

Body Dissatisfaction Among Male and Female Adolescents

Adeymend Reny Japil, Mazni Mustapha, and Guan Teik Eee

Univesiti Malaysia Sabah

DOI: <https://doi.org/10.51200/jpks.v1i1.5279>

This study was conducted to investigate the relationship between body dissatisfaction and body mass index (BMI) among adolescents, and the differences of this subjective dissatisfaction in terms of BMI and gender. In total, 328 adolescents (147 males and 181 females) aged 16-year-old participated in the study. Eating Disorder Inventory – Body Dissatisfaction and Body Mass Index were used to collect quantitative data on respondents' body dissatisfaction, and weight and height information for BMI. Pearson correlation showed that body dissatisfaction significantly correlated with BMI. One-Way ANOVA showed that subjective evaluation among underweight and normal weight adolescents significantly varied with dissatisfaction in the other two groups (overweight and obese adolescents). Body dissatisfaction among underweight adolescents was statistically significantly lower compared to overweight and obese adolescents. Body dissatisfaction among adolescents with normal weight is also statistically significantly lower compare to overweight and obese adolescents. There was no statistically significance difference on dissatisfaction between underweight and normal weight adolescents, and between overweight and obese adolescents. Interestingly, independent-samples t-test found that body dissatisfaction did not differ between male and female adolescents. This information is useful for the planning of health programs as well as intervention and prevention programs to combat adolescents' body weight and body dissatisfaction problems.

Keywords: body dissatisfaction, body mass index, male, female, adolescents.

Body image is a multifaceted construct involving biological, psychological and social dimensions (Cash, 2004; Thompson, 2004). This self-perspective termed as the “inside view” (Cash, 2004). It encompasses one's body-related self-perceptions and self-attitudes, including thoughts, beliefs, feeling and behaviors (Cash, 2004; Fitzsimmons-Craft, Harney, Koethler, Danzi, Riddel & Bardone-Cone, 2012). Hence, body dissatisfaction is part of the attitude associated with body image and involves disdain for one's own weight and appearance (Helfert & Warschburger, 2011; Gondoli, Corning, Salafia, Bucchianeri & Fitzsimmons, 2011). Body dissatisfaction is defined as one's negative thoughts and feelings on his/her own body (Grogan, 2008). Fortes, Conti, Almeida and Ferreira (2013) called it as “normative discontent” with one's own weight and body shape or appearance.

Body image is an important issue during adolescence due to critical physical, cognitive and social changes during this developmental stage (Jones & Crawford, 2005). Social, cognitive and physical changes within this phase affect the increasing of awareness concerning body and weight among male and female adolescents (Ata, Ludden & Lally, 2007). Thus, it is defined as a critical development period to study the etiology of increasing body dissatisfaction in both genders (Lunde, Frisén & Hwang, 2006). Studies show that the prevalence of body dissatisfaction among adolescents was high (Helfert & Warschburger, 2011; Gondoli *et al.*, 2011; Balluck, Toorabally & Hosenally, 2016; Coelho, Fonseca, Pinto & Mourão-Carvalhal, 2016; Duchesne, Dion, Lalande, Bégin, Émond, Lalande & McDuff, 2016). For instance, the prevalence of body dissatisfaction among adolescents (aged 14-17 years) was found to be 74.5%, with no major differences between genders, whereas 76.0% of males and 73.1% of females were dissatisfied with their body and appearance (Balluck *et al.*, 2016). Coelho *et al.* (2016) also found a high prevalence of body dissatisfaction (58.0%) among adolescents (aged 10-18 years), with 55.6% of boys

and 60.8% of girls were dissatisfied with their body. Duchesne *et al.*'s (2016) study showed that 59.7% of adolescents (aged 14-18 years) were dissatisfied with their body image, especially girls (63.5%) than boys (36.5%). Contemporary research stated that one's body dissatisfaction or subjective unhappiness on some aspects of physical appearance is becoming more serious. For instance, 30% of male and 60% of female adolescents reported desires to change their body shape or size (Ricciardelli & McCabe, 2001; Stice & Whitenton, 2002).

Development changes might explain the increasing of body dissatisfaction within this phase, including the rapid physical changes (such as the development of secunder sexual characteristics and the changes of body compositions), the development of novel cognitive capacities (such as the ability to make social comparisons), and the increase of important social influences (such as peer and familial messages about the adolescents' body) (Elledge, 2014). In terms of physical changes, this development may directly influence the individual's mental image, which may have a positive or negative effect on body dissatisfaction (Fortes *et al.*, 2013). This negative feeling might aggravate one's wellbeing due to its implications as a risk factors, such as developing eating disorders (Stice & Shaw, 2002), depression (McCreary & Sasse, 2000), emotional distress (Johnson & Wardle, 2005) and low self-esteem (Nowell & Ricciardelli, 2008).

There are a number of theories that explain the development of this dissatisfaction from various factors, including individual and familial influences (Jones, Vigfusdottir & Lee, 2004; Phares, Steinberg & Thompson, 2004; Keery, Boutelle, van den Berg & Thompson, 2005; McCabe & Ricciardelli, 2005), peers (Clark & Tiggemann, 2006; Jones, 2004), sociocultural (Presnell, Bearman & Madeley, 2007; Stice & Whitenton, 2002; Wojtowicz & Von Ranson, 2012) and intrapersonal (Adams, Turner & Bucks, 2005). However, bio-psycho-social model explains that

biological factors, which is the biological and actual physical characteristics serve as the basic element of body image disorders (Wertheim & Paxton, 2011). Biological and neurobiological characteristics might directly bring effects to misorientation of body, deviation of perceptions on body or body discomfort (such as rapid body size changes) (Wertheim & Paxton, 2011).

One of the biological characteristics that are being studied in body image research is body mass index (BMI) (Jones, 2004) and explained unique variance in body dissatisfaction beyond socio-cultural constructs (Bardone-Cone, Cass & Ford, 2008). BMI is the most consistent biological factor linked with body dissatisfaction (Mäkinen, Puukko-Viertomies, Lindberg, Siimes & Aalberg, 2012). Research found that there are linkages between BMI and body satisfaction among adolescents. For example, BMI and fat mass were found to be the risk factors for developing body image dissatisfaction (Lofrano-Prado, Prado, Piano, Tock, Caranti, Oller do Nascimento, Oyama, Tufik, Túlio de Mello & Dâmaso, 2011). In addition, BMI has also appeared to be a potential predictor of decreasing body satisfaction. Ivarson, Svalander, Littlere and Neponen (2006) found that male and female adolescents with a lower BMI than ideal for gender and age, were satisfied with their weight.

There are different range of studies that have been conducted in this area. For example, studies have been done regarding BMI and body dissatisfaction among adolescents including obesity, eating behaviors, body image perceptions, physical activity, body weight management knowledge, physical attractiveness, sociocultural influences and body change behaviors (Ismail, Chee, Nawawi, Yusoff, Lim & James, 2002; Nur Syuhada Zofiran, Kartini, Siti Sabariah & Ajau, 2011; Chin & Mohd Nasir, 2009; Farah, Mohd Nasir & Hazizi, 2011; Swami & Tovée, 2005a; 2005b; Mellor, McCabe, Ricciardelli, James, Nur Daliza, Noor Fizlee, 2009) as well as ethnic differences in the BMI statuses (Deurenberg, Deurenberg-Yap & Guricci, 2002). However, the exploration of the link between body dissatisfaction and BMI remains limited and has not been much explored in the Non-Western context.

Although problems associated with body image disturbances are seen as more prevalent in other countries as well as western culture, cultural variation within Asian countries regarding the prevalence and patterns of body dissatisfaction is also important (Garrusi & Baneshi, 2017). Besides that studies on body image disturbances in non-Western subjects have been undertaken in Western nations rather than the country of origin (Soh, Touyz & Surgeon, 2006). However, statistics in some developing countries have been alarming. In Malaysia for instance, according to the Third National Health and Morbidity Survey (NHMS III, 2006), it was found that 13.2% of children aged 0 to under 18 were underweight, 15.8% were stunted and 5.4% were overweight (Letchuman, Wan Nazaimoon, Wan Mohamad, Chandran, Tee, Jamaiyah, Isa, Zanariah, Fatanah & Faudzi, 2010). The prevalence rate was higher among boys compared to girls in all categories. In a separate nationwide study showed that as of 2015, 14.2% of Malaysian adolescents aged 12-19 were overweight, while 10.1% were rather obese (Norhayati, Chin, Mohd. Nasir, Zalilah & Chan, 2015). The issues of BMI status, body weight problems (mostly overweight and obese) among Malaysian has received national attention and set to be one of the agendas of Ministry of Health Malaysia Plan of Action 2016-2020 in increasing the well-being of the people (KKM, 2016). Given this, there is a need to explore the psychological health (such as body dissatisfaction) among adolescents with body weight problems to help the government increase the well-being of

the nation. Based on the literature provided in both developed and developing countries such as Malaysia, the present study aimed 1) to examine the link between body dissatisfaction and BMI statuses among adolescents, 2) to investigate the differences of body dissatisfaction in terms of adolescents' BMI statuses, and, 3) to investigate the differences of body dissatisfaction in terms of gender. Hence, the present study hypothesized: 1) to identify the relationship between body dissatisfaction and BMI statuses among adolescents, 2) to identify the differences of body dissatisfaction in terms of adolescents' BMI statuses, and, 3) to identify the differences of body dissatisfaction in terms of gender.

Method

Participants

The respondents enrolled in public (government) secondary school during 2016 academic year involving both male and female students. Based on Krejcie and Morgan (1970) formula of determining sample size, the minimum calculated number of respondents that are valid for the study is at least 376 students. Students aged 16 was selected by a systematic random sampling method. Three secondary schools around Kota Kinabalu (urban area) were selected and contacted by letters requesting students' participation. The survey was completed by students from these three schools, representing 97% of the total targeted sample. Nonresponse by students was due to school and class absenteeism. Thus, only 328 students were included for statistical analyses involving 147 (45%) male and 181 (55%) females, owing to the exclusion of students who did not complete at least one item in the questionnaire, especially the height and weight information. Specifically, overall students that involve was 100 (30.5%) students from School A, 140 (42.7%) students from School B and 88 (26.8%) students from School C.

Procedure

A permission to implement the study in school setting was obtained from the Ministry of Education and Sabah Education Department. Then, a list of the names of schools and contact information were obtained from the Sabah Education Department. Once the selection of school was made, the selected schools were invited to participate in the study. In another method of selecting respondents, researchers asked the schools to provide a list of names of Form Four students who can participate in the study (recommended by the school counselor). The lists of names from selected schools were then combined with the order of alphabet (*a* to *z*), and participants were systematically selected from the list. During data collections, students were also informed that participation in the study was voluntary and all the data obtained will be used confidentially. Yet, students were asked to fill in the consent form and they agreed to participate in the study. The completion of questionnaires took an average 15 minutes to complete.

Weidmer's (1994) back-to-back translation method were used to translate the original scale (English) into target language (Malay). This method is largely adapted from Brislin's (1970) translation process approach. In addition, this study has been through pilot study to test the feasibility and adequacy of the instrument, the problem of data collection strategy and the proposed study method (Prescott & Soeken, 1989).

Measures

Body dissatisfaction. Eating Disorder Inventory – Body Dissatisfaction subscale (EDI-BD; Garner, Olmstead & Polivy, 1983) involving 9 items was used to measure the attitudes and behaviors related eating disorders and body shape to identify the participants' dissatisfaction, with regard to their overall body shape and size. Originally, this subscale measure the dissatisfaction of women on their thighs, stomach, buttocks and hips. The BD subscale on males used in the study had been adapted and modified by Jones (2004) and Jones and Crawford (2005), whereby 2 of 9 items that measure the dissatisfaction of women's thighs and hips, were replaced with dissatisfaction of chest and biceps aspects for male respondents. Responses were scored based on 6 point Likert-type of scale from '1 (never) to 6 (always).' The highest score indicates high body dissatisfaction. The original BD subscale was used to measure the dissatisfaction among male and female adolescents (Jones, 2004; Jones & Crawford, 2005).

A psychometric evaluation of EDI-BD, including item analysis, internal consistency reliability using Cronbach's alpha and convergent validity using Pearson's correlation, was first run on the data. Item-total correlations were first computed for 9 items of the EDI-BD. A minimum total criterion item-total correlation level of .30 was set for item inclusion in the subscale (Nunally & Bernstein, 1994; Hair *et al.*, 1995). Four items (item 1, 2, 6 and 8) failed to meet this criterion and were dropped from further analyses. While other items met this criterion with item-total correlation coefficients between .43 to .71 for boys and .51 to .71 for girls. The standardized Cronbach's alpha for the now-5 item was .80 for boys and .83 for girls. Convergent validity confirmed through significantly positive correlations between items (.32 to .61), and the result revealed that all items converged in the same construct. According to Well, Michie, Patterson, Wood, Sheehan, Cleeg and West (2004), correlation coefficients of .26 to .65 were considered acceptable. Kristof-Brown, Zimmerman and Johnson (2005) also stated that correlation coefficient between .45 and .75 is acceptable.

Body mass index (BMI). Body Mass Index (BMI) were used to measure the respondents' current body weight.

Table 1
Pearson's Correlation Coefficient of Body Dissatisfaction and Body Mass Index (BMI) in Overall Samples (N = 328)

Variables	Body mass index (BMI)
Body dissatisfaction	.21**

Note: ** p < .01

Body Dissatisfaction by BMI

One-Way ANOVA was used to test the differences of body dissatisfaction between BMI. One-Way ANOVA analysis showed that body dissatisfaction was significantly different between BMI groups, $F (3, 324) = 6.69, p < .001$ (See Table 2). As shown in Table 3, a Tukey post hoc test revealed that body dissatisfaction among underweight adolescents was statistically significantly lower ($M = 18.92, SD = 6.07$) than overweight ($M = 23.22, SD = 4.62$) and obese adolescents ($M = 22.95, SD = 4.83$). Body dissatisfaction among adolescents with normal weight was

Previous research has established that self-reported weight and height are reliable (Attie & Brooks-Gunn, 1989; Jones, 2004). Self-reported measure of height (cm) and weight (kg) of the participants were used. From these two indices, Body Mass Index (BMI) was calculated as the ratio of weight (kg) to height squared (m^2) (Choi & Choi, 2016). BMI remains reliable measure to detect obesity in public health (Widhalm, Schönegger, Huemer & Auterith, 2001).

Statistical Analysis

Data were processed using the statistical software package IBM SPSS Statistics 24.0 for Windows. The results were analyzed in terms of frequency distributions of BD subscale, gender and BMI. Pearson's correlation (r) method was used to test the association between BD and BMI statuses. Independent-samples t -test was used to test the BD by gender. While, one-way ANOVA was used to test the BD by BMI. All p values were two-tailed and statistical significance was set at $p < .05$.

Results

Demographic Data

Among 328 students aged 16-year-old included for analyses, 147 (45%) were males and 181 (55%) were females. Based on self-reported height and weight, 80 (32.0%) students were underweight, 125 (50.0%) students with normal weight, 26 (10.4%) students were overweight and 19 (7.6%) students were obese. The mean BMI for males was 21.39 ($SD = 5.98$), and 20.70 ($SD = 3.98$) for females. Gender difference in BMI was not significant ($t = 1.21, p > .05$).

Association between Body Dissatisfaction and BMI

Pearson's correlation was used to examine the relationship between body dissatisfaction and BMI. Positive significant correlation were found between BD and BMI ($r = .21, p < .01$). Table 1 shows the relationship between body dissatisfaction and BMI using Pearson's correlation for the total sample.

also significantly lower ($M = 19.08, SD = 5.88$) than the overweight and obese adolescents. There was no significant difference in body dissatisfaction between underweight and normal weight adolescents, and between overweight and obese adolescents.

Table 2
One-Way ANOVA Results of Body Dissatisfaction by BMI for Overall Samples (N = 328)

Body dissatisfaction		Sum of squares	df	Mean square	F
	Between groups	674.37	3	224.79	6.69***
	Within groups	10879.90	324	33.58	
	Total	11554.27	327		

Note: *** $p < .001$

Table 3
Mean and Standard Deviation for Body Mass Index (BMI) for Overall Samples (N = 328)

Body Mass Index (BMI)	Mean	Std. Deviation
Underweight (Less than 18.5)	18.92	6.07
Normal weight (18.5-24.9)	19.08	5.88
Overweight (25.0-29.9)	23.22	4.62
Obese (30.0 and above)	22.95	4.83

Body Dissatisfaction by Gender

Independent-samples *t*-test was used to test the difference of body dissatisfaction between male and female adolescents. Gender difference in body dissatisfaction was not significant.

The analysis of independent-samples *t*-test showed that body dissatisfaction between males and females was not significantly differed t (326) = -1.88, $p > .05$. Table 4 illustrates the difference of body dissatisfaction by gender using independent-samples *t*-test.

Table 4
Means, Standard Deviations and Independent-Samples t-test Coefficient of Body Dissatisfaction Between Male and Female Samples (N = 328)

	Gender	N	Mean	Std. Deviation	df	t	p
Body dissatisfaction	Male	147	18.92	5.88	326	-1.88	.061
	Female	181	20.16	5.95			

Discussion

The present study was intended to examine the link between body dissatisfaction and BMI among adolescents. This study revealed that adolescents who were dissatisfied with their body were likely to have dissatisfaction of their own body varied by BMI, whereby being overweight and obese are likely to contribute to body dissatisfaction more than those of the underweight and normal weight groups. Both male and female adolescents dissatisfied with their body.

Specifically, we found that body dissatisfaction was associated with BMI among male and female adolescents. Van den Berg, Mond, Eisenberg, Ackard and Neumark-Sztainer (2010) suggested that body dissatisfaction among adolescents are strongly related in nearly every weight status. Yates, Edman and Aruguette (2004) found a high positive correlation between body dissatisfaction and BMI. Mirza, Davis and Yanovski (2005) found that the higher BMI, the greater the dissatisfaction. Hatami, Mohd Nasir, Djazayery, Mojani and Mejlej (2015) also found the association between body dissatisfaction with increasing weight status among both boys and girls. These findings indicates that adolescents may experience perceived pressure from the media and peers to be thin because of repeated societal messages which tells them that they are not thin enough, this foster body dissatisfaction (Wilkosz, Chen, Kenndey & Rankin, 2011). Adolescents who are overweight or obese may have more body dissatisfaction because of intense pressure from society to strive for the "ideal" and thin body type (Wilkosz *et al.*, 2011). Khor *et al.* (2009) found that majority of Malaysian adolescents was concerned with their body shape, and most female adolescents admitted that they encountered body shape problems. Hatami *et al.* (2015) indicated that one found

to be adolescents at a younger age already have been conscious with their body weight status. Body image perception associated with weight status in both genders, which might implies that male and female adolescents may be aware of their body shape (Hatami *et al.*, 2015).

In the current study, the results showed that body dissatisfaction differed between BMI categories. This finding was in line with Wilkosz *et al.*'s (2011) study, where overweight adolescents reported higher levels of body dissatisfaction than their normal-weight counterparts. Body dissatisfaction has been linked to overweight and obesity in adolescents, demonstrating a reciprocal relationship (Van den Berg *et al.*, 2007). Mirza *et al.* (2005) found that overweight children and those at risk for overweight had higher body size dissatisfaction and had been attempted to lose weight. Jones and Crawford (2006) found that body dissatisfaction among adolescents varied by BMI. Downs, DiNallo, Savage and Davison (2007) specifically found that overweight boys scored lower on body satisfaction compared with normal-weight boys. Puberty is associated with an increase in lean body mass for males, and this muscle gain may contribute to males being generally more satisfied with their physical appearance (Gross, 1984). The dissatisfaction in females may arise from an increase in body fat, which is in conflict with pursuit of a thin ideal (Graber, Brooks-Gunn, Paikoff & Warren, 1994). However, the difference in body dissatisfaction might be due to the imbalance of sample size by BMI categories.

Lastly, this study aimed to investigate the differences of body dissatisfaction in terms of gender. Interestingly, it was found that body dissatisfaction did not differ between males and females. This finding was contradicted with other studies which revealed that body dissatisfaction are different between gender among adolescents (Tremblay & Lariviere, 2009;

Fortes *et al.*, 2013). This finding could be explained, whereby this subjective feelings or thoughts were higher among adolescent girls than boys (Stice & Whitenton, 2002; Wilkosz *et al.*, 2013). But, we found no difference of body dissatisfaction between male and female respondents. Gondoli *et al.* (2011) estimated that body dissatisfaction during puberty may increase in males, just as it does in females. Perhaps this phenomenon is influenced by the internalization of the muscular body commonly desired by boys (Fortes, Almeida, Laus & Ferreira, 2012). Thus, the development of body dissatisfaction among male adolescents has become more critical as they also suffer from these problems as it does in female adolescents (Mäkinen *et al.*, 2012).

Limitations of the study is explained by the use of survey method with self-reported questionnaire. Thus, the self-reported (rather than measured data) of height and weight (BMI) might encounter refusal or under/over-reporting. This study also used a small sample size which involved only 16-year-old adolescents. Apart from that, the study also had small sample for the overweight and obese participants compared to underweight and normal weight participants. The systematic random sampling method had been used in the study to select sample from sampling frame (a list of names of form four students from three secondary schools). Generally, the population of sample targets was among those adolescents who lived in urban areas and went to school closest to the urban center.

The common method variance (CMV) is the variance that can be attributed to the method of measurement rather than to the constructs represented by its measurement (Podsakoff, Kenzie, Lee, & Podsakoff, 2003). CMV is a potential problem in the current study including common rater effects (social desirability, mood state, transient mood state, etc.), item characteristic effects (item social desirability, positive and negative item wording, etc.), item context effects (scale length, intermixing or grouping of items or constructs on the questionnaire, etc.) and measurement context effects (predictor and criterion variables measured in the same point in time and location, etc.). These biases might be happened due to respondents' comprehension, retrieval, judgment, response selection and response reporting. According to Podsakoff *et al.* (2003), one of techniques for controlling CMV applied in the current study are controlling the design of study's procedures, that is psychological separation of measurement. Psychological separation were used by creating questionnaire with a cover story to make the appearance of measurement of predictor variable (body dissatisfaction) but not connected with or related to the measurement of criterion variable (BMI).

Based on the limitations described above, it is suggested that future studies regarding this issue, particularly in Malaysia, should consider a much bigger sample from a wider perspective, involving both urban and rural adolescents with variations of age. It is also important for future research to consider other variables that may have impacts on body dissatisfaction. Besides that further studies can use interviewing, case studies or focus-group follow-ups methods to expand studies on body dissatisfaction among adolescents. These kind of methods enable the acquisition of more in-depth information about respondents' feelings regarding body and appearance. A better understanding of why someone satisfied or dissatisfied with his/her body and appearance can help prevent the negative and increase the positive feelings on his/her body and appearance.

Conclusions

The findings of this study support the idea that body dissatisfaction among adolescents were correlated to their BMI. The dissatisfaction of their own body and appearance varied by BMI. Also, both male and female adolescents dissatisfied with their body and appearance. Based on the results, early identification of body dissatisfaction among adolescents is important in order to avoid further mental health issues relating to this problem (Wilkosz *et al.*, 2011). This study showed that overweight and obese adolescents experienced higher body dissatisfaction. These findings have potential implications for adolescence obesity intervention. Thus, increasing the knowledge in this area may help to guide practitioners or therapists into developing effective interventions and prevention programs that would help local adolescents practicing a healthier perception of body image and increase general health status.

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