

Differences in Dietary Habits between Normal Weight and Obese Middle School Students

Mi-Jin Kim¹, Young-Hye Woo², Young-Soon Choi^{3*}

¹*Dept. of Nursing, Shinhan University, 95, Hoam-ro, Uijeongbu-si, Gyeonggi-do, 480-857, Republic of Korea.*

²*Sokcho City Health Center, Chungang-ro, Sokcho, Gangwon-do, 24826, Republic of Korea*

³*Dept. of Nursing, Kangwon National University. 346, Hwangjo-gil, Samcheok, 25949, Republic of Korea.*

*E-mail : *corresponding Author ysc615@kangwon.ac.kr*

Abstract

The purpose of this study was attempted to provide basic data on the development of youth health promotion and obesity prevention education programs. Data collection was conducted from September 17 to September 24, 2012, for 7 days. After describing the purpose and method of the study to the subjects, the written consent of the participants was obtained. The number of participants used in the final analysis was 260, and the online questionnaire was used as a tool for this study. The collected data were analyzed using the SPSS 18.0 Version program and used frequency, percentage, and χ^2 - test verification depending on eating habits of normal weight group and obesity group. The results of this study showed that the difference between the normal weight group and obesity group was statistically significant in lunch. The difference in awareness between normal weight group and obesity group showed a statistically significant difference in body shape and effort for weight control in recent years. Appropriate dietary and physical activity education will be needed for nutrition education programs and the characteristics of obesity group for proper diet of adolescents.

Keywords: *dietary habits, normal weight, obesity, middle school, students*

1. Introduction

Adolescence is a transition from childhood to adulthood in terms of physical, mental, socio-psychological, cognitive, and ethical aspects, and it affects lifestyles on an individual's lifetime [1]. Since adolescence is a health formation period that begins to attain health habits, and cognitive and psychological changes in this period provide the basis for lifelong health, health education can play a very important role in establishing health promotion and disease prevention strategies [2].

Adolescence is a period of rapid physiological, psychological, and social change in terms of physical and mental aspects, and is an important period of height or weight gain [3]. It is also the time when most nutrition is needed through life and the eating habits are fixed, but it is also an easy time to suffer an imbalance of nutrition [4].

¹ Article history:

Received (January 21, 2019), Review Result (February 21, 2019), Accepted (March 25, 2019)

In particular, health education for adolescence with a focus on schools can acquire desirable health behaviors and can effectively reduce the incidence of cancer, brain and cardiovascular diseases, and various mental illnesses [5]. Attitudes towards health in adolescence are spreading to the home and community, and at the national level, the right health behavior practice at this time can contribute to securing high quality human resources for the development of future society, so education and support for youth is very important [6].

Adolescence nutrition has a great impact on future physical development and health, so maintaining a balanced diet and proper eating habits are very important, but recent changes in living standards have led to increased consumption of processed foods and universalization of eating out, which has become a new factor that threatens the health of some adolescents [7].

The causes of obesity vary but can include inappropriate eating habits, lack of exercise, and mental problems[8]. Adolescent obesity is more severe than adult obesity, resistant to treatment, and proliferative obesity with an increased number of adipocytes, which is not well controlled by exercise or diet [9]. In the case of obesity in adolescents, dieting, exercise therapy, and behavioral modification should be performed together with the goal of maintaining weight, not weight loss, because growth and development can be problematic when aiming at excessive weight loss. In other words, although the height is big, the weight is maintained, if the lifestyle improvement is made continuously, it can escape from obesity when the growth is over [10]. Therefore, obesity in adolescence is not obesity due to excessive calorie intake, but various factors are involved in obesity.

Weight-related advertisements of various mass media and image of the slim body through entertainers can cause serious health problems due to irregular weight control and wrong eating habits of youths, and unreasonable weight control is emerging as a social problem [11].

Therefore, this study aims to provide basic data for health promotion of youth and development of education program for obesity prevention by identifying relevant factors such as eating habits, physical activity and obesity awareness affecting adolescent obesity

2. Research method

2.1. Research Design

This study is a descriptive study to compare dietary habits, physical activity and obesity perception among normal weight group and obesity group of middle school students.

2.2. Research subjects

This study, S male middle school in S city was sampled for convenience. Of the 12 classes agreed to participate in the study, 4 classes were selected for each grade, and the total number of participants was 260.

The number of subjects was calculated using G* power (3.1.5) sample size calculation program [12]. In the independent sample t-test, the significance level was 0.05, the power was 80%, the effect size was 0.50, which is the middle level of the independent sample t test and a total of 176 persons were measured by 88 persons in each group.

2.3. Data Collection Method

Data collection was conducted from September 17 to September 24, 2012, for 7 days. After describing the purpose and method of the study to the subjects, the written consent of the

participants was obtained. The anonymity of the research subjects and the fact that it is not used other than the research and it is harmless even if it gives up in the middle are fully explained.

2.4. Research Tool

Using the contents of the online survey questionnaire for the purpose of this study [13], the general characteristics were 4 items based on their health status, grade, height and weight, and the number of meals breakfast. Intense, moderate, strength training, walking (weekday, evening), the frequency of eating by food type (fruit, soda, fast food, ramen, vegetables, milk) Weekly), 6 items for physical education, 6 items for physical education, 10 items for weight control, 9 hours for weight control.

2.5. Data analysis method

The collected data were analyzed using the SPSS 18.0 Version program and used frequency, percentage, and χ^2 - test verification depending on eating habits, physical activity, and obesity of normal weight group and obesity group. The factors affecting obesity are analyzed by logistic regression.

3. Results and Discussion

3.1. General characteristics of normal weight and obesity groups

The general characteristics of normal weight and obesity group showed a statistically significant difference in weight ($\chi^2= 17.232$, $p =.001$). The weight of the obese group (72.07 ± 8.66) was the normal weight group (56.15 ± 6.15). The difference in weight was 13.4kg at the maximum of 18.4kg. In the grade ($\chi^2=5.045$, $p=.080$), and in the height ($\chi^2=1.840$, $p=.067$), and in the health condition ($\chi^2=1.828$, $p=.401$), there was no statistically significant difference (Table 1).

Table 1. Differences in general characteristics between normal weight and obesity groups (N=260)

characteristic	division (day)	normal weight (n=166)	Obesity (n=94)	χ^2	p
		n(%)	n(%)		
grade	1	50(30.1)	29(30.9)	5.045	.080
	2	63(38.0)	24(25.5)		
	3	53(31.9)	41(43.6)		
height		M±SD	M±SD		
		166.34±8.07	168.20±7.35	t=-1.840	.067
body weight		56.15±6.15	72.07±8.66	t=-17.232	.000***
	Self-awareness of health	Unhealthy	3(1.8)	7(7.4)	.067
usually		50(30.1)	23(24.5)		
Healthy		113(68.1)	64(68.1)		

*** $p < .001$

3.2. Differences in dietary habits between normal weight and obesity groups

The difference between normal weight and obesity was analyzed, and statistically significant differences were found in lunch ($\chi^2=6.976$, $p=.031$).

At lunch, the normal weight group had 146 people (88.5%) who regularly eat lunch, which was higher than 79 people (84.0%) in the obese group. Breakfast ($\chi^2=2.121$, $p=.348$), dinner ($\chi^2=1.235$, $p=.539$) and fruit intake ($\chi^2=6.300$, $p=.098$), soft drinks ($\chi^2=3.312$, $p=.346$), and fast food etc ($\chi^2=6.379$, $p=.095$), ramen etc. ($\chi^2=3.233$, $p=.357$), vegetable side dishes ($\chi^2=1.057$, $p=.787$), milk etc. ($\chi^2=1.964$, $p=.742$) were not significantly different in terms of how often they ate (Table 2).

Table 2. Differences in dietary habits between normal weight and obesity groups (N=260)

characteristic	division (day)	N(%)	normal weight	obesity	χ^2	p
			(n=166)	(n=94)		
			n(%)	n(%)		
Breakfast /week	no eating	25(9.6)	14(8.4)	11(11.7)	2.121	.348
	1 ~ 2	13(7.3)	10(6.0)	9(9.6)		
	3 ~ 5	59(22.7)	38(22.9)	21(22.3)		
	6 ~ 7	157(60.4)	104(62.7)	53(56.4)		
Lunch /week	1 ~ 2	2(0.6)	2(1.2)	0	6.976	.031*
	3 ~ 5	32(12.4)	17(10.3)	15(16.0)		
	6 ~ 7	225(86.9)	146(88.5)	79(84.0)		
Dinner /week	1 ~ 2	9(3.5)	5(3.0)	4(4.3)	1.235	.539
	3 ~ 5	35(13.6)	22(13.3)	13(14.0)		
	6 ~ 7	214(82.9)	138(83.6)	76(81.7)		
Fruit Intake /week	no eating	22(8.5)	12(7.2)	10(10.6)	6.300	.098
	1 ~ 2	76(29.2)	44(26.5)	32(34.0)		
	3 ~ 5	74(28.5)	46(27.7)	28(29.8)		
	6 ~ 7	88(33.8)	64(38.6)	24(25.5)		
carbonated beverages /week	no eating	45(17.3)	25(15.1)	20(21.3)	3.312	.346
	1 ~ 2	124(47.7)	79(47.6)	45(47.9)		
	3 ~ 5	59(22.7)	40(21.7)	19(20.2)		
	6 ~ 7	32(12.3)	22(13.2)	10(10.6)		
fast food /week	no eating	52(20.1)	28(16.9)	24(25.8)	6.379	.095
	1 ~ 2	160(61.8)	112(67.5)	48(51.6)		
	3 ~ 5	41(15.9)	21(12.6)	20(21.5)		
	6 ~ 7	6(2.4)	5(3.0)	1(1.1)		
ramen /week	no eating	35(13.5)	16(9.6)	19(20.4)	3.233	.357
	1 ~ 2	109(42.1)	74(44.6)	35(37.6)		
	3 ~ 5	101(39.0)	67(40.3)	34(36.6)		

	6 ~ 7	14(5.4)	9(5.4)	5(5.4)		
vegetables intake /week	no eating	51(19.6)	34(20.5)	17(18.1)	1.057	.787
	1 ~ 2	151(58.0)	96(57.8)	55(58.6)		
	3 ~ 5	29(11.2)	18(10.8)	11(11.7)		
	6 ~ 7	29(10.2)	18(10.8)	11(11.7)		
milk etc /week	more than 2 cup/day	65(25.1)	42(25.3)	23(24.7)	1.964	.742
	1 cup/day	90(34.7)	60(36.1)	30(32.3)		
	1cup/2~3 day	40(15.4)	25(15.1)	15(16.1)		
	1cup/4~5 day	28(10.8)	16(9.6)	12(12.9)		
	1cup/6~7 day	36(13.9)	23(13.9)	13(14.0)		

* p<.05

The eating habits of the normal weight group and the obesity group showed a statistically significant difference only at lunch, and all students had lunch at school meals, but the intake rate was lower in the obesity group than the normal weight group, it is judged to be snacking or eating control.

However, prior studies have reported that breakfast eating rates are high. In other words, According to the online survey on youth health behavior [13], 23.6% of students who did not eat breakfast for more than 5 days during the last week showed a breakfast shortage rate, In this study with 39.6% showed a higher rate of going without a meal (37.3% of normal weight group, 43.6% of obese group). In order to increase the rate of eating three meals as well as breakfast for middle school students, it is necessary to inform that school nutrition education is one of the important factors for health promotion of growing youth.

There was no statistically significant difference in physical activity between the obesity group and the normal weight group. However, in the normal weight group and the obesity weight group, more than 50% of the physical activity was exercised, and more than 30% of the severe physical activity was found. In the online survey on youth health behavior [6], 55.7% of middle school students who had more than 20 minutes of intense physical activity for more than 3 days showed similar result.

4. Conclusion

The purpose of this study was attempted to provide basic data on the development of adolescents health promotion and obesity prevention education programs by demonstrating the hypothesis that eating habits, physical activity, and obesity awareness of adolescents can be related factors affecting obesity. The difference between the normal weight group and obesity group was statistically significant in lunch. Appropriate dietary and physical activity education will be needed for nutrition education programs and the characteristics of obesity group for proper diet of adolescents.

References

- [1] 11.1. Journal Article An JS., Kim HJ. A study on the determinants of children and adolescents' health inequality in Korea. *Studies of Korean Youth*, 24, 2, 2015-231 (2013).
- [2] Im YJ., Oh WO., Suk MH. Adolescent health behaviors according to body mass indexjin Im), *Korean Academy of Child Health Nursing*, 23, 1, 1-9 (2017).
- [3] Weaver CM. The period of dramatic bone growth. *Endocrine*. 17, 1, 43-48 (2002).
- [4] Ha HS. Development of a standard model for youth health. *Korea Youth Development Institute*. (2016).
- [5] World Health Organization. School health and youth health promotion [Online] (2011). A-va-ilab-le:-
http://www.who.int/school_youth_health/en/[2011, April 11].
- [6] Jeong HS., Jeong MJ. Analysis of tense of youth. *The Korean Journal of Developmental Psychology*, 8, 1, 148-158 (1995).
- [7] Park SJ. (A) Survey on the fatness extent of middle school students in seoul, on their habit and on their tendency. *Sejong University Master's Thesis*, 1-57 (2002).
- [8] Lee SY. Current knowledge of obesity. *J. Kor. Soc. Health-Syst. Pharm*, 24, 3, 267-274 (2007).
- [9] Lee EJ. A study on the interest of the body weighting control, nutrition knowledge and dietary attitude of the middle school students. *Chonbuk National University Master's Thesis*, 1-68 (2000).
- [10] Faul F., Erdfelder E., Buchner A., Lang AG. Statistical power analyses using G*Power 3.1: tests for correlation and regression analyses. *Behavior Research Methods*, 41, 4, 149-1160 (2009).11.2. Book
- [11] Jeon SY., Kang JY., Kim JK. The latest nutrition education and counseling. *Jigumunhwasa* (2001)
- [12] Baek KH. Basic exercise nutrition. *Sungshin Women's University Press*, 132 (2005).
- [13] Disease Control Headquarters.7th (2011) Youth Health Behavior Online Survey Statistics, 1-334 (2012).