

The Dual Mediating Effects of Self-Esteem and Self-Efficacy in the Effects of the Growth Mindset and Body Image among Elderly Korean People

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Abstract

Background/Objectives: The purpose of this study was to verify the path through which growth mindset in old age can positively affect body image through self-esteem and self-efficacy.

Methods/Statistical analysis: The subjects of this study consisted of men and women aged 65 or older living in the selected community, surveys were conducted from July to August 2019 among 363 Korean elderly. Frequency, t-tests, oneway ANOVA, and correlation analysis was performed using SPSS21.0, and model 6 of the SPSS PROCESS macro.

Findings: First, the body image of elderly individuals was found to be more positive when the elderly were married, the educational level was higher than that of a college graduate, and their economic conditions were better. Second, the elderly's growth mindset had a positive effect on the construction of body image. Specifically, the stronger the growth mindset, the more positively they perceived their body image. However, when the factors of self-esteem and self-efficacy were also added, the effect of the growth mindset on the body image was not statistically significant.

Improvements/Applications: In order to positively improve the body image, efforts to improve self-esteem and self-efficacy rather than a growth mindset are necessary.

Keywords: Growth mindset, Body image, Self-esteem, Self-efficacy, Dual mediating effect, SPSS macro model 6

1. Introduction

In 2020, the population of elderly individuals aged 65 or older accounted for 14.3% of the total population [1]. The rapid increase in Korea's population has resulted in an increase in the proportion of elderly individuals who are sick and experience economic difficulty, as well as an increase in the number of healthy elderly individuals who remain active and enjoy leisure activities. As a result, there has been an increase in interest in the how elderly individuals approach the changing perceptions of their bodies over time.

Body image refers to the consciousness or image of one's own body, and it is a social symbol which is expressed through human appearance, health status, normal functions, feelings, or attitudes toward sex [2]. However, social phenomena which deny the existence of the physical traits that appear with age, and which instead emphasize the pursuit of physical youthfulness increase the likelihood that the body image of elderly individuals becomes negative.

Although several factors affect the construction of body image associated with old age, this study focused on the influence of the growth mindset. The study related to the MINDSET has grown in popularity since Carol Dweck [3] published a book titled, "The New Psychology of

Success.” The types of mindset are generally divided into a growth mindset and a fixed mindset. Growth mindset refers to the belief that ability and intelligence can be improved through experience and effort [3]. There are differences throughout the various phases of life, depending on the beliefs that one holds about the possibility for change in one's intelligence or ability. Individuals with a growth mindset are more likely to try and find new strategies when faced with difficulties [4]. On the other hand, those with a strong fixed mindset only attempt to practice in fields they are familiar with [5]. Therefore, even if the body image becomes negative after reaching an older age, the growth mindset will continue to have a positive effect on body image, as elderly individuals with strong growth mindsets will find new strategies in order to eliminate factors creating a negative body image. During the course of our research, we have not been able to find any papers which directly study the relationship between these two variables.

On the other hand, self-esteem and self-efficacy can be cited as strategic factors which lower the likelihood of negative body image in old age. First, the growth mindset has been shown to have a positive effect on self-esteem [6]. Growth mindset refers to a belief that one's talents and intelligence can be changed through the exertion of effort. The higher the growth mindset, the more positively you will evaluate yourself without being deterred by frustrations throughout the process of pursuing your goals or coping with failures, due to the positive evaluation of self-esteem.

In sequence, self-esteem and self-efficacy are correlated with each other [8]. Self-esteem is an important factor in personal adaptation, healthy personality development, and self-realization, and has wide-ranging impact on an individual's behavior, emotions, motivations, achievements, and relationships, while self-efficacy refers to the confidence or expectation that one's ability can successfully execute certain actions [10]. Therefore, the relationship between these two variables can be seen as a strong, inseparable relationship.

There are disagreements among scholars as to which variable precedes the causal relationship between self-esteem and self-efficacy. However, as self-esteem increases the efficacy of one's own ability by enabling the experience of success and bestowing the willpower to challenge the task, this study assumes self-esteem as having the dominant effect on self-efficacy.

Lastly, the awareness of body image within interpersonal relationships bestows confidence or inferior consciousness [11], and self-efficacy allows individuals to decide whether to exert efforts and exhibit persistence in the face of a disability. As it is one's belief [12] that creates the desired effects of one's actions, it is predicted that the strength of self-efficacy will affect an individual's body image. Therefore, the growth mindset has a direct effect on the construction of body image, but it is also predicted to have an indirect effect on body image through self-esteem and self-efficacy

Therefore, this study uses the growth mindset in the analysis of school-age and adolescent individuals' perceptions of the relationship between body image and old age. Through this, the purpose of the study is to prepare findings for clinical use. Firstly, are there any differences in body image according to the sociodemographic characteristics of the elderly? Secondly, do self-esteem and self-efficacy have a dual mediating effect in their influence on the elderly's growth mindset and their resulting body image?

2 Methods and Research Model

In this study, the following research model was established by taking previous studies' findings into consideration.

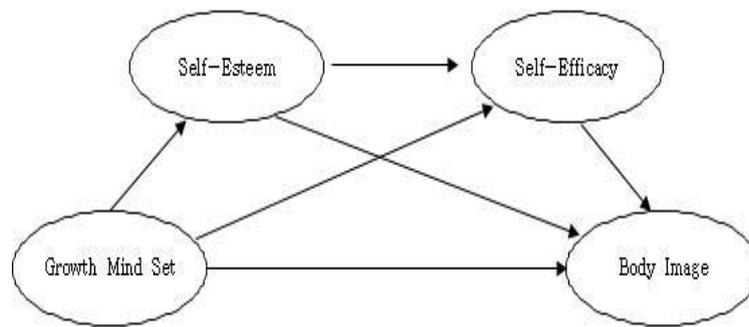


Figure 1. Research Model

2.1. Research subject and data collection procedure

The subjects of this study consisted of men and women aged 65 or older living in the selected community. For data collection, surveys were conducted from July 2019 to August 2019 among 363 elderly people living in Seoul, Gyeonggi, and Seosan. The survey was conducted with the cooperation of the head of the institution and the individuals in charge of visits to the local lifelong learning center, general social welfare center, and the general welfare center for the elderly

2.2. Measurement tools

2.1.1 Growth mindset

The growth mindset scale was developed by Dweck [3], and then adopted by Lee, Park and Hwang [13]. This scale measures the mindset for changes in human intelligence (IQ) and a mindset for personality changes, and consists of an 8-item, 5-point Likert scale. The reliability Cronbach's alpha value is .870.

2.1.2 Self-esteem

The self-esteem scale was used by translating the scale of Rogenberg [14]. It is a 10-item, 5-point Likert-type scale, and questions 3, 5, 8, 9, and 10 were recoded. The reliability Cronbach's alpha value is .809.

2.1.3 Self-efficacy

The self-efficacy scale is a five-point Likert scale with 20 questions that was completed by Park & Kim [15] based on previous studies. The reliability Cronbach's alpha value is .930.

2.1.4 Body image

The body image scale was modified and used by Jang [16] based on previous studies. It is a 14-item, 5-point Likert scale. The confidence Cronbach's alpha value is .847

2.3. Socio-demographic characteristics of the research subjects

The socio-demographic characteristics of 363 elderly people in this study were divided into gender, age, marital status, education level, religion, and place of residence. The male elderly accounted for 36.6% of the sample, and the female elderly accounted for 63.4% of the sample, resulting in a higher proportion of female elderly individuals for this particular study. Overall, the average age was 67.33. In terms of marital status, 78.2% were married, and 35.0% of them were less-than-middle school graduates. 68.6% of the individuals did not practice any religion.

2.4 Analysis method

To achieve the purpose of this study, frequency, t-tests, oneway ANOVA, and correlation analysis was performed using SPSS21.0, and model 6 of the SPSS PROCESS macro, proposed by Hayes [17], was also used. The bootstrap method was used to verify the mediation effect, and at the time of verification, the number of bootstrap samples measured at 5,000, and the confidence interval was set to 95%.

3. Results

3.1 The differences in body image according to the sociodemographic characteristics of the elderly

As a result of examining the differences in body image according to the socio-demographic

characteristics of the elderly, differences according to marital status, education level, economic status, health status, and family relations were statistically significant (Table 1).

First, when looking at the differences in body image according to the marital status of the elderly, it was found that the 'married' elderly individuals had a more positive body image than the elderly individuals who did not fall into this category. Looking at the differences in body image according to the elderly's educational level, the body image of respondents with college-level education or higher was the most positive, followed by high school graduates and then middle school level or lower graduates.

Additionally, when looking at the differences in body image according to the economic circumstances of the elderly, when compared to the same age group, the body image was reported as being the most positive when the economic condition was 'good', followed by 'similar,' and 'bad'. We found that the better the economic status, the more positive the body image in the case of individuals who were married, and for those who were university graduates or higher. However, there were no significant differences in gender, age, religion, and residence.

Table 1: The difference in body image according to the sociodemographic characteristics of the elderly

(N=363)

		N	M	S.D	t/F	Duncan
Gender	Male	133	3.090	0.524	.545	.
	Female	230	3.058	0.558		
Age	60~69 years	246	3.072	0.525	.096	.
	over 70 years	117	3.066	0.587		
Marriage status	Married	284	3.100	0.540	1.993*	.
	Others	79	2.962	0.552		
Education Status	Middle school or less	127	2.954	0.509	7.272**	a
	High school	121	3.053	0.530		a
	University or higher	115	3.215	0.570		b
Religion	Yes	125	3.025	0.547	-1.127	.
	no	238	3.093	0.544		
Economic Status	Bad	57	2.822	0.482	14.649**	a
	Similar	176	3.018	0.517		b
	Good	130	3.248	0.554		c
Residence	Urban	249	3.091	0.551	1.123	.
	Rural	114	3.022	0.531		

*p<.05, ** p<.01, *** p<.001

3.2. The dual mediating effects of self-esteem and self-efficacy in the relationship between a

growth mindset and body image

In order to examine the relationship between variables, namely, growth mind set, self-esteem, self-efficacy and body image, this study conducted correlation analysis, and found out that the correlations among all the variables were statistically significant (Table 2).

Focusing on the dependent variable of body image, it was found that the higher the growth mindset, the higher the self-esteem, and that the higher the self-efficacy, the greater the positivity of the elderly individual’s body image. Additionally, as the correlation coefficient varied from .115 to .541, there is no risk of multicollinearity between the variables.

Table 2: Correlation between variables (N=363)

	Growth mindset	Self-esteem	Self-efficacy	Body image
Growth mindset				
Self-esteem	.226**			
Self-efficacy	.285***	.541***		
Body image	.115**	.423***	.385***	

*p<.01, ***p<.001

Next, in order to analyze the dual mediating effect of self-esteem and self-efficacy in the effect of growth mindset on body image, a macro 6 model was applied and analyzed. Firstly, we found that the growth mindset has a positive effect on self-esteem ($\beta=.197, p<.001$) and self-efficacy ($\beta=.184, p<.001$). It was also shown that the higher the growth mindset, the higher the self-esteem and self-efficacy (Table 3, Figure 3).

And, self-esteem had a positive effect on self-efficacy ($\beta=.619, p<.001$) and body image ($\beta=.334, p<.001$). In other words, the higher the self-esteem, the higher the self-efficacy, and the more likely that the body image became positive. Moreover, the effect of the growth mindset on the body image was statistically significant (Figure 2), but the effect of the growth mindset on the body image when self-esteem and self-efficacy were added was not statistically significant ($\beta=-.017, p>.05$). Therefore, in the relationship between the growth mindset and the body image, the results revealed that self-esteem and self-efficacy had a completely dual mediating effect (Table 3, Figure 3).

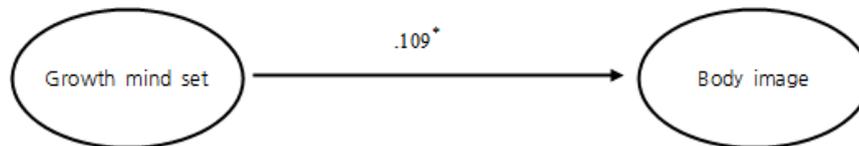


Figure 2. The effect of the growth mindset on body image

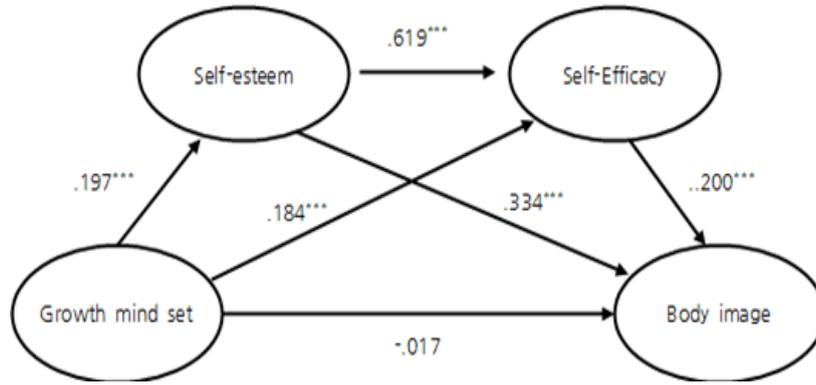


Figure 3. The dual mediating effect of self-esteem and self-efficacy on the growth mindset and body image.

Table 3: The dual mediating effect of self-esteem and self-efficacy in the growth mindset and body image

(N=363)

Dependent	Independent	Coefficient	SE	t	p	95% confidence interval		F	R ²
						LLCI	ULCI		
Body Image	Constant	2.729	.158	17.289	.000	2.418	3.039	4.827	.013
	Growth Mindset	.109	.050	2.197	.029	.012	.207		
Self-esteem	Constant	2.788	.142	19.707	.000	2.510	3.066	19.374	.051
	Growth Mindset	.197	.045	4.402	.000	.109	.284		
Self-efficacy	Constant	.806	.213	3.793	.000	.388	1.225	85.132	.321
	Growth Mindset	.184	.048	3.855	.000	.090	.278		
	Self-esteem	.619	.055	11.274	.000	.511	.727		
Body Image	Constant	1.291	.208	6.221	.000	.883	1.699	35.535	.219

	Growth Mindset	-.017	.047	-.373	.000	-.109	.074		
	Self-esteem	.334	.061	5.459	.000	.214	.454		
	Self-Efficacy	.200	.051	3.969	.000	.101	.299		

Additionally, as the mediating effect (indirect effect) is not known in Figure 2, Figure 3, and Table 3, the indirect effect measurement values are presented in Table 4. In the path of Growth Mindset->Self-esteem->Self-Efficacy->Body image, the bootstrap value is .024, and as there is no '0' between the upper and lower limits (.009 to .044), the indirect effect is statistically significant. As a result, it can be seen that the results verify that self-esteem and self-efficacy play a mediating role in the relationship between the growth mindset and the body image.

Table 4: Self-esteem and self-efficacy double-mediated indirect effect verification (N=363)

	Effect	Boot SE	BC 95.0% CI	
Growth Mindset->Self-esteem->Self-efficacy->Body image	.024	.009	.009	.044

4. Conclusion

The purpose of this study was to establish a basis for improving the quality of life for elderly individuals by identifying the path through which growth mindset in old age can positively affect body image through self-esteem and self-efficacy. To this end, a survey was conducted among 363 elderly people living in Seoul, Gyeonggi, and Seosan from July 2019 to August 2019.

The main research results were as follows: First, the body image of elderly individuals was found to be more positive when the elderly was married, the educational level was higher than that of a college graduate, and their economic conditions were better. Namely, the elderly who belonged to the group with the highest level of relationship with their spouse, highest educational background, and most secure economic status exhibited more positive results than those of other groups. Second, the elderly's growth mindset had a positive effect on the construction of body image. Specifically, the stronger the growth mindset, the more positively they perceived their body image. However, when the factors of self-esteem and self-efficacy were also added, the effect of the growth mindset on the body image was not statistically significant. In other words, it was revealed that rather than the elderly's growth mindset directly affecting the body image, the growth mindset affects the body image through self-esteem and self-efficacy. Therefore, it seems that in order to positively improve the body image, which plays an important role in the likelihood of depression and life satisfaction in old age, efforts to improve self-esteem and self-efficacy rather than a growth mindset are necessary. The body is a prerequisite for self-expression as another means of expression. For this reason, it is necessary to consider that if you feel dissatisfied with your own body, you will inevitably shrink psychologically, and if you have a distorted perception of physical standards, you may feel dissatisfied with the actual body and become easily depressed. In other words, there is a need for more measures to positively increase the body image of the elderly, who do not have a spouse or have a high school diploma or less, and whose economic status is "bad". However, in our society, the elderly who do not have a

spouse, have a low educational background, and have poor economic conditions may be among the vulnerable. In order to improve the body image of this group of elderly people and ultimately improve the quality of life, it is suggested that various efforts to improve their self-esteem and self-efficacy are needed in elderly welfare policies or elderly education programs.

5. References

1. Kostat. Total population, population growth rate [Internet]. Statistics Korea; 2021 [updated 2021 Feb 23; cited 2021 April 1]. Available from: [http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1009/\(website\)](http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1009/(website))
2. Fobair P, Stewart SL, Chang S, D'Onofrio C, Banks PJ, & Bloom JR. Body image and sexual problems in young women with breast cancer. *Psycho-Oncology*. 2006;15(7):579-594. DOI 10.1002/pon.991.
3. Dweck CS. *Mindset: The New Psychology of Success*, New York: Random House Digital; 2006. p.147.
4. Blackwell L, Trzesniewski KD, Dweck CS. Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and intervention. *Child Development*. 2007;78: 246–263. DOI: 10.1111/j.1467-8624.2007.00995. x.
5. Lee JR, Kwon DH. An analysis of structural relationship among locus of control, mindset, grit, and academic achievement. *Korean Journal of Youth Studies*. 2016;23(11): 245-265. DOI : 10.21509/KJYS.2016.11.23.11.245.
6. Dweck CS, Yeager DS. Thinking: Perspective of Two Era. *Perspective on Psychology*. 2019;14 (3): 481-496. DOI: 10.1177 / 17456916804166.
7. Dweck CS. *Self-Theories: Their role in motivation, personality, and development*. Philadelphia: Psychological Press; 2000. p. 25.
8. Yeo SS, Bang HM. The effect of dance education on self-efficacy and self-esteem of elementary school students. *Korean Journal of Arts Education*. 2013;11(2):35-46. UCI: G704-SER000008916.2013.11.2.004.
9. Haeter S. A developmental view of the magnetic system. In EM Hesorington (Ed), *Child Psychology Handbook, Volume 4: Socialization, personality and social development* (pp. 275–386). New York: John Wei. 1983. p. 275.
10. Bandura S. *The reproduction of mothering: Psychoanalysis and the sociology of gender*. Berkly: University of California Press. 1982. p.15.
11. Cash TF, Pruzinsky T. Future challenges for body image theory, research, and clinical practice. In TF Cash & T Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 509-516). New York: Guilford Press. 2002. p. 510.
12. Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*. 1977; 84(2): 191-215.
13. Lee CS, Park SU, Hawng YK. The structural relationship between mother's parenting stress and child's well-being: The mediating effects of mother's growth mindset and hope. *Indian Journal of Science and Technology*. 2016;9(36):1-6. DOI: 10.17485/ijst/2016/v9i36/102702.
14. Rosenberg M, Rosenberg self-esteem scale (RSE). *Acceptance and commitment therapy. Measure package*; 1965 p. 61-62.
15. Park SJ, Kim KH. The effects of appearance management behavior by women on psychological happiness and self-efficiency. *The Journal of the Korean Society of Knit Design*. 2019;17(1):35-46. DOI :10.35226/kskd.2019.17.1.35.
16. Jang HS. *Influences of body image and physical appearance management behavior on psychological stability*. [dissertation]. [Seoul]: Seokyeong University; 2014. Available from: <https://scienceon.kisti.re.kr/srch/selectPORSrchArticle.do?cn=DIKO0013509427&dbt=DIKO>.
17. Hayes AF. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford publication; 2013. p.9.