

Relationship between Self-Perception of Weight and Depression Experience in Korean Adolescents

Haewon Byeon^{1,2}

¹ Dept. of Speech Language Pathology & Audiology, Nambu University, Gwangju, Korea

² Speech-Language Pathology Center, Nambu University, Gwangju, South Korea,
Byeon@nambu.ac.kr

Abstract. The aim of the present study was to examine the relationship between self perception of weight and depression experience among Korean adolescents. Subjects were 37,297 high school students who completed the 2012 Korea Youth Risk Behavior Web-based Survey (KYRBS). In female, adjusting for covariates (grade, school type, scale of residing city, household economic, academic achievement, smoking, drinking, subjective level of happiness, suicidal thinking experience and Body Mass Index), self-reported obesity was more likely to have depression experience (OR=1.26, 95% CI: 1.15–1.38). However, self perception of weight was not significantly associated with depression experience in male. These findings imply that subjective perception on obesity has significantly relationship with depression experience in female adolescents.

Keywords: Adolescent, Depression, Risk factor, Self perception of weight

1 Introduction

Adolescent obesity is known to be the primary cause of adult diseases. It was reported that 6 of 10 obese adolescents maintain obese weights [1], and run higher risk of chronic diseases such as diabetes, stroke and arthritis in later years [2]. Especially, since adolescence is the stage of life when they not only undergo radical bodily changes but also establish their views on the body, adolescent obesity may have a critical effect on the process of their psychological development. Numerous studies on the subject of obesity and depression have verified that obesity and depression are in coexisting relationship and that obesity and depression are in positive relationship [3]. And yet, so far findings on the relationship between obesity and depression have not been consistent. A recent systematic review study concluded that grounds are unclear to corroborate the relationship between obesity and depression [4].

Meanwhile, more recent studies have reported results that self perception of weight has more to do with depression than body weight [5-6]. Even though many studies have claimed significantly relationship between subjective obesity and depression, there are still only a few studies which conducted researches with nationwide data. Besides, though these studies mostly have considered gender as confounding factors, there have been no studies that investigated the relationship between depression and

obesity, with gender difference of subjective perception on body type taken into consideration.

The aim of this study was to investigate the relationship between self perception of weight and depression experience depending on gender by using nationwide data.

2 Materials and Methods

2.1 Data Source

The source of data for this study from 2012 Korea Youth Risk Behavior Web-based Survey (KYRBS) conducted by Ministry for Health, Welfare and Family Affairs, Korea Center for Disease Control and Prevention and Ministry of Education, Science and Technology on middle and high school students nationwide. Method of survey was on-line self-administered questionnaire [7].

This study selected 36,889 1st to 3rd grade high school students (18,938 males and 17,951 females) as its subjects of analysis.

2.2 Measurement

Self perception of weight was defined as 'underweight', 'average' and 'obese'. Experience of depression was defined as 'experience of daily sadness and despair to the degree of stopping daily routine that has lasted for the last 2 weeks to 12 months', which is the diagnostic standard for depression in Diagnostic and Statistical Manual of Mental Disorder (DSM-IV). Confounders, included grade, school type (academic, vocational), scale of residing city (metropolitan, mid-to-small-sized city, town), household economic level (high, medium, low), academic achievement (high, medium, low), current smoking, current drinking, subjective level of happiness (happy, medium, unhappy), self-reported health status (good, medium, poor), suicidal thinking experience (yes, no) and Body Mass Index (BMI, kg/m²). Body Mass Index, by applying Asia-Pacific standard of WHO which suits for Koreans, was classified into underweight with less than 18.5, normal from 18.5 to 24.9 and overweight with more than 25.

2.3 Statistical Analysis

Relationship between self perception of weight and depression experience presented odd ratio and 95% confidence interval using hierarchical logistic regression analysis. Regression models were composed of 1st stage model adjusted only by socio-demographic variables (grade, school type, economic level, scale of city residing), 2nd model adjusted by additional academic achievement, 3rd model adjusted additionally by health variables (subjective health status, subjective level of happiness, suicidal thought experience, smoking, drinking) and 4th model adjusted by all confounders including BMI.

3 Results.

3.1 General Characters of Subject based on Gender

Out of total 36,889 subjects, males were 18,938 (51.4%) and females were 17,951 (48.6%). Characters of depression experience by gender, as a result of Chi-square analysis, male showed significant difference in grade, household's economic level, scale of residing city, school type, academic achievement, subjective level of happiness, subjective level of health, suicidal thought experience, smoking, drinking and BMI ($p < 0.05$). Female exhibited significant difference in household's economic level, scale of residing city, academic achievement, subjective level of happiness, subjective level of health, suicidal thought experience, smoking, drinking and self perception of weight ($p < 0.05$).

3.2 Relationship between Self perception of weight and Depression Experience by Gender

In female, Adjusting for socio-demographic variables (model 1), females who perceived themselves as underweight were 115% (OR=1.15, 95% CI: 1.06-1.26) higher depression experience than those who perceived themselves as normal weight, whereas females who perceived themselves as obese were 128% (OR=1.28, 95% CI: 1.19-1.37) higher depression experience. Further adjusting for the academic factors (Model 2) and health variables (Model 3), self perception of weight showed itself as an independent related factor. However, when adjusted with all confounders including BMI in model 4, only subjective obesity showed significant relationship with depression experience. Females who perceive themselves as obese were about 126% (OR=1.26, 95% CI: 1.15-1.38) higher depression experience than who perceives normal weight.

In male, Self perception of weight has not significantly associated with depression experience in male students in all models of study.

4 Discussion

In this study, there was difference in gender in the relationship between self perception of weight and depression experience. While self perception of weight had not significant relationship with depression experience in males, only subjective perception of obesity had significant relationship with depression experience in females. This study suggests some speculations for significant relationship between subject obesity and depression in female. First, there is a gender difference in dissatisfaction with body image. Generally it is accepted that males in adolescence tend to be dissatisfied with being underweight, whereas females tend to be dissatisfied with being obese [8]. Especially, it has been reported that female adolescents display bigger difference between weight and perceived body type than male [9]. These

results show that although their body weights are normal, there are many females who perceive that they are obese, and in particular, the results reflect that female adolescents are overly sensitive to obesity. Second, stricter social stigma applies to women's being overweight; Prejudice and discrimination against obesity is relatively greater for women [10]. Since a body type does not change quickly, when a young female wrongly perceive her body type as obese, it is highly possible for her to choose radical reduction of body weight through excessive diet or drug use, leading to possible depression of women with subjective obesity.

The results of this study imply that subjective perception on obesity has significantly relationship with depression experience in female adolescents.

References

1. Imamura, H., Izawa, A., Kai, R., Yokoseki, O., Uchikawa, S., Yazaki, Y., Kinoshita, O., Hongo, M., Kubo, K.: Trends over the last 20 years in the clinical background of young Japanese patients with coronary artery disease. *Circ J.* 68, 186--191 (2004)
2. Freedman, D.S., Zugno, M., Srinivasan, S.R., Berenson, G.S., Dietz, W.H.: Cardiovascular risk factors and excess adiposity among overweight children and adolescents: the Bogalusa Heart Study. *J Pediatrics.* 150, 12--17 (2007)
3. Roberts, R.E., Deleger, S., Strawbridge, W.J., Kaplan, G.A.: Prospective association between obesity and depression: evidence from the Alameda County Study. *Int J Obes Relat Metab Disord.* 27, 514--521 (2003)
4. Pi-Sunyer, X.: The medical risks of obesity. *Postgrad Med.* 121, 21--33 (2009)
5. Smolak, L.: Body image in children and adolescents: where do we go from here?. *Body Image.* 1, 15--28 (2004)
6. Al Mamun, A., Cramb, S., McDermott, B.M., O'Callaghan, M., Najman, J.M., Williams, G.M.: Adolescents' perceived weight associated with depression in young adulthood: a longitudinal study. *Obesity.* 15, 3097--3105 (2007)
7. Ministry of Health and Welfare.: Korea Youth Risk Behavior Web-based Survey 2012. Ministry of Health and Welfare, Seoul (2010)
8. Page, R.M., Allen, O.: Adolescent perceptions of body weight and weight satisfaction. *Percept Mot Skills.* 81, 81--82 (1995).
9. Park, E.: Overestimation and underestimation: adolescents' weight perception in comparison to BMI-based weight status and how it varies across socio-demographic factors. *J Sch Health.* 81, 57--64 (2011)
10. Brownell, K.D.: Dieting and the search for the perfect body: Where physiology and culture collide. *Behavior Therapy.* 22, 1--12 (1991)