

Eating behavior control model in obese adolescents based on individual beliefs and ideal body image

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Abstract

Background: Obesity epidemic has become a public health issue in Indonesia, particularly among children and adolescents. Research on the eating behavior control model, especially on individual belief and ideal body image among Indonesian adolescents, is limited.

Objective: To develop a model of eating behavior control in obese adolescents based on individual belief and ideal body image.

Materials and Methods: Data collected from 120 obese Indonesian adolescents aged 14–18 years in five senior high schools were used. Questionnaires and interviews were used to assess individual characteristic, belief, ideal body image, and social support. Model on eating behavior control was assessed using partial least square.

Result: Individual belief through perceived threat, the threat of weight gain and the potential threat of a disease, leads to improved eating behavior control in obese adolescents. Ideal body image, consisting of appearance, evaluation, orientation, satisfaction, anxiety, and perception, can enhance good eating behavior.

Conclusion: Favorable eating behavior of obese adolescents is affected by individual beliefs and ideal body image. Health educators should consider this issue with young people to develop strategies and intervention more relevant and appropriate.

KEY WORDS: Eating behavior, Obese adolescents, Individual belief, Ideal body image

Introduction

Health behavior is very important in maintaining and improving the quality of life, which includes regular exercise, smoking cessation, and stress management.^[1] The obesity epidemic has been noted as one of the health-related behavior problems.^[2] Obesity is one of the major public health problems, often experienced by adolescents.^[2] Being obese can have a negative impact on the individual, both physically

and psychologically. Physical disorders that often arise with health-related obesity include coronary heart disease, high blood pressure, gallstones, cancer, high uric acid, and diabetes.^[3] In addition, obesity can also reduce fitness, work productivity, and is often accompanied by various emotional and psychological disorders such as body image dissatisfaction (BID).^[3] The World Health Organization (WHO) reported the percentage of obese people in Indonesia was 32.9% or about 78.2 million in 2010. This percentage increased sharply compared to the WHO obesity data in 2008, which was only 9.4%.^[4]

It is becoming increasingly difficult to ignore the obesity epidemic in Indonesia; 16.3% children and adolescents aged 2–19 years in Indonesia belonged to overweight category and 4.7% (9.8 million) people were categorized as obese.^[5] Results of basic health research (Riskesmas) Indonesia in 2010 showed the number of overweight and obese adults in population over the age of 18 years

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was 18.7%, of which 11.7% (27.7 million) lived with obesity.^[5] The prevalence of obesity in Surabaya region itself reached to 8.5% by 2002.^[6] The study showed that 70% individuals are overweight or obese due to unhealthy eating behavior, which is related to the selection and consumption of food.^[7,8] Sedentary activities were also reported to contribute to the increase body weight.^[5,9,10] Behavioral factors include individual beliefs on perceived susceptibility, severity, benefits, and barriers associated with eating behavior.^[11] Individual beliefs emphasize on attitudes and beliefs about obesity and stimulate individuals.^[12] Several studies have shown a significant relationship between food consumption behaviors and obesity.^[3,12,13]

The components of ideal body image include appearance evaluation, appearance orientation, body areas satisfaction, overweight preoccupation, and self-perception.^[14] The definition of the ideal bodies varies between communities, which is influenced by each culture.^[15]

The purpose of this study was to develop an eating behavior–controlling model based on individual beliefs and ideal body image.

Materials and Methods

This observational, cross-sectional study was conducted at senior high school from five regions in Surabaya, Indonesia. Sample size was calculated using minimum requirement

Table 1: Characteristics of respondents

Variables	<i>n</i>	%
Age (years)		
14	2	1.5
15	48	40
16	49	41
17	21	17.5
Sex		
Males	44	36.6
Females	76	63.4
Individual's knowledge		
Insufficient	4	3.4
Sufficient	30	25
Good	14	11.6
Very good	47	39.2
Excellent	25	20.8
Total	120	100

Table 2: Inner weight, standard deviation, and significance

Influence	Inner weight	Standard deviation	<i>t</i> -statistic
Individual characteristics → Individual beliefs	0.917	0.008	104.536*
Individual beliefs → Perceived threat	0.508	0.097	5.239*
Perceived threat → Eating behavior	0.240	0.084	2.819*
Individual beliefs → Ideal body image	0.430	0.081	5.359*
Social support → Ideal body image	0.243	0.060	4.044*
Ideal body image → Eating behavior	0.680	0.152	4.458*

*Significant result.

sample of 94 respondents.^[16] A total of 120 students were recruited and consent was obtained from them to join this study. Students were interviewed and they completed questionnaires to determine their response. Ethics approval was granted by the ethics committee of the Faculty of Public Health, University of Airlangga, Surabaya, Indonesia. Permission to conduct this research was obtained from the Education Office, Surabaya, and the Principal at the site of study.

Statistical Analysis

Univariate and multivariate statistical analysis was performed including component-based structural equation model or partial least square.

Results

The average respondent age among the 120 obese adolescents, who participated in this study, was found to be 15 years [Table 1]. There were more female (63.4%) than male (36.6%) students. The knowledge of 60% of the respondents was above sufficient categories.

On the basis of the data given in Table 2, we conducted a complete analysis of this model. Individual characteristic directly affects the individual beliefs (0.917, $t = 104.536$). Individual beliefs including perceived susceptibility, perceived severity, perceived benefits, and perceived barriers had positive and significant effect on perceived threat includes the sense of weight gain and feeling of the onset of a disease because of obesity (0.508, $t = 5.239$). Perceived threats had positive and significant effect on eating behavior of obese adolescents (0.240, $t = 2.819$). Individual beliefs had positive and significant effect on ideal body image of obese adolescents in Surabaya (0.430, $t = 5.359$). Social support had positive and significant effect on ideal body image among those adolescents (0.243, $t = 4.044$). Ideal body image had positive and significant effect on eating behavior of obese adolescents (0.680, $t = 4.458$). Each coefficient value as generated by path analysis is shown in Figure 1.

Individual characteristics affected the increased individual beliefs; individual beliefs affected the increased perceived threat and, finally, improved eating behavior of obese adolescents. Social support influenced the improvement of ideal body image, and ideal body image affected improved eating behavior of obese adolescents.

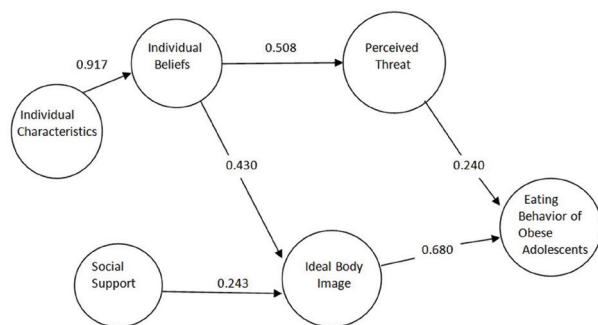


Figure 1: Relationship between exogenous and endogenous variables.

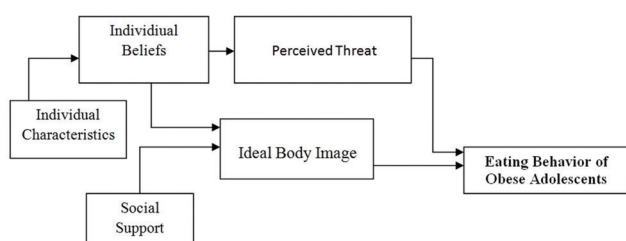


Figure 2: Obese adolescents eating behavior–controlling model.

Figure 2 shows the model proposed by this research, which is significantly associated with the individual characteristic, social support, individual beliefs, ideal body image, and perceived threat.

Discussion

Individual characteristics including variables age, sex, and good knowledge can influence individual beliefs and indirectly increase the perceived threat of obese individuals. In particular, sociodemographic factors, especially knowledge, are believed to have indirect effects on behavior by affecting perceptions of susceptibility, severity, benefits, and barriers perceived by individuals.^[17] The results showed that individual who has knowledge about obesity, impact and how to prevent influences individual beliefs/confidence includes perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. Dimensions of vulnerability measure individual's subjective perception of the risk of health conditions. Perception of severity explains feelings about seriousness of health problem. Perception of severity includes evaluation of clinical consequences (e.g., death and pain) and possible social consequences. The combination of susceptibility and severity is called the perception of threat (perceived threat).^[18,19]

Components of individual beliefs, which include susceptibility, severity, benefits, and barriers perceived by individuals, would successfully lead to expected behavior. The strong

feeling of individual beliefs is needed to makes her/his lifestyle better. Good lifestyle is consumption of healthy food, low calories and high fiber.^[20] Results showed that good individual beliefs can increase the sense of threat, which includes the sense of weight gain and feeling of the onset of a disease. In individual beliefs, the related main component is perceived barriers. The perception of barriers creates a feeling of seriousness of a disease and makes individuals feel it as a threat that will affect the living conditions, family life, and social relationships.^[21]

The results showed that the dimensions of good social support improve the ideal body image in obese adolescents. Social support is a verbal or nonverbal information, advice, or assistance given by the people around obese, is a form of mental support that obese needs to be healthy and that's why happy to live without any disease. Social support can be in the form of presence and other things that can provide emotional benefits or effects on behavior such as confidence, will to be healthy, and will to change her/his eating behavior. The same opinion also says that social support is the existence, availability, and awareness of the people around. With the social support, they derived sense of comfort, attention, appreciation, or help by accepting conditions. Social support is a source of emotional, information or guidance given by the people around individuals to cope with any problems and crisis that occur in everyday life. Social support is the support and assistance given by other people such as parents, friends, neighbors, coworkers, and others who are around.^[18]

Some studies suggested that BID differs between men and women.^[21] Over the past two decades, male and female adolescents have increasing dissatisfaction with their body shape.^[22] BID is more common among obese patients compared with nonobese, and more prevalent in obese women than in obese men. The results of this study indicated that high ideal body image could enhance good eating behavior of obese adolescents, that is, eating low-calorie foods and eating less. Caution about weight and physical shape dissatisfaction is associated with a desire to alter the appearance and change eating behavior by limiting the amount and type of food.

The strength of this study is that it is offering a model to control eating behavior among obese adolescents. This model is an alternative guidance for the health educator to develop strategies or interventions in obesity cases. This model also supports the existing evidence and brings the magnitude of individual-based intervention. The limitation of this study is the participants were recruited from selected location. The age of respondents ranged from 14 to 18 years, which cannot be generalized to other age groups.

Conclusion

Eating behavior control model in obese adolescents based on individual beliefs and ideal body image has relevance and good prediction. This model is highly recommended by health educators to be considered for the obese adolescent

population. Any obesity intervention strategies and policy should consider this model in Indonesian obese adolescents.

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