

Positive body image affect body mass index among high school

Widya Lionita^{1*}, Fatmalina Febry², Yeni Anna Appulembang³, Rini Anggrani¹

¹Department of Public Health, Faculty of Public Health, Universitas Sriwijaya,
Jalan Palembang-Prabumulih KM 32, Indralaya, Kab.Ogan Ilir, Sumatera Selatan

²Department of Nutrition, Faculty of Public Health, Universitas Sriwijaya,
Jalan Palembang-Prabumulih KM 32, Indralaya, Kab.Ogan Ilir, Sumatera Selatan

³Department of Psychology, Faculty of Medical, Universitas Sriwijaya,
Jalan Palembang- Prabumulih KM 32, Indralaya, Kab.Ogan Ilir, Sumatera Selatan

*Corresponding author: widyalionita@fkm.unsri.ac.id

ABSTRAK

Latar Belakang: Remaja putri berisiko untuk mengalami kekurangan energi kronik yang dikaitkan dengan pemahaman konsep diri. Perubahan fisik pada remaja, khususnya berat dan tinggi badan, cenderung diartikan negatif sehingga dikhawatirkan dapat mempengaruhi status gizi remaja putri pada fase kehidupan selanjutnya.

Tujuan: Penelitian bertujuan menggambarkan persepsi citra tubuh dan indeks massa tubuh (IMT) serta menganalisis hubungan antara dua variabel tersebut.

Metode: Penelitian menggunakan desain potong lintang. Responden merupakan pelajar kelas X dan XI dari 4 sekolah di kota Palembang dan dipilih dengan teknik purposive sampling. Data dikumpulkan melalui kuesioner dan pengukuran IMT. Data dianalisis dengan uji chi-square dari aplikasi SPSS.

Hasil: Responden berjumlah 138 orang dan berumur 13 – 17 tahun. Lebih dari 50 persen responden memiliki IMT tidak normal (IMT kurang dan berlebih). Tetapi, Sebagian besar mempersepsikan citra tubuhnya secara positif (54,35%). Persepsi citra tubuh yang negatif lebih banyak dimiliki oleh responden yang memiliki IMT pada kategori normal. Analisis bivariat membuktikan ada hubungan yang signifikan antara persepsi citra tubuh dan IMT ($p=0,046$). Semakin negatif persepsi remaja putri tentang citra tubuh yang dimilikinya, maka semakin besar kemungkinan IMT-nya tergolong tidak normal.

Kesimpulan: Citra tubuh yang positif dapat mempengaruhi status gizi remaja putri, khususnya IMT. Sebuah intervensi psikologi dan promosi kesehatan diperlukan untuk memfasilitasi remaja putri mengenali diri sendiri serta diberikan kemampuan untuk memilih asupan gizi yang baik bagi kesehatannya.

KATA KUNCI: citra tubuh; indeks massa tubuh; persepsi; remaja putri; sekolah menengah atas

ABSTRACT

Background: Female adolescents have a risk on experiencing chronic deficiency of energy linked with understanding of self-concept. Adolescent' physical changes, especially weight and height, tend to be perceived negatively, so it is worried that they could affect the nutritional status of them in the next phase of life.

Objectives: This study aims to describe the perception of body image and Body Mass index (BMI) and to analyze the relationship between the two variables.

Methods: This study used a cross-sectional design. Respondents were students of first and second grade of four senior high schools in Palembang and were selected by purposive sampling techniques. Data were collected using questionnaires and BMI measurements. Data were analyzed using the chi-square test of SPSS application.

Results: Number of respondents was 138 high school girls aged 13 – 17 years. More than 50 percent of respondents have abnormal BMI (underweight and overweight). However, most of them perceived their body image positively (54.35%). The perception of negative body image is mostly owned by respondents with normal BMI. Bivariate analysis proved that there was a significant relationship between perceived

body image and BMI ($p=0.046$) The more negative girl's perception of her body image, the more likely her BMI is classified as abnormal.

Conclusions: *A positive body image can affect the nutritional status of female adolescents, especially BMI. A psychological intervention and health promotion is needed to facilitate them to identify themselves and be given the ability to choose nutrition intake that is good for their health.*

KEYWORDS: *body image; body mass index; girl; high school; perception*

Article info:

Article submitted on July 26 , 2020

Articles revised on August 20, 2020

Articles received on September 28, 2020

INTRODUCTION

As one of the Global Nutrition Targets 2025, stunting is one of outcome which reflects children's well-being and health status (1). World Health Organization (WHO) identified Indonesia as the third biggest prevalence of stunting between countries in South-East Asia (data from 2015-2017)(2). Based on the data, about 36.4 percent of children under 5 years old in Indonesia had detected having less than minus 2 times standard deviation (-2SD) from the height-for-age by WHO Child Growth Standards median.

Stunting leads to the possibilities of low physical growth and neurodevelopment, and risk of chronic diseases in adulthood (3). Undernourished women who pregnant will have a greater chance to deliver a low birth-weight babies (<2500grams). If there is no adequate intervention for solving the problem, a baby will soon become a stunted child. Mother height (<145 cm) and educational level (primary or never been school) are characteristics significantly related to stunting(4). Not only nutritional status of women and low birth-weight, multiple factors of sociodemographic and cultural also contribute to stunting, i.e. household wealth index, gender (boys is more vulnerable), and antenatal visit (<4 times during pregnancy) (5). The intervention should be addressed in the first days of life (conception) since this time period is the most critical (6), even earlier such as adolescence.

Humans have developed both physically and psychological while adolescence in which sometimes arise anxiety (7). Compared to boys,

the perception of negative body image is more common in young girls (8). Most of the teenagers, especially girls, faced problem on how they see and value themselves physically. By having an "ideal" body shape like an actress, they believe others will be more attracted and confidently reveal their true identity. Female adolescents aged 9 to 18 years whose Body Mass Index (BMI) above average feel more dissatisfied with they are body image (9). Negative body image encourages them to practice an unhealthy diet and for a long time very risky for their nutritional status(10).

Palembang is the capital city of South Sumatra Province with the proportion of female adolescents aged 10 – 19 years old in Palembang is 8.6 percent (140.393) in 2017s(11). About 26.5 percent of female adolescents aged 12 – 18 years old at risk of chronic deficiency of energy in South Sumatera(12). This study aims is to measure perceived body image and BMI, also assess the correlation between these variables, especially female students of senior high school in Palembang.

MATERIALS AND METHODS

Body image is defined as perception include thoughts and feelings about their physical appearance consists of four dimensions : perceptual, affective, cognitive and behavioral(13). Perceptual means how someone see themselves; Affective means how someone feel about their shape, weight, or part of their body; Cognitive means how someone think about their body; and Behavioral means how someone reacts to their body when they are

dissatisfied, i.e. exercising too much, practicing diet, or disordered eating.

Body Mass Index (BMI) is a standard for classifying of bodyweight status and calculated as weight (kg) divided by height (m²)(14). For Asian Pacific populations, the classifications of BMI based on the current WHO BMI cut-off points(15) are showed in **Table 1**.

Table 1. Classifications of BMI

BMI Status	BMI Score (kg/m ²)
Underweight	<18.5
Normal	18.5 – 22.9
Overweight	≥ 23
At Risk	23 – 24.9
Obese I	25 – 29.9
Obese II	≥ 30

This study adopts a cross-sectional design in which respondents were selected through purposive sampling. Inclusion criteria are first, second, and third grade-Senior High School female student in four chosen schools (2) public and 2 private school) that is located at the center of Palembang. The data were collected by self-answered questionnaires by 138 respondents and also being measured their weight and height at the same time. After all, data were collected, BMI status is divided into just 3 categories; underweight, normal, and overweight according to the cut-off points above (see Table 1). For measuring body image, fifteen items-questionnaire is given to respondents which probe reflection about body shape and others opinion of them. Statistical analysis is using *chi-square* by SPSS Application.

RESULTS AND DISCUSSIONS

All respondents have experienced menstrual period. The age range is 13 to 17 years old. Most of them go to public school, father work as civil servant or employee while mother becomes a housewife. The majority of respondents were given pocket money of twenty thousand rupiahs or less. Respondents' weight is varying from 33 to 110 kilograms, while height is 1.38 to 1.65 meters. Most of the respondents were categorized as having

normal BMI (46.38%). However, abnormal BMI status (underweight and overweight) has become another concern in the future. According to the satisfaction of their body shape, more than half of respondents stated that they don't or less satisfied (55.80%). Although 39.06 percent of respondents who have normal BMI feel less or not satisfied at all with the body shape. Dissatisfaction also belongs to overweight (72.10%) and underweight (67.74%).

Junior and senior high school students aged 13 to 15 years old in Indonesia are classified as having normal BMI (87.1%) with BMI score 19.3897(16). Adolescent experienced fast alteration in physical appearance that made them become more sensitive about body shape compared with the other peers(17). Batubara said several psychological changes felt by 15 to 17 years old teenager are moody, selectively on choosing friends, trying to detached from parents' control, and very concerned to their appearance. The condition makes them overthink about what others said about their body, especially comes from social environment. Sooner or later, they will feel uncomfortable, insecure, and disappointed. Wati & Sumarmi picturized that 41.7 percent of girl students in SMPK Santa Agnes Surabaya are dissatisfied with their bodies (18). Cash & Purzunsy (1990) explain body dissatisfaction is a form of self-evaluation on body shape and weight which valued negatively (19). When someone feels dissatisfied with their body, it leads them to change the shape through restrictive eating, exaggerated exercise, and so on.

This study shows respondents with positive body image are more than a half (54.35%) (see **Table 3**). Furthermore, there is significant correlation between positive body image and BMI status ($p=0.027$). Respondent with positive body image is more likely having normal BMI. Besides, in the group of overweight respondents are more detected with negative body image. Nevertheless, more than 70 percent in group of underweight respondents perceived positive about their body image. This will be the next challenge to be solved.

For the sake of getting thinner, female adolescent has a problematic case in eating disorder, i.e. anorexia nervosa and bulimia(20).

Table 2. Characteristics of Respondents

Characteristics	n (%)		
	Underweight	Normal	Overweight
Type of school			
Public	19 (59.38)	37 (57.81)	25 (58.14)
Private	13 (40.62)	27 (42.19)	18 (41.86)
Age			
≤15 years old	18 (58.06)	41 (64.06)	24 (55.81)
>15 years old	13 (41.94)	23 (35.94)	19 (44.19)
Father's occupation			
Retired/Not working	1 (3.23)	1 (1.56)	1 (2.33)
Civil servant/employee	15 (48.39)	28 (43.75)	29 (67.44)
Traders/farmers/laborers	6 (19.35)	12 (18.75)	4 (9.30)
Other	9 (29.03)	23 (35.94)	9 (20.93)
Mother's occupation			
Retired/Not working	20 (62.50)	32 (49.23)	22 (50.00)
Civil servant/employee	9 (28.12)	19 (29.23)	14 (31.82)
Traders/farmers/laborers	2 (6.25)	10 (15.39)	2 (4.54)
Other	1 (3.13)	4 (6.15)	6 (13.64)
Amount of pocket money			
≤ Rp. 20.000	18 (58.07)	41 (64.06)	27 (62.79)
Rp 20.001 – Rp 50.000	11 (35.48)	20 (31.25)	10 (23.26)
> Rp 50.000	2 (6.45)	3 (4.69)	6 (13.95)
Weight (in kilograms)			
Mean±SD	41.58 ± 4.30	49.78 ± 4.36	66.86 ± 12.24
Min	33	42	53
Max	50	59	110
Height (in meter)			
Mean±SD	1.56 ± 0.06	1.55 ± 0.05	1.56 ± 0.05
Min	1.38	1.47	1.44
Max	1.66	1.71	1.65
Satisfaction to body shape			
Very satisfied	0 (0)	4 (6.25)	3 (6.97)
Satisfied	10 (32.26)	31 (48.44)	9 (20.93)
Less satisfied	20 (64.52)	22 (34.37)	28 (65.12)
Not satisfied	1 (3.22)	3 (4.69)	3 (6.98)
Do not know	0 (0)	4 (6.25)	0 (0)

Table 3. Correlation between Body Image and Body Mass Index

Perceived Body Image	N (%)			P value
	Underweight	Normal	Overweight	
Negative	9 (29.03)	29 (45.31)	25 (58.14)	0.046*
Positive	22 (70.96)	35 (54.69)	18 (41.86)	

*Significancy level at 95%

The most immediate effect of someone diagnosed with eating disorder is a drastic weight loss in short time that will create undernutrition. As we know that optimum growth and development in the body require adequate nutrition to support its process. The indicator to see someone's nutritional condition

is BMI status, hence it is important to maintain weight regularly. Not only avoiding underweight, we should also pay attention on overweight issue. Overweight is pioneer of being obesity which cause many chronic disease such as cardiovascular, cancer, stroke, hypertension, diabetes type 2, etc.(21).

Obesity give very bad impact towards health, for example accelerates aging, interferes intelligence, insulin resistance, initiates cancer, osteoarthritis, even death.

Negative body image can be called as dangerous psychological factor within a person which affect nutritional status. The greater young girl perceived disappointed to her body, her nutritional status will be indicated abnormal (22). Contrary to the statement, Yushinta & Adriyanto explain around 44.4 percent of high school girls aged 15 – 18 years old who have normal BMI were also deal with negative body image. This study also shows the proportion of underweight respondent with positive body image get the biggest number of all. It means that female adolescent appreciates themselves more when they get a slim body. Girls satisfied on their body fitted to 'physical ideal type of beauty' (23), so that normal or overweight is feeling bad about their shape.

Environment plays main role in establishing one's self-concept. Family, close friends, or romantic partner have an intense influence on adolescent decision to lose weight (24)(25). Their concern about appearance and weight drive such a pressure, for example belief that they were fat so others will bully about it. Sometimes, girls cope the pressure by restrictive eating while some more will do the opposite, e.g. eat everything as the only way to relieve stress. There should be an intervention in the form of psychoeducation which can accommodate young girls to realize their truly self-image and how to respond bad opinion on them. The intervention program can engage in group of students and young adult by using media literacy or mediating "fat talk" (26). Additionally, health promotion on how to choose healthy nutritious foods and beverages should be introduced as future investment for their future life.

CONCLUSIONS AND RECOMMENDATIONS

Many developing countries, including Indonesia, are now facing "double burden of malnutrition", which means there is undernutrition problem i.e. stunting while prevalence of overnutrition

also increase and may cause non-communicable disease(2). Adolescents' BMI status now, both under and over in weight, would reflect their condition in adulthood. This study has proved a significant correlation between positive body image and BMI status of high school girls in Palembang. More than fifty percent of them have abnormal BMI status which is classified as underweight (22.7%) and overweight (31.2%). Intervention addressed on forming positive body image is urgently needed so adolescent will recognize and appreciate themselves better, so that will improve nutrition and health status balanced with their BMI.

REFERENCES

1. World Health Organization. Global Nutrition Targets 2025: policy brief series. Geneva: World Health Organization; 2014.
2. Pusat Data dan Informasi Kementerian Kesehatan RI. Situasi Balita Pendek (Stunting) di Indonesia. Buletin Jendela Data dan Informasi Kesehatan. 2018.
3. de Onis M, Branca F. Childhood stunting: A global perspective. *Matern Child Nutr.* 2016;12:12–26.
4. Nshimiryo A, Hedt-Gauthier B, Mutaganzwa C, Kirk CM, Beck K, Ndayisaba A, et al. Risk factors for stunting among children under five years: A cross-sectional population-based study in Rwanda using the 2015 Demographic and Health Survey. *BMC Public Health.* 2019;19(1):1–10.
5. Titaley CR, Ariawan I, Hapsari D, Muasyaroh A, Dibley MJ. Determinants of the stunting of children under two years old in Indonesia: A multilevel analysis of the 2013 Indonesia basic health survey. *Nutrients.* 2019;11(5).
6. Rokx C, Subandoro A, Gallagher P. *Aiming High Indonesia's Ambition to Reduce Stunting.* Washington DC; 2001.
7. Azizah. *Kebahagiaan dan Permasalahan di Usia Remaja (Penggunaan Informasi dalam Pelayanan Bimbingan Individual).* *Konseling Reli J Bimbingan Konseling Islam.* 2013;4(2):295–316.
8. Ildil I, Denich A unzilla, Ilyas A. Hubungan Body Image dengan Kepercayaan Diri Remaja Putri. *J Kaji Bimbingan Dan Konseling.* 2017;2(3):107–13.

9. Nanu C, Täut D, Bäban A. Why Adolescents Are Not Happy With Their Body Image? *Anal- J Gend Fem Stud* [Internet]. 2014;(2):1–20. Available from: <http://www.analize-journal.ro/library/files/baban.pdf>
10. Hartini H. Perkembangan Fisik Dan Body Image Remaja. *Islam Couns J Bimbingan Konseling Islam*. 2017;1(2):27.
11. Badan Pusat Statistik kota Palembang. Kota Palembang dalam Angka 2018. 2018.
12. Direktorat Gizi Masyarakat. Buku Saku Pemantauan Status Gizi Tahun 2017. Buku saku pemantauan status gizi tahun 2017. 2018.
13. National Eating Disorders Collaboration. Body image [Internet]. 2011. Available from: www.nedc.com.au
14. Nishida C, Barba C, Cavalli-Sforza T, Cutter J, Deurenberg P, Darnton-Hill I, et al. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *Lancet*. 2004;363(9403):157–63.
15. World Health Organization. The Asia Pacific Perspective: Redefining Obesity and Its Treatment. 2000.
16. Kusumawardhani N, Rachmanila R, Wiryawan Y, Anwar A, Handayani K, Mubasyiroh R, et al. Perilaku Berisiko Kesehatan pada Pelajar SMP dan SMA di Indonesia [Internet]. Badan Litbangkes Kementrian Kesehatan RI. 2015. Available from: http://www.who.int/ncds/surveillance/gshs/GSHS_2015_Indonesia_Report_Bahasa.pdf?ua=1
17. Batubara JR. Adolescent Development (Perkembangan Remaja). *Sari Pediatr*. 2010;12(1):21–9.
18. Wati DK, Sumarmi S. Citra Tubuh Pada Remaja Perempuan Gemuk Dan Tidak Gemuk : Studi Cross Sectional. *Amerta Nutr*. 2017;1(4):398–405.
19. Yadav VP. Understanding the body image of adolescents : A psychological perspective. *Int J Appl Res*. 2017;3(6):588–94.
20. Soeroso S. Masalah Kesehatan Remaja. *Sari Pediatr*. 2001;3(3):190–8.
21. Masrul M. Epidemi obesitas dan dampaknya terhadap status kesehatan masyarakat serta sosial ekonomi bangsa. *Maj Kedokt Andalas*. 2018;41(3):152–62.
22. Yusintha AN, Adriyanto. Hubungan Antara Perilaku Makan dan Citra Tubuh dengan Status Gizi Remaja Putri Usia 15 - 18 Tahun. *Amerta Nutr*. 2018;2(2):147–54.
23. Santana MLP, Silva R de CR, Assis AMO, Raich RM, Machado MEPC, Pinto E de J, et al. Factors Associated with Body Image Dissatisfaction Among Adolescents in Public Schools Students in Salvador Brazil. *Nutr Hosp*. 2013;28(3):747–55.
24. Reel J, Voelker D, Greenleaf C. Weight status and body image perceptions in adolescents: current perspectives. *Adolesc Health Med Ther*. 2015;149.
25. Normate ES, Nur ML, Toy SM. Hubungan Teman Sebaya, Citra Tubuh Dan Pola Konsumsi Dengan Status Gizi Remaja Putri. *Unnes J Public Heal*. 2017;6(3):51–7.
26. Mountford VA, Koskina A, London S, London W, Health M. Body Image. *Encycl Feed Eat Disord*. 2015;1–5.