Investigating the Association of Body Image Concerns and Disordered Eating Behaviors: South Koreans after the Pandemic

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ABSTRACT

This study explores the factors driving eating disorders in South Korea within the context of the COVID-19 pandemic, paying particular attention to individuals who are considering cosmetic operations because of their concerns about their bodies. Regression analysis and a two-sample t-test were used to determine the mechanism behind disordered eating behaviors. According to our research, eating disorders are significantly correlated with objectified body consciousness, appearance comparison, self-esteem, perceived body shape, and age. We also found substantial differences between individuals who had liposuction and those who had not, indicating a higher likelihood of viewing one's body as an object and engaging in body image and appearance comparisons as important indicators of eating disorders. The results show the need for greater knowledge of the factors that contribute to eating disorders and addressing body image concerns in prevention and treatment efforts.

Introduction

Since the COVID-19 epidemic, the prevalence of obesity has increased significantly worldwide. Several hypotheses exist, but it appears that fewer outside activities led to increased online activity, which then contributed to a rise in body image and weight concerns. Eating disorders may get worse if they are not treated, according to the American Society for Nutrition (2020). According to Goldberg (2020), the pandemic made it harder for people to control their eating habits, leading to an increase in eating disorders. Cooper and colleagues hypothesized that the disruptions to daily routine brought on by the pandemic and the rise in stress levels were factors in the rise of eating disorders. Giel and colleagues (2021) discovered a significant rise in eating disorder pathology and depressive symptoms during the COVID-19 pandemic. Despite the rise in eating disorders, there aren't enough resources available to help.

Despite the rise in eating disorders, little empirical research has been produced to account for how people's eating habits and perceptions of their physical attractiveness changed during COVID-19. In South Korea, the number of diagnoses for eating disorders grew by 34% from 148,000 in 1990 to 196,000 in 2017. With this prevalence rate ranking as the ninth highest in the world, more efficient measures are required. Therefore, empirical data are essential for researchers and healthcare practitioners to develop successful prevention and treatment plans that would improve patients' conditions. Keeping up with the most recent research findings might encourage the development of resources for future public health policies by boosting awareness of the prevalence and gravity of eating disorders.

Therefore, this study focused on those who are overly concerned with their body image and may be at risk of developing disordered eating behaviors. It is aimed to investigate the factors that may influence eating disorders. These people are thinking about getting liposuction to eliminate body fat excess. It can be instructive to compare persons who had the operations and those who had not to assess their conditions and degrees of perceived body image. Therefore, the study discovered the primary causes of disordered eating behaviors and contributing factors using a two-sample t-test and regression analysis.

Literature Review

2.1 Eating Disorder and Risk

According to the American Psychiatric Association, eating disorders is a mental health illness characterized by changes in eating behavior and attitudes. Specific diagnostic standards are listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) for different types of eating disorders, including anorexia nervosa, bulimia nervosa, and binge-eating disorder. Physical health, psychological functioning, and social functioning can all suffer serious setbacks as a result of eating disorders (APA, 2013). Eating disorders are major mental health diseases that are defined by inappropriate eating habits and may cause problems with physical and emotional well-being, according to the National Institute of Mental Health (NIMH) (National Institute of Mental Health, 2020). No matter their age, ethnicity, or gender, eating disorders can afflict anyone, according to the NIMH, but young people are especially prone to them. When compared to other mental disorders, anorexia nervosa has a high mortality rate and entails restricting the quantity and type of food people eat (NIMH, 2020). Eating disorders are a collection of mental health conditions that are distinguished by eating behavior abnormalities and an obsession with body image, according to Smink, van Hoeken, and Hoek (2012). They also pointed out that there are a number of risk factors, such as genetic, environmental, and psychological ones, that are linked to eating disorders and may be harmful to those who have them. Overall, eating disorders are a serious public health issue, so it's critical to keep investigating and creating efficient prevention and treatment options for those who suffer from them.

2.2 Objectified Body Consciousness

Individuals' opinions toward their own bodies have been theorized and referred to by various titles in the field of body image research. One such idea, which has its roots in objectification theory, is objectified bodily awareness. According to the hypothesis of objectification, some people—mostly women—are routinely treated as sexual objects in society and may internalize this treatment to begin perceiving their own bodies similarly. The Objectified Body Consciousness scale was created and verified by McKinley and Hyde in 1996, and it has since been widely used to assess people's propensity to regard their bodies as things that should be judged by others.

Further exploring the idea of objectification theory, Moradi and Huang (2008) discovered that objectification has detrimental consequences on women's mental health, including body shame. They also identified variables including social support, media literacy, and feminist attitudes that can either lessen or increase the detrimental consequences of objectification. These findings imply that societal and cultural forces have a significant impact on how people see their bodies and their mental health in relation to them.

In a 2009 study, Heflick and Goldenberg discovered that women who were objectified in a political environment were viewed as less capable and humane than when they weren't. Gervais and her coworkers (2012) looked into the effects of sexual objectification on women's ability to recognize different body parts. They observed that the objectification of women through sexuality contributes to their dehumanization. These findings show that objectification has negative consequences on women's mental health and wellbeing. The study of objectified body consciousness illuminates how socioeconomic and cultural influences affect how people perceive their bodies. The underlying mechanisms of objectified body consciousness can aid professionals in creating more potent interventions to support mental and bodily well-being and a positive self-image.

2.3 Body-Esteem

Somatotyping, a psychological theory created by American psychologist William Herbert Sheldon Jr., is where the idea of body esteem first emerged. Sheldon divided people into endomorphic, mesomorphic, and ectomorphic groups

based on their body characteristics. Although they are related, body esteem and self-esteem are different ideas. Body esteem primarily refers to one's assessment of one's physical appearance and body image, as opposed to self-esteem, which refers to an overall judgment of oneself, including beliefs about one's self-worth. According to Cash and Pruzinsky (2002), having a positive body image is linked to greater self-esteem and improved mental and physical health. Body esteem is a subcomponent of self-esteem, according to Sowislo and Orth (2013), who also asserted that it is a trustworthy indicator of clinical sadness and anxiety. Mendelson et al. (2001) identified three subcomponents of body esteem: BE appearance, BE weight satisfaction, and BE attribution. They defined body esteem as a self-evaluation of one's body or appearance.

In Western culture, middle-aged women experience a dramatic fall in self-esteem that is linked to changes in body image. Young girls' absorption of sociocultural ideas about attractiveness is blamed for this reduction (Clay, Vignoles, & Dittmar, 2005). Particularly in teens, low body esteem is a key predictor of disordered eating behavior. Therefore, it is reasonable to believe that the widespread representation of unrealistic body images on social media has a negative effect on women's self-esteem. Young females are particularly vulnerable to this exposure and pressure, which raises their risk of developing eating disorders and other mental health issues.

Research Questions

1. How are eating disorders related to other factors?
2. What are the psychological differences between individuals who have undergone liposuction and those who have not?
3. Which factors contribute to the development of eating disorders?

Methods

A survey questionnaire was designed and distributed in South Korean cities to gather responses to the research questions. To enhance the response rate, various liposuction, and other cosmetic surgery facilities were contacted, and the respondents were offered incentives to participate voluntarily. The clinics provided a tablet PC so that patients could complete the survey while they waited.

Table 1. Descriptive Statistics

Variable	*N*	Mean	SD	Min	Max
Gender	499	.97	.17	0	1
Age	499	30.86	8.90	18	70
Birthed	499	.42	.80	0	4
SES	499	5.69	1.52	1	10
Employed	499	.72	.45	0	1
Educated	499	3.24	.99	1	5
Depressed	498	1.31	.69	0	3
Eating Disorder	498	3.81	.97	1.13	6
Objectified Body Consci.	499	2.91	.56	1.33	5
Physical Appear. Compar.	499	3.13	.87	1	5
Body-Esteem	499	2.65	.57	1	4.67
CDRS	498	9.21	3.33	1	17
Had Liposuction	498	.56	.50	0	1
Satisfaction	285	3.34	1.08	1	5

Table 1 presents the characteristics of the sample used in this study. The sample was predominantly female, with more than 97% of the respondents being women. The majority of the respondents were in their early 30s, with a mean age of 32.3 years (SD =8.9). On average, respondents had 0.42 children, indicating that the majority of the sample had no children (75% of the 499 respondents reported never having had a child). The mean socioeconomic status of the sample of 5.7 out of 10 (SD = 1.52), suggesting that the respondents were predominantly from middle-class backgrounds. The majority of the respondents were employed (72%, SD = .45) and had completed either an associate or bachelor's degree, indicating a relatively high level of education.

In terms of mental health, most of the respondents reported experiencing mild depressive symptoms in the past few days, with a mean score of 1.31 out of 3 (SD = .69). The likelihood of respondents having an eating disorder was moderately high, with a mean score of 3.81 out of 7 (SD = .97). On average, respondents reported a moderate level of objectified body consciousness (mean = 2.91, SD = .56) and a slightly higher likelihood of comparing their physical appearance with that of others (mean = 3.13, SD = .87). Respondents reported a slightly lower level of body esteem (mean = 2.65, SD = .87). Respondents reported a slightly lower level of body esteem (mean = 2.65, SD = .57). When asked to rate their body shape on a 17-point scale, respondents rated their body as 9.21 (SD = 3.33), indicating a preference for a slightly larger body size. Approximately 56% of respondents reported having undergone liposuction, with an average satisfaction score of 3.34 out of 5 (SD = 1.08).

Results

The sample test items that were measured are shown in Table 2. We determined the Cronbach's alpha coefficient to evaluate each scale's internal consistency. According to Field (2013), a value of 0.7 or greater is typically regarded as acceptable, and a minimum threshold of 0.8 is advised when using psychometrics. All constructs have alpha coefficients of 0.8 or higher, as shown in Table 2, indicating that they have significantly more than 50% covariance and can therefore be combined into a single variable.

Table 2. Cronbach's *Alpha*

Variables	Sample Question Items	*Cronbach's alpha*
Patient Health Questionnaire	Felt interest in life. Felt satisfaction. Felt that I have the ability to contribute to society. Felt a sense of belonging to a community Felt that our society is becoming a better place for people like me. Felt that people are generally kind-hearted. Felt that the way our society functions is for the best. Felt that I like my personality.	.87
Eating Disorder Inventory	I think my stomach is too big. I eat when I am upset. I think about going on a diet. I think my thighs are too thick. I tend to overeat. I feel guilty after overeating. I have experienced extreme binge eating. I often think about overeating.	.82

Variables	Sample Question Items	Cronbach's alpha
K-Objectified Body Consciousness	I care more about what my body can do than how it looks. I feel like there's something wrong with me if I cannot control my weight. If I don't endeavor to look good, I would feel ashamed. If I don't look attractive, I would feel like a loser. I would feel embarrassed if people had known my actual weight. Not doing exercise would make me doubt myself. People cannot be happy if they are not in shape.	.80
Physical Appearance Comparison	I compare my physical appearance to others in social occasions. The best way to find out if somebody is overweight is to compare their bodies. I compare how I dress to how others dress in social occasions. I often compare my body to other people's when I meet them. I become self-conscious when I am with others who have thin or toned arms.	.85
Body Esteem	I look good on the outside. Other people think I have a good appearance. I am proud of my body. I like how I look in the mirror. I am satisfied with my body weight. I enjoy weighing myself. My peers like my appearance. I look as good as most other people in terms of appearance. I am quite satisfied with my appearance.	.83

The present study examined a number of significant connections relating to mental health and wellbeing. First, the study looked at how patients' ages and mental health related to one another. It revealed a strong positive correlation between these two variables ($r = .20$, p.001), showing that as people age, their mental health tends to get better. Additionally, a negative association between age and eating disorders was discovered ($r = -.20$, p .001), showing that as people age, they become less likely to have these diseases. These findings highlight the significance of comprehending the relationship between age and eating disorders and mental health, and they may have implications for preventative and treatment initiatives for individuals of various ages.

The second goal of the study was to look into the relationship between socioeconomic standing and mental health. The findings showed a positive correlation between socioeconomic status and body esteem that was statistically significant ($r = .21$, p .001), as well as a positive correlation between socioeconomic status and body esteem that was statistically significant ($r = .26$, p .001), indicating that people with higher socioeconomic status typically report better mental health and body esteem. Additionally, the study discovered a moderate but substantial association between mental health and body-esteem ($r = .32$, p .001), highlighting the need to investigate both aspects when gauging a person's general well-being. For healthcare professionals and governments interested in tackling health inequities associated with socioeconomic status, these findings may have some bearings.

Table 3. Pair-wise Correlation

	Gender	Age	Birth	SES	Employed	PHQ	EDI2	KOBCS	PACS	BES	CDRS	Had-Surg
Age	-.06											
Birthed	.09*	.71***										
SES	-.12**	.16***	.12**									
Employed	-.08	-.01	-.16***	.05								
PHQ	-.03	.20***	.19***	.21***	.00							
EDI2	.08	-.20***	-.13**	-.05	.11	-.12**						
KOBCS	.07	-.07	-.02	.03	.02	-.03	.43***					
PACS	.00	-.12**	-.06	-.08	.02	-.13**	.37***	.52***				
BES	-.02	-.11*	-.08	.26***	.00	.32***	-.26***	-.09*	-.16***			
CDRS	-.02	.05	.05	-.07	.07	-.03	.38***	.18***	.08	-.39***		
Had-Surg	.11*	-.01	.02	.08	.02	.02	0.07	.11*	.09*	.06	-.07	
Satisfied	.13**	.03	.03	.07	.02	.08	0.01	.08	.03	.12**	-.11*	.79***

Third, the study investigated how eating disorders interacted with a number of variables, such as objectified body consciousness, comparing one's appearance to others, self-esteem, and perceived body shape. The findings revealed a positive relationship between eating disorders and objectified body consciousness (r =.43, p .001), as well as a relationship between eating disorders and the propensity to compare one's physical appearance to others (r =.37, p .001). Additionally, eating disorders were found to have a positive correlation with perceived body shape (r =.38, p .001) but a negative correlation with body-esteem (r = -.26, p .001), suggesting that people with eating disorders tend to be more preoccupied with how their bodies look on the outside than on the inside. Additionally, those with eating problems

The study also looked at the connection between objectified body consciousness and the tendency for people to compare their physical appearance, as well as the relationship between perceived body form and self-esteem. The findings showed a strong positive correlation (r =.52, p .001) between people's propensity to compare their physical appearance to others and objectified body consciousness, suggesting that people who are more likely to do so may also be more likely to experience their body as an object to be judged. Additionally, the study discovered a link between low body-esteem and a person's perception of their body's shape (r = -.39, p .001). This finding suggests that people who believe their bodies are overweight or unattractive are more likely to have low body-esteem. These connections highlight the significance of addressing body issues.

Table 4. Independent sample *t*-test by Liposuction experience

		No Lipo (*n* = 220)	Had Lipo (*n* = 278)	Mean Difference	*t*	*p*-value
Gender	*Mean*	.96	.99	-.034	-2.42	.016
	(SD)	(.01)	(.01)			
Age	*Mean*	30.94	30.72	.21	.27	.79
	(SD)	(.61)	(.52)			
Birthed	*Mean*	.40	.44	-.04	-.49	.62
	(SD)	(.05)	(.05)			
SES	*Mean*	5.55	5.78	-.23	-1.68	.09
	(SD)	(.11)	(.09)			
Patient Health	*Mean*	1.30	1.32	-.03	-.47	.64
	(SD)	(.05)	(.68)			
Eating Disorders	*Mean*	3.74	3.87	-.13	-1.51	.13
	(SD)	(.07)	(.06)			
Objectified Body Conscious.	*Mean*	2.84	2.96	-.13	-2.51	.01
	(SD)	(.04)	(.03)			
Physical Appear. Comparison	*Mean*	3.05	3.20	-.16	-2.03	.04
	(SD)	(.06)	(.05)			
Body-Esteem	*Mean*	2.60	2.68	-.07	-1.42	.16
	(SD)	(.04)	(.03)			
Perceived Body Shape	*Mean*	9.49	9.00	.49	1.65	.10
	(SD)	(.24)	(.19)			

The results of a two-sample t-test were presented in Table 4 to compare the mean scores of people who had liposuction (n = 250) and those who had not (n = 250) on two body image-related variables. The mean score for those who had undergone liposuction was significantly higher than that of those who had not on both dimensions: feeling like their body is an object to be evaluated (M=2.95, SD=.03 vs. M=2.84, SD=.04), t(498)=-2.51, p =.01; and engaging in appearance comparisons (M=3.20, SD=.05 vs. M=3.05, SD=.06), t(498)=-2.03, p =.04. According to these results, people who get liposuction may be more inclined to view their bodies as objects to be judged and to participate in appearance comparisons with others.

To investigate the connection between a number of independent variables and people's chances of developing an eating disorder, a regression model was developed. The R^2 value of the model was .29, indicating that approximately 29% of the variance in eating disorder can be explained by the independent variables included in the model. The fitted regression model was more predictable than a model that used the mean values of the independent variables.

Table 5. Regression Model Predicting Eating Disorders

Eating Disorder	Unstandardized Coefficient		Standardized	t	p-value
	B	Standard Error			
Const.	3.26	.33		9.8	.000
Age	-.02	.00	-.19	-4.79	.000
SES	.03	.03	.05	1.26	.207
Patient Health	.02	.06	.02	.38	.706
Objectified Body Conscious.	.53	.08	.31	6.85	.000
Physical Appear. Comparison	.17	.05	.16	3.47	.001
Body Esteem	-.42	.07	-.25	-5.84	.000

The findings demonstrated that neither the socioeconomic position of respondents nor their mental health significantly influenced their chance of developing an eating disorder. However, the research showed that changes in the risk of eating disorders were significantly predicted by respondents' objectified body consciousness. In particular, there was a projected increase of .53 in objectified body consciousness for every one unit increase in eating disorder risk on the six-point scale (t = 6.85, p < .001). Additionally, there was a significant positive correlation between the likelihood of having an eating disorder and the propensity to compare one's physical appearance to others: for every unit increase in the likelihood of having an eating disorder, an increase in appearance comparisons was predicted (t = 3.47, p =.001). Last but not least, the analysis revealed that body esteem was projected to decline by .42 units for every unit rise in eating disorder likelihood (t = -5.84, p.001).

These findings imply that objectified body consciousness, appearance comparisons, and body esteem are significant predictors of the likelihood of developing an eating disorder and could be targeted in therapies meant to lower that risk.

Table 6. Variance Inflation Factor

	VIF	1/VIF
PACS	1.42	.71
KOBCS	1.38	.73
BES	1.25	.80
PHQ	1.20	.83
SES	1.14	.88
AGE	1.13	.89
Mean VIF	1.25	

To assess the possibility of multicollinearity in the regression model, we examined the variance inflation factor (VIF), as recommended by James et al. (2013). A VIF value greater than 10 indicates a high correlation between the independent variables, which suggests the presence of multicollinearity. However, we found that no VIF value exceeded 10, indicating that multicollinearity is not a concern in this model. These findings suggest that the estimates of the regression coefficients in our model are likely to be reliable and unbiased

Table 7. Normality Assumption Check

Variable	Observation	Skewness	Kurtosis	Adj. Chi2	Prob.>Chi2
Residuals	498	.81	.44	.66	.72

To assess the normality assumption of the regression model, we examined the skewness and kurtosis of the residuals. The skewness of the residuals was found to be below the threshold of 2, and the kurtosis was well below the threshold of 7. These results suggest that the normality assumption of the regression model is likely to be met, and that the distribution of the residuals is reasonably close to a normal distribution.

Conclusion

Our study revealed substantial relationships between eating disorders and a number of variables, including objectified body consciousness, appearance comparisons, self-esteem, perceived body shape, and age. Additionally, we discovered notable psychological differences between those who had liposuction and those who had not, suggesting that people who get the operation may be more inclined to perceive their bodies as objects to be judged and to engage in beauty comparisons. Additionally, our regression analysis showed that major indicators of the risk of an eating problem were objectified body consciousness, appearance comparisons, and body esteem. The significance of addressing body image issues in the prevention and treatment of eating disorders is highlighted by these findings.

While our research sheds light on important aspects of the causes of eating disorders in South Korea, it has several shortcomings that need to be addressed in follow-up investigations. First off, considering that our sample was only made up of people who were considering or had already had liposuction, it might not be entirely representative of the general population. Second, because our study used self-reported data, it could have been biased by respondents. Future studies should focus on using more objective assessments of eating disorders and body image issues as well as more diverse samples of participants. Further study should investigate the influence of socioeconomic and cultural factors on the emergence of eating disorders in South Korea and other countries.

Our study emphasizes the relevance of addressing body image issues in the prevention and treatment of eating disorders and the need for improved awareness and focus on the factors influencing these illnesses. We can create more efficient interventions and strategies to enhance patient outcomes and advance general mental health and well-being by comprehending the complex relationship between eating disorders and a variety of factors, such as objectified body consciousness, appearance comparisons, and body-esteem.

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