (attractiveness image). BMI was calculated from self-reported body weight and height values of each student.<sup>4,17,18</sup> BMI was further classified using the World Health Organization criteria into four weight status categories: (1) underweight with BMI <18.5 kg/m<sup>2</sup>; (2) normal weight with BMI 18.5–24.9 kg/m<sup>2</sup>; (3) overweight with BMI 25–29.9 kg/m<sup>2</sup>; (4) obese

**Table 2:** Distribution of perceived BMI in relation to self-reported BMI among the medical students participating in this study (N = 351)

Self-reported BMI classification	Perceived BMI classification				Students who correctly perceived BMI in percent	Significance*
	Underweight	Normal	Overweight	Obese		
Underweight	33	9	0	0	78.6	$P < 0.001$
Normal	33	152	25	11	68.8	$\chi^2 = 293.9$
Overweight	0	19	26	18	41.3	$df = 9$
Obese	0	2	1	22	88	
Total	66	182	52	51	66.4	

BMI = body mass index; df = degrees of freedom.

\*Pearson Chi-squared test with significance (two-sided).

**Table 3:** Distribution of body image dissatisfaction (perceived image - ideal image) in relation to self-reported BMI among the medical students participating in this study (N = 351)

Self-reported BMI classification	BID (i.e. perceived image - ideal image)										Dissatisfied students in %	Significance*
	-3	-2	-1	0	1	2	3	4	5	6		
Underweight	1	13	21	5	1	1	0	0	0	0	88.1	$P < 0.001$
Normal	1	7	31	61	86	23	7	3	0	2	72.4	$\chi^2 = 251.7$
Overweight	0	0	0	2	21	28	9	3	0	0	96.8	$df = 27$
Obese	0	0	0	0	3	10	6	4	1	1	100	
Total in n (%)	2 (0.6)	20 (5.7)	52 (14.8)	68 (19.4)	111 (31.6)	62 (17.7)	22 (6.3)	10 (2.8)	1 (0.3)	3 (0.8)	283 (80.6)	

BMI = body mass index; BID = body image dissatisfaction; df = degrees of freedom.

\*Pearson Chi-Squared test with significance (two-sided).

**Table 4:** Distribution of attractiveness index (perceived image - attractiveness image) among medical students participating in this study (N = 351)

	Attractiveness Index (perceived image - attractiveness image)											
	-4	-3	-2	-1	0	1	2	3	4	5	6	7
n (%)	1 (0.3)	9 (2.6)	47 (13.4)	72 (20.5)	64 (18.2)	81 (23.1)	44 (12.5)	20 (5.7)	7 (2)	3 (0.8)	2 (0.6)	1 (0.3)

**Table 5:** Association between body image perception and body image dissatisfaction among medical students participating in this study (N = 351)

BID	n (%)				Significance*
	Body image perception				
	Underestimate	Correct estimate	Overestimate	Total	
Satisfied	13 (19.1)	50 (73.5)	5 (7.4)	68 (19.4)	$P = 0.038$
Dissatisfied	42 (14.8)	183 (64.7)	58 (20.5)	283 (80.6)	$\chi^2 = 6.5$
Total	55 (15.7)	233 (66.4)	63 (17.9)	351	$df = 2$

BID = body image dissatisfaction; df = degrees of freedom.

\*Pearson Chi-Squared test with significance (two-sided).

(including extremely obese) with BMI >30 kg/m<sup>2</sup>.<sup>19</sup> The silhouettes were grouped into the same categories with: (1) underweight = figures 1 and 2; (2) normal weight = figures 3 and 4; (3) overweight = figure 5; (4)

obese (including extremely obese) = figures 6, 7, 8 and 9. Thus, the corresponding perceived BMI and ideal BMI were obtained from the figure scale.<sup>17</sup>

The self-reported BMI (or 'actual BMI') and 'perceived BMI' (inferred from the silhouettes) were compared to obtain BIP. The 'perceived' and 'ideal' choices were compared; those who chose the same silhouette were satisfied while those who chose different silhouettes were dissatisfied.<sup>20</sup>

The data were analysed using the Statistical Package for Social Sciences (SPSS), Version 22 (IBM Corp., Chicago, Illinois, USA). Descriptive analysis was used to analyse demographic data and students' BIP and BID. Inferential statistical procedures (Chi-squared test) were employed to test hypotheses exploring associations among variables.

This study was conducted after institutional ethics committee approval (Register No. CMHS/REC/020/18/C).

## Results

A total of 500 students were potentially eligible and administered the questionnaires, of which 351 (response rate: 70.2%) students gave consent and participated in the study. There was almost equal representation from the pre-medical ( $n = 129$ , 36.8%), pre-clinical ( $n = 112$ , 31.9%) and clinical groups ( $n = 110$ , 31.3%). The mean age of the students was  $21.6 \pm 2.2$  years and the majority were female (88%). The mean self-reported BMI of participants was  $22.7 \pm 4.3$  kg/m<sup>2</sup>.

Approximately 50% of students perceived their body image as normal, while 29.3% felt that they were overweight or obese [Table 1]. Students perceiving themselves as obese (14.5%), were twice the actual 'obese' students (7.1%). Based on ideal body image, 77.5% aspired to have a normal BMI, while 19.6% wished to be underweight. On enquiring about their impression of attractiveness (by opposite gender), the majority (77.8%) chose images corresponding to normal BMI, while 13% felt appearing heavier (overweight/obese) would make them attractive [Table 1].

BIP is how accurately one identifies their body image in relation to their actual BMI. Approximately 66.4% of students perceived their BMI category correctly [Table 2]. There was a significant association between perceived BMI and self-reported BMI ( $P < 0.001$ ); students at BMI extremes (underweight and obese) were more likely to correctly perceive their body size.

A total of 19.4% of students chose similar silhouettes for perceived and ideal image (zero discrepancy) and were thus 'satisfied'; the remaining (80.6%) chose different silhouettes and were thus 'dissatisfied'. Of the satisfied students, 89.7% had

normal BMI. Students choosing a 'smaller' ideal image as compared to perceived image (59.5%) were approximately three times those desiring a 'larger' ideal silhouette (21.1%). Of those with normal BMI, 72.4% were 'dissatisfied'. The relation between actual BMI and body satisfaction was statistically significant ( $P < 0.001$ ). Obese students were four times more likely than underweight students to develop BID (odds ratio = 4.122, 95% confidence interval = 0.76–22.33;  $P < 0.05$ ).

Only 18.2% chose similar silhouettes for both perceived self-image and image perceived as attractive by the opposite gender and thus felt 'attractive' [Table 4]. While 45% of students chose a 'leaner' image (as compared to self-image) to be attractive to the opposite gender, 37% chose a 'heavier' image. There was no association of the attractiveness index with gender.

On applying Pearson's correlation between actual BMI, perceived BMI and ideal BMI (correlation is significant at the 0.01 level [two-tailed]), positive correlation was seen between actual and perceived BMI (0.699) at a significance of  $< 0.0001$ . Ideal BMI did not correlate with the actual BMI, but correlated with perceived BMI (weak positive correlation of 0.168). Differences between both genders were found to be insignificant on analysing all parameters.

The association between BIP and BID was statistically significant ( $P = 0.038$ ) [Table 5]; those who were 'satisfied' were more likely to correctly estimate their body image.

## Discussion

This study showed a high prevalence of BID among medical students in Oman. Only 66% of the students had correct BIP. Students at BMI extremes (underweight and obesity) had better perception of their image. Students with obesity and those who were overweight were prone to BID. Most of the 'dissatisfied' students (73.8%) desired to be 'thinner'. Only 18.2% of respondents felt 'attractive'.

There was a dual burden of overweight/obese (25%) and underweight (12%) among the medical students in this study. Incorrect BIP was seen in 33.6%, which was on the lower end of the body size/body weight imperceptions observed in medical and health science students in India, Pakistan and Iran (33–65%).<sup>4–6</sup> The curriculum at the College of Medicine and Health Sciences, National University of Science and Technology, includes Psychology and Behavioural Sciences, which introduces the students to eating disorders and related body image issues. With this kind of knowledge exposure, the authors expected the

medical students in the current study to have healthier and correct BIP; however, only two-thirds estimated their image correctly.

Studies have shown that females and students in private universities are prone to body image misperceptions, as noticed in the present study.<sup>16</sup> In a study of Polish pharmacy students, females tended to overestimate their body weight, whereas male students were more inclined to underestimate.<sup>21,17</sup> However, due to disparities in the proportion of males and females in the present study, significances with relation to gender were not observed.

There was a significant association between perceived and self-reported BMI ( $P < 0.001$ ); students at the outer ranges of BMI (78% of those who were underweight and 88% of those with obesity) perceived their image accurately. This could be due to the reduced ambiguity at extremes regarding classification of their weight/size group. Priya *et al.* and Vijayalakshmi *et al.* also observed a significant association between BMI and body weight perception among Indian medical students ( $P < 0.001$ ).<sup>4,7</sup> Vijayalakshmi *et al.* noted that most of their overweight participants perceived their weight status correctly; similar to observations by Jaworowska and Bazylak in Polish pharmacy students.<sup>21</sup>

While proper BIP motivates corrective behaviours, incorrect perceptions lead to unhealthy excesses. Overestimation increases the risk of eating disorders such as anorexia nervosa, especially in those with normal BMI and underweight, whereas underestimation, especially in overweight people, decreases the likelihood of appropriate weight control.<sup>22,23</sup> Students with correct perceptions are also likelier to engage in healthy nutritional behaviours, exercise and healthy sleeping patterns.<sup>5</sup> Thus, appropriate BIP is essential for accurate self-appraisal and is more decisive in generating changes in eating behaviours than actual BMI.<sup>22</sup>

Eighty percent of students chose different images for perceived and ideal choices and were thus 'dissatisfied' with their body image. Studies have shown BID in medical and health sciences students ranging from 33% to 80%.<sup>4,5,7,8,24</sup> This wide disparity could be due to variations in gender recruitment, differences in scales, instruments or questionnaires used to measure satisfaction or different methodologies.<sup>4,5,7</sup> Moreover, some studies focused on concepts such as body dysmorphic disorder.<sup>8</sup> It was noted that females were 13.5 times likelier than males to be 'dissatisfied', which could also explain the high proportion of dissatisfaction in the present study's predominantly female student population (88%).<sup>24</sup>

In the current study, BID was noted to be significantly associated with BMI. Obesity is known

to be increasingly associated with BID.<sup>7</sup> A higher percentage of overweight students and those with obesity were 'dissatisfied' compared to the normal or underweight students, which could be attributed to the social stigma associated with being 'fat'. It was noted that students with obesity were four times more likely to develop BID compared to underweight students. This is similar to a study by Latiff *et al.*, who also observed that overweight and obese students were four times more likely to develop BID than normal and underweight students.<sup>25</sup>

BID was also seen among 72.4% of students with normal BMI. In their study on body image and weight control beliefs among female medical/nursing students, Rasheed similarly noted that though dissatisfaction was predominant amongst overweight (87.5%) and underweight (63.2%) students, it was also seen in half of the normal weight females ( $P < 0.05$ ).<sup>9</sup>

The number of students who chose a 'leaner' image were thrice that of those who chose a 'heavier' one. Thus, there is an increased desire to be 'thinner'. This desire to be 'thinner', even amongst those with normal BMI was also observed by Rasheed where one-third of the students with normal BMI wished to lose weight.<sup>9</sup> In another study by Bosi *et al.*, despite 78.7% of students being normal in BMI, 66.5% indicated a desire to lose weight.<sup>26</sup> Thus, the desire to be thin appears to be universal. Many studies have also observed an increased desire to lose weight due to BID.<sup>5,21</sup>

High BID and preference for 'thinness' has also extended to the Arab world. In his comparative study involving university students from five Arab countries (Bahrain, Egypt, Jordan, Oman and Syria), Musaiger found that one-third of the student sample was 'dissatisfied', most preferring a 'thinner' image.<sup>13</sup> In another Iranian study, total prevalence of BID was 51.63%, while 53.5% of all students chose the thinnest image as desirable.<sup>5</sup>

BID has been linked to depression, poor self-esteem and eating disorders.<sup>2</sup> Due to statistically significant associations between BMI, desire to lose weight and abnormal signs of eating behaviour, BID may serve as a screening tool to detect the risk of eating disorders.<sup>26</sup> In a study by Neumark-Sztainer *et al.*, lower body satisfaction predicted higher levels of dieting, unhealthy weight control behaviours, binge eating, smoking, lower levels of physical activity and low fruit and vegetable intake. Thus, lower body satisfaction does not encourage healthy weight management behaviours, but rather predicts the behaviours that could put adolescents at risk for weight gain and poorer overall health.<sup>27</sup>

Approximately 20% of the current students considered themselves 'attractive', i.e. they felt the

opposite gender would choose images similar to their perceived image; however, the majority felt 'unattractive'. While the Westernised culture focuses on a 'thinner' image, a cultural preference for obesity has been seen among the Arab people. Plumpness and heaviness were often seen as a sign of prosperity and hence there is skewing among body image preferences.<sup>28</sup> Almost one-third of the participants chose an image heavier than theirs as attractive to the opposite gender, thereby reinforcing the heavier stereotypes. Musaiger also observed a preference for plump women among 5–16% of Omanis.<sup>13</sup> Thus, though there is tolerance for obesity at one end, there is also a developing exaggerated concern for thinness due to urbanisation and media exposure at the other.<sup>9</sup> Such distorted images and attitudes may be detrimental to healthy behaviours.

The relation between BIP and BID was previously found to be statistically significant.<sup>7</sup> People satisfied with their image perception have been noted to have better lifestyles and quality of life, while those with image distortion were at risk of unhealthy conditions such as depression, frequent dieting and extreme weight loss attempts.<sup>29,30</sup> In another study, subjects with undistorted BIP and BID had a higher rate of exercise and a higher amount of night sleeping hours.<sup>5</sup> Thus, how one perceives one's image can guide the level of satisfaction and eventually impact health behaviour decisions.<sup>20</sup>

The current study presents a valuable perspective on the BIPs and concerns of medical students belonging to Arab cultures and is the first of its kind in Oman. The results imply a need to create health awareness regarding body image as well as identify its negative impact amongst young medical students, to guide appropriate preventive and therapeutic measures. Despite validated measures and a suitably large sample size, the results of the present study must be interpreted within some limitations. The students surveyed were predominantly female and from one college and thus these findings may not be generalisable to all medical students in Oman. Moreover, the data was based on self-reported height and weight measurements, which could introduce bias due to over- or under-reporting of values. Convenience sampling was used which could bias the enrolment; those who perceived themselves at the extremes or were 'dissatisfied' could have refused to participate in the study.

## Conclusion

There was a high level of BID and discrepancies in BIP among the medical students in the current study. These students represent the future doctors

of society. A healthy awareness of body image not only affects their self-perception and satisfaction, but also has long-term bearing on their patients' health and practices. It is worrying that if medical students are susceptible to incorrect judgements and feelings about their body image, the problem in the general community may run wider and deeper, thus necessitating research on a larger and wider scale. Awareness campaigns amongst schools, colleges and professional institutions could facilitate dissemination of information regarding correct awareness of healthy body image. Further research is also recommended to study the effectiveness of an intervention module in BIP and satisfaction. The effectiveness of integration in the medical curriculum can also be measured.

## CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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## AUTHORS' CONTRIBUTION

CAD and MAS contributed to the study conception and design. AAA and HT were responsible for data collection, data entry and literature search. CAD and MAS conducted data analysis and statistical analysis. CAD drafted the manuscript. All authors approved the final version of the manuscript.

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