

Relationship between Body Image, Growth Mindset, Grit, and Successful Aging in Korean Elderly: Moderated Mediation Effect of Hope

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Abstract

Background/Objectives: This study examines the moderated mediation effect of hope on the relationship between body image, growth mindset, grit, and successful aging in 422 elderly people in Korea.

Method/Statistical Analysis: Descriptive statistics analysis, reliability analysis, correlation analysis, and moderated mediation effect analysis were done using SPSS Win.25.0 and PROCESS macro version 3.4.

Findings: First, there was a statistically significant positive correlation between body image, growth mindset, hope, grit, and successful aging. Second, hope moderated the mediating effect of growth mindset and grit in the relationship between body image and successful aging.

Improvements/Applications: This result shows that the body image of the elderly in Korean society influences successful aging through growth mindset and grit. It will be a way to increase successful aging.

Keywords: Elder, Body image, Growth mindset, Grit, Hope, Successful aging, Moderated Mediation, PROCESS macro. Forward head posture, Dynamic neuromuscular stabilization exercises, McKenzie exercise, Neck stabilization exercise, Spinal structure.

Introduction

Aging is an indispensable phenomenon that no human being can avoid. Recently, research on “successful aging” has been actively conducted because of the efforts of scholars to escape from the negative view of aging. Successful aging refers to the process of continual growth and maturity in the second half of life, focusing on “well-growing”^[1]. In other words, the weakening of human function and health is usual in aging. Successful aging is a more positive concept than is “usual aging”^[2].

Social and psychological variables are closely related to successful aging. Studies have shown that they are more associated with successful aging than are demographic, physical health, or cognitive function variables^[3]. Therefore it is worth noting the relationship between social and psychological variables and successful aging. Among psychological factors, hope, grit, and growth mindset are in the spotlight.

Hope is the driving force of life, and people with high hopes maintain a challenging and positive psychological state by focusing on success rather than failure^[4]. The hope of the elderly decreases negative sentiment^[5], finds more alternatives when faced with difficulties^[6], and constructively believes that this will work well. Thinking^[7]. Grit is also known as a predictor of success^[8]. Grit in older people also contributes to successful aging^[9]. Finally, the growth mindset is the belief that human intelligence (IQ) can change with learning and effort^[10], which is also very closely related

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to success. In this context, cognitive and physical function deteriorates with age, but it is predicted that successful aging will differ according to one's psychological state.

Another variable to consider in relation to successful aging is body image, which is a feeling and attitude related to the subjective evaluation of one's body and includes all emotional, evaluative, and behavioral aspects^[11]. Appearance is an important part of the reason for shrinking in the elderly, and older people are aware of the importance of appearance, and more active management is, the more can negative emotions, such as depression or atrophy from aging, be alleviated and the vitality of life can be improved^[12]. There is a direct study that body image affects successful aging^[13], but the number is very low, which points to the need for research. The results of studies related to external image, appearance management, and appearance satisfaction, which are used as a concept similar to body image, show that external image is a major determinant of psychological and social health, and negative external image also affects emotional health^[14]. In addition, life satisfaction, self-esteem, and happiness of those who had good appearance management and appearance

satisfaction was higher than that of those who did not^[15,16].

Existing studies can be found on the relationship between body image, grit, growth mindset, hope, and successful aging, but most of them are limited to individually identifying the relationship between variables or similar concepts. Therefore, empirical research is needed to comprehensively verify the relationship between variables in one model and, in particular, to investigate when and how each variable manifests.

Therefore, this study aimed to provide a new model for successful aging of the elderly by verifying the moderated mediation effect of hope in the relationship among body image, growth mindset, grit, and successful aging in Korean elderly people.

Research Method

Research Model: The main analysis method of this study is the moderated mediation effect analysis of model 91 of PROCESS macro ver.3.4. The concept of the research model is shown in [Figure 1].

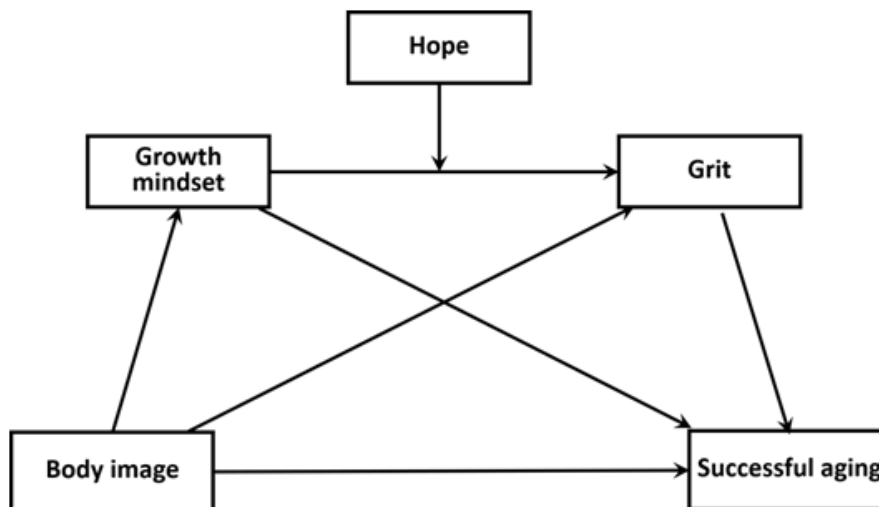


Figure 1. Conceptual Research Model

Survey subject and data collection method: The subjects of the survey were 422 elderly people in D and S city in Chungcheongnam-do, selected by taking into consideration the convenience of the survey. The subjects were 38.8% men and 61.2% women; and 31.3% were between 66 and 70, 27.5% between 71 to 75, and 17.3% for ages under 65. Of them, 52.5% resided in

small and medium cities (cities and counties), 32.9% in rural areas (eup and myeong), and 14.6% in metropolitan cities (metropolitan cities).

Research Tools:

Body Image: We used the body-image scale developed by Cash^[17] and used by Cho and Go^[18], and

Lee^[19]. The 19 items were adjusted to fit the subjects and measured. The reliability by Cronbach’s α was .832.

Growth Mindset: We used the growth-mindset scale developed by Dweck^[20] and translated by Lee et al.^[21]. It consists of 8 items and includes beliefs about changes in intelligence and personality. In this study, the growth mindset’s reliability, Cronbach’s α , was .613.

Successful Aging: The successful-aging questions, produced by Lee^[22] based on Paek and Choi’s^[23], were used. It consists of 17 items and includes such subareas as healthy and smooth family relationships, stable living and use of remaining capacity, and purposeful living. The reliability of successful aging in this study was a Cronbach’s α of .957.

Hope: We used the Korean version of the Hope Scale (K-DHS), which was developed by Snyder et al.^[24], revised and validated by Choi et al.^[25]. It consisted of four agency-thinking items that measured whether a goal was set and four pathways-thinking items that measured how to reach the goal. In this study, Cronbach’s α was .892.

Grit: We used the grit scale developed by Duckworth and Quinn^[26]. It consists of 8 items and includes two subareas of passionate attention and persistence. The grit reliability in this study was .699.

Data Analysis: SPSS Win. 25.0 was used for descriptive statistics analysis, reliability analysis, and average comparison analysis. The moderated mediation effect was analyzed using SPSS PROCESS macro 3.4. To verify this, a bootstrap method was applied.

Results and Discussion

Correlation and descriptive statistics: Pearson’s correlation analysis showed a statistically significant positive correlations between the main variables. The results are shown in [Table 1]. The correlation coefficient between growth mindset and grit was the highest at .455, and the correlation coefficient between the successful aging and body image was the lowest at .189.

This is supported by the claim that demographic and physical health and cognitive function variables are associated with successful aging, but that psychological variables are more related to successful aging^[3].

Table 1. Correlation and Descriptive Statistics

	Body image	Successful aging	Growth mindset	Grit	Hope
Body Image	1				
Successful Aging	.189**	1			
Growth Mindset	.207**	.247**	1		
Grit	.205**	.235**	.455**	1	
Hope	.392**	.424**	.375**	.336**	1
M	3.27	4.20	3.34	3.54	3.42
SD	0.45	0.63	0.49	0.49	0.60

** $p < .01$

Model Verification:

Verification of multiple mediating effects: To verify the moderated mediation effects of hope in the relationships between body image, growth mindset, grit, and successful aging of Korean elderly, we analyzed model number 91 of the PROCESS macro for SPSS. The values of the hope and growth mindset variables were centered before the analysis. The analysis results are shown in [Figure 2], [Table 2].

First, in the mediation model, the body image had a significant positive effect on the growth mindset (.2269, $p < .001$) and the growth mindset had a significant positive effect on the grit (.3551, $p < .001$). Hope also had a significant positive effect on the grit (.1696, $p < .001$), and the interaction term of the growth mindset and hope had a significant effect on the grit (.1704, $p < .01$).

The conditional effect of the hope variable, which is a moderating variable, is significant if hope is lower than average, average, or higher than average, the interaction term between growth mindset and hope was found to

affect grit. The Johnson-Neyman method, which is a floodlight method, was used to identify in which area the conditional effect according to the moderating variable value was significant. Identifying the significance area of the conditional effect of the interaction between growth mindset and hope according to the hope value showed that hope moderated the relationship between growth mindset and grit in the region where the hope value was greater than -1.1098. The proportion of this effect was significant at 96.6% with a hope value of over -1.1098. Second, in the model in which successful aging was the dependent variable, body image had a significant positive effect on successful aging (.1806, $p < .01$), growth mindset also had a positive influence on successful aging (.2030, $p < .01$), and grit had a significant positive effect on successful aging (.1778, $p < .01$).

Third, when investigating the conditional and unconditional indirect effects on the relationship between body image and successful aging, the path from body image to successful aging through growth mindset

(.0461, .0127 ~ .1085) is significant, because there was no 0 at the 95.0% confidence interval. However, the path from body image to successful aging via grit (.0107, -.0090 ~ .0338) was not significant, because there was 0 at the 95.0% confidence interval.

The conditional indirect effect (body image → growth mindset → grit → successful aging) in the relationship between body image and successful aging is significant at all three conditional values of hope. Thus, the moderated mediation effect of hope on the mediation effect of growth mindset and grit in the relationship between body image and the successful aging was verified.

Although it is meaningful to analyze the results by each path, this study is intended to empirically grasp the role and relationship of variables in social phenomena. Therefore, it may be desirable to discuss all the results of the study, which show that the hope of the elderly reduces negative emotions^[5] and does agency thinking with the belief that this will work^[7]. It is in sync with studies that the grit of the elderly contributes to successful aging^[9].

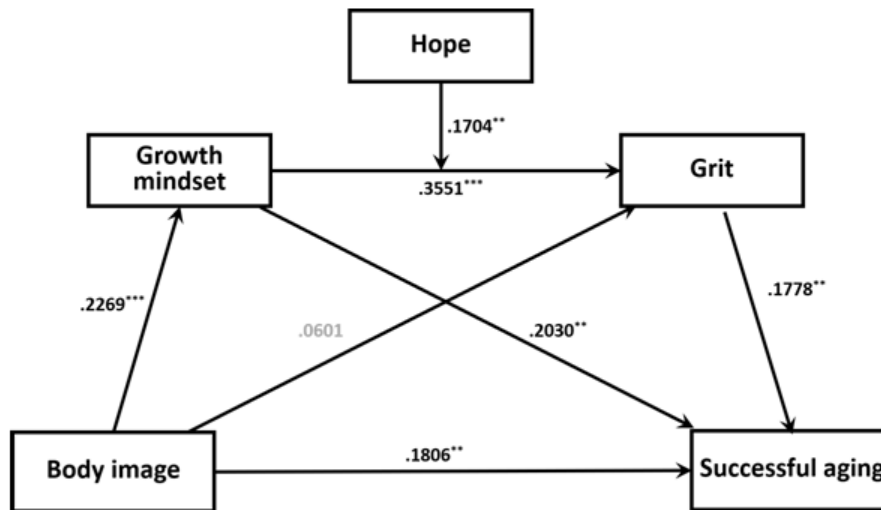


Figure 2. Effect size for each path

Table 2. Moderated mediation analysis of hope in relation to body image, growth mindset, grit and successful aging

Mediating variable model 1 (DV: Growth mindset)						
Variables	β	SE	t value	p	LLCI*	ULCI**
Constant	-.7424	.1732	-4.2851	.0000	-1.0829	-.4019
Body image	.2269	.0525	4.3253	.0000	.1238	.3300
Mediating variable model 2 (DV: Grit)						
Variables	β	SE	t value	p	LLCI*	ULCI**

Constant	3.3212	.1642	20.2315	.0000	2.9985	3.6438
Body image	.0601	.0498	1.2071	.2281	-.0378	.1580
Growth mindset	.3551	.0454	7.8219	.0000	.2659	.4443
Hope	.1696	.0410	4.1329	.0000	.0889	.2502
Growth mindset X Hope	.1704	.0587	2.9029	.0039	.0550	.2858
Test of highest order unconditional interaction:						
R ² -change	R²	F	p			
Growth mindset X Hope	.0150	8.4267	.0039			
Conditional effects of growth mindset at values of hope:						
Hope	Effect	se	t	p	LLCI*	ULCI**
-.5958	.2536	.0611	4.1531	.0000	.1336	.3736
.0000	.3551	.0454	7.8219	.0000	.2659	.4443
.5958	.4566	.0533	8.5673	.0000	.3518	.5614
Significance area of conditional effect of growth mindset at values of hope:						
Hope	Effect	se	t	p	LLCI*	ULCI**
-2.4235	-.0579	.1552	-.3727	.7095	-.3630	.2473
-1.2235	.1466	.0902	1.6261	.1047	-.0306	.3238
-1.1098	.1660	.0844	1.9657	.0500	.0000	.3320
-1.0235	.1807	.0802	2.2530	.0248	.0230	.3383
1.3765	.5896	.0870	6.7792	.0000	.4187	.7606
1.5765	.6237	.0972	6.4157	.0000	.4326	.8148
Dependent variable model (DV: Successful aging)						
Variables	β	SE	t value	p	LLCI*	ULCI**
Constant	2.9844	.3083	9.6811	.0000	2.3785	3.5904
Body image	.1806	.0676	2.6731	.0078	.0478	.3135
Growth mindset	.2030	.0676	3.0026	.0028	.0701	.3359
Grit	.1778	.0686	2.5903	.0099	.0429	.3127
Direct effect of X on Y						
Effect	se	t	p	LLCI*	ULCI**	
.1806	.0676	2.6731	.0078	.0478	.3135	
Conditional and unconditional indirect effects of X on Y						
Paths			Effect	Boot SE	LLCI*	ULCI**
Body image → Growth mindset → Successful aging			.0461	.0248	.0127	.1085
Body image → Grit → Successful aging			.0107	.0107	-.0090	.0338
Body image → Growth mindset → Grit → Successful aging	Hope	Effect	SE	LLCI*	ULCI**	
	-.5958	.0102	.0053	.0021	.0229	
	.0000	.0143	.0064	.0033	.0286	
	.5958	.0184	.0083	.0041	.0367	

*LLCI = boot the lower bound of the indirect effect within the 95% confidence interval, **ULCI=boot the upper bound of the indirect effect within the 95% confidence interval

Conclusion

This study was conducted to verify the moderated mediation effect of hope in the relationship between body image, growth mindset, grit, and successful aging in Korean elderly people.

First, Pearson correlation analysis showed a statistically significant positive correlation between body image, growth mindset, hope, grit, and successful aging.

Second, analyzing the moderated mediation effects showed that hope moderated the relationship between

growth mindset and grit in the relationship between body image and successful aging. In other words, hope moderated the mediating effects of growth mindset and grit in the relationship between body image and successful aging.

Suggestions for follow-up studies are as follows.

First, although scholars' interest in growth mindsets, grit, and hope is growing, studies on the role of these variables are still inadequate. In particular, it is necessary to identify the various roles of these variables in various subjects.

Second, this study revealed that growth mindset, grit, and hope are mediators in the relationship between body image and successful aging in the elderly. This is remarkable, in that it verified the effective variables for the successful aging of the elderly in Korean society, where the population of the elderly is increasing at the fastest speed in the world. This should be followed by the development and application of programs to promote the growth mindset, grit, and hope of the elderly.

Ethical Clearance: Not required

Source of Funding: Self

Conflict of Interest: Nil

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