Obesity in Thai Adolescents: Lifestyles, Health Attitudes and Psychosocial Concerns

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ABSTRACT

Objective: To determine the dietary pattern, lifestyle factors, and psychosocial concerns in Thai obese adolescents.
Methods: Students' school health records under the Siriraj School Health Network was reviewed during the academic year of 2005. Those with body mass indices (BMI) $\geq$25 kg/m^2 were asked to complete a self-administered questionnaire divided into three parts; 1) health attitudes and psychosocial concerns; 2) dieting lifestyle; 3) physical activity lifestyle.
Results: The prevalence of overweight and obesity among 718 from 5,071 students from Siriraj School Health Network was different between genders (7.7% and 2.5% in male vs. 2.9% and 1% in female). Of those, 403 voluntarily answered the self-administered questionnaires. The majority of students (87.9%) were not satisfied with their actual weight, and tried to lose weight (94.2%). Concerning their lifestyles, 79.4% and 49.6% had taken high calorie food mostly fast food and dined buffet-style at least once a week respectively, while half disliked fruits and vegetables, and 15.4% skipped breakfast. Also, the majority of students exercised less than the standard recommendation of at least three days a week, with more than two thirds, excusing not having enough time to practice while 48% spending at least three hours a day watching television and playing computer. Importantly, more than half of them had weight- related psychosocial problems presenting as poor self image, low self esteem and self confidence.
Conclusion: Unhealthy lifestyles, poor health attitudes and negative psychosocial concerns were reported among Thai obese adolescents. Strategies for successful obesity prevention are discussed in this article.

Keywords: Adolescent obesity, self questionnaire, dietary pattern, exercise, low self esteem

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Over the past several decades, the obesity prevalence in children and adolescents has been increasing dramatically worldwide. This rapid change is not only seen in the western region, but also in Asia Pacific region. While the prevalence in the United Stated is considerably high, the increase in the annual rate of obesity prevalence in China is the highest.[1-2] Similarly, the prevalence of obese adolescents in Thailand has also significantly increased from 5.8% to 13.3% during a 6-year period, 1990 to 1996.[3] This finding is alarming us about the public health concern. Obesity-related risk factors such as hyperlipidemia, hypertension, type 2 diabetes and cardiovascular disease are the main serious health consequences impacting on morbidity and mortality in adulthood. Some studies reported that overweight in childhood and obesity were associated with cardiovascular and cancer-related risks in later life, thus those obese during childhood should have the intervention to prevent their fatal sequels which indeed, will become the national public health problems.[4-8] Overweight and obesity are influenced by a broad range of biological, behavioral, genetic, and environmental factors, although the main factors are inversely between energy intake and physical work.[9] Furthermore, adolescence is the stage of life where physical appearance and peer influence are very important, and as a result adolescents who have higher weight than their peers are more likely to be teased and have adverse psychological outcomes including low self-esteem, body dissatisfaction, and depressive symptoms.[10]

The purpose of this study was to determine the significant lifestyles in obese adolescents which mainly includes their dieting behaviors and physical activities

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that are possibly related to unhealthy weight gain, and to understand their attitudes towards their health as well as identify obesity-related psychosocial concerns.

MATERIALS AND METHODS

Student health records from 2 secondary schools of the Siriraj School Health Network Project during the academic year of 2005 were reviewed. One of each was an all-boy and all-girl school respectively. This study has received approval from Siriraj Hospital Ethics Committee. Permission was formally approved by both schools administrative committees. The following data, noted in the school health record form including age, sex, body weight and height of the students were recorded. Students' body mass indices (BMI) were calculated as body weight/ height^2 (kg/m^2) and determined by using "The International Obesity Task Force and The Institute of Medicine" weight criteria. Obesity and overweight were defined as BMI $\geq$ 30 and $\geq$ 25 kg/m^2 respectively.[11] Among those who were determined as at least overweight were asked to voluntarily fill out a 20-questions self-directed questionnaire. Each questionnaire was comprised of three parts; 1) obesity-related attitudes and psychosocial concerns towards their health which possibly represented their sense of body weight satisfaction, self confidence and realistic effort to make a better change in their health; 2) dieting lifestyle which mainly identified the meal patterns, frequency of taking high calories diet, soft drink beverages, as well as fresh fruits and vegetables, was also the main reason for denying healthy food; 3) physical activity lifestyle which mainly identified the patterns of obese adolescent's daily activities and the detail of them.

Statistical analysis

The questionnaire data were entered into the SPSS version 11.0 database. Descriptive data was analyzed and described as percentages.

RESULTS

There were totally 5,071 students aged between 11-18 years old who were studying in grades 7th - 12th. Of those 718 (14.1%) students were at least overweight and had a mean age of 14.49 ± 1.63 years. The prevalence of obesity and overweight were 3.5% and 10.6% in 179 and 539 students respectively in which both were different between genders (7.7% and 2.5% in male vs. 2.9% and 1% in female).

The baseline body mass indices are shown in Table 1. Among those who were overweight and obese, 403 students voluntarily answered the self-administered questionnaires.

Table 2, 3, and 4 shows all the descriptive data in the quantitative and percentage form of participants responding to their questionnaires. Two thirds (61.7%) of them disclosed having weight-related psychosocial issues. Over half of the respondents reported having poor self image and self esteem issues in all areas which were assessed, and 56.3% having a sense of being socially isolated while 87.9% had the strong unsatisfied feeling with their actual weight and 94.3% had the strong intention to change their weight in order to improve their physical appearance. Interestingly, being obese 5.7% of them reported lacking any intention to lose weight in which laziness and self trust were their main excuses.

TABLE 1. Baseline body mass index of students.

Characters		Number (%)		
		Male	Female	Total
Overall	$\geq$ 25 kg/m^2	516 (10.2)	202 (3.9)	718 (14.1)
	$\geq$ 25 to < 30 kg/m^2	388 (7.7)	151 (2.9)	539 (10.6)
	$\geq$ 30 kg/m^2	128 (2.5)	51 (1)	179 (3.5)
Age of students (years)		16.3 ± 1.2	13.8 ± 1.2	14.49 ± 1.63

For eating pattern, the majority of participants had three meals a day which almost 10% reported skipping at least one meal a day. Of this, breakfast was found to be the most skipped meal. School and home were the main places where they had lunch and dinner respectively. A monthly food diary showed 79.4% and 49.6% had taken high calories food mostly fast food and dined buffet-style at least once a week respectively. Also, 87.4% drank soft drinks and almost 10% drank it every day in a regular basis. In addition, nearly half reported eating non-lean meats at least three times a week and 6.9% consuming high-calorie desserts such as sticky rice with coconut cream or Thai sweet desserts at least five servings a week. Contrarily with fruit and vegetables consumption, only one thirds ate them regularly while roughly 10% totally refused taking them in which personal dislike and difficulty to obtain food were their excuses.

Notably, for the pattern of physical activities and daily lifestyles, one third of participants did not participate in any exercises while over half (55.1%) spent time on watching television and playing computer at least 3 hours a day. Similarly, lacking time and personal preference were their major explanations.

TABLE 2. Weight related psychosocial issues of the participants.

Psychosocial issues	Numbers (%)
Weight related Psychosocial issues	249 (61.7)
Self image	
Feeling an aversion to going out	252 (62.5)
Embarrassment to talk with the opposite sex	235 (58.3)
Decreasing ability to make friends	225 (56.3)
Self esteem	
Losing of self confidence	225 (55.8)
Feeling guilty for being fat	224 (55.6)
Losing of self motivation	225 (55.8)
Having sense of social isolation	227 (56.3)
Unsatisfying with actual body weight	354 (87.9)
Intention to change weight	
Having intention to change weight	380 (94.3)
Lacking of any intention to change weight	23 (5.7)
Main reason for lacking of intention to change weight	
Laziness	20 (5)
Lacking of confidence to lose weight	10 (2.5)
Being afraid of to be on diet	1 (0.3)
Main motivation for weight maintenance/ reduction	
Being good-looking	288 (71.4)
Preventing medical complication	194 (48.1)
Having more sexual attraction	47 (11.7)

TABLE 3. One-month dieting patterns of the participants.

Meal patterns					**Numbers (%)**
Breakfast	Skipping meal				62 (15.4)
	Having at school				157 (46)
Lunch	Skipping meal				23 (5.7)
	Having at school				373 (98.1)
Dinner	Skipping meal				37 (9.2)
	Having at school				24 (6.6)
			Times per weeks		
Frequency of consumption	**0**	**< 3**	**3-5**	**5-7**	**>7**
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**
Fried food, Fast food	83 (20.6)	193 (47.8)	101 (25.1)	12 (3)	14 (3.5)
Non-lean meat	51 (12.7)	184 (45.7)	111 (27. 5)	42 (10.4)	15 (3.7)
Buffet	203 (50.4)	155 (38.5)	35 (8.7)	5 (1.2)	5 (1.2)
Desserts	62 (15.4)	189 (46.9)	124 (30.8)	19 (4.7)	9 (2.2)
Soft drinks	51 (12.6)	134 (33.3)	138 (34.2)	42 (10.4)	38 (9.5)
Fresh vegetables	56 (13.9)	112 (27.8)	125 (31)	65 (16.1)	45 (11.2)
Fresh fruits	27 (6.7)	61 (15.1)	155 (38.5)	76 (18.9)	84 (20.8)
Main reason for refusing to eat fruits and vegetables		**Vegetables N (%)**		**Fruits N (%)**	
No preference		44 (77.2)		18 (66.7)	
Availability limitation		12 (21)		9 (33.3)	

DISCUSSION

The prevalence of adolescent overweight and obesity in this study had no significant change from the past, similar to the previous study of Ogden et al, which reported no significant changes in obesity trends between 2003-2006.[12] Additionally, the male has been shown to be double the female rate, the same as other studies reporting on the higher prevalence of obesity in the male during 1999-2004.[1]

Obesity-related mental health problems have been studied, and most reported on the consequence of having poor self image, poor self esteem and having mood disorders as well as associating these with poor social relationship.[13] For adolescents, physical appearance has been very important, as a result, obese adolescents were more likely to be unsatisfied with their physical appearance than normal weight adolescents particularly among girls.[14] and the more severe the obesity was, the more body dissatisfaction increased.[15] In addition, the overweight teenagers were found to have lower self-esteem and life satisfaction than the non-overweight, and they tended to isolate from their peers and felt stigmatized.[16-17] Some intended to lose weight or make some changes on their behavior in order to be thin and have more sexual attraction.[18-20] Those current findings also confirmed to us that there has been some strong obesity-related psychosocial issues going on in obese teenagers which reminded us, as health care providers to spend more attention and early recognition on the context of patient's mental health parts than the previous practice in order to provide the most effective holistic intervention.

Unhealthy dieting patterns and less physical activities of obese adolescents were the major behaviors resulting in considerable unhealthy weight gain, apart from the changes in environment over the last few decades.[20] Interestingly, from our study, obese Thai adolescents had similar patterns on dieting behavior of taking high caloric food and skipping breakfast for compensating as other studies found increasingly in the western countries, and such behaviors have shown

TABLE 4. One-month physical activities and daily lifestyle patterns of the participants.

			Times per weeks (Total number =403)		
Frequency of doing exercise	**0**	**< 3**	**3-5**	**5-7**	**> 7**
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**
At school	109 (27.1)	95 (23.6)	113 (28)	45 (11.2)	41 (10.1)
At home	122 (30.3)	101 (25.1)	119 (29.5)	29 (7.2)	32 (7.9)
			Hours per day		
Frequency of sedentary lifestyle	**0**	**< 3**	**3-5**	**5-7**	**> 7**
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**
Watching television / Playing computer	2 (0.5)	179 (44.4)	144 (35.7)	52 (12.9)	26 (6.5)
Main reason for refusing to do any physical activities		**At home N (%)**		**At school N (%)**	
No preference		17 (13.9)		24 (22)	
No team		10 (8.2)		6 (5.5)	
Time limitation		80 (65.5)		67 (61.5)	
Health problems		2 (1.6)		3 (2.8)	
Place limitation		5 (4.1)		5 (4.6)	

association with increasing body weight[21] by making them consume more food-containing high fat later in the day and more snacking.[22] Furthermore, obese adolescents consumed higher sweet-containing beverages and lower fruits and vegetables than non-obese adolescents.[23-26] In addition, the Youth Risk Behavior Surveillance in the US in 2007[27] showed that half of high school students ate fruits and vegetables less than the recommendation. Similar to Thai obese adolescents in this study, 60 to 72% of them reported eating fruits and vegetables less than the daily food recommendation. Interestingly, of those, above three quarters accepted that food dislike and food inaccessibility were the substantial barriers. As a result, eating a less amount of vegetables and fruits can impact on weight gain as found in Lakkakula et al's study showing that children with low preference for fruits and vegetables were more likely to have overweight-risk than those with a high preference for fruits and vegetables.[28]

Currently, the time spent for physical activity in youth has declined substantially, which is contrasted to time spent for studying and their sedentary lifestyle. Of such activities, youth used less energy.[29] As in this study population, they claimed that lack of time was the significant factor related to not being able to exercise, similarly to that found in the US and other countries' youth.[27]

From this study, we found that adolescents who were at least overweight had some obesity-related psychosocial problems such as physical dissatisfaction, some degree of social isolation and some health concerns. Impressively, most of them had strong motivation to change or lose weight, although as the immature minor, adolescents were not able to fully control their mind or manage time to do physical activities consistently, apart from not much choice for healthy lunch at school. As the result, schools authorized by the Ministry of Education should support the role by establishing a policy of obesity prevention program. Both, focusing on the healthy diet preparation and setting up the regular physical activity for students, ought to be the concepts of the program. Of such, the combination of behavioral modification model and school-based model could be the key for prevention of obesity and its complications in Thai adolescent populations. Thus, further research should be continued on out-reach prevention such as the school based obesity prevention program, and try to maximize the ability of schools and their teachers to get more involved.

SUMMARY

Obesity is currently an important public health issue in Thailand because of its rapidly increase in the prevalence and also leading to many adverse medical consequences, as well as possible serious mental health outcomes like depression. Strong Public Health policies for successful obesity prevention should be implemented in every school, and focus on how the effective strategies can be applied. Instead of waiting for the patients, with obesity-related health problems coming in house, and depending on each health professional's decision, there are another options of this disease, out reach prevention program. The Ministry of Education, the government and health care providers should realize about this disease burden in Thailand and take action by stepping out more in out-reach intervention and taking part more in national collaboration. Of note, the important part of intervention should be based on individual intention, family and school based intervention which basically includes reduction of sedentary behavior, nutritional education promoted as a school policy about healthy breakfast and lunch for everyone at school and also consistently having physical activities, which are the core disciplines for prevention of obesity in children and adolescents.

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