

서울 일부지역 청소년들의 성별에 따른 체형인식 및 식이장애 실태 비교

A Study on Body Image Perception and Eating Disorders by Gender in Junior high school students in Seoul

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<Abstract>

This study was performed to investigate body image perception and eating disorders by sex in Korean adolescents. In both females and males, the students were more likely to be underweight than overweight. Females were more underweight than males and were more likely to perceive themselves as overweight. In addition, females were less satisfied with their body shape and had more stress associated with their body weight and eating disorders. These results indicate that nutrition education programs, particularly in female students, should incorporate strategies to change inaccurate self-body image perception and disseminate knowledge about proper weight control methods

본 연구는 서울시내 소재 중학교에 재학 중인 청소년들을 대상으로 체형인식 및 식이장애 실태를 조사한 후 성별에 따라 비교 분석하였다. 본 조사대상자 남녀학생 모두 과체중보다는 저체중군에 속한 학생이 매우 많았다. 특히 여학생의 경우 남학생에 비해 저체중율이 매우 높았으며, 자신의 체형을 실제체형보다 살찐 것으로 인식하고 있었다. 또한 남학생에 비해 자신의 체형에 대한 만족도는 낮은 반면 비만으로 인한 스트레스 및 섭식장

에 정도는 더욱 높은 것으로 나타났다. 따라서 청소년들 특히, 여학생들에게 올바른 신체상을 정립시킬 수 있는 영양교육이 적극적으로 이루어져 체형만족도를 높이고 비만으로 인한 스트레스 해소시켜주는 것이 이 시기 청소년들의 바람직한 식습관 형성에 매우 큰 도움이 될 것으로 여겨진다.

주제어(Key Words): 신체상(body image), 식이장애(eating disorder), 비만(obesity)

I . Introduction

The increase of the obese population in Korea has raised interest in and need for proper weight control strategies. However, the ideal of an abnormally slim body image has become a prevailing social and cultural norm among young women in Korea, resulting in unnecessary weight control methods. This desire for thinness and dissatisfaction with body size can also lead to unhealthy weight control regimens.

Adolescence is an important period to establish ideal body image perception, especially if they are concerned about their body shape and body weight (Lee et al. 2001). However, recent studies (Kim 1998, Ro 2000) have shown that the prevailing idealized body image in adolescents was a "skinny" or underweight image. In addition, although the person may be either underweight or normal weight, they still perceived themselves to be overweight.

Erroneous perception of body image in adolescence could lead to eating disorders due to dissatisfaction with body shape. Hwang et al(2000) have shown that 38.2% of female high school students tried to lose weight. In addition, Park (2001) has reported that 47% of normal and underweight female students were on the diet to lose weight. Several studies have shown that unneeded weight control in adolescence could not only delay normal body growth and development but could also cause anemia or osteoporosis due to nutrient deficiency (Hill & Bhatti 1995, Thompson et al 1995, Kim and Kong 2004, Lee and Oh 2005). Therefore, perception of body image in adolescence may influence weight control behaviour and eating habits.

However, there was a significant difference between male and female students on perception of weight and body shape. Wadden et al(1991) have shown that female students were more interested in weight and body shape

than male students. Other studies also have shown that perception of ideal body shape, or the difference between their ideal body size and shape and their real body size and shape, is affected by social and cultural norms, race, age and sex (Furnham & Alibhai 1998, Kemper et al 1994, Rozin & Fallon 1998). However, most of studies were performed in Western countries and not in Korea and studies were also focused on female not male students.

Therefore, in this study, we investigated how junior high students perceived their body shape and eating disorder, and analyzed these data by gender. This will provide basic data to educate students about healthy dietary patterns and help to establish relevant body image.

II . Methods

1. Subjects and data collection

This study was conducted from August 12~16, 2005 in middle school students (259 boys and 317 girls, average age 13.6 years) in Seoul, Korea. The objective of the study was verbally explained by the investigator and then, the prepared questionnaires were distributed. The questionnaires used in this study were reformatted based on our previous survey questionnaires and other references(Kim 2005, Ahn 2003, Jung 2003, Cho et al 1997, Choi 2005, Han 2003). Of the 720 surveys administered, 702 were collected and uncompleted surveys were excluded, so 576 samples were analyzed in this study.

2. Questionnaires

1) General characteristics and obesity degree

The questionnaires included questions about general characteristics such as age, sex, height, and weight. Weight distribution was divided into 3 groups by body

mass index (BMI)(IOTF, 2000): under weight (BMI < 18.5), normal weight (18.5 ≤ BMI < 23), and overweight (23 ≤ BMI).

2) Perception of body image

(1) Body satisfaction

Perception of body image was tested by using the questionnaires developed by Cho (1992) and Jung (2003). The questionnaires included 12 questions and each question was scored by 4 likert scales(4 'strongly agree', 3 'agree', 2 'disagree', 1 'strongly disagree') so total score was 48 points. Higher scores represented higher satisfaction with their body image.

(2) Obesity perception stress

Obesity perception stress was tested using the Body Attitude Questionnaire (BAQ) developed by Bem-Tovim and Walker (1991) and reformatted by Cho et al (1997). This questionnaire included 11 questions which were scored by 5 Likert scales. Higher scores represented higher stress levels regarding obesity.

3) Evaluation of eating disorder

The Eating Attitudes Test-26 (EAT-26)(Garner 1993) was used to test for eating disorders. This questionnaire included 26 questions 13 diet-related questions, 6 bulimia and weight preoccupation related questions, and 7 oral control related questions(Table 1). Score was calculated as follows 3 points allotted to 'always', 2 points to 'usually', 1 points to 'sometimes', and 0 points to 'rarely' ~ 'never'. The cutoff point for the diagnosis of an eating disorder was total score of greater than or equal to 20.

3. Statistical analysis

The data were analyzed by the Statistical Package for the Social Science (SPSS) program (version 12.0). Frequency and percentage of distribution of body weight, perception of body image and weight control, and BMI were calculated and significance was tested by Chi-square test. Average and standard deviation of height, weight, BMI, ideal height, ideal weight, stress regarding obesity, eating behavior, perception of body image, and eating disorders were calculated and significance assessed by T-test.

(Table 1) Items of the EAT-26 (Eating Attitude Test-26)

Dieting scale items
1. Am terrified about being overweight
2. Aware of the calorie content of foods I eat
3. Particularly avoid food with a high carbohydrate content (bread, rice, potatoes, etc.)
4. Feel extremely guilty after eating
5. Am preoccupied with a desire to be thinner
6. Think about burning up calories when I exercise
7. Am preoccupied with the thought of having fat on my body
8. Avoid foods with sugar in them
9. Eat diet foods
10. Feel uncomfortable after eating sweets
11. Engage in dieting behavior
12. Like my stomach to be empty
13. Have the impulse to vomit after meals
Bulimia & food preoccupation scale items
1. Find myself preoccupied with food
2. Have gone on eating binges where I feel I may not be able to stop
3. Vomit after I have eaten
4. Feel that food controls my life
5. Give too much time and thought to food
6. Enjoy trying new rich foods
Oral control items
1. Avoid eating when I am hungry
2. Cut my food into small pieces
3. Feel that others would prefer if I ate more
4. Other people think I'm too thin
5. Take longer than others to eat my meals
6. Display self-control around food
7. Feel that others pressure me to eat

III . Results and Discussion

1. General characteristics and obesity degree of subjects

General characteristics of subjects are outlined in Table 2. 259 male and 317 female students participated in this study and the average age was 13.6 (13.7 years for male and 13.6 years for female).

The average height and weight were 164.4 cm, 53.9 kg and 159.0 cm, 49.0 kg in male and female students, respectively. Our participants were taller when compared to the groups in the Recommendation of Nutrients for Korean (2001) but had similar body weights. Average BMI was 19.6 (19.8 and 19.3 in male and female students), which was in the normal range. These results showed that BMI was less in males but similar in females compared to other studies (Hur 2004,

〈Table 2〉 The physical characteristics and obesity degree of the subjects

	Male (n=259)	Female (n=317)	Total (n=576)
Height (cm) ¹⁾	164.4 ± 8.9	159.0 ± 5.9	161.4 ± 7.9
Weight (kg) ¹⁾	53.9 ± 10.8	49.0 ± 7.8	51.2 ± 9.6
BMI (kg/m ²) ¹⁾	19.8 ± 3.0	19.3 ± 2.6	19.6 ± 2.8
Obesity degree ^{2,3)}	Underweight	145 (56.0)	19 (7.3)
	Normal	121 (38.2)	8 (2.5)
	Over weight	216 (37.5)	333 (57.8)
			27 (4.7)

1) Mean ± SD 2) N (%)
 3) Underweight: BMI<18.5, Normal : 18.5≤BMI<23, Overweight :23≤BMI

and Kim 2004). Regarding distribution of BMI, 56.0% and 36.7% of male students were in the normal and underweight groups and 7.3% were overweight. For female students, 59.3% and 38.2% were normal and underweight and only 2.5% were overweight. Our results showed the same trend as the Hur (2004) and Ha (2002) studies which reported that more male and female students had underweight. In addition, Kim et al (2004) reported that 37.7% of female middle and high school students were underweight. These results showed that not only obesity but also being underweight is serious problems in teenage groups.

2. Perception of body image

1) Self-perceived weight status

Table 3 showed the results of questions regarding self-perceived weight status. In male students, 33.7% answered that they were underweight, 34.9% normal, and 32.2% fat. In female students, 43.3% answered that they were fat, 36.9% normal and 19.8% underweight. These results showed that there was a significant difference of perception in their body image between male and female students ($p < 0.001$). The Hur (2004) and Kim (2002) studies also showed that more female high school students perceived that they were fat or obese than male students.

In male students, 44.8% of the normal weight group perceived that they had normal weight but over half of normal weight group had misperceptions and 41.8% of them thought they were overweight. In the underweight

〈Table 3〉 Self-perceived weight status

Actual obesity degree Self-perceived weight status	Male			Female			χ ²
	Underweight (n=95)	Normal (n=145)	Overweight (n=18)	Underweight (n=121)	Normal (n=185)	Overweight (n=8)	
Underweight	69(72.6)	18(12.4)	0(0.0)	57(47.1)	5(2.7)	0(0.0)	62(19.8)
Normal	23(24.2)	65(44.8)	0(0.0)	54(44.6)	62(33.5)	0(0.0)	116(36.9)
Overweight	3(3.2)	62(42.8)	18(100)	10(8.3)	118(63.8)	8(100)	136(43.3)
							15.531***

***p<0.001

〈Table 4〉 Ideal body image

Actual obesity degree Ideal body image	Male			Female			χ ²
	Underweight (n=93)	Normal (n=143)	Overweight (n=18)	Underweight (n=120)	Normal (n=185)	Overweight (n=8)	
Skinny shape	17(18.3)	20(14.0)	1(5.6)	49(40.8)	72(38.9)	3(37.5)	124(39.6)
Normal body shape	71(76.3)	112(78.3)	16(88.8)	69(57.5)	103(55.7)	5(62.5)	177(56.6)
Overweight body shape	5(5.4)	11(7.7)	1(5.6)	2(1.7)	10(5.4)	0(0.0)	12(3.8)
							42.120***

***p<0.001

group, 72.6% of them thought that they were underweight but 24.2% and 3.2% of them thought that they were normal and overweight, respectively. There results indicated that even though female students were more likely to misperceive their actual body weight, male students also had problems with perceptions about their body weight. Therefore, it should be considered helpful to have proper education for both female and male students about self-perception on their body weight.

In female students, 33.5% of the normal group thought that they had normal weight but 63.8% of them thought they were overweight. In addition, only 46.9% of the underweight group perceived that they were underweight and 47.1% and 8.3% of them thought they were normal and overweight, respectively. These results indicated that most of female students misperceived themselves as overweight and misjudged their weight ($p < 0.001$). Other studies showed that in students, over 80% of the normal and underweight groups perceived that they were overweight (Kim et al 2004) and 38.7% and 50.3% of underweight and normal weight groups answered that they perceived themselves as overweight (Namgung 2003). In addition, Ahn et al (2004) reported that underweight and normal weight groups considered themselves as overweight. These results suggest that we should give more serious consideration to the problem of

misperception of body weight in adolescence, particularly in female students because misperception of body weight may increase stress regarding body weight which may lead to eating disorders or severe weight control strategies.

2) Ideal body image

We investigated how participants thought about their ideal body image and 77.3% of male students answered a normal body shape was their ideal body shape. 15.0% and 6.74% of female students answered that skinny and overweight body shape were their ideal body shape (Table 4). However, only 57.1% of female students thought the normal body shape was their ideal body shape. These results showed that male students were more likely to think that a normal body shape was their ideal body shape than female students. In addition, female students were more likely to consider being underweight as their ideal body shape ($p < 0.001$). Our results showed same trend as Hur's study (2004) which showed that female students would like to have a more thin body shape than male students. In addition, other studies has shown that more than half of female students answered that the most ideal body shape was slim or skinny (Kim 2004, Seo 2001, and Yoo et al 2004).

These results indicated that about half of students had a misleading perception of the ideal body image as

<Table 5> Body satisfaction

Items	Male (n=259)	Female (n=317)	Total (n=576)	t-value
I think I have a slim body.	2.60±0.97 ¹⁾	2.06±0.89	2.30±0.97	6.81***
I am satisfied with my body weight.	2.54±0.95	2.02±0.90	2.26±0.96	6.73***
I think I am beautiful.	2.32±0.87	2.03±0.85	2.16±0.87	4.83***
My height is the right height.	2.54±0.97	2.32±1.02	2.42±1.00	3.94***
I have an attractive appearance.	2.25±0.86	2.11±0.84	2.17±0.85	2.62**
I have white and straight teeth.	2.64±0.98	2.60±1.03	2.61±1.00	1.91
I have a nice profile.	2.23±0.90	2.06±0.85	2.14±0.88	2.68**
If it is possible, I would like to have plastic surgery.	2.31±0.95	1.96±0.90	2.10±0.94	0.45
I have acne and freckles.	2.74±0.96	2.53±0.95	2.62±0.96	2.29*
I have dark skin.	2.86±0.94	2.88±0.91	2.87±0.92	-0.34
I feel ashamed to meet the other sex because of my appearance.	2.84±0.89	2.74±0.87	2.79±0.88	1.32
Most people have a better appearance than me.	2.25±0.83	2.12±0.85	2.18±0.85	1.87
Total (48 points)	30.12±5.12	27.42±5.60	28.63±5.56	6.01***

1) Mean±S.D. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Item 8, 9, 10, 11, and 12 are scored reverse.

All items are measured 4 'strongly agree', 3 'agree', 2 'disagree', 1 'strongly disagree'.

skinny or underweight. Therefore, it is necessary to develop proper educational programs to create a more accurate perception of normal body image as the ideal.

3) Body satisfaction

Body satisfaction results are in Table 5. Average score for body satisfaction test questions was 30.1 and 27.4 in male and female students with female students having a significantly lower body satisfaction score than male students ($p < 0.001$). Other studies also showed that female students had less satisfaction with their body shape than male students (Kim 2002, Seo 2001) and answered that they were not satisfied with their current body shape (Kim 2004, Kim 2005). These results indicated that female students perceived that underweight was their ideal body shape and these misperceptions cause dissatisfaction. In addition, other studies reported that dissatisfaction with their body shape lowered their self-esteem (Cho 1992, Noh 2005). These results indicated that dissatisfaction with body shape could cause not only physical but also psychological

problems so there should be more focus in raising the students' level of satisfaction about body shape.

4) Stress on obesity

Table 6 showed the results to the survey regarding stress about the obesity. Male and female students scored 21.8 and 27.2 out of 55, indicating female students felt more stress on the obesity than male students ($p < 0.001$). Kim et al (2002) also showed similar results in his study. In addition, Back (2003) reported that 49% of junior high school students answered that they felt they would be teased or excluded because if they were obese. These results showed that adolescents in Korea are under stress about obesity. Other studies have shown that stress about weight in adolescence could affect dietary habits, exercise, and life style (Lim, 2002) and it may cause unhealthy dietary habits (Park, 1997). Therefore, we should be more concerned about stress with body weight and to try to establish healthy dietary habit and body perception in adolescence.

<Table 6> Stress on obesity

Items	Male (n=259)	Female (n=317)	Total (n=576)	t-value
I am so angry with myself that I need to diet.	2.15±1.22 ¹⁾	2.86±1.35	2.54±1.34	-6.60***
I don't want to show my body to other people.	2.19±1.37	2.83±1.37	2.54±1.36	-5.70***
I feel depressed by how I look.	2.02±1.09	2.51±1.24	2.29±1.20	-5.08***
I feel sad when I compare my body shape to a slim body shape.	1.97±1.13	2.88±1.40	2.48±1.36	-8.55***
I can be successful because of my appearance.	1.89±1.02	2.19±1.18	2.06±1.12	-3.26**
I can't focus on anything else when I think about my body shape and weight.	1.90±1.05	2.27±1.19	2.10±1.14	-3.96***
I don't feel good when I see myself.	1.98±1.07	2.58±1.26	2.31±1.21	-6.12***
I spend lots of time thinking about my weight.	1.80±1.02	2.15±1.12	2.00±1.10	-3.89***
I don't feel self-confident because of my body shape and weight.	1.97±1.06	2.37±1.28	2.20±1.20	-4.10***
I am worried about fat on my thighs and hips.	1.83±1.06	2.57±1.37	2.24±1.29	-7.25***
I feel that other people talk about my weight and body shape.	2.05±1.10	2.49±1.22	2.29±1.20	-4.48***
Total (55 points)	21.75±10.05	27.70±11.37	25.05±11.14	-6.64***

1) Mean±S.D. ** $p < 0.01$ *** $p < 0.001$

All items are measured 5 'strongly agree', 4 'agree', 3 'so-so', 2 'disagree', 1 'strongly disagree'.

<Table 7> Eating disorder score (Eating Attitude Test-26) of the subjects

Items	Male (n=259)	Female (n=317)	Total (n=576)	t-value
Dieting (39 points)	4.72±4.68 ¹⁾	7.11±6.20	6.04±5.69	-5.13***
Bulimia & preoccupation (18 points)	0.68±1.81	1.02±2.20	0.87±2.04	-2.00*
Oral control (21 points)	2.49±2.90	2.33±2.72	2.40±2.80	0.69
Total (78 points)	7.90±6.80	10.46±8.44	9.31±7.84	-4.04***

1) Mean ± S.D. * $p < 0.05$ *** $p < 0.001$

3. Eating disorder

EAT-26(Eating Attitude Test-26)(Garner, 1993) was used to test eating disorders. Male and female students had scores of 7.9 and 10.5 indicating that female students had a significantly higher probability to have eating disorders than male students ($p < 0.001$) (Table 7). In the dieting questionnaire, average scores were 4.7 and 7.1 in male and female students, with the scores for the females being significantly higher than for males ($p < 0.001$). In addition, in the bulimia and preoccupation with food questionnaire, male and female students had scores of 0.68 and 1.02 points with female students scoring significantly higher than males ($p < 0.01$). However, there was no difference between sexes in the oral control questionnaire. In addition, 5.8% and 11.7% of male and female students tallied more than 20 points in EAT-26, which is considered to have an eating disorder and more female students had higher eating disorder scores than male students($p < 0.05$) (Table 8). Other studies also showed that female students had more eating disorders than male students which may be caused by low esteem from self-perceived body image and improper weight control methods(Lee et al 2001, Kim 2002).

<Table 8> Distribution of eating disorder of the subjects
N (%)

	Male (n=259)	Female (n=317)	Total (n=576)	χ^2
Normal	244 (94.2)	280 (88.3)	524 (91.0)	6.002*
Eating disorder ¹⁾	15 (5.8)	37 (11.7)	52 (9.0)	

* $p < 0.05$
1) EAT-26 score ≥ 20

IV. Summary and Conclusion

This study investigated the perception of body image and eating disorders among junior high students in Korea. These data will provide basic information to educate students to establish their healthy ideals regarding body image and shape.

Average BMI were 19.8 and 19.3 in male and female students which were within normal ranges. In male students, 56.0% were normal, 7.3% overweight and

36.7% underweight. In female students, 59.3% were normal, 2.5% overweight and 38.2% underweight. There results showed that underweight students were very high in both male and female students.

Both male and female students perceived that they were overweight, especially female students who were more likely to be concerned about their body weight than male students. In addition, male students were more satisfied with their body shape and felt less stress about their body weight than female students. Female students also had higher scores on the eating disorder test than male students.

These results showed that in both female and male students, more were underweight than overweight and had misperceptions about their body shape. Female students were more likely to worry about their body shape, felt more stress about their body weight and had higher scores on the eating disorder test. These results indicated that misperception about body image increased the stress about their body weight and caused unnecessary weight control. Therefore, we should pay more attention to the perception of body image and intervene to modify negative body images, particularly in female students, and help create a more accurate perception of normal body image or weight control.

■ References

Ahn HS, Bai HS. (2004) A Survey of the Weight Control and Intake Pattern of the Girl's High School Student Residing in Busan. *J Korean society for the Study of Obesity*, 13(2), 150-162.

Ahn HY. (2003). The relationship between intentions of weight control behavior and health locus of control among women. Master Thesis Graduate School of Public Health. Seoul National University.

Back NS. (2003). The study on male and female middle school student's consciousness about obesity and actual state of weight control. Thesis Yongin University, 21, 185-193.

Ben-Tovim DI, Walker MK. (1994). The influence of age and weight on women's body attitudes

- as measured by the Body Attitudes Questionnaire (BAQ). *J Psychosom Res*, 38(5), 447-481
- Cho JS. (1992). The relationships between adolescents' body-image · physical attractiveness · body-image distortion and self-esteem. Master Thesis Pusan National University.
- Cho SJ, Kim CK. (1997). The Effect of Female Students' Obese Level and Weight Control Behavior and Attitudes on Stress. *Journal of Korean Society for Health Education*, 14(2), 1-16.
- Choi DS. (2005). Fast food consumption & psychological characteristics among middle school students. Master Thesis Chungbuk University
- Furnbam, A., & Alibhai N Cross-cultural differences in the perceptions of female body shapes *Psychological Med* 13 ; 829-833, 1983
- Garner DM. (1993). Self-report measures for eating disorders current contents. *Social & behavioral Science*, 25(8), 1-8.
- Ha BJ. (2002). Effects of nutritional knowledge, dietary attitude and dietary self-efficacy on the nutritional status of middle school students in Kyoungsangnam-do. Master Thesis Kosin University
- Han IK. (2004). Analysis on the behavioral patterns related to dietary practice and weight control in different age groups of urban women. Master Thesis Chungang University
- Hill AJ, Bhatti R (1995). Body shape perception and dieting in preadolescent British Asian girls: Links with eating disorders. *International Journal of Eating Disorders*, 17, 175-183.
- Hur HK, Park SM, Kim GY, Song HY, Jeon EP. (2004). A comparative study on gender differences in BMI, body weight perception, body weight satisfaction and eating behavior in middle school students. *Journal of Korean Society for Health Education and Promotion*, 21(3), 53-66
- Hwang, RH, Shin HS. (2000). The study of eating disorder, body image, and self-esteem in high school girls. *Korean Women's Health Nursing Academic Society*, 6(1), 12-141
- IOTF (2000). The asia-pacific perspective: redefining obesity and its treatment : World health organization western pacific region(WPRO)
- Jung YK. (2003). Predictive factors of body weight control behavior of female college students. Master Thesis Kosin University
- Kemper, K.A., Sargent, RG., & Drane J.W. Valois RF, Jussey JR. (1994). Black and white adolescents' perception of ideal body size and social norms. *Obesity Research*, 2(2), 117-120
- Kim ES. (2004). The Research about recognition of body shape, weight control and the factors related to the disordered eating behaviors in adolescent girls. Master Thesis Sungshin Women's University.
- Kim ES, Kim KH. (2002) Study on dance participants' level of obesity, dance participant, and obesity stress. *Journal of the Korean Society of Dance*, 32, 137-148
- Kim JH. (2002). Study on the Physique Status and Eating Disorder Behavior among High School Students in Daejeon. *Journal of Korean Home Economics Education Association*, 16(3), 115-129
- Kim JS. (2005). A Study on the Perception and Practical Use on A Lesson Dietary Behaviors of Technology Home Economics in Middle School Students. Master Thesis Chungang University.
- Kim SH. (1998). The perception of desirable body shape in some middle school students of Gyeongnam area. *J. Korean Soc. Food Sci. Nutr.* 27(5), 1007-1014
- Kim YS, Kong SS.(2004). A study on weight-control behaviors, eating disorder symptoms and depression among female adolescents. *J Korea Acad. Psych. Mental Health Nurs*, 13(3), 304-314
- Lee SS, Oh KJ. (2005). Understanding the relation of anorexic and bulimic behavior using structural equation modeling. *The Korean Journal of Clinical Psychology*, 24(4), 791-813.
- Lee SY, Kim SW, Kang JH. (2001). The prevalence of eating disorder risk group among high school students in Seoul -Relationship of eating disorder symptoms with anxiety and depression tendency-. *J Korean society for the Study of Obesity*, 10(4), 376-391

- Lim YO.(2002). The Effect of stress and social support on obesity of junior-high school students living in small city. Master Thesis Korea National University of Education.
- Namgung MJ. (2003). A Study on the Middle School Girls' Interest in Weight Loss and Eating Habits in Seoul. Master Thesis Dongguk University.
- Noh YK. (2005). The relationship between body shape satisfaction and eating disorder and self-esteem. Master Thesis Sookmyung Women's University.
- Park KH. (1997). The Study on diet habits and level of acknowledgement of obesity of girls' high school students. Master Thesis Kyungbook University.
- Park SH. (2001). A study on dieting behaviors and related factor among normal or low-weight middle school girls in Seoul. *J. Korean Soc School Health* 14(1), 115-130.
- Recommended dietary allowances for Korean, 7th revision (2000). The Korean Nutrition Society, Seoul.
- Ro HK. (2000). Comparisons of nutrient intakes, dietary behavior and perception about body image between adolescent boys and girls in rural area. *Korean J Community Nutrition*, 5(2S), 280-288
- Rozin, P & Fallon A, Body image, attitudes to weight and misperceptions of figure preferences of the opposite sex: A comparison of men and women in two generation. *J Abnorm Psychol* 97(3), 342-345, 1988
- Seo JE. (2001). Effects of obese index, body weight satisfaction, and eating disorder on body weight control and nutrient intake in male and female high school students. Master Thesis Wonkwang University.
- Thompson JK, Coovert MD, Richards KJ, Johnson S, Cattarin J (1995). Development of body image, eating disturbance, and general psychological functioning in female adolescents: Covariance structure modeling and longitudinal investigations. *International Journal of Eating Disorders*. 18, 221-236.
- Wadden TA, Brown J, Foster GD. (1991). salience of weight related worries in adolescent males and females. *Int J Eating Dis*, 10, 407.
- WHO. (1999). *Development of food-based diet guideline for the western pacific region*. World Health Organization, Geneva
- Yoo YS, Kim YN(2004). A study on eating disorders and it's related factors in high school girls. *Korean J Community Nutrition* 9(3), 274-284.

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