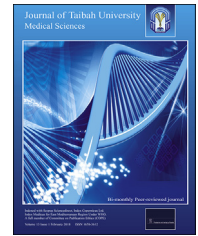




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Journal of Taibah University Medical Sciences

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Original Article

## Body image dissatisfaction and its determinants among young primary-school adolescents



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Received 4 May 2017; revised 5 July 2017; accepted 6 July 2017; Available online 8 August 2017

### المخلص

**أهداف البحث:** ازداد الوعي بشكل الجسم لدى الأطفال والمراهقين خلال السنوات الأخيرة. وتهدف هذه الدراسة إلى تحديد عدم الرضا عن شكل الجسم والعوامل المرتبطة به بين طلاب المدارس الابتدائية.

**طرق البحث:** أجريت دراسة مقطعية في سبع مدارس ابتدائية تم اختيارها عشوائياً، وتضمنت طلاباً من العمر 11 و 12 عاماً. حيث استخدمت استبانة استرشادية تعباً ذاتياً، تضمنت البيانات الديموغرافية الاجتماعية، ومعاملات مؤشر كتلة الجسم، والإدراك بشكل الجسم (مقياس تقييم الرسم الكفافي للأطفال).

**النتائج:** تضمنت هذه الدراسة 776 من طلاب المدارس الابتدائية. وكان لدى 60.1% من الطلاب عدم رضا عن شكل الجسم، وكان ذلك مرتبطاً بشكل ملحوظ بالجنس، ومؤشر كتلة الجسم. كما كان لدى الإناث معدلات عدم رضا أعلى بـ 2.07 ضعفاً عن شكل الجسم بالمقارنة بنظرائهم من الذكور عند تعديلها بالمتغيرات الأخرى. وكان لدى الطلبة زائدي الوزن/البداية 4.06 احتمال عدم الرضا عن شكل الجسم بالمقارنة بالطلبة الذين لديهم مؤشر عادي لكتلة الجسم عند تعديلها بالمتغيرات الأخرى.

**الاستنتاجات:** تسلط هذه الدراسة الضوء على ارتفاع معدل انتشار عدم الرضا عن شكل الجسم، الذي يرتبط بالجنس، ومؤشر كتلة الجسم بين طلاب المدارس الابتدائية.

**الكلمات المفتاحية:** الوعي بشكل الجسم؛ المراهقين الشباب؛ عدم الرضا عن شكل الجسم؛ أطفال المدارس الابتدائية؛ تحديد صورة الجسم

### Abstract

**Objectives:** Awareness of body image perception among children and adolescents has been rising during recent

years. The objectives of this study were to identify body image dissatisfaction and its associated factors among primary-school students.

**Methods:** A cross-sectional study was conducted in seven randomly selected primary schools, involving students aged 11 to 12. A guided self-administered questionnaire, which included sociodemographic data, body mass index (BMI) parameters, and body image perception (Childress Contour Drawing Rating Scale), was used.

**Results:** This study involved 776 primary-school students. Approximately 60.1% of students had body image dissatisfaction, which was significantly ( $p < 0.001$ ) associated with sex and Body Mass Index (BMI). Females had 2.07 times higher rates of body image dissatisfaction ( $b = 0.73$ ,  $OR = 2.07$ , 95% CI 1.53, 2.81,  $p < 0.001$ ) compared to their male counterparts when adjusted for other variables. Overweight/obese students had 4.06 times greater body image dissatisfaction ( $b = 1.40$ ,  $OR = 4.06$ , 95% CI 2.70, 6.10,  $p < 0.001$ ) compared to students with normal BMI when adjusted for other variables.

**Conclusion:** This study highlights a high prevalence of body image dissatisfaction that is correlated with sex and BMI among primary-school students.

**Keywords:** Body image determinant; Body image dissatisfaction; Body image perception; Primary-school children; Young adolescent

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Peer review under responsibility of Taibah University.



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## Introduction

Body image issues are on the rise and affect people of all ages. Body image awareness has been observed among children and adolescents as early as 8 years old,<sup>1</sup> resulting in a preference for thinner bodies and desire to diet in pre-schoolers.<sup>2</sup> Body image refers to how a person perceives, thinks and feels about their body and appearance.<sup>3</sup> This perception may be positive or negative and is greatly influenced by sociodemographic and environmental factors. Studies have demonstrated that body image dissatisfaction occurring during late childhood and adolescence is associated with increased negative affect.<sup>4</sup>

Many adolescents with normal weight compare themselves to images of very thin men and women presented by the media and perceive themselves as being fat and overweight. The ideal beauty standard, defined as having a slim and/or muscular body, makes individuals vulnerable to developing body image dissatisfaction.<sup>5</sup> This dissatisfaction may continue to increase as the adolescent ages, with the greatest dissatisfaction peaking during young adulthood.<sup>6</sup> Body image dissatisfaction may lead to both abnormal eating habits and unhealthy weight control behaviours.<sup>5</sup> These children also tend to have unhealthy eating behaviours, such as binge eating, which may lead to unintentional weight gain over time. Social stigma and isolation experienced by overweight and obese adolescents may further exacerbate their problems with distorted body image.<sup>7</sup> There is growing literature that shows girls as young as 8 years old already show higher concern towards body image perception and weight.<sup>1,2</sup> An Asian study involving 13- and 14-year-olds found that 78.1% were dissatisfied with their current body size, even though 50% of the students had normal BMI, and those with high body image discrepancy scores were reported to be more likely to have higher BMI.<sup>8</sup> In another study using the Figure Rating Scale among 14- and 16-year-olds, 95% of female students tended to choose the silhouette representing 10% underweight as their ideal or desired body image.<sup>7</sup> The overweight students showed significantly greater body image dissatisfaction.<sup>7</sup>

Several factors have been identified as associated with body image perception. These include socioeconomic status, weight, age, sex, weight-control behaviour and advice that individuals received from family members and peers.<sup>7</sup> Sociocultural pressures that favour thinness as the ideal have a strong effect on body image, especially among adolescents.<sup>5</sup> The association between body image dissatisfaction and unhealthy eating behaviour, anxiety and depression among adolescents had been demonstrated,<sup>9</sup> rendering studies on the determinants and risks leading to it obligatory.

Many similar studies have been carried out to study body image dissatisfaction. However, since cultural and environmental influence play significant roles in the development of body image dissatisfaction, local studies are needed to ascertain the prevalence of body image dissatisfaction among Malaysian adolescents. This study intends to determine the prevalence of body image dissatisfaction among younger Asian adolescents and to identify the determinants that influence body image dissatisfaction in this younger

population. Findings from this study may be useful in designing future interventions, which may be incorporated into the school syllabus to make adolescents aware of healthy body image so they are less easily influenced by the fad that views a thin body as the best body size.

## Materials and Methods

### *Design and sampling method*

This cross-sectional study used multistage cluster sampling. Students aged between 11 and 12 years old from 7 randomly selected primary schools were recruited. For each of the schools, four classes were selected. All students in selected classes who fulfilled the inclusion and exclusion criteria were included.

### *Sample size determination*

The sample size for the study was calculated using a single-proportion formula. After inclusion of 20% non-response and cluster sampling design effects, the final sample size needed was 776.

### *Study instruments*

The self-administered questionnaire used in this study consisted of 3 sections. The first section consisted of measurement of weight and height. Using a SECA digital weighing scale and body-meter, each measurement was obtained twice and recorded to the nearest weight 0.1 kg and height 0.1 cm. Average measurement was documented. Body mass index (BMI) was calculated and categorized according to BMI-for-age reference (WHO 2007).<sup>14</sup> Underweight was defined as BMI-for-age less than 5th percentile, normal weight was BMI-for-age between 5th to 85th percentile and overweight/obese was defined as BMI-for-age more than 85th percentile.

The second section collected personal background information. Parental education level and income were obtained through another form given earlier together with the consent form, which needed to be filled by parents. The last section examined body image perception using the Childress Contour Drawing Scale (1993)<sup>10</sup> (Figure 1). This scale is used because the figure rating scale is the easiest for young adolescents to understand compared to other scales such as the Adolescent Body Image Satisfaction Scale for Males (ABISS)<sup>11</sup> or the Body Shape Questionnaire (BSQ),<sup>12</sup> which also assess body image perception among adolescents. This scale was specifically designed for use among pre-adolescent children, specifically Grade 5 to 8 (corresponding to students aged 10 to 13),<sup>10</sup> and has been validated.<sup>13</sup> In the scale, each of the eight figures was given a number that represented a different degree of body size (from thinnest to obese). The respondents were required to choose a figure that represents their current body size and their perceived ideal body size. A discrepancy score, which was a difference between the perception of current and ideal body size, was calculated. The results with "0" scores were classified as body image satisfaction and other scores as body image dissatisfaction.

### Data collection

Parental consent and information were obtained prior to the day of data collection. Students with parental consent were briefed regarding the study and their consent was obtained. Only students who consented were included in the study. The participants were measured for height and weight prior to answering the questionnaire. The questionnaire was anonymous. It was self-administered but guided by data collectors. Each session was completed within 30 min.

### Statistical analysis

Data entry and statistical analysis were done using SPSS version 22 (IBM® SPSS® statistics 2015). For descriptive analysis, numerical variables were described in mean and standard deviation (SD) or median and IQR, depending on data distribution, and categorical variables were described in frequency and percentage. To evaluate associations between measured factors and body image perception, simple logistic regression and multiple logistic regressions were performed. Factors with a *p*-value less than 0.25 in the univariate were included in the multivariate analysis.

## Results

### Demographic characteristic

Seven hundred and seventy-six students aged 11–12 years old were involved in this study. The mean (SD) age of the students was 11.2 (0.62) years old and the mean (SD) BMI

was 17.8 (4.32) kg/m<sup>2</sup>. The majority were Malay (99.7%), and most of the female students (*n* = 331/443, 74.7%) had not attained menarche. Half (52.8%) of the participants had normal body weight, while a quarter of them (25.3%) were either obese or overweight. The summary of the characteristics of the participants is shown in [Table 1](#).

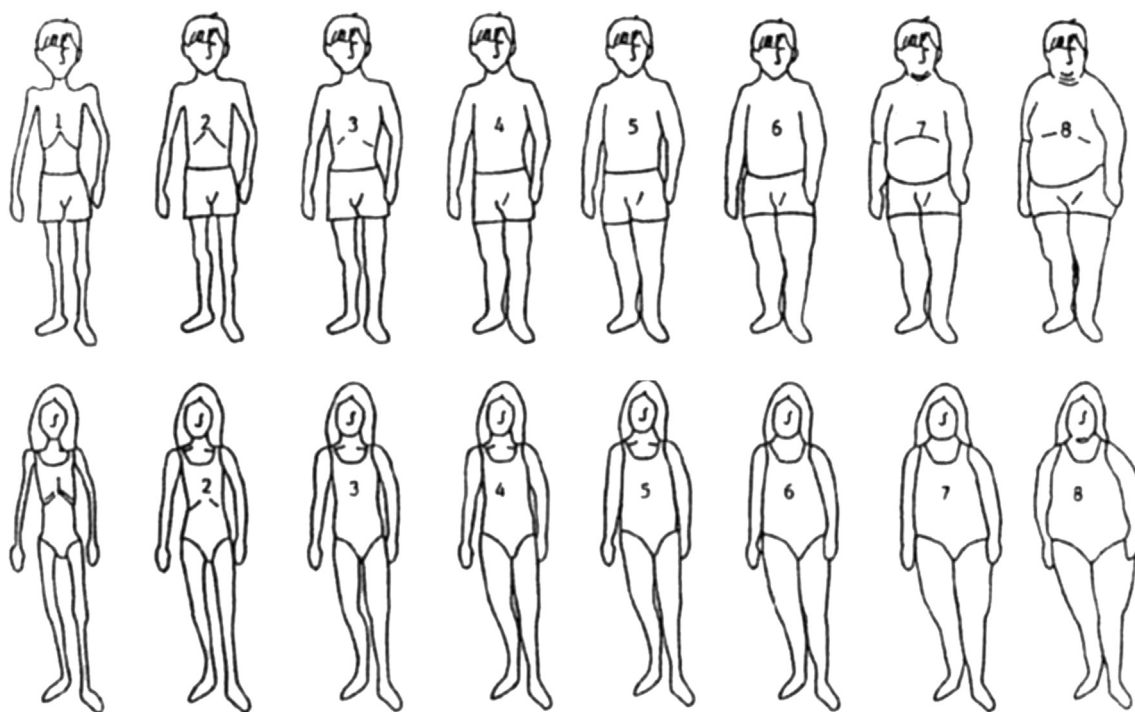
### The proportion of students with body image dissatisfaction

More than half of the students were dissatisfied with their body image (60.1%). Overweight and obese students had higher body image dissatisfaction (79.6%) compared to students with normal weight (51.7%) or underweight students (57.6%). Among the students with normal BMI, only 48.3% were satisfied with their current body image. Female students had higher body image dissatisfaction (66.1%) compared to male students (52.0%). The proportion of body image dissatisfaction was higher than satisfaction for all students, regardless of their academic performance, parental education level or their family income. The results are summarized in [Table 2](#).

### Determinants of body image dissatisfaction among primary-school students

Simple logistic regression showed age, BMI, sex, academic performance and income were associated with body image dissatisfaction, as shown in [Table 3](#).

Multiple logistic regressions showed that only BMI and sex were significantly associated with body image dissatisfaction in the study. There was no interaction or



**Figure 1:** Childress Contour Drawing Rating Scale.

Childress AC, Brewerton TD, Hodges EL, Jarrell MP. The Kids' Eating Disorders Survey (KEDS): a study of middle school students. *Journal of the American Academy of Child & Adolescent Psychiatry*. 1993 Jul 31;32(4):843–50.

**Table 1: Sociodemographic characteristics of participants (n = 776).**

Variables	Mean (SD)	Frequency (%)
Age	11.2 (0.62)	
BMI (kg/m <sup>2</sup> )	17.8 (4.32)	
BMI category		
Normal		410 (52.8)
Underweight		170 (21.9)
Overweight/obese		196 (25.3)
Sex		
Male		333 (42.9)
Female		443 (57.1)
Ethnic		
Malay		774 (99.7)
Others		2 (0.3)
Academic performance		
Good		180 (23.2)
Moderate		503 (64.8)
Poor		93 (12.0)
Mother's education level		
No and primary education		44 (5.7)
Secondary education		494 (63.7)
Tertiary education		238 (30.7)
Father's education level		
No and primary education		54 (7.0)
Secondary education		503 (64.8)
Tertiary education		219 (28.2)
Income		
Less RM1000		253 (32.6)
RM1000–RM3000		270 (34.8)
>RM3000		253 (32.6)

multi-collinearity between the significant independent variables. The model fitness was tested and accepted. The final model for Multiple Logistic Regression analysis, as shown in Table 4, is valid for interpretation.

## Discussion

### *Prevalence of body image dissatisfaction*

The present study determined the proportion of body image dissatisfaction and its contributing factors among primary-school students aged 11–12 years old. In this study, we found that 60.1% of our participants had body image dissatisfaction. Those who are overweight and obese had higher body image dissatisfaction compared to those with normal weight. This is higher than results demonstrated among Iranian adolescents in the CASPIAN-IV (Childhood Adolescent Surveillance and Prevention of Adult Non-communicable disease) study.<sup>14</sup> The CASPIAN-IV survey, done among 13,486 Iranian adolescents with the mean age of 12.5 years, showed that 53.5% were dissatisfied with their weight.<sup>14</sup> This discrepancy could be due to the vast difference in the sample population of both studies. On the other hand, our prevalence is lower than that found by Pallan et al., who showed that more than 80% of South Asian children aged 5–7 years old were not satisfied with their body image.<sup>15</sup> Similarly, another study using the figure rating scale and involving 1530 children aged 7–10 also showed higher prevalence in body image dissatisfaction, at 82.9% among their students,<sup>16</sup> of whom 59.9% desired a smaller body size and 23.0% desired a larger body size. Our finding is

**Table 2: Descriptive statistics for body image perception.**

Item	Body image satisfaction		Body image dissatisfaction	
	Mean (SD)	n (%)	Mean (SD)	n (%)
Age	11.1 (0.62) <sup>a</sup>		11.20 (0.62) <sup>a</sup>	
BMI (kg/m <sup>2</sup> )				
Normal		198 (48.3)		212 (51.7)
Underweight		72 (42.4)		98 (57.6)
Overweight/obese		40 (20.4)		156 (79.6)
Sex				
Male		160 (48.0)		173 (52.0)
Female		150 (33.9)		293 (66.1)
Academic performance				
Good		65 (36.1)		115 (63.9)
Moderate		199 (39.6)		304 (60.4)
Poor		46 (49.5)		47 (50.5)
Mother's education level				
No and primary education		17 (38.6)		27 (61.4)
Secondary education		191 (38.7)		303 (61.3)
Tertiary education		102 (42.9)		136 (57.1)
Father's education level				
No and primary education		22 (40.1)		32 (59.9)
Secondary education		198 (39.4)		305 (60.6)
Tertiary education		90 (39.1)		129 (58.9)
Monthly family income				
Less RM1000		112 (44.3)		141 (55.7)
RM1000–3000		99 (36.7)		171 (63.3)
More than RM3000		99 (39.1)		154 (60.9)

<sup>a</sup> Mean SD, unless indicated others.

**Table 3: Associated factors for body image dissatisfaction by Simple Logistics Regression model.**

Variable	Regression coefficient (b)	Crude odds ratio (95% CI)	Wald statistics (df)	p-Value
Age	0.15	1.16 (0.92, 1.46)	1.54 (1)	0.214
Body mass index (kg/m <sup>2</sup> )				
Normal		1		
Underweight	0.24	1.27 (0.89, 1.82)	1.70 (1)	0.192
Overweight/obese	1.29	3.64 (2.45, 5.42)	40.58 (1)	<0.001
Sex				
Male		1		
Female	0.59	1.81 (1.35, 2.42)	15.82 (1)	<0.001
Academic performance				
Good		1		
Moderate	0.15	0.86 (0.61, 1.23)	0.67 (1)	0.415
Poor	0.55	0.58 (0.35, 0.96)	4.49 (1)	0.034
Mother's education level				
No and primary education		1		
Secondary education	-0.01	1.00 (0.53, 1.88)	0.01 (1)	0.997
Tertiary education	-0.18	0.84 (0.43, 1.62)	0.27 (1)	0.603
Father's education level				
No and primary education		1		
Secondary education	0.57	1.06 (0.60, 1.88)	0.39 (1)	0.844
Tertiary education	-0.15	0.99 (0.54, 1.81)	0.02 (1)	0.962
Income				
Less RM1000		1		
RM1000-3000	0.32	1.37 (0.97, 1.94)	3.13 (1)	0.077
>RM3000	0.21	1.24 (0.87, 1.76)	1.37 (1)	0.241

also lower than earlier studies among older adolescents that showed prevalence of body image dissatisfaction of 78.1%<sup>8</sup> and 71.4%.<sup>17</sup>

These findings indicate that the problem of body image dissatisfaction is not isolated to certain ethnicities or regions but has become a global phenomenon, and the fact that it is also high among younger adolescents may indicate that interventions should be undertaken seriously to curb its spread.

#### Factors associated with body image dissatisfaction

Factors that are commonly associated with body image perception are socioeconomic status, weight/BMI, age and sex.<sup>7</sup> In this study, we found that female sex and BMI were significant factors in the development of body image dissatisfaction. The association of sex with the

**Table 4: Associated factors of body image dissatisfaction by Multiple Logistic Regression model.**

Variable	Regression coefficient (b)	Adj. odds ratio (95% CI)	Wald statistics (df)	p-Value
<b>BMI</b>				
Normal	0	1		
Underweight	0.23	1.26 (0.87, 1.82)	1.54 (1)	0.215
Overweight/obese	1.40	4.06 (2.70, 6.10)	45.46 (1)	<0.001
<b>Sex</b>				
Male	0	1		
Female	0.73	2.07 (1.53, 2.81)	21.84 (1)	<0.001

development of body image dissatisfaction is not surprising, since the nature, risk factors, outcome and, likely, the developmental patterns of body dissatisfaction differ due to sexual characteristics. This study found that females were at twice the risk of developing body image dissatisfaction, and this was well demonstrated by their higher body image dissatisfaction (66.1%) compared to males (52.0%). They tend to choose thinner body silhouettes as their desired body image. This finding was also demonstrated by Dion et al., who noted that the prevalence of body image dissatisfaction was higher in female adolescents (57–84%) compared to male adolescents (49–82%),<sup>18</sup> and this has also been demonstrated in other studies.<sup>16,19</sup> In their study, Pellegrini et al. showed that adolescents who felt the most need to reduce body size were female, obese or overweight and those with increased waist circumference.<sup>17</sup>

This higher propensity could be because female adolescents are more likely to be exposed to thin-ideal internalization through media, which has been proven influence body image, which could have contributed to their body image disturbance.<sup>5,20</sup> As a result, they would express less dissatisfaction when they were underweight but more dissatisfaction when their weight was normal and most dissatisfaction when they had excess body weight.<sup>16,17</sup> On the other hand, boys who were dissatisfied with their body image tended to choose larger or more muscular body silhouettes as their desired body image.<sup>17,21</sup> They were also more frequently reported to plan to increase muscle as their body change strategy than girls.<sup>22</sup> This difference between sexes may be influenced by the socially accepted emphasis on physical attractiveness and internalization of the thin ideal for females and the athletic body for males.<sup>17</sup> In boys, overweight, obesity and central-obesity remained associated with the desire for a smaller body size.<sup>16</sup>

Adolescents with higher BMI were at higher risk of developing body image dissatisfaction compared to underweight and normal-weight adolescents.<sup>8,14,23</sup> In the current study, those who were obese and overweight were at four times more risk of developing body image dissatisfaction. This is lower compared to the findings by Coelho et al., who showed 7 times the risk of body image dissatisfaction among overweight and obese adolescents aged 10–18.<sup>24</sup> This discrepancy may be due to the difference in ages in

their study sample, since pubertal changes in older adolescents put them at higher risk of body image dissatisfaction. However, studies have also shown that adolescents with normal BMI also display some body image dissatisfaction, although at a lower degree.<sup>7,8</sup> Nonetheless, children and adolescents may have underestimated their body weight<sup>23</sup> or had inaccurate body weight perception when compared to their BMI.<sup>25</sup> In the current study, despite more than half of our participants having normal BMI, the percentage with body image dissatisfaction was approximately 60%. This shows that the normality of BMI cannot be used to estimate body image dissatisfaction.

This significant positive correlation between BMI and body image dissatisfaction for adolescents has been demonstrated multiple times, including among overweight and obese children as young as 5–7 years old.<sup>15</sup> There is a linear increase in body image dissatisfaction with increasing BMI in girls, where one unit increase in their BMI was associated with an 8.1% increase in the prevalence of body image dissatisfaction.<sup>26</sup> On the other hand, there was a U-shape association in boys, where those with either low or high BMI showed higher levels of body image dissatisfaction.<sup>26</sup> The global media promotion and acceptance of thin idealization and sociocultural stigmas that associate people with heavier body weights with ugliness enhances concern over one's current body image.<sup>5</sup>

In this study, factors for body image dissatisfaction such as age, socioeconomic and academic performance were not significant. This could be because the distribution of body image dissatisfaction was high for all students in our population regardless of their academic performance, parental education level or their family income, making it non-discriminative. For example, in terms of socioeconomic status, all income categories had a similar distribution of body image dissatisfaction, which may suggest that socioeconomic status has no influence on whether the adolescent would have distorted body image or not.

Body image dissatisfaction has been shown to increase with age, and this has been related to the physiological changes in body shape and self-esteem brought on by puberty.<sup>27</sup> As they go through puberty, adolescents develop fat deposits on their body that are associated with changes in their body shape and increase in BMI, which has a significant influence on their body image.<sup>27</sup> In this study, we did not find that age is significantly associated with body image dissatisfaction. This may be due to the small age range among our population, which is between 10 and 12 years old, and thus, there is not enough difference in their perception towards body image.

The problem with body image dissatisfaction is that it may lead to multiple psychological problems, such as eating disorders with unhealthy dieting and binge eating,<sup>20</sup> and in the long run may lead to low self-esteem, depression, hopelessness and unhealthy weight control.<sup>27</sup> The association between feelings of depression, stress and misbehaviour with accurate weight perception for overweight and obese adolescents had been documented.<sup>25</sup> Higher body image dissatisfaction was also associated with higher ratings of peer stress and lower self-esteem.<sup>28</sup> Therefore, earlier intervention programmes on healthy lifestyle and awareness of body image perception need to start early to

prevent childhood obesity, which later can lead to body image dissatisfaction and other problems.

## Conclusion

In summary, our findings showed that body image dissatisfaction was high among primary-school students, with female and overweight/obese students having higher risk of body image dissatisfaction. Further research is needed to explore correct body image perception with regards to different BMI involving all Malaysian ethnicities in the early adolescent group.

## Strengths and limitations

This is the first local Malaysian study that looks at a population who are quite young and vulnerable to developing body image dissatisfaction. Our strength lies in the use of direct measurements of participants' height and weight instead of relying on their self-report.

This study was carried out on a single ethnic group. Nevertheless, due to globalization and the advancement of internet and media access, issues of body image may not be confined to certain ethnicities with similar sociodemographic backgrounds, and thus our findings may be applicable to other areas as well. The nature of cross-sectional study also did not allow us to identify the causal relationship between the variables analysed and the use of the figure rating scale to determine of body image perception.

## Recommendations

Primary-school education may be the appropriate time for programmes aimed to prevent the development and worsening of body image dissatisfaction and to correct misperceptions regarding body image. Programmes that promote positive body image, which includes raising body esteem and reducing thin-ideal internalization, can be effective for improving body image.<sup>29</sup> Interventions may involve promoting healthy body image perception and healthy methods to obtain the right body weight, such as exercise, healthy diet and reducing media exposure and indoor time to less than 2 h per day. Primary care personnel, specifically the school team, can arrange for counselling and support services, such as psychologists and dieticians for overweight and obese adolescents, and educate regarding the possibility of accurate perceivers and misperceivers of body image who need different concerns and interventions. Further research on the effect of body image dissatisfaction and intervention programmes among adolescents of multiple ethnicities in Malaysia may help to prevent obesity, eating disorders and psychological problems among our adolescents. We recommend that future studies examine the possible presence of psychological problems secondary to body image dissatisfaction, such as low self-esteem or depression in younger adolescents, so early intervention may be offered or incorporated into the school syllabus as a preventive measure.

### Ethical approval

Ethical approval for this study was obtained from the Human Ethics and Research Committee USM [USM/JEPeM (14090316)] and permission to conduct the study at the selected primary schools was obtained from the Ministry of Education and the State Department of Education. None of the participants were forced to participate in this study, and they were reassured that any dissent on their part would not affect them in any way. Students with parental consent also needed to give assent before data collection. Any student with severe body image dissatisfaction will be referred for appropriate treatment after discussion with the parents.

### Funding

This research was carried out with the help of a short-term grant from Universiti Sains Malaysia (304/PPSP/61313071). No other funding agencies in the public, commercial, or not-for-profit sectors were involved.

### Authors' contributions

AAL conceived and designed the study, conducted the research, collected and interpreted the data and wrote the initial draft of the manuscript. JM provided advice on study design and methodology and edited the final draft of the manuscript. RAR contributed to the conception and design of the study, data analysis and substantially edited the manuscript before final submission. All the authors have critically reviewed and approved the final draft of this manuscript and are responsible for the content and similarity index of the manuscript.

### Conflict of interest

The authors have no conflict of interest to declare.

### Acknowledgement

Sincere appreciation to Universiti Sains Malaysia for supporting this research through a short-term grant (304/PPSP/61313071) and the Human Ethics and Research committee USM for their ethical approval (USM/JEPeM/14090316). We also would like to thank the Ministry of Education, Kelantan State Education Department, all the schools involved and, most importantly, the participants for their cooperation throughout this research.

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**How to cite this article:** Latiff AzmiraAb, Muhamad J, Rahman RA. Body image dissatisfaction and its determinants among young primary-school adolescents. *J Taibah Univ Med Sc* 2018;13(1):34–41.