Atypical Eating Attitudes and Behaviors in Thai Medical Students

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ABSTRACT

Objective: To determine the prevalence, and associated factors of atypical eating attitudes and behaviors in Thai medical students.

Methods: A cross-sectional survey examined the eating abnormalities in Thai medical students, conducted in 2014. Research assistants collected data by using; self-reported questionnaires using The Eating Attitudes Test-26 (EAT-26 Thai Version). The statistical analysis used R-program for qualitative variables and logistic regression was applied to determine the correlation and P-value.

Results: 141 Thai, medical students (15.9%) were reported to have atypical attitudes towards eating, and displayed abnormal eating behaviors. There was no statistically significant correlation of attitude towards eating, and their current eating behaviors according to the medical students' gender, year of studying and Grade Point Average. However, their eating attitudes and behaviors were, associated with Body Mass index. Normal weight (BMI 18.5-23.49) and overweight (BMI 23.5-39.9) groups could increase by 2.2 (95% CI =1.2, 4.3) and 2.3 (95% CI=1.1, 4.8) times risk depending on atypical eating attitudes and abnormal eating behaviors respectively, when compared with the underweight group (BMI<18.5).

Conclusion: There was no correlated difference in concerns to the Thai medical student's abnormal eating habits, with gender, years of their study and Grade Point Average. Only normal to over-weight BMI were associated. Overweight male, medical students significantly represented more atypical attitudes towards eating and behaviors than other groups in this population. These results may reveal the changing trends of eating attitudes and behaviors due to the current ideal body image of being more muscular. However, prospective studies are still needed.

Keywords: Eating attitude; eating behavior; medical student; BMI (Siriraj Med J 2017;69: 5-10)

INTRODUCTION

Eating disorders (EDs) are a common problem found in the age of adolescences. EDs refer to a group of conditions characterized by abnormal eating habits originating from an individual's physical and emotional pathologies.[1] These conditions involve either insufficient, or excessive food intake. Binge eating disorder, bulimia nervosa and anorexia nervosa are considered to be the most common findings among eating disorders.[2] They are predominately represented through mental effects on the preoccupation with body weight, shape and eating.[2] Even though EDs may be categorized as one of the fatal psychiatric illnesses, and are frequently found with other psychiatric disorders (e.g. depressive disorders, substance abuse and anxiety disorders), the precise causes of eating disorders are currently unknown.[3] However, there is the belief that atypical eating behaviors and eating attitudes which, lead to EDs, are a combination of biological, psychological and/or environmental pathologies as well as, the saying: "Genetic loads the gun, environment pulls the trigger" [4], for instance; the rs2295193 polymorphism in estrogen receptor 1 gene (ESR1) partly plays some roles in anorexia nervosa.[5]

Many studies found that mortality rates of eating

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doi:10.14456/smj.2017.2

disorders, coupled with severe weight loss, ranged from 5-10%. [6] The high prevalence of eating disorders in those at university age has been reported in both western and non-western countries. An Eating disorder study of college students reported that 3.8% of college females and 0.2% of males could be diagnosed with bulimia nervosa, whilst 4.7% of female students had overall EDs' diagnosis.[7] In Thailand, the whole prevalence of eating disorders ranged between 9.0-10.8% in female students.[8]

Medical students relate to high levels of stress which are a significantly causative factor of eating disorders.[9] Previous studies also presented an increasing prevalence of eating disorders among female medical students.[10] A study in the US showed that 15% of female medical students reported a history of eating disorders.[11] Regarding atypical eating behaviors; a study in Pakistan stated that the prevalence of anorexic behavior among females was about 21.7%. The anorexic behaviors of first, third and fourth year medical students were 8.0%, 7.1% and 20.0% respectively. However, no reports of anorexic behavior were significantly specified in the second and fifth year medical students.[12]

A study in Karachi also found that 22.75% of medical students were at risk of eating Disorders, due to their attitude and behavior, and 87.9% of them were females and 12.1% were males. The same as in a normal population, female medical students were reported to be more likely to have abnormal eating disorders, and possibly develop EDs, compared with males.[13] In addition, medical students who reported any history of EDs represented a greater social maladjustment when, compared with other medical students who did not.[11] These findings may affect current educational and career performances of medical students who will become important health care providers in the future.

Hence, there is a need to early detect, and access medical students' attitudes towards eating along with, their eating behavior for better results of primary prevention, treatment and recovery of EDs. This study of Eating attitudes and behaviors in Thai medical students is a pilot study in South-East Asian countries which, will be useful to design the primary and secondary preventions in populations at risk. This, in turn may lead to a more suitable practical strategy for both medical, and mental health services for adolescence in South East Asia.

MATERIALS AND METHODS

This study was a cross-sectional survey; determining the attitudes towards eating and eating behaviors which was conducted with all medical students at the Faculty of Medicine, Prince of Songkla University, Thailand. After the research proposal was endorsed by the ethics committee of Prince of Songkla University, verbal consent was obtained from participants. Research assistants collected data themselves by; using self-administered questionnaires: The Eating Attitudes Test-26 (EAT-26 Thai Version).[14] This eating attitude and behavior screening test has 3 subscales: dieting, bulimia, food preoccupation and oral control. These self-reported questionnaires were provided to every medical student in respective classrooms during one semester, and classified by their year of study. Research assistants collected all the results after the questionnaires were completed, at the moment the medical students completed the questionnaires.

Thereafter, the data was statistically analyzed by using R program. Relevant frequencies, and percentages of the crude data were calculated for the qualitative variables, whereas the means and standard deviations were calculated for quantitative variables. Finally, P-values were also obtained by using logistic regression to determine the correlation of all results.

This study was approved by the ethics committee of the Prince of Songkla University, with approval number REC57-0125-03-1.

RESULTS

The survey findings by using the Thai version EAT-26 in a total of 910 Thai medical students, was that 885 medical students (97.3%) completely answered all questions. 512 of them (56%) were female and 371 were male (42%). Their mean ages were 20.8 years old with a standard of deviation of 1.7, and ranged between18-29 years old. Most of them lived in Southern Thailand. The medical student's average height and weight were 166.1 cm (with a standard deviation of 8.5) and 58.8 Kg (with a standard of deviation 10.9), respectively. However, their target body weight was 55.8 Kg, with a standard deviation of 9.7. (Table 1)

The eating attitudes of medical students were assessed using The Eating Attitudes Test-26 (EAT-26 Thai Version), whilst the body mass indexes (BMI) were also calculated according to the BMI calculation. One hundred and thirty medical students (14.7%) were underweight (BMI <18.5), 585 of them (66.1%) were in normal range (BMI 18.5-23.49) and 170 students (19.2%) were categorized to be overweight (BMI 23.5-39.9). Regarding the results of the; EAT-26 questionnaires; 141 medical students (15.9%) were found to be at a high-risk of developing EDs. (Table 2)

We also found that 58.6% of them were female and 41.4% were males. Even though prevalence of abnormal eating attitudes and behaviors of the females was higher

TABLE 1. Demographic characteristics of the sample (N=885).

Demographic characteristics	N (%)
Gender	
Male	371 (41.9)
Female	512 (57.9)
Not specify	2 (0.2)
Age	
Mean±SD	20.8±1.7
Median (min-max)	21 (18-29)
Year of study	
1	186 (21.0)
2	187 (21.1)
3	140 (15.8)
4	131 (14.8)
5	124 (14.0)
6	117 (13.2)
Grade Point Average (GPA)	
≤3.00	87 (9.8)
3.01-3.50	356 (40.2)
>3.50	397 (44.9)
not specify	45 (5.1)
Residence	
Songkhla Province	363 (41.0)
Other provinces in Southern	431(48.7)
Other regions	91(10.3)
Height (Cm.)	
Mean±SD	166.1±8.5
Median (min-max)	165 (143-191)
Weight (Kg)	
Mean±SD	58.8±10.9
Median (min-max)	57 (37-102)

Demographic characteristics	Kg.
Maximum weight	
Mean±SD	62.8 ±12.4
Median (min-max)	60 (41-121)
Minimum weight	
Mean±SD	53.9±9.7
Median (min-max)	52 (35-92)
Target weight	
Mean±SD	55.8±9.7
Median (min-max)	54 (38-90)

TABLE 2. Body Mass Index (BMI) and the results of Eat-26 questionnaires.

	n (%)
BMI	
<18.5 (underweight)	130 (14.7)
18.5-23.49 (normal weight)	585 (66.1)
23.5-39.9 (overweight)	170 (19.2)
The eating attitudes test-26	
Normal (<12.5)	744 (84.1)
Abnormal (≥12.5)	141 (15.9)

than the males in this population, there was no significant difference of attitude towards eating, and their current eating behavior by; gender, year of study and Grade Point Average (GPA) in this study. (Table 3)

There were no associations between BMI, year of study or GPA as well, only BMI was significantly related to gender (p<0.001). Male medical students in Thailand showed a considerable increase of 2.5 times overweight compared with the females (95% CI=1.6, 3.9). One hundred and four male students (61.9%) were considered by their BMI to be overweight, while only 64 females (38.1%) were. (Table 4)

However, we found that attitudes towards eating and eating behavior were significantly associated with the Body Mass index of Thai medical students. In comparison with underweight medical students, the normal weight and the overweight group represented an increase of 2.2 (95%CI =1.2, 4.3) and 2.3 (95% CI=1.1, 4.8) times risk of atypical eating attitudes and behaviors respectively. (Table 5)

DISCUSSION

Even though the prevalence of eating abnormalities among medical students in Thailand, which was conducted by the screening questionnaire (Thai EAT-26), was found to be unlikely differentiated from other countries (15% of female medical students in the US and 15.9% of abnormal eating attitudes and behaviors in overall Thai medical students). Thai medical students were considered to have a higher risk of developing eating disorder than other groups of Thai students.[15] Although female teenagers as well as, young adults were generally reported to represent more abnormalities of eating, this study showed no difference of eating pathology between male and female medical students in Thailand. Their GPA and the year of studying did not affect their eating attitudes and behaviors as well.

TABLE 3. The association between EAT-26 and demographic characteristics.

Demographic characteristics	EAT-26		OR (95%CI)	P-value LR-test
	Normal (%)	Abnormal (%)		
Gender				0.568
Male	313 (42.1)	58 (41.4)	1	
Female	430 (57.9)	82 (58.6)	1.1 (0.7,1.6)	
Year of study				0.295
1	160 (21.5)	26 (18.4)	1	
2	158 (21.2)	29 (20.6)	1.1 (0.6,1.9)	
3	119 (16.0)	21 (14.9)	1.1 (0.6,2.1)	
4	101 (13.6)	30 (21.3)	1.7 (0.9,3.1)	
5	103 (13.8)	21 (14.9)	1.4 (0.7,2.7)	
6	103 (13.8)	14 (9.9)	0.7 (0.3,1.6)	
GPA				0.803
≤3.00	72 (10.2)	15 (11.1)	1	
3.01-3.50	296 (42)	60 (44.4)	1.1 (0.6,2.1)	
>3.50	337 (47.8)	60 (44.4)	1.0 (0.5,1.9)	
Address				0.286
Songkhla Province	313 (42.1)	50 (35.5)	1	
Other provinces in Southern	355 (47.7)	76 (53.9)	1.4 (0.9,2.0)	
Other regions	76 (10.2)	15 (10.6)	1.1 (0.6,2.2)	

TABLE 4. The association between the Body Mass Index (BMI) and demographic characteristics.

Demographic characteristics	BMI			OR (95%CI)	P-value LR-test
	Underweight (%)	Normal weight (%)	Overweight (%)		
Gender					< 0.001*
Female	98 (75.4)	350 (59.8)	64 (38.1)	1	
Male	32 (24.6)	235 (40.2)	104 (61.9)	2.5 (1.6,3.9)	
Year of study					0.142
1	30 (23.1)	134 (22.9)	22 (12.9)	1	
2	29 (22.3)	126 (21.5)	32 (18.8)	0.9 (0.5,1.6)	
3	15 (11.5)	99 (16.9)	26 (15.3)	1.4 (0.7,2.8)	
4	26 (20.0)	77 (13.2)	28 (16.5)	0.7 (0.3,1.2)	
5	12 (9.2)	83 (14.2)	29 (17.1)	1.7 (0.8,3.9)	
6	18 (13.8)	66 (11.3)	33 (19.4)	1.1 (0.5,2.3)	
GPA					0.389
≤3.00	9 (7.6)	50 (8.9)	28 (17.4)	1	
3.01-3.50	46 (38.7)	232 (41.4)	78 (48.4)	0.9 (0.4,2.0)	
>3.50	64 (53.8)	278 (49.6)	55 (34.2)	0.7 (0.3,1.5)	
Address					0.272
Songkhla Province	52 (40)	235 (40.2)	76 (44.7)	1	
Other provinces in Southern	60 (46.2)	297 (50.8)	74 (43.5)	1.2 (0.8,1.9)	
Other regions	18 (13.8)	53 (9.1)	20 (11.8)	0.8 (0.4,1.4)	

*Significant (p<0.05)

TABLE 5. The association between EAT-26 and the Body Mass Index (BMI).

BMI	EAT-26		OR (95%CI)	P-value LR-test
	Normal (%)	Abnormal (%)		
BMI				0.026*
<18.5 (underweight)	119 (16.0)	11 (7.8)	1	
18.5-23.49 (normal weight)	485 (65.2)	100 (70.9)	2.2 (1.2,4.3)	
23.5-39.9 (overweight)	140 (18.8)	30 (21.3)	2.3 (1.1,4.8)	

*Significant (p<0.05)

Thai medical students were characterized to be more overweight (19.2%) than underweight (14.7%). On the other hand, some differences from other countries' findings of abnormal eating attitudes and behaviors might be the effects of overweight BMI, which was significantly found in Thai male medical students. We also discovered that students with BMI from 18.5-39.9 (normal weight to overweight range) were more likely to develop eating pathologies and diseases than the underweight group (OR 2.2, 95% CI 1.2, 4.3 and OR 2.3, 95%CI =1.1, 4.8).

For these reasons, we may assume that among all eating disorders, Thai medical students were likely to develop obesity, and obesity-associated disorders. For example, metabolic syndromes, sleep apnea, depression, anxiety and obsessive compulsive disorder.[3] Additionally; their mean target weight (55.8 Kg) which is less than their average current weight representation (58.8 Kg), may be the consequence formed from their ideal body image of *"Tyranny of Slenderness"* which is now globally widespread.[16] This conception could have effects on the medical students' attitudes and behaviors of eating, especially on their concerns about their current weights. Although they were in normal range of BMI, their overall appearance may still not fit their ideal body image.[17]

However, Jones[19] revealed that the body dissatisfaction of males presently depended on the muscularity ideals through their internalized commitment, more than weight and a skinny shape in females. As well as this, the body image concerns in males were more cognitive in *"quality of body image"*, whilst the female concerns were more emotional.[17] Therefore, weight and BMI may not be the only idyllic tool for males to evaluate their body satisfaction and eating behaviors. In addition, any findings from studies of body image and eating in males should be applied with caution.

Regarding obesity or overweight BMI which AACAP[3] categorized as the most common eating-associated disease in children and adolescents was possible to be both cause and result regarding eating attitudes and behaviors in this study. Overweight could be a cause resulting in body dissatisfaction and abnormal eating attitude/behavior, because obese people usually face job discrimination, social exploitation and mistreatment by health care providers, those being the medical student's own colleagues.[18] At the same time, over-BMI could be a result of current trends of male body image to be more muscular which influences eating attitudes and behaviors.[19]

Myers and Rosen[18] also reported that; stigmatization is a very common experience in obese and overweight people. Hence, overweight people, were frequently found to have low self-directedness and low persistence personality characteristics which, correlated to the process of developing obesity, and often engaged strong efforts to cope with these stigmas.[20] However, frequent exposure of overweight medical students to their stigmatization may also have an effect on greater psychological distress and their coping attempts.[18] These notions may explain the strong findings of association between overweight BMI and atypical eating.

In conclusion; even though eating attitudes and behaviors were not associated to grade point average and the years of studying in this study, the drive to reach the ideal weight, shape and muscle mass was reported to be related to higher levels of depression, especially among male adolescents.[21] Thus, the population with abnormal attitudes and behaviors of eating, especially overweight male medical students, should be particularly surveyed not only for their medical conditions, but also prospective mental health, quality of life, academic development and career performance.[22]

Limitations

Firstly, Thai EAT-26 is not a gold standard of Eating disorders diagnosis. Eating disorders must be diagnosed by psychiatrists for DSM-5 or ICD-10 criteria of Anorexia nervosa, Bulimia Nervosa, Binge eating disorder and ED-NOS.[23] Thai EAT-6 is only a standardized screening tool for eating abnormalities, so this study could represent only the prevalence of atypical eating attitudes and behaviors.

To specify the eating disorders one required the other steps of a psychiatrist's diagnosis and investigation. This should be one of the eventual studies of eating behaviors in Thailand and also in other non-western countries,[24] in order to understand their conditions within a specific socio-cultural context.

Secondly, the population in this study mainly lived in southern Thailand (89.4%). Although this is the first study of eating abnormalities in Thai medical students with a proper population size, the significant limitation may be an important confounding factor because of various cultures, types of local foods and different eating stereotypes within each part of Thailand. Therefore, the prospective research should target more medical schools' students in other parts of Thailand.[25]

CONCLUSION

Regarding the screening of EAT-26 (Thai version), 15.9% of the medical students were found to have atypical attitudes towards their eating behaviors. They described themselves as being more overweight than underweight. In addition to this, the normal and overweight groups showed increasing risks of atypical eating attitudes, compared to the underweight group.

No correlation with gender, grade point average and year of their study was found for Thai medical students' eating habits. However, overweight male participants considerably embodied more abnormal attitudes towards eating and behavior, compared with the other groups in this study. The results of this study have stated the changing ideal body image of being muscular among young, males. This change may have an effect on their eating attitudes and behaviors. Moreover, BMI and body weight may not be the most proper indicators in estimating eating attitudes and behaviors among this population. Prospective studies of eating attitudes as well as behaviors among other groups of Thai young people were suggested.

ACKNOWLEDGMENTS

The authors received a full granted from the Faculty of Medicine, Prince of Songkla University, Thailand. Both authors declared that they have no conflict of interest, because the support and funding had no influence on either study design or study administration.

REFERENCES

1. Hudson JI, Hiripi E, Pope HG, Kessler RC. The prevalence and correlates of eating disorders in the national comorbidity survey replication. Biol Psychiatry 2007;61:348-58.
2. Martin A, Fred R. Lewis's child and adolescent psychiatry: a comprehensive textbook. 4th ed. Philadelphia: Lippincott, Williams & Wilkins; 2007.p.592-601.
3. American Academy of child and adolescent psychiatry. Obesity in Children and Teens 2011 [Internet]. American: American Academy of child and adolescent psychiatry [cited 2015 Sep 11]. Available from: http://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/Facts_for_families_Pages/Obesity_In_Children_And_Teens_79.aspx.
4. Olden K, White SL. Health-related disparities: influence of environment factors. Med Clin North Am 2005;89:721-38.
5. Zhang C, Chen J, Jia X, Yu S, Jiang W, Zhang R, et al. Estrogen receptor 1 gene rs2295193 polymorphism and anorexia nervosa: new data and meta-analysis. Asia Pac Psychiatry 2013;5:331-35.
6. Steinhausen HC, Rauss-Mason C, Seidel R. Follow up studies of anorexia nervosa: a review of four decades of outcome research. Psychol Med 1991;21:447-54.
7. Pyle RL, Neuman PA, Halvorson PA, Mitchell JE. An ongoing cross-sectional study of the prevalence of eating disorder in freshman collage students. Int J Eat Disord 1991;10:667-77.
8. Keawpornsawan T. A survey of eating attitudes and behaviors among Thai female teenage students. Siriraj Hosp Gaz 1994;46:363-68.
9. Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: a cross-sectional study. Med Educ 2005;39:594-604.
10. Szweda S, Thorne P. The prevalence of eating disorders in female health care students. Occup Med 2002;52:113-19.
11. Herzog DB, Pepose M, Norman DK, Rigotti NA. Eating disorders and social maladjustment in female medical students. J Nerv Ment Dis 1985;173:734-37.
12. Babar N, Alam M, Ali SS, Ansari A, Atiq M, Awais A, et al. Anorexia behaviour and attitudes among female medical and nursing students at a private university hospital. J Pak Med Assoc 2002;52:272-6.
13. Memon AA, Adil SE, Siddiqui EU, Naeem SS, Ali SA, Mehmood K. Eating disorders in medical students of Karachi, Pakistan-a cross-sectional study. BMC Res Notes. 2012;5:84.
14. Keawpornsawan T, Pariwatcharakul P, Pimratana W. Criterion validity study of the eating attitudes test-26 (EAT-26 Thai version) among Thai females. J Psychiatry Assoc Thai 2013;58:283-96.
15. Puengyod A, Sukanich P. Prevalence of abnormal eating attitudes and behaviors among Thai female high school students in Bangkok. J Psychiatry Assoc Thai 2011; 56:149-58.
16. Tyler M, Wilkinson A. The tyranny of corporate slenderness: corporate anorexia' as a metaphor for our age. Work Employ Soc 2007; 21:537-49.
17. Barahmand U, Shahbazi Z. Prevalence of and associations between body dysmorphic concerns, obsessive beliefs and social anxiety. Asia Pac Psychiatry 2015; 7:54-63.
18. Myers A, Rosen JC. Obesity stigmatization and coping: relation to mental health symptoms, body image, and self-esteem. Int J Obes Relat Metab Disord 1999; 23:221-30.
19. Jones DC. Body image among adolescent girls and boys: a longitudinal study. Dev Psychol 2004; 40:823-35.
20. Sarısoy G, Atmaca A, Ecemis G, Gumus K, Pazvantoglu O. Personality characteristics and body image in obese individuals. Asia Pac Psychiatry 2014; 6:191-9.
21. McCreary DR, Sasse DK. An exploration of the drive for muscularity in adolescent boys and girls. J Am Coll Health 2000; 48:297-304.
22. Ballard D, Mary B, Hunter D. The impact of childhood obesity upon academic, personal/social, and career development: implications for professional school counselors. 2006 [Internet]. Journal of School Counseling 4.4 [cited 2015 Sep 11]. Available from: http://files.eric.ed.gov/fulltext/EJ901140.pdf
23. Chen ZF, Mitchell JE, Li K, Yu WM, Lan YD, Jun Z, et al. The prevalence of anorexia nervosa and bulimia nervosa among freshman medical college students in China. Int J Eat Disord 1992; 12:209-14.
24. Makino M, Tsuboi K, Dennerstein L. Prevalence of eating disorders: a comparison of Western and non-Western countries. MedGenMed 2004;6(3):49.
25. Striegel-Moore RH, Silberstein LR, Frensch P, Rodin JA. A prospective study of disordered eating among college students. Int J Eat Disord 1989;8:499-509.