Journal of Student Research

Self-perceived Body Image in Relation to Mental Health of South Korean Adolescents

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ABSTRACT

This study was designed to investigate the differences in self-perceived body image in terms of gender and school year, as well as mental health state based on self-perceived body image. For this, data from the 15th Korean Youth Health Behavior Online Survey (2019) conducted by the Korean Center for Disease Control and Prevention were utilized. The main questions that were addressed are whether there is a difference of self-body perception between male and female adolescents, whether there is a difference of self-body perception based on school year, and whether there is a difference of mental health state in terms of self-perceived body image. In terms of self-perceived body image differences between gender, it was the case that more girls categorized themselves as fat than boys. In terms of self-perceived body image differences by school year, older students were more likely to categorize themselves as fat. For differences in mental health issues by self-perceived body image, students who categorized themselves as fat ranked the highest percentages in all mental health problems. Based on these findings, some implications and limitations as well as suggestions for further research were discussed.

Introduction

Adolescence is a period when the concern towards how others perceive oneself starts to increase (Elkind 1978). Adolescents' increased self-consciousness induces them to compare themselves to the media or their peers. This is accelerated as their social interaction sphere extends out from just their family to friends and other adults around them (Noh & Choi 2009; Dogan et al. 2018). Furthermore, they tend to grow an inclination to be admired and to become popular, and since popularity during these years is mostly based on how they look (Chung 2015; Jung & Jeong 2017), it makes them strive towards the ideal body and appearance. Such ideals created by societal pressure indicates there might be potential for gaps in one's actual and desired body images (Melching et al. 2016). This is especially true in the context of South Korea, where collectivism is a prevalent social trait. Previous research states that women from non-western countries are more likely to compare themselves with others (Lee & Moon 2018). This indicates they are also more sensitive to others' judgement of their bodies, leading them to criticize their own body image in the perspective of others (Lee & Moon 2018; Pyo 2009).

Body image is defined as a personal experience towards an attitude or feeling they have towards their own body type or appearance (Kim 2006). The formation of body image during adolescent years is greatly shaped by comments from the significant people around one or beauty standards from popular culture (Jung & Jeong 2017). It is important to form an appropriate self-body perception in adolescence (Park, Yun & Kwon 2018). A positive body image is related to higher self-esteem and satisfaction towards their appearance, leading to better social interactions and interpersonal relationships (Ucar et al. 2010; Jung & Jeong 2017). However, more adolescents are forming negative body perceptions due to excessive comparisons to others along with the increasingly unattainable beauty ideals portrayed on the media (Yun 2020a). Another cause of negative body image may be social physique anxiety, which is the experience of anxiety in either real or imagined negative physical evaluation by others (Brudzynski &

Journal of Student Research

Ebben 2010). Weight related teasing, media ideals and appearance comparison further lowers an adolescent's body perception, eventually leading to body dissatisfaction (Rodgers et al. 2016).

Previous research has shown that negative body images have had harmful implications on youths' mental health issues. Body image distortion influenced stress, sadness and despair of students (Kwon & Kim 2020). Negative body image is also related to thoughts of suicide (Noh & Choi 2009). Body dissatisfaction may lead to other psychological disorders as well as eating disorders, putting the mental and physical health of adolescents at risk (Ucar et al. 2010; Maeng & Han 2017). Unhealthy ideals of body image have led to even normal weight or underweight teenagers strive for weight loss or attempt to lose weight in a harmful manner (Yun 2018). An adverse subjective body image has a negative impact on overall self-evaluation. Students who viewed themselves as fatter were more likely to have mental health issues (Oh 2018).

Additionally, there is a need for further discussion on gender differences in body image perception. It is known that female adolescents are more vulnerable towards the pressure put on by the unrealistic beauty ideals portrayed on media such as magazines and television (Dogan et al. 2018; Clay, Vignoles & Dittmar 2005; Lee & Moon 2018). Female students tended to be more likely to describe themselves as being overweight compared to boys despite a fewer percentage of them actually being overweight (Hancock, Jung & Petrella 2012). This also indicates young women are more susceptible to body dysmorphia, which is when they perceive themselves as larger and more overweight than they actually are, viewing a body that's underweight as an ideal (Gwon & Choi 2020; Pyo 2009; Rothberger et al. 2015). Recent research even shows that younger girls are increasingly showing signs of body dissatisfaction and eating concerns (Rodgers et al. 2016). While men externalize the value of thinness and focus on expressing a dislike towards others who are overweight, women internalize it and fear becoming overweight themselves (Melching et al. 2016). Girls internalized the thin ideal to a greater degree than boys and reported a significantly greater appearance dissatisfaction (Nielson et al. 2013). One research even showed that while female adolescents' mental health was affected by a negative self-body perception, this did not have an effect on male adolescents' mental health (Oh 2018).

Also, body image perception may also be varied by age. As students get older, they show more body image distortion, due to the growing cognition and social awareness during the late teens. High school students are more sensitive to social evaluations than middle school students and as grade level increases, so has body image distortion (Yun 2020b). A previous research observed that more high school students showed body distortion, the percentage growing as the school year went up (Yun 2018).

It is significant that adolescents develop a sense of healthy body image to prevent mental health consequences that are related to body dissatisfaction. In order to do so, there is a need to observe the perception on body image and the mental health state of the current youth. In this paper, the distribution of body image perception and mental health factors amongst the South Korean youths will be investigated, as well as whether there are differences in body image perception by gender and grade level. For this, the dataset from the 15th Korean Youth Health Behavior Online Survey (2019), conducted by the Korean Center for Disease Control and Prevention will be utilized.

The research questions that will be addressed are as follows. First, is there a difference of self-perceived body image between male and female students? Second, is there a difference of self-perceived body image based on the school year? Third, is there a difference of mental health state in relation to the self-perceived body image of adolescents?

Methods

Research Participants

This research data was drawn from the 15th Korean Youth Health Behavior Online Survey (2019), collected and distributed by the Korean Center for Disease Control and Prevention, in cooperation with the Ministry of Education

Journal of Student Research

and the Ministry of Health and Welfare. This questionnaire is distributed every year since 2005 in South Korea to a sample group of middle and high school students nationwide. This survey is conducted in order to observe the health behavior and related issues. The major question topics of this survey included smoking, drinking, physical activity, dietary habits, weight control, mental health, oral health, personal hygiene, sexual behavior, allergies and atopy, drug use, internet use, violence, subjective health perception, and so on.

The survey questionnaire was answered by 57,303 students out of the total of 60,100 students who were from 800 middle and high schools in South Korea. Out of these participants, there were 29,841 male students and 27,462 female students. There were 9,738 students in grade 1 of middle school, 9,665 in grade 2, and 9,981 in grade 3. There were 9,273 students in grade 1 of high school, 9,044 in grade 2, and 9,602 in grade 3.

Research Variables

Self-perceived Body Image
The question asking students' self-perceived body image was "what do you think your own body type is?". This was measured on a scale of 1 to 5, 1 perceiving themselves as very skinny, 2 moderately skinny, 3 normal, 4 moderately fat, and 5 very fat.

Mental Health
Stress, depression, thoughts, planning, and attempt of suicide were used as mental health variables. First, in terms of stress, the question "How much stress do you feel regularly?" was used. Second, in terms of depression, the research question "Have you ever felt depressed to the extent of being unable to live a regular life for 2 weeks or more over the past 12 months?" was used. Third, in terms of thoughts of suicide, planning of suicide, and attempt of suicide, the questions "Have you ever had serious thoughts about suicide over the past 12 months?", "Have you ever made a specific plan in order to commit suicide?" and "Have you ever attempted committing suicide over the past 12 months?" were each used.

Stress was measured on a scale of 1 to 5, 1 being not stressed at all, 2 not stressed much, 3 a little stressed, 4 very stressed, and 5 extremely stressed. To questions indicating depression, thoughts, planning, and attempt of suicide, students either answered with a "No" or "Yes", the former being assigned the value 1 and the latter 2.

Statistical Analysis

For this dataset, all statistical analyses were performed with the program R. Frequency and percentage were recorded in order to observe the distribution of self-perceived body image depending on gender and school year and the distribution of mental health state depending on the level of self-perceived body image. Chi-square analysis was used to see if there is a meaningful difference of self-perceived body image depending on gender and school year, as well as a difference in mental health state depending on the self-perceived body image. Independent t-test was used in order to see gender differences in the mean self-perceived body image score according to school year and gender differences in mental health according to self-perceived body image. In each comparison, the statistical significance level was set to $p<0.05$.

Results

Table 1. Gender and School Year Differences in Self- Body Image Perceptions

		Total		Self- perceived body image (n(%))	

Journal of Student Research

		(n=57303)	body image mean (sd)	Very skinny	Moderately skinny	Normal	Moderately fat	Very fat	chi squared (p)
				2504	12046	20728	18183	3842	
Gender	male	29841 (100)	3.058 (1.025)	1820 (6.10)	7380 (24.73)	9929 (33.27)	8685 (29.10)	2027 (6.79)	1114.6 (p<0.001)
	female	27462 (100)	3.258 (0.902)	684 (2.49)	4666 (16.99)	10799 (39.32)	9498 (34.59)	1815 (6.61)	
School type & year	Middle school yr 1	9738 (100)	3.112 (0.958)	417 (4.28)	2159 (22.17)	3650 (37.48)	2940 (30.19)	572 (5.87)	173.31 (p<0.001)
	Middle school yr 2	9665 (100)	3.110 (0.961)	420 (4.35)	2152 (22.27)	3618 (37.43)	2897 (29.97)	578 (5.98)	
	Middle school yr 3	9981 (100)	3.117 (0.969)	453 (4.54)	2206 (22.10)	3645 (36.52)	3074 (30.80)	603 (6.04)	
	High school yr 1	9273 (100)	3.161 (0.988)	437 (4.71)	1921 (20.72)	3293 (35.51)	2952 (31.83)	670 (7.23)	
	High school yr 2	9044 (100)	3.195 (0.987)	406 (4.49)	1789 (19.78)	3167 (35.02)	2997 (33.14)	685 (7.57)	
	High school yr 3	9602 (100)	3.232 (0.971)	371 (3.86)	1819 (18.94)	3355 (34.94)	3323 (34.61)	734 (7.64)	

Table 1 shows differences by gender and school year in students' self-perceived body image. In terms of gender, the average score for male students was 3.058 with a standard deviation of 1.025, and the average score for female students was 3.258, with a standard deviation of 0.902, showing that they rated themselves as being fatter than their male counterparts. In the "Very skinny" category, the percentage of male students was 6.10 while that of female students was only 2.49. In the "Moderately skinny" category, the percentage of male students was 24.73 while that of the female students was only 16.99. Meanwhile, in the "Normal" and "Moderately fat" categories, there were higher percentages of female students than male, each being 39.32 and 34.59 compared to 33.27 and 29.10. The "Very fat" category did not show much difference, the male students having a percentage of 6.79 and female students 6.61. The general trend is that more boys tend to describe themselves as skinny while more girls describe themselves as fat. This is a statistically meaningful difference (p<0.001).

In relation to school year, it was shown that the mean scores for self-perceived body image generally increased as students went up in school year. From middle school year 1 to high school year 3, the mean scores were each 3.112(SD=0.958), 3.110(SD=0.961), 3.117(SD=0.969), 3.161(SD=0.988), 3.195(SD=0.987), and 3.232(SD=0.971), indicating that students increasingly viewed themselves as more overweight as they got older. It is interesting to note that in the "Moderately skinny" and "Normal" categories, the percentage decreased with the increase in school year, while it was opposite for the "Moderately fat" and "Very fat" categories. This is also a statistically meaningful difference (p<0.001).

Table 2. Gender Differences in Self- perceived Body Image According to School Year

		Total (n=57303)	body image mean (sd)					Self- perceived body image (n(%))				
				Gender	Subtotal (n=57303)	Mean by Gender (sd)	t(p)	Very skinny	Moderately skinny	Normal	Moderately fat	Very fat
								2504	12046	20728	18183	3842

Journal of Student Research

School type & year		Total (100)	mean (sd)	gender	n	mean (sd)	t (p)					
School type & year	Middle school yr 1	9738 (100)	3.112 (0.958)	male	5126	3.068 (1.000)	-4.783 (p<0.001)	273 (5.33)	1260 (24.58)	1760 (34.33)	1510 (29.46)	323 (6.30)
				female	4612	3.161 (0.906)		144 (3.12)	899 (19.49)	1890 (40.98)	1430 (31.01)	249 (5.40)
	Middle school yr 2	9665 (100)	3.110 (0.961)	male	5039	3.035 (1.013)	-8.040 (p<0.001)	292 (5.79)	1309 (25.98)	1685 (33.44)	1436 (28.50)	317 (6.29)
				female	4626	3.191 (0.893)		128 (2.77)	843 (18.22)	1933 (41.79)	1461 (31.58)	261 (5.64)
	Middle school yr 3	9981 (100)	3.117 (0.969)	male	5236	3.012 (1.031)	-11.577 (p<0.001)	342 (6.53)	1397 (26.68)	1683 (32.14)	1486 (28.38)	328 (6.26)
				female	4745	3.233 (0.881)		111 (2.34)	809 (17.05)	1962 (41.35)	1588 (33.47)	275 (5.80)
	High school yr 1	9273 (100)	3.161 (0.988)	male	4782	3.054 (1.046)	-10.921 (p<0.001)	311 (6.50)	1194 (24.97)	1570 (32.83)	1340 (28.02)	367 (7.67)
				female	4491	3.276 (0.909)		126 (2.81)	727 (16.19)	1723 (38.37)	1612 (35.89)	303 (6.75)
	High school yr 2	9044 (100)	3.195 (0.987)	male	4662	3.065 (1.043)	-13.151 (p<0.001)	314 (6.74)	1121 (24.05)	1507 (32.33)	1389 (29.79)	331 (7.10)
				female	4382	3.334 (0.903)		92 (2.10)	668 (15.24)	1660 (37.88)	1608 (36.70)	354 (8.08)
	High school yr 3	9602 (100)	3.232 (0.971)	male	4996	3.114 (1.016)	-12.563 (p<0.001)	288 (5.76)	1099 (22.00)	1724 (34.51)	1524 (30.50)	361 (7.23)
				female	4606	3.360 (0.902)		83 (1.80)	720 (15.63)	1631 (35.41)	1799 (39.06)	373 (8.10)

Table 2 shows the differences in self- perceived body image in all grades by gender. For all grade levels from middle school year 1 to high school year 3, the mean body image perception score was higher for females, indicating that they perceived themselves as fatter than males. This is a statistically significant finding, as the p-values for all gender comparisons by grade were less than 0.001.

Moreover, the mean score for female students tended to become higher as grade level went up, showing that they perceived themselves as fatter as they aged. That was not the case for male students. In fact, their score even decreased from middle school year 1 up to year 3 (3.068, 3.035, 3.012).

Table 3. Stress Levels in Relation to Self- perceived Body Image

		Total (n=57303)	stress mean (sd)	Perceived Stress (n(%))					
				Not stressed at all	Not stressed much	A little stressed	Very stressed	Extremely stressed	chi squared (p)
				2235	8887	23403	16004	6774	
Self-perceived	Very skinny	2504 (100)	3.319 (1.035)	106 (4.23)	393 (15.69)	957 (38.22)	691 (27.60)	357 (14.26)	868.78 (p<0.001)

Journal of Student Research

body image	Moderately skinny	12046 (100)	3.196 (0.977)	499 (4.14)	2133 (17.71)	5101 (42.35)	3139 (26.06)	1174 (9.75)	
	Normal	20728 (100)	3.198 (0.986)	961 (4.64)	3497 (16.87)	8793 (42.42)	5424 (26.17)	2053 (9.90)	
	Moderately fat	18183 (100)	3.368 (0.973)	548 (3.01)	2477 (13.62)	7248 (39.86)	5547 (30.51)	2363 (13.00)	
	Very fat	3842 (100)	3.580 (1.032)	121 (3.15)	387 (10.07)	1304 (33.94)	1203 (31.31)	827 (21.53)	

Table 3 shows differences in stress levels in relation to students' self- perceived body image. On average, the "Very fat" category had the highest stress level with a mean of 3.580(SD=1.032), with the "Moderately fat" category following behind with a mean of 3.368(SD=0.973). The "Very skinny" category came third, with a mean of 3.319(SD=1.035). The "Normal" and "Moderately skinny" categories were very similar in terms of the mean, each averaging on 3.198(SD=0.986) and 3.196(SD=0.977). It is notable that especially in the "Very fat" category, the sum of the percentages of students who were "Very stressed" and "Extremely stressed" was as high as 52.84, clearly outnumbering the other categories. This is a statistically meaningful difference ($p < 0.001$).

Table 4. Depression in Relation to Self- perceived Body Image

		Total (n=57303)	Depression mean (sd)	Depression (n(%))		chi squared (p)
				No	Yes	
				41275	16028	
Self- perceived body image	Very skinny	2504 (100)	1.288 (0.453)	1784 (71.25)	720 (28.75)	102.28 (p<0.001)
	Moderately skinny	12046 (100)	1.265 (0.442)	8850 (73.47)	3196 (26.53)	
	Normal	20728 (100)	1.265 (0.441)	15240 (73.52)	5488 (26.48)	
	Moderately fat	18183 (100)	1.295 (0.456)	12821 (70.51)	5362 (29.49)	
	Very fat	3842 (100)	1.328 (0.470)	2580 (67.15)	1262 (32.85)	

Table 4 shows differences in thoughts of depression in relation to self- perceived body image. On average, the "Very fat" category had the highest depression level with a mean of 1.328(SD=0.470), with the "Moderately fat" having a mean of 1.295(SD=0.456). The "Very skinny" category came third, with a mean of 1.288(SD=0.453). The "Normal" and "Moderately skinny" categories were the same in terms of the mean, each averaging on 1.265(SD=0.441) and 1.265(SD=0.442). The "Very fat" category ranked the highest in terms of having answered "Yes" to depression, with the percentage of 32.85. This is a statistically meaningful difference ($p < 0.001$).

Table 5. Suicidal Thoughts in Relation to Self- perceived Body Image

		Total (n=57303)	Thoughts of suicide mean (sd)	Thoughts of suicide (n(%))		chi squared (p)
				No	Yes	
				49805 (100)	7498 (100)	
Self- perceived body image	Very skinny	2504 (100)	1.148 (0.355)	2133 (85.18)	371 (14.82)	249.42 (p<0.001)
	Moderately skinny	12046 (100)	1.111 (0.315)	10704 (88.86)	1342 (11.14)	
	Normal	20728	1.115	18349	2379	

Journal of Student Research

		(100)	(0.319)	(88.52)	(11.48)	
	Moderately fat	18183 (100)	1.148 (0.355)	15500 (85.24)	2683 (14.76)	
	Very fat	3842 (100)	1.188 (0.391)	3119 (81.18)	723 (18.82)	

Table 5 shows differences in suicidal thoughts in relation to self- perceived body image. On average, the "Very fat" category had the highest level of suicidal thoughts with a mean of 1.188(SD=0.391), with the "Moderately fat" coming second with a mean of 1.148(SD=0.355). The "Very skinny" category also had a mean of 1.148(SD=0.355). The "Normal" and "Moderately skinny" categories each came fourth and fifth, averaging on 1.115(SD=0.319) and 1.111(SD=0.315). The "Very fat" category ranked the highest in terms of having answered "Yes" to thoughts of suicide, with the percentage of 18.82, which is a statistically significant difference ($p<0.001$).

Table 6. Suicidal Planning in Relation to Self- perceived Body Image

		Total (n=57303)	Planning of suicide mean (sd)	Planning of suicide (n(%))		chi squared (p)
				No 54997	Yes 2306	
Self- perceived body image	Very skinny	2504 (100)	1.050 (0.218)	2379 (95.01)	125 (4.99)	108.46 (p<0.001)
	Moderately skinny	12046 (100)	1.034 (0.181)	11637 (96.60)	409 (3.40)	
	Normal	20728 (100)	1.035 (0.183)	20005 (96.51)	723 (3.49)	
	Moderately fat	18183 (100)	1.044 (0.204)	17390 (95.64)	793 (4.36)	
	Very fat	3842 (100)	1.067 (0.249)	3586 (93.34)	256 (6.66)	

Table 6 shows differences in suicidal planning in relation to self- perceived body image. On average, the "Very fat" category had the highest level of suicidal thoughts with a mean of 1.067(SD=0.249), with the "Very skinny" coming second with a mean of 1.050(SD=0.218). The "Moderately fat" category came third with a mean of 1.044(SD=0.204). The "Normal" and "Moderately skinny" categories each came fourth and fifth, averaging on 1.035(SD=0.183) and 1.034(SD=0.181). The "Very fat" category ranked the highest in terms of having answered "Yes" to planning of suicide, with the percentage of 6.66, which is a statistically significant difference ($p<0.001$).

Table 7. Suicidal Attempts in Relation to Self- perceived Body Image

		Total (n=57303)	Attempt of suicide mean (sd)	Attempt of suicide (n(%))		chi squared (p)
				No 55572	Yes 1731	
Self- perceived body image	Very skinny	2504 (100)	1.034 (0.182)	2418 (96.57)	86 (3.43)	83.19 (p<0.001)
	Moderately skinny	12046 (100)	1.024 (0.153)	11759 (97.62)	287 (2.38)	
	Normal	20728 (100)	1.026 (0.160)	20180 (97.36)	548 (2.64)	
	Moderately fat	18183 (100)	1.034 (0.182)	17560 (96.57)	623 (3.43)	
	Very fat	3842 (100)	1.049 (0.215)	3655 (95.13)	187 (4.87)	

Journal of Student Research

Table 7 shows differences in suicidal attempts in relation to self- perceived body image. On average, the "Very fat" category had the highest level of suicidal thoughts with a mean of 1.049(SD=0.215), with the "Moderately fat" and "Very skinny" tying second place with a mean of 1.034(SD=0.182) for both. The "Normal" and "Moderately skinny" categories each came third and fourth, averaging on 1.026(SD=0.160) and 1.024(SD=0.153). The "Very fat" category ranked the highest in terms of having answered "Yes" to attempt of suicide, with the percentage of 4.87, which is a statistically significant difference (p<0.001).

Table 8. Gender Differences in Mental Health According to Self- perceived Body Image

			Stress mean (sd)	t(p)	Depression mean (sd)	t(p)	Thoughts of suicide mean (sd)	t(p)	Planning of suicide mean (sd)	t(p)	Attempt of suicide mean (sd)	t(p)
Self-perceived body image	Very skinny	male	3.240 (1.043)	-6.486 (p<0.001)	1.256 (0.437)	-5.456 (p<0.001)	1.128 (0.334)	-4.277 (p<0.001)	1.045 (0.207)	-1.699 (p<0.01)	1.028 (0.165)	-2.495 (p<0.01)
		female	3.531 (0.982)		1.371 (0.484)		1.202 (0.402)		1.063 (0.243)		1.051 (0.221)	
	Moderately skinny	male	3.059 (0.981)	-19.840 (p<0.001)	1.219 (0.414)	-14.181 (p<0.001)	1.085 (0.279)	-10.917 (p<0.001)	1.028 (0.165)	-4.393 (p<0.001)	1.016 (0.127)	-6.210 (p<0.001)
		female	3.412 (0.931)		1.339 (0.473)		1.153 (0.360)		1.044 (0.204)		1.036 (0.185)	
	Normal	male	2.975 (1.008)	-31.866 (p<0.001)	1.204 (0.403)	-19.314 (p<0.001)	1.076 (0.265)	-17.234 (p<0.001)	1.026 (0.159)	-6.768 (p<0.001)	1.018 (0.132)	-7.516 (p<0.001)
		female	3.403 (0.919)		1.321 (0.467)		1.151 (0.358)		1.043 (0.203)		1.034 (0.182)	
	Moderately fat	male	3.144 (0.978)	-30.490 (p<0.001)	1.218 (0.413)	-22.054 (p<0.001)	1.100 (0.300)	-17.574 (p<0.001)	1.031 (0.173)	-8.240 (p<0.001)	1.018 (0.134)	-11.662 (p<0.001)
		female	3.574 (0.921)		1.365 (0.481)		1.191 (0.393)		1.055 (0.229)		1.049 (0.216)	
	Very fat	male	3.368 (1.073)	-13.919 (p<0.001)	1.242 (0.429)	-12.163 (p<0.001)	1.122 (0.327)	-11.118 (p<0.001)	1.045 (0.207)	-5.633 (p<0.001)	1.029 (0.168)	-5.852 (p<0.001)
		female	3.817 (0.929)		1.425 (0.494)		1.262 (0.440)		1.091 (0.288)		1.071 (0.256)	

Tables 3 to 7 showed differences in stress, depression, suicidal thoughts, planning, and attempt levels only in relation to self- perceived body image category. Table 8 shows the gender differences in mental health according to how students ranked themselves in terms of body image. In this table, it can be indicated that mental health scores in all categories show differences according to gender even in the same body image criteria. In fact, in all mental health factors, female students scored higher than male students, meaning that female students' mental health state is worse than male students regardless of self-perceived body image category. This difference is statistically meaningful, as the p-values for stress, depression, and thoughts of suicide were all lower than 0.001 for all body image categories. For both planning and attempt of suicide, all but the "Very skinny" category had a p-value lower than 0.001, with the aforementioned category having a p-value of less than 0.01, which is still somewhat statistically significant.

When looking at gender separately, a slightly different pattern could be observed. Amongst female students, the "Very fat" category had the worst state for all mental health factors, while amongst males, the "Very fat" category had the highest score for stress and attempt of suicide, whereas the "Very skinny" category had the highest score for depression, thoughts, and planning of suicide.

Discussion

Journal of Student Research

The main purpose of this research was to investigate the differences of self-perceived body image in terms of gender and school year, as well as to see if there was a difference in mental health state in relation to adolescents' self-perceived body image. In order to do so, research data from the 15th Korean Youth Health Behavior Online Survey (2019) were utilized, specifically looking at the questions where students answered their self-perceptions of their own body image and mental health, including self-reported levels of stress, depression, thoughts, planning, and attempt of suicide.

First of all, gender differences in terms of self-perceived body image were looked at. The results demonstrated that more boys tend to perceive themselves as skinnier while girls tend to perceive themselves as fatter. This finding corresponds to previous research where it showed that girls have less body satisfaction and are more susceptible to the pressure to achieve the ideal, thin body as shown in the media and therefore view themselves as more overweight than they actually are (Chu et al. 2008; Gwon & Choi 2020; Hancock, Jung & Petrella, 2012). However, the actual obesity rate in South Korea is higher amongst males than females (Jung & Jeong 2017; Ministry of Health and Welfare & Korean Center for Disease Control 2021). Then why do girls view themselves as fatter than they actually are? This may be because the social pressure regarding external appearance acts stronger towards women (Pyo 2009; Lee & Moon 2018). Thus, girls are inclined to be more attractive in social standards compared to boys, thus making it more likely that they compare themselves to social media models and feel more pressured by them (Dogan et al. 2018).

Secondly, it could be observed that as school year went up, students were more likely to classify themselves as fatter. High school year 3 students responded with the highest percentages in the categories "Very fat" and "Moderately fat". On the other hand, a slightly different pattern was observed in terms of gender. For females, they increasingly viewed themselves as fatter as their grade went up, while for males, their self-perceived body image score decreased throughout middle school but increased during high school. While there is no consistency of self-perceived body image amongst male and female students during middle school, in high school, both male and female students increasingly viewed themselves as fatter. Although this research does not consider the actual BMI of students into discussion, we are able to assume that students' subjective body image during high school years is leaning towards viewing themselves as more overweight. This finding is similar to previous research, where body image distortion has increased as grade level increased (Yun 2018; Yun 2020b). This might also be connected to the study findings that as teenagers arrive at middle adolescence, around the final years of high school, their self-esteem declines the most (Clay, Vignoles & Dittmar 2005). While body image distortion and disordered eating mostly emerge during late adolescence, recent research shows that the age level of showing signs of body dissatisfaction and eating concerns is getting lower, calling for measures to promote a healthy body image in teenagers (Rodgers et al. 2016).

Thirdly, the differences in mental health state in terms of self-perceived body image were looked at. For stress levels in relation to students' body image, the "Very fat" category had the highest average with a mean of 3.580. The sum of the percentages of students who were "Very stressed" and "Extremely stressed" in the "Very fat" category outnumbered the other categories outstandingly. For depression in relation to self- perceived body image, students who perceived themselves fatter had more depressive thoughts, the "Very fat" category having the highest average of 1.328. The same was true for suicidal thoughts, planning, and attempt in relation to self-perceived body image. The students who categorized themselves as "Very fat" ranked the highest in all three questions, each with an average of 1.188, 1.067, and 1.049 and a percentage of 18.82, 6.66, and 4.87, significantly greater than the other body image groups. On the other hand, in terms of gender differences in mental health according to self-perceived body image, for all body image categories, female students showed a worse mental health state than male students. When looking at each gender separately, it could be seen that while there was no clear pattern amongst males, for females, the "Very fat" category had the worst mental health state. These findings are a continuation of previous research, which has reported a close connection between a negative self-body perception and mental health issues (Noh & Choi 2009; Kwon & Kim 2020; Ucar et al. 2010; Oh 2018). Out of all body image categories, students who answered "Very fat" had the worst mental health state, which may be related to the negative social evaluations on "fat" bodies. This further emphasizes the pressure put on adolescents by society's ideals of beauty that promotes thin bodies almost to an

Journal of Student Research

unhealthy extent (Kwon & Choi 2020). There will be a need for educating not only adolescents, but the public about the various types of healthy bodies beyond the simple divide between "thin" and "fat".

Conclusion

When the differences of self-perceived body image between gender were investigated, it could clearly be seen that more girls tended to categorize themselves as fat than boys. For all grades, female students viewed themselves as fatter than male students. This implies a dissatisfaction and an overall more negative self-perception on girls' body image, as current society favors thin bodies, especially for women. This could also be related to the fact that girls tend to put a harsher beauty standard upon themselves, even girls of normal weight considering themselves fat.

When the differences of self-perceived body image by school year were looked into, it was observed that more older students classified themselves as fat compared to their younger counterparts. This disparity increased as school year went up, with the high school seniors responding with the highest percentages in the "fat" categories.

A difference in mental health state in relation to self-perceived body image could also be observed. In all of the questions indicating mental health, such as stress, depression, thoughts, planning, and attempt of suicide, students who categorized themselves as "Very fat" ranked the highest. For all body image categories, female students had a worse mental health state than male students.

Thus, through these findings, one hopes to awaken the public about how toxic the current beauty ideals are, calling for a need to promote healthier, more diverse body types on the media. This is especially important since adolescents are very susceptible to media portrayals of beauty. When adolescents see and adopt healthier body standards, there will be less mental and physical health consequences that is related to body dissatisfaction.

Limitations

In this research, subjective perceptions of body image were used to evaluate each students' body type instead of using objective measures such as BMI. In other words, this does not indicate if the students who categorized themselves as fat, skinny, or normal actually corresponded to those categories in real life. In fact, the obesity rate of men in South Korea is higher than that of women (Ministry of Health and Welfare & Korean Center for Disease Control 2021).

It would be interesting to explore when and why the changes occur in terms of the increase in gap between actual body measurements and subjective body perceptions in a teenager's life. This could be affected by the introduction to media or even early social interactions inducing peer pressure, or comments from significant adults in their life. In order to find out, qualitative data such as interviews or personal anecdotes need to be collected and analyzed.

Since this research's focus was on mental health according to body image perception as well as gender and year group differences in self-perceived body image, the differences in mental health state according to age group could not be covered. Thus, later study could be done to see which one out of gender, age, and self-body perception has the greatest impact on youths' mental health.

Also, there needs to be further research on whether negative mental health influences obesity or if obesity negatively affects mental health. This could be done with a longitudinal study, observing students as they grow from childhood to early adulthood and seeing the timestamps for major breakthroughs in body and mental growth. In addition, a comparative study could be done in order to crystallize the similarities and differences depending on sociocultural context using a dataset of similar size from adolescents of western countries such as the United States.

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Journal of Student Research

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Journal of Student Research

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