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Disturbed Eating Attitudes and Behaviors in South Korean Boys and Girls: A School-Based Cross-Sectional Study

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Purpose: This study was designed to assess the prevalence and correlates of disturbed eating attitudes and behaviors in South Korean students. **Materials and Methods:** In a cross-sectional survey, 2,226 fourth and seventh grade students filled out questionnaires on eating attitudes and behaviors (Eating Attitude Test -26, EAT-26), coping strategies, fear of being overweight, behavioral problems, anxiety, depression, and self-esteem. **Results:** Disturbed eating attitudes and behaviors were found in 7 percent of students. In the multivariate analyses, disturbed eating attitudes and behaviors were associated with the passive coping strategies, fear of being overweight, total behavioral difficulties, fourth grade, and high socioeconomic status (SES). Differences in the associations were found between boys and girls. There were significant associations between elevated EAT-26 scores and passive coping strategies, desired underweight body mass index (BMI), and low SES in boys; and between elevated EAT-26 scores and passive coping strategies, fear of being overweight, behavioral problems, being in the fourth grade, and high and low SES in girls. **Conclusion:** In South Korean children, disturbed eating attitudes and behaviors were associated with various psychological and sociocultural factors; some gender-related differences are also evident.

Key Words: Eating disorders, prevalence, correlates, Korea, cross-sectional survey

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INTRODUCTION

Anorexia nervosa and bulimia nervosa are two major eating disorders. The onset of anorexia nervosa is usually between the ages of 10 and 30, with 85% of all anorectic patients developing the illness between the ages of 13 and 20.[1] In one large sample study, a bimodal distribution of age onset was found, with peaks at 14 and a half and 18 years.[2] There are recent studies which suggest that the incidence of eating disorder was stable.[3,4] However, the incidence of anorexia nervosa among 15 to 19 year old female increased significantly.[4] Planning and developing prevention and treatment programs requires evaluation of disturbed attitudes about eating in younger population samples.

Current academic literature about eating disorders primarily involves white females. While the existence of eating disorders has been documented in non-Western countries including China,[5] Japan,[6] India,[7] Turkey,[8] and South Korea,[9] little is known about possible risk factors in non-Western cultures for developing eating disorders.

Various biological and psychological factors appear to be associated with eating problems in Western countries. During adolescence, females with an overweight body mass index (BMI) tend to be more at risk for developing an eating disorder.[10-12] Poor self-esteem is associated with higher levels of body dissatisfaction.[13]

Depressed mood and anxiety are also associated with eating disorders.[11,12] People deal with stress through coping styles and strategies (e.g. problem-oriented or emotion-oriented coping). The relationship among coping strategies and psychopathology has been studied because interrelations among different strategies are very frequent.[14] Coping strategies directed towards avoiding emotions and problems were associated with greater scores on the Eating Attitudes Test and also to a more negative body image.[15] Sociocultural factors such as certain family characteristics, peer factors, school attributes, and media practices are associated with eating problems.[16,17] There is a growing literature on the influence of cultural factors on eating attitudes, particularly ethnicity. In comparison to White girls, African American girls tend to report fewer weight-related concerns/behaviors, while Hispanic, Asian American and Native American girls tended to report similar or more concerns/behaviors.[18] Researchers found that African American girls had significantly lower body image dissatisfaction than Hispanic girls.[19] Several studies comparing females of Asian and European origins have found a higher prevalence of abnormal eating attitudes among Asian females and claim that Westernization has an influence on eating pathology in non-Western countries.[20]

The South Korean culture may be characterized as dynamic, with rapid industrialization, increasing urbanization, and marked economic expansion. Rapid introduction of Western culture in Korea has led to various sociocultural changes, including Westernization in dietary habits, changes in the concepts of beauty, popularization of dieting and weight control measure, and changes in the view of obesity, especially younger people.[9] These changes support the possibility of an increasing prevalence of eating disorders in Korea.[9] We can predict not only that disturbed eating attitudes and behaviours in South Korean children will have some similarities, such as prevalence and psychiatric symptoms, to those in Western studies, but also that they will relate particularly to sociocultural differences in an Asian cultural context.

This cross-sectional study was designed to assess the prevalence and correlates of disturbed eating attitudes and behaviors in South Korean boys and girls.

MATERIALS AND METHODS

Participants and procedures

The sampling procedure and measurements have been described previously.[21] In brief, potential participants were recruited in 2004 from fourth grade students in five primary schools and seventh grade students in three secondary schools in Gwangju, South Korea. We choose the fourth and seventh grade students because in the fourth grade it's the students' first time to start more difficult class work and in seventh grade students are in their first year of middle school, the start to stressful competition periods for the university entrance examination in the Korean educational system. The stress of dieting may be greater at these stressful times, during early and mid-puberty and, when children are changing in physical, psychological, and educational loadings. The Chonnam National University Hospital's Institutional Review Board approved the study.

We approached the schools in writing and explained the study's goals and procedures to the headmasters and classroom teachers. After the headmasters and teachers had given consent, each student was given a sealed letter explaining the study's goals and procedures to give to his or her parents. We obtained formal consent from both the students and their parents. Under the direction of the project's psychiatrist, each child provided data and completed all questionnaires, which were appropriately validated for their graders, in their classroom during school hours. This took an average of 60 minutes.

Assessments and measurements

Eating attitude test

The eating attitude test-26 (EAT-26) is a widely used self-report measure of eating disorders.[22] It assesses a broad range of symptoms and provides a total score for disturbed eating attitudes and behavior. The scores are ranked on a six-point scale from always to never, with 3 points allotted to 'always', 2 points to 'very often', 1 point to 'often', and 0 points to the others. Total EAT-26 scores are derived as a sum of the composite items, and range from 0 to 78. The EAT has been translated into many languages and significant cultural differences in its scores have been reported.[15] Investigations from different cultures have shown greater variability in the frequency of high EAT scorers (≥ 20 on the EAT-26) than in the prevalence of clinical eating disorders.[15] Ko and Cohen[23] reported that Korean American women had less eating pathology than a group of South Koreans. In a Korean study, EAT-26 scores ≥ 20 are frequently associated with abnormal eating attitudes and behavior, and may identify individuals with an eating disorder.[24] In non-clinical populations, the EAT-26 has been used as a screening instrument to identify individuals who are more likely to have disturbed eating patterns. To date, there have been no studies to validate the children's version of the Eating Attitude Test in Korea. However, the reliability and validity of the EAT-26 for Korean adolescents is well-established.[24] We have used the modified version of the EAT-26 for Korean adolescents in which simpler synonyms replace words that young children or

teachers agreed were too difficult for elementary students. For the fourth graders, each question was read to them to help focus their attention.

Coping strategies

We used the adolescent version of the Ways of Coping Checklist (WCC),[25] in which responses are scored on a scale of 1 to 4, with higher scores reflecting more frequently used strategies. The original WCC contains five subscales, and of them four have been confirmed in factor analyses: Problem Focused, Seeks Social Support, and Wishful Thinking and Avoidance. Korean researchers randomly selected 14 items from problem-focused factors and 16 items from emotion-focused factors and validated the modified Korean adolescent version of WCC in elementary students (median age of 10.8).[26] In the Korean version, these subscales have been altered to two main coping strategies: problem-solving strategies (Problem Focused, Seeks Social Support) and passive strategies (Wishful Thinking, Avoidance). In Korea, Cronbach's alpha for the scale was 0.78 and appropriately modified with factor structures of 'problem-solving strategies' and 'passive strategies'.[26] In this study, we assumed that scores at the median or above indicated frequent use of problem-solving strategies and passive strategies, respectively.

Fear of being overweight

Fear of being overweight was measured using selected items (items 4 to 11) from the Body Image and Eating Questionnaire for Children (BIEQ-C).[27] These items were scored using a four-point Likert scoring method (items 7, 8, and 10), a five-point Likert scoring method (item 9), and a yes/no scoring method (items 4, 5, 6, and 11). Then, scales across items were added, producing scores ranging from 0 to 17, with a lower score indicating a negative body image. Although the validation was not yet well-established, the BIEQ-C was translated into Korean for Korean elementary school students and Cronbach's alpha for the scale was 0.89.[28] In this study, we assumed that scores at the median or below indicated fear of being overweight.

Behavioral questionnaire

We used the self-reported Strengths and Difficulties Questionnaire (SDQ-S).[29] The SDQ-S includes 25 items divided into five scales of five items each: hyperactivity, emotional symptoms, conduct problems, peer problems, and pro-social behavior. A score of total difficulties is computed by combining all scales except for the pro-social behavior scale. Each item is scored at 0 for 'not true', 1 for 'somewhat true', and 2 for 'certainly true'. For each scale, except for the pro-social behavior score, higher scores indicate more problems. The sum of scores can range from 0 to 40. Experts usually recommend a cut-off point for a clinical range to be roughly above the 90th percentile of total scores.[29,30] In this study, we used the 90th percentile of total scores as a cut-off for the behavioural problem group. Researchers show that the Korean translation is an efficient and economical screening instrument.[30]

Anxiety

We used the State-Trait Anxiety Inventory for Children (STAI-C),[31] which includes 20 'State Anxiety' items and 20 'Trait Anxiety' items. Responses are scored on a scale of 1 to 3, and total scores can range from 20 to 60, with higher scores reflecting greater anxiety. The reliability and validity of the Korean form of the STAI-C are well established.[32] In this study, we assumed that a score at the median or above indicated greater anxiety.

Depression

We administered the Children's Depression Inventory (CDI).[33] Total scores can range from 0 to 54, with higher scores indicating greater depression; Kovacs suggested that scores of 17 or above in a heterogeneous population indicates depression. The reliability and validity of the Korean form of the CDI have been found to be acceptable.[34]

Self-Esteem

We used the short version of the Self-Esteem Inventory (SEI).[35] The Korean version includes 25 trait descriptive sentences to which subjects respond by indicating whether or not the sentences describe them.[36] Total SEI scores can range from 0 to 25, with higher scores reflecting higher self-esteem. In this study, we assumed that scores at the median or below indicate low self-esteem.

Body mass index

School health nurses measured the height and weight of each child (children wore underwear and no shoes). Actual BMI values were calculated as weight height^{-2} (kg/m^2). Gender- and age-specific cut-off points were based on reference data from the Korean Pediatric Society.[37] In this study, children were classified as underweight (BMI: < 15th percentile), normal weight (BMI: 15th to < 85th percentile), overweight (BMI: 85th to < 95th percentile), and obese (BMI: ≥ 95th percentile). Desired BMI values were calculated based on participants' self-reported desired height and desired weight.

Sociodemographic characteristics

We obtained data on family structure, and status of parental employment from schools. Children also completed questions about their gender, educational level of their parents, and their SES using a three-scale measure. SES

was categorized according to above data by researchers: low (12.3%), middle (78.0%), and high (9.7%).

Statistical analysis

We used chi-square tests to compare the prevalence between primary and secondary school students. For the correlates analyses, univariate associations were investigated between independent variables and disturbed eating attitudes and behaviours. Factors potentially associated with disturbed eating attitudes and behaviours ($p < 0.05$) on univariate analyses were then entered simultaneously into a logistic regression model to assess independence. Multivariate analyses were repeated for the boys and girls separately. We performed all analyses using SPSS/PC version 13.0 (SPSS Inc, Chicago, IL, USA).

RESULTS

Recruitment

Of the 2,281 eligible children, 2,226 (97.5%) children completed the study. Of the non-participants, the parents of 45 (1.9%) declined to participate, and 10 (0.6%) were excluded because of incomplete data. There were no significant differences in gender or schools between participants and non-participants. The group of children included 1,084

Table 1. Prevalence of Children Endorsing Disturbed Eating Attitudes and Behaviors

	Total (n = 2,226)	Fourth graders (n = 1,302)	Seventh graders (n = 924)	*p* value
Total (n = 2,226)	155 (7.0)	119 (9.1)	36 (3.9)	< 0.001
Boys (n = 1,084)	82 (7.6)	62 (8.9)	20 (5.1)	0.023
Girls (n = 1,142)	73 (6.4)	57 (9.4)	16 (3.0)	< 0.001

Results in parenthesis reflect % of the total of each category.

Table 2. Univariate Associations with Disturbed Eating Attitudes and Behaviors

			Eating attitude test-26		
		n (%)	Disturbed eating, %	RR (95% CI)	*p* value
Passive coping strategies	Low	1,165 (52.3)	3.4	1.00	< 0.001
	High	1,061 (47.7)	10.7	3.39 (2.33 - 4.93)	
Fear of being overweight	Low	1,233 (55.4)	4.0	1.00	< 0.001
	High	993 (44.6)	9.4	2.46 (1.70 - 3.56)	
Total difficulties: SDQ-S	Normal	1,981 (89.0)	5.9	1.00	< 0.001
	Abnormal	245 (11.0)	15.5	2.95 (1.99 - 4.37)	
Anxiety	Low	932 (52.0)	4.1	1.00	< 0.001
	High	862 (48.0)	9.4	2.44 (1.64 - 3.63)	
Depression	Low	1,702 (76.5)	5.8	1.00	< 0.001
	High	524 (23.5)	10.7	1.95 (1.38 - 2.75)	
Self-esteem	High	998 (44.8)	5.3	1.00	0.002
	Low	1,228 (55.2)	8.5	1.65 (1.17 - 2.33)	
Grade	Fourth	1,302 (58.5)	9.1	1.00	< 0.001
	Seventh	924 (41.5)	3.9	0.40 (0.28 - 0.59)	
Actual BMI	Normal weight	1,617 (72.1)	6.3	1.00	< 0.001
	Underweight	288 (13.2)	4.9	0.77 (0.43 - 1.36)	
	Overweight	206 (9.4)	12.5	2.12 (1.33 - 3.39)	
	Obese	115 (5.3)	13.3	2.28 (1.27 - 4.09)	
Desired BMI	Normal weight	1,457 (80.5)	3.4	1.00	0.002
	Underweight	349 (19.5)	7.6	2.30 (1.25 - 4.23)	
Socioeconomic status	Middle	1,733 (78.0)	5.9	1.00	0.001
	High	215 (9.7)	13.5	2.47 (1.59 - 3.83)	
	Low	273 (12.3)	8.1	1.39 (0.86 - 2.24)	

RR, relative risk; CI, confidence Interval; BMI, body mass index (kg/m^2); SDQ-S, the self-reported Strength and Difficulties Questionnaire.

boys (47.5%) and 1,142 girls (52.5%); 1,302 were fourth graders (58.5%) and 924 were seventh graders (41.5%). The mean (SD) height of fourth graders was 136.93 (6.73) cm, their mean weight was 33.37 (6.86) kg, and their mean BMI was 17.75 (2.89). The mean (SD) height of seventh graders was 155.63 (6.94) cm, their mean weight was 46.89 (8.90) kg, and their mean BMI was 19.26 (2.90). The mean (SD) age of fourth graders was 10.53 (2.80) years old, and seventh graders was 13.46 (3.41) years old. The mean (SD) age of all children was 11.26 (2.53) years old.

Prevalence of disturbed eating attitudes and behaviors

Table 1 displays the prevalence of children endorsing disturbed eating attitudes and behaviors. Total scores suggestive of an eating disorder (EAT-26 ≥ 20) were found in 155 individuals (7.0%); this included 72 girls (6.4%) and 83 boys (7.6%). There was no significant gender difference, but there was a grade difference; there was a significantly lower prevalence in seventh graders (3.9%) than in fourth graders (9.1%). The mean EAT-26 scores by school grades were as follows: 7.85 for fourth and 5.56 for seventh.

Univariate associations with disturbed eating attitudes and behaviours

The fourth through sixth columns of Table 2 summarize how disturbed eating attitudes and behaviors were associated with features of the children. There were significant associations between EAT-26 scores and passive coping strategies, fear of being overweight, total difficulties of SDQ-S, greater anxiety, greater depression, lower self-esteem, being in the fourth grade, current overweight and obese BMI, desired underweight BMI, and high and low SES.

Multivariate associations with disturbed eating attitudes and behaviors

Table 3 displays multivariate associations between independent factors and disturbed eating attitudes and behaviors. In the whole group, we found significant associations between EAT-26 scores and passive coping strategies, fear of being overweight, total difficulties of SDQ-S, the fourth grade, and high SES. Stratified analysis by gender showed significant associations with passive coping strategies, desired underweight BMI, and low SES in boys; and with passive coping strategies, fear of being overweight, total difficulties of SDQ-S, the fourth grade, and high and low SES in girls.

DISCUSSION

This appears to be the first study to examine associations among disturbed eating attitudes and behaviors, behavior

Table 3. Logistic Regression Analysis of Factors Associated with Disturbed Eating Attitudes and Behaviors

	Relative risk (95% CI)		
	Total	Boys	Girls
Passive coping strategies	4.08 (2.27 - 7.33)†	3.37 (1.52 - 7.48)†	4.58 (1.86 - 11.27)†
Fear of being overweight	2.29 (1.29 - 4.09)†	1.84 (0.87 - 3.89)	5.06 (1.71 - 14.98)†
Total difficulties: SDQ-S	2.48 (1.37 - 4.51)†	1.97 (0.86 - 4.51)	3.19 (1.24 - 8.18)*
Anxiety	0.79 (0.44 - 1.43)	1.16 (0.52 - 2.61)	0.53 (0.21 - 1.33)
Depression	1.08 (0.59 - 1.88)	1.04 (0.52 - 2.61)	1.41 (0.59 - 3.36)
Low self-esteem	0.92 (0.52 - 1.63)	1.46 (0.68 - 3.12)	0.55 (0.22 - 1.38)
Grade (fourth: seventh)	0.31 (0.17 - 0.56)†	0.68 (0.29 - 1.61)	0.17 (0.07 - 0.41)†
Actual BMI			
Normal weight	1.00	1.00	1.00
Underweight	0.99 (0.42 - 2.35)	0.71 (0.19 - 2.61)	1.65 (0.49 - 5.52)
Overweight	1.61 (0.84 - 3.10)	2.32 (0.93 - 5.81)	1.08 (0.38 - 3.07)
Obese	1.14 (0.41 - 3.18)	0.83 (0.21 - 3.35)	3.51 (0.33 - 7.83)
Desired BMI			
Normal weight	1.00	1.00	1.00
Underweight	1.59 (0.74 - 3.41)	2.73 (1.09 - 6.81)*	3.51 (0.42 - 9.64)
Socioeconomic status			
Middle	1.00	1.00	1.00
High	2.27 (1.19 - 4.33)*	1.86 (0.72 - 4.83)	2.83 (1.12 - 7.11)*
Low	0.91 (0.44 - 1.87)	0.11 (0.01 - 0.81)*	2.61 (1.08 - 6.32)*

BMI, Body Mass Index (kg/m^2); SDQ-S, the self-reported Strength and Difficulties Questionnaire; CI, confidence interval.
*$p<0.05$.
†$p<0.01$.

problems, coping strategies, fear of being overweight, anxiety, depression, self-esteem, actual BMI, desired BMI, and SES in non-Western boys and girls.

In this study, an average of 7.0% of children had disturbed eating attitudes and behaviors (measured by EAT-26). In a previous Korean study, 8.5% of the general Korean population and 10.3% of Korean high school girls scored above the EAT-26 cut-off.[9,38] In a Canadian study, 13% of those aged 12-14 years had scores above the recommended cut-off (≥ 20) for disordered eating on the EAT-26.[39] About 10-15% of young women are generally found to be such high scorers.[15] In an American study, a prevalence rate of 6.9% was obtained among grades 3-6 using the children's version of the eating attitude test (ChEAT).[40] The ethnicity/race of these children was mainly white. The prevalence rate of the present study cannot be directly compared to other studies using ChEAT.

There was a notable association between passive coping strategies and disturbed eating attitudes and behaviors; this was significant regardless of gender. In a previous study, female university undergraduates with subclinical eating disorders reported more emotion-oriented coping and distraction strategies.[41] Difficulties in emotion control explaining the occurrence of binge eating better than eating restriction or weight and boy image overestimation were found.[42] Some researchers studied that differences in the use of coping strategies did not predict severity of eating pathology[43] and role played by coping strategies in eating behavior was not clear.[44] For this reason, knowledge about coping strategies in each patient with eating problems is important. Learning of new and more adaptive forms of coping with problems and emotions could be essential in some treatment forms for the disturbed eating attitudes regardless of age and gender.

The associations between fear of being overweight and disturbed eating attitudes and behaviors are consistent with previous research. Thelen, et al.[27] found that among fourth and sixth graders, girls indicated more concern than boys about being or becoming overweight. Concern with weight, dieting, and body image was associated with problematic eating behaviors. Total difficulties of SDQ-S are also significantly associated with disturbed eating attitudes and behaviors. This study found that children who are involved in disturbed eating attitudes and behaviors are more likely to report greater behavioral problems than others, especially in girls. As far as we know, there have been a few previous studies about behavioral problems in children who have disturbed eating attitudes and behaviors. In a longitudinal investigation of externalizing behavior and disordered eating attitudes at 11, 15, and 17 years of age, externalizing behavior predicted increases in weight preoccupation, body dissatisfaction, and the use of inappropriate weight control behaviors.[45] Also, the earlier use of inappropriate compensatory weight control behaviors predicted increase in externalizing behavioral problems.[45] Presenting girls who have a fear of being overweight and behavioral problems with non-judgmental questions regarding eating attitudes and behaviors can aid detection of eating disorders in a primary care setting.

In this study, there were no gender differences in the prevalence of disturbed eating attitudes and behavior, but there were grade differences, especially for girls. Maloney, et al.[39] also found that there were significantly higher ChEAT scores in the young children. Some evidence suggests that with increased age, children become increasingly concerned with being overweight.[46] Girls may have been more concerned about weight, but reported it less than boys. This may be because of the adaptive coping function of 'denial' of certain disturbed eating attitudes and behaviors, the awareness of which may generate problems for individuals in higher grades. However, the number of boys with disturbed eating attitudes and behaviors (7.6%) was striking. It appears that eating disorders are increasing in Western men;[47] researchers found that non-White boys were more or equally likely as White boys to report that they had been told they had an eating disorder by a health professional.[18] This recent finding suggests that programs are also needed in Asian countries to prevent and treat eating disorders in boys. There is another possible explanation that boys interpret the questions of EAT-26 differently than girls. For example, item 13 "Others think I am too thin" may be differently interpret by boys compared to girls. There does seem to be a need for further studies into cultural or gender differences with respect to how boys respond to EAT-26 and ChEAT.

In this study, actual overweight and obese BMI and desired underweight BMI were associated with EAT-26 scores in univariate analysis. In multivariate analysis, desired underweight BMI was only associated with disturbed eating attitudes in boys. These findings suggest that actual overweight and obese BMI and desired underweight BMI were significantly associated with current disturbed eating attitudes and behaviors while desired underweight BMI was most strongly associated with disturbed eating attitudes and behaviors among these BMI variables in boys. BMI was independently associated with disturbed eating attitudes and behaviors, as has previously been found in Western studies.[48] The disparity between 'desired' body shape and 'actual' body shape may be more responsible for the increased prevalence in disturbed eating attitudes and behaviors than is a actual BMI, especially in Korean boys.

A high SES appears to be associated with disturbed eating attitudes and behaviors. Gender made a difference: a low SES was associated with disturbed eating attitudes in boys, and a high or low SES was associated with disturbed eating

attitudes in girls. Although some studies have failed to show a significant association between SES and disturbed eating attitudes or behaviors,[40] some studies have shown an association between upper class females and an increasing prevalence of eating disorders.[49] Some authors suggest that social class bias has a sociocultural influence on anorexia nervosa.[50] There does seem to be a need for further investigation into cultural differences with respect to how SES is associated with disturbed attitudes about eating.

In this study, univariate analysis showed that psychological factors such as depression, anxiety, and low self-esteem were associated with disturbed eating attitudes and behaviors. In previous adolescent and adult studies, males and females with abnormal eating attitudes and behaviors had lower self-esteem, higher trait anxiety, and higher social physique anxiety than did those with normal eating behavior.[8,11-13] In this study, these associations disappeared after multivariate analysis. Depression, anxiety, and low self-esteem may be not significant risk factors among other variables for disturbed eating attitudes and behaviors in this sample. However, further research is needed to further evaluate children's psychological risk factors for developing disturbed eating attitudes and behaviors.

Limitations of this study include problems inherent in any cross-sectional survey. The fact that 97.5% of the eligible students participated in the study provides some assurance that the subjects are representative of the student body. It is not feasible to assess the progression of symptoms over time, and the absence of structured diagnostic interviews precludes the diagnosis of eating disorders. Self-report measures may lead to underreporting or underestimation of symptoms of eating disorders. One difficulty encountered when studying these young children is that fourth grade students may not have understood all of the modified versions of the EAT-26 for Korean children and other questionnaires. Fourth grade children had significantly higher scores on the EAT-26 than did seventh grade students; they may have been confused by the questions, thereby decreasing the accuracy of their responses. Although the modified version of EAT-26 for Korean adolescents has been used in several previous studies with Korean children, formal validation of this has not been well established. We want to be sure that our modified version of the EAT-26 is a competent self-evaluation method of various eating attitudes, dieting behaviors, and the body images among young elementary school children. So we compare the modified version of the EAT-26 and the similar items of BIEQ-C which is translated among Korean elementary school students. This creates a problem in comparing the results of this study using EAT-26 to other studies using ChEAT in children and the confounding effects of EAT-26 and selected items of BIEQ-C. For desired BMI, we used the self-reported desired weight and height, but it was difficult for children to correctly determine weight and height. For future Korean studies, better measures of desired BMI should be developed such as the use of silhouettes. Because of the age of the children involved in the study, we can only draw conclusions about fourth- and seventh grade schoolchildren. The children in this study are not representative of the wider population of schoolchildren in South Korea. And further national representative sample research is needed to verify whether our findings are specific to South Korea or non-Western cultural context or not.

In conclusion, disturbed eating attitudes and behaviors were related to various psychological and sociocultural factors in South Korea. Results underline the importance that programs are also needed in non-Western countries to prevent and treat eating disorders in younger children. An understanding of gender and cultural differences would also help in developing more sophisticated intervention programs.

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