

The Impact of Middle-Aged Women's Social Relations and Health Behavior on Perceptions of Successful Aging

Miyoung Lee¹, Mi-kyoung Lee*², Minkyoung Lee³, Hongmee Lee⁴

¹Associate Professor, College of Nursing, Eulji University, Gyeryong-ro 77, Junggu, Daejeon, 34824, Republic of Korea

²Associate Professor, College of Nursing, Eulji University, Gyeryong-ro 77, Junggu, Daejeon, 34824, Republic of Korea

³Ph.D.student, College of Nursing, Eulji University, Gyeryong-ro 77, Junggu, Daejeon, 34824, Republic of Korea

⁴Undergraduate, College of Nursing, Eulji University, Gyeryong-ro 77, Junggu, Daejeon, 34824, Republic of Korea

Mylee@eulji.ac.kr¹, lmk@eulji.ac.kr*², nowing04@naver.com³, al7293@naver.com⁴

Corresponding author : Mi-kyoung Lee, lmk@eulji.ac.kr

Abstract

Background/Objectives: Successful aging is a multi-dimensional concept. Most elderly people have chronic diseases and efforts are needed for a successful approach to old age.

Methods/Statistical analysis: To investigate the impact of middle-aged women's social relations and health behavior on their perceptions of successful aging, 210 middle-aged women were recruited via convenience sampling; data of 191 participants were included in the final analyses. Analysis included a T-test, ANOVA, Pearson's correlation coefficient, and multiple regression.

Findings: The results show that the mean scores for the participants' social relations was 42.57 points, health behavior was 123.01 points, and successful aging score was 111.92 points. Factors that affected the middle-aged women's successful aging were health behavior, marital status, and occupation. These variables explain 27.0% of the variance in the middle-aged women's perceptions of successful aging; health behavior is the most influential factor of these three elements.

Improvements/Applications: To increase middle-aged women's perceptions of successful aging, it is necessary to improve their health behavior, provide information to help with successful aging of the vulnerable population

Keywords: Middle-aged, women, Social relations, Aging, Health behavior,

1. Introduction

As average life expectancy lengthens, due to advances in medical technology and improvements in living standards, old-age among modern humans grows increasingly longer[1]. As both individual and social perceptions shift towards a greater appreciation and desire for improved quality of life, interest in successful aging is expanding. The concept of successful aging refers to an individual enjoying a healthy and happy life in one's old-age, rather than seeing it as a simple extension and prolongation of life expectancy. Successful aging is a multi-dimensional concept encompassing a harmony between: high-level cognitive ability and physical function; non-disease and low disability; and an attitude of actively living life[2]. However, given that most elderly people suffer from various chronic diseases, and experience discomfort in their daily lives as a result of these diseases[3], concerted efforts need to be taken by middle-aged individuals in order to start preparing for a healthy and happy life and to enable *successful* old-age[4].

Middle-age is a period in the human life cycle that transitions from the early adulthood to the elderly. It is simultaneously the peak of the life cycle and the beginning of physical and cognitive aging – such as the manifestation of back and joint pain and memory loss[5]. In particular, middle-aged women are affected by various health problems caused by menopausal hormonal changes, and many prior studies report menopause-related health problems – such as fever, weight gain, depression, and cardiovascular disease[5]. Increasing health behavior can not only prevent disease, but can also decrease middle-aged women's menopausal symptoms and level of depression while improving their self-perceived health status[6]. In order to be healthy and happy life throughout old-age, it is necessary to manage, maintain, and enhance one's own health through health behaviors during one's middle-age.

During middle-age adulthood, people experience psychological health problems, such as depression (due to the reduction in their social role) and conflict – as they experience their children's independence, retirement, unemployment, and difficulty with reemployment[5]. Active participation in life is the most important of the three factors of successful aging, and includes social relations and participation in productive activities that create social value[2]; social resources, in turn, have a positive influence on successful aging[7]. Considering this, social relations in one's middle age can be considered as a powerful

contributor for successful aging.

As such, this study aims to help improve the quality of women's life throughout old-age by identifying the impact of their social relations and health behavior on perceptions of successful aging.

2. Materials and Methods

2.1. Research design

This study is a descriptive survey research which aims to identify factors that affect middle-aged women's perceptions of successful aging.

2.2. Research participants and data collection

Middle-aged women – women in their 40s to 60s – were recruited via convenience sampling of the parents and friends of college students attending E University in D City. Those who consented to participate were selected and surveyed. The sample size necessary for research was calculated using the G*Power 3.1 program, using an effect size = 0.15, significance level (α) = 0.05, power = 0.95, and 13 predictors. The results show that the sample size of 189 was needed; subsequently, and considering a drop-out rate of 10%, 210 participants were surveyed. After excluding 19 surveys with incomplete answers, a total of 191 surveys were included in the final analyses. Before distributing the surveys, explanations concerning the entire research process were provided and consent was obtained. It was explained that the participants may terminate their participation at any time and that their identities were held confidential. The surveys were anonymized; furthermore, only the researchers can view the surveys. Participants who completed the surveys were provided with a small reward.

2.3. Research tools

2.3.1. Social relations

To measure middle-aged women's social relations, the Social Relations Network Scale was used[8]. This scale comprises both structural and functional characteristics. The functional characteristics were revised and supplemented to fit the intent of this study. The concerning functional characteristics are comprised of a total of 12 items regarding emotional support, informational support, instrumental support, and social support. The items presented are assessed and answered via a 5-point Likert scale of: "Strongly disagree", "Disagree", "Neutral", "Agree" and "Strongly agree". Higher scores indicate greater positive social relations. The reliability of the original scale was measured as .909 (Cronbach's α)[8] while the reliability of the scale used in this study is .88 (Cronbach's α).

2.3.2. Health behavior

The "Health Promoting Lifestyle Profile II" (HPLP II) [7] was translated into Korean and revised to form the health promotion lifestyle scale used in this study[9]. This scale is comprised of a total of 50 items. The items are scored via a 4-point Likert scale, ranging from "Never" (1 point) to "Routinely" (4 points). Higher scores indicate a greater level of health behaviors. The reliability of the tool translated into Korean has a Cronbach's alpha of .92[9], whereas the reliability of the adjusted scale used in this study has a Cronbach's alpha of 0.96.

2.3.3. Perceptions of successful aging

The revised and supplemented perceptions of successful aging scale was used in this study[10]. The scale was revised and supplemented to fit the intent of this study. This scale is comprised of 33 items across 6 domains. Each item is scored on a scale ranging from "Not important at all" (1 point) to "Very important" (4 points), with higher scores indicating higher perceptions of successful aging. The scale used in this study has a Cronbach's alpha (as a measure of reliability) of .95.

2.4. Data analysis methods

The data collected in this study were analyzed using the SPSS win 25 statistical program.

- 1) The participants' general characteristics, social relations, health behavior, and perceptions of successful aging were analyzed in terms of frequencies, percentages, means, and standard deviations.
- 2) Health behavior, social relations, and perceptions of successful aging (according to the participants' general characteristics) were analyzed with t-test and ANOVA methodology; Scheffe's test was used for post-hoc testing.
- 3) The correlations among health behavior, social relations, and perceptions of successful aging were analyzed using Pearson's correlation coefficients.
- 4) For factors affecting middle-aged women's perceptions of successful aging, Multiple Regression Analysis was used.

3. Results and Discussion

3.1. General characteristics of the participants

The most common age group among the participants is 46 to 50 (32.5% – 62 participants), while 90.6% (173 participants) were married at the time of the survey. 90.6% (173 participants) had children; 41.9% (80 participants) followed no religion; 81.7%

(156 participants) were workers; and 56.0% (107 participants) had at least graduated from college. The most common average income level was 4 million KRW (52.4% – 100 participants). 57.1% (109 participants) of participants stated that they had “normal” standards of living. The most common activity engaged in one’s spare time was “Resting” for 45.5% (87 participants), followed by “Social participation activity” for 14.1% (27 participants), “Exercise” for 22.5% (43 participants), and “Others” for 17.8% (34 participants). 37.4% (71 participants) had experienced menopause<Table 1>.

Table 1. General characteristics of the participants

		(n=191)
Characteristics	Categories	n (%)
Age (yr)	40~45	51 (26.7)
	46~50	62 (32.5)
	51~55	43 (22.5)
	56~60	35 (18.3)
Marital status	Married	173 (90.6)
	Unmarried	18 (9.4)
Children	Yes	173 (90.6)
	No	18 (9.4)
Religion	Christianity	44 (23.0)
	Buddhism	45 (23.6)
	Catholic	22 (11.5)
	No Religion	80 (41.9)
Educational level	Middle school or and lower	7 (3.7)
	High school	77 (40.3)
	College or and higher	107 (56.0)
Occupation	Housewife	35 (18.3)
	worker	156 (81.7)
Average income (10,000won/month)	200<	26 (13.6)
	200~<300	30 (15.7)
	300~<400	35 (18.3)
	400≤~	100 (52.4)
Standards of living	Dissatisfaction	32 (16.8)
	Normal	109 (57.1)
	Satisfaction	50 (26.2)
Spare time	Resting	87 (45.5)
	Social participation activity	27 (14.1)
	Exercise	43 (22.5)
	Others	34 (17.8)
Menopause	Yes	71 (37.4)
	No	119 (62.6)

3.2. Participants’ social relations, health behavior, and perceptions of successful aging

The social relations score of the research participants range from 27 to 60 points, with a mean of 42.57±6.34. The health behavior score ranged between 76 and 200 points for a mean of 123.01±22.48. The perceptions of successful aging score ranges between 74 and 132 points for a mean of 111.92±12.11<Table 2>.

Table 2. Participants' social relations, health behavior, and perceptions of successful aging
(N=191)

Variables	Min	Max	Total	Items
			Mean±SD	Mean±SD
Social relations	27	60	42.57±6.34	3.55±0.53
Health behavior	76	200	123.01±22.48	2.46±0.45
Successful aging	74	132	111.92±12.11	3.39±0.37

3.3. Differences in social relations, health behavior, and perceptions of successful aging according to the general characteristics of the participants

T-test and ANOVA were used to test the differences in social relations, health behavior, and perceptions of successful aging according to the general characteristics of the participants. For post-hoc evaluation, Scheffe's test was used. For differences in social relations according to the general characteristics of the participants, statistically significant differences are apparent according to the participants' religion ($F=3.44, p=.018$) and their level of education ($F=3.37, p=.037$). For health behavior, there are statistically significant differences apparent according to participants' average income ($F=3.84, p=.011$) and spare time ($F=4.07, p=.008$). Finally, for perceptions of successful aging, there are statistically significant differences present according to the participants' marital status ($t=2.74, p=.013$) and occupation ($t=3.10, p=.002$) <Table 3>.

Table 3. Difference between social relations, health behavior, and perceptions of successful aging according to the general characteristics of the participants

		(N=191)						
Characteristics	Categories	Social relations		Health behavior		Successful aging		
		M±SD	t or F(p)	M±SD	t or F(p)	M±SD	t or F(p)	
Age (yr)	40~45	3.62±0.56		2.47±0.43		3.41±0.37		
	46~50	3.46±0.46	1.34(.264)	2.37±0.47	1.76(.157)	3.37±0.39	0.11(.955)	
	51~55	3.63±0.62		2.57±0.48		3.41±0.32		
	56~60	3.51±0.53		2.49±0.39		3.39±0.40		
Marital status	Married	3.55±0.53		-0.27(.788)		2.48±0.45		1.39(.165)
	Unmarried	3.58±0.48	2.32±0.47		3.10±0.51			
Children	Yes	3.54±0.53	-0.90(.370)	2.47±0.45	0.36(.721)	3.41±0.35	1.72(.102)	
	No	3.66±0.50		2.43±0.43		3.22±0.48		
Religion	Christianity ^a	3.67±0.48	3.44(.018)	2.51±0.51	2.20(.090)	3.43±0.37	1.24(.297)	
	Buddhism ^b	3.42±0.43		2.41±0.39		3.32±0.37		
	Catholic ^c	3.77±0.56		b<c		2.66±0.45		3.48±0.36
	No religion ^d	3.50±0.56		2.41±0.44		3.39±0.36		
Educational level	Middle school or and lower	3.57±0.71		2.45±0.37		3.41±0.33		
	High school	3.43±0.50	3.37(.037)	2.39±0.41	1.82(.165)	3.35±0.36	0.98(.377)	
	College or and higher	3.63±0.52		2.52±0.48		3.42±0.37		
Occupation	Housewife	3.52±0.60	0.43(.666)	2.48±0.37	-0.26(.792)	3.22±0.39	3.10(.002)	
	Worker	3.56±0.51		2.46±0.47		3.43±0.35		
Average income	200< ^a	3.41±0.42	2.38(.071)	2.22±0.42	3.84(.011)	3.32±0.32	1.80(.149)	
	200~<300 ^b	3.39±0.53		2.41±0.39		a<d		3.30±0.48
	300~<400 ^c	3.66±0.53		2.48±0.39		3.37±0.33		
	400≤ ^d	3.60±0.54		2.54±0.48		3.45±0.35		
Standards of living	Dissatisfaction	3.40±0.53	2.15(.119)	2.38±0.44	2.52(.083)	3.50±0.41	1.69(.188)	
	Normal	3.56±0.54		2.43±0.47		3.37±0.35		
	Satisfaction	3.64±0.47		2.58±0.39		3.37±0.37		
Spare time	Resting ^a	3.56±0.51	2.44(.066)	2.36±0.48	4.07(.008)	3.41±0.35	0.44(.723)	
	Social participation activity ^b	3.77±0.58		2.60±0.43		3.42±0.36		
	Exercise ^c	3.46±0.52		2.61±0.32		3.37±0.33		
	Others ^d	3.46±0.48		2.44±0.46		3.34±0.46		
Menopause	Yes	3.65±0.51	1.95(.053)	2.52±0.45	1.38(.170)	3.37±0.38	-0.63(.527)	
	No	3.50±0.53		2.43±0.45		3.41±0.36		

3.4. Correlation among social relations, health behavior, and perceptions of successful aging of the participants

The results observed from the analyses of the correlation between social relations, health behavior, and perceptions of successful aging (of the participants) are shown in Table 4. Successful aging exhibits positive correlations with social relations ($r=.31, p<.001$) and health behavior ($r=.41, p<.001$). Furthermore, it was found that social relations have a positive correlation with health behavior ($r = .60, p<.001$).

Table 4. Correlation among social relations, health behavior, and perceptions of successful aging of the participants (N=191)

Variables	Social relations	Health behavior	Successful aging
Social relations	1		
Health behavior	.60** ($<.001$)	1	
Successful aging	.31** ($<.001$)	.41** ($<.001$)	1

3.5. Factors that affect the participants' perceptions of successful aging

To examine the factors that affect participants' perceptions of successful aging, marital status, occupation, and smoking (which showed significant differences among the general characteristics) were converted to dummy variables; multiple regression analysis was subsequently performed on these variables. The results of testing the multicollinearity of the independent variables show that the tolerance of each variable ranges between 0.63 and 0.99 (which are above 0.1), whereas the variance inflation factor (VIF) ranges between 1.01 and 1.58, which does not exceed the threshold of 10. Thus, there are no observable problems of multicollinearity. The result of the Durbin-Watson test, which shows the independence of error terms, is 2.183 – which is close to 2. Thus, it was confirmed that there are no autocorrelations among the error terms, indicating that regression analysis is appropriate. The regression model is significant ($F=18.57, p<.001$). In terms of the factors that affect the perceptions of successful aging, it was found that the largest predictors are in the order of health behavior ($\beta=0.32, p<.001$), marital status ($\beta=-0.25, p<.001$), and occupation ($\beta=-0.24, p<.001$). Furthermore, health behavior is the factor that has the greatest impact on successful aging, explaining 27.0% of the variance.

Table 5. Factors that affect the participants' perceptions of successful aging

Variables	B	SE	β	t	p	VIF
(Constant)	2.53	0.16		15.70	$<.001$	
Social relations	0.08	0.05	.12	1.52	.131	1.57
Health behavior	0.26	0.06	.32	4.11	$<.001$	1.58
Marital status(Unmarried)	-0.31	0.08	-.25	-3.94	$<.001$	1.02
Occupation(Housewife)	-0.22	0.06	-.24	-3.81	$<.001$	1.01
$R^2=.285, \text{Adjusted } R^2=.270, F=18.57(P<.001)$						
Durbin-Watson's d=2.183						

With the increase in the average life expectancy of women, the interest in, and importance of, their perceptions concerning successful aging is growing. As such, preparation prior to reaching old age is necessary. Thus, this study was conducted to identify factors affecting middle-aged women's perceptions of successful aging in terms of social relations and health behavior.

First, the mean score concerning the perceptions of successful of middle-aged women (who participated in this study) is 3.39 out of 4 points. This is similar to the previous study, which found that the successful aging score among middle-aged women – as measured with the identical scale – is 4.11 out of 5 points, on average[10]. This is comparable to results observed in a previous study which used a similar scale to test the perceptions of successful aging in the same population, which exhibited an average score of 4.00 out of 5 points[11]. In general, Korean middle-aged women's perceptions of successful aging is above average, and there are differences in the scores between perceptions of successful aging depending on the individual's marital status ($t=2.74, p=.013$) and occupation ($t=3.10, p=.002$). This is different from previous results, showing that there are no significant differences in the perceptions of successful aging as mediated by the individual's marital status or occupation[10]. Results do show that there are differences in the perceptions of successful aging by level of education, primary income source, and subjective health status[10]. This signifies that middle-aged women's perceptions of successful aging, as mediated along the lines of general characteristics, can

differ depending on whether the participants are in their early or late middle-age – as such, additional research is necessary.

Social relations scored 3.55 points out of 5 points, which is above average. There are observable differences apparent depending on the religion ($F=3.44, p=.018$) and level of education ($F=3.37, p=.037$) of the participant. In terms of social relations, the concept of social support is generally reflected. Therefore, the results of this study are further comparable to the results of previous research which measured social support among middle-aged women. In a previous study, the friend and peer support among middle-aged women was recorded as 3.63 out of 5 points, whereas family support scored 4.38[11], which was partially similar to the results of this study. Health behavior scored 2.46, on average, out of 4 points, which is similar to the 2.52 points from a previous study using the same scale[12]. Additionally, there are statistically significant differences apparent depending on the participant's average income ($F=-3.84, p=.011$) and spare time ($F=4.07, p=.008$); this too was similar to previous findings[12]. The level of health behavior is greater when the participant's average income is higher and when their spare time was spent on exercise or social participation activity (compared with resting in their spare time). Therefore, in order to improve middle-aged women's health behavior, it is necessary to recommend using their spare time to engage in appropriate exercises or social participation activities.

Given the results of this study, health behavior is found to have the greatest impact as a variable that affects perceptions of successful aging. Furthermore, among general characteristics, a marital status of "unmarried" and the occupation of "housewife" are found to affect the perceptions of successful aging. This supports the previous finding that there is a positive, moderate correlation between health behavior and perceptions of successful aging [12] and is in line with the finding that the level of perceived health status affects the perceptions of successful aging [13]. Ultimately, perceiving oneself as healthy through various activities for health is an important factor improving perceptions of successful aging among middle-aged women who are preparing for old age. Therefore, various institutionalized advertisements that inform the importance of regular exercise and the abstaining from alcohol and smoking in order to welcome successful aging might be necessary. Being unmarried and being a housewife are factors that decrease the perceptions of successful aging scores. This is partially in agreement with a previous study that shows that, while marital status is not an influential factor, occupation does influence the perceptions of successful aging[13]. These two are general characteristic variables and, therefore, direct intervention is not possible. However, for these groups, it will be possible to establish strategies to increase the perceptions of successful aging – such as connecting groups of similar situations, providing opportunities to communicate with each other, and receiving information. Providing information and communicating are ultimately related to support as well. In this study, social relations do not affect perceptions of successful aging, but the concept of social support has been asserted as being an important variable for perceptions of successful aging in many previous studies[7,13]. Therefore, a replication study is recommended. Furthermore, efforts to positively perceive old age is not only necessary for women, but for men as well. Because this study was only conducted on middle-aged women, additional research on all middle-aged people (including men) is suggested.

This study is limited in that it is necessary to interpret the results carefully given that it was conducted on a selection of participants in Korea via convenience sampling. However, since increasing the perception toward successful aging in light of an aging society can reduce the burdens and tensions experienced by middle-aged women (concerning about old-age itself), it is important to identify factors that affect the perceptions of successful aging. Therefore, this study is significant in that it provides basic data necessary to establish plans for improving the perceptions of successful aging.

4. Conclusion

This study employed a descriptive survey methodology in order to identify the factors that affect middle-aged women's perceptions of successful aging with a focus on their social relations and health behaviors. To identify middle-aged women's perceptions of successful aging, general characteristics, social relations, and health behavior were used as independent variables in regression analyses. Subsequently, it is found that health behavior, marital status, and occupation are influential factors. These variables are found to explain 27.0% of the variance in the perceptions of successful aging. Furthermore, it is found that health behavior has the largest explanatory power among those variables. Therefore, strategies that can increase the health behaviors of middle-aged women can ultimately have a positive influence on improving their perceptions of successful aging. In conclusion, it is necessary to inform individuals of the importance of health behavior and to establish various programs so as to improve middle-aged women's perceptions of successful aging. Furthermore, institutional efforts are necessary to improve the perceptions of successful aging among unmarried women and housewives.

5. References

1. Korean Statistical Information Service. KOSIS [internet]. (2017). *Population, households: Future Population Estimate: Nationwide*. Retrieved from: https://kosis.kr/visual/populationKorea/futureAsPopulation/relatedStoryView.do?mb=N&menuId=M_2_2
2. Martin P, Kelly N, Kahana B, Kahana E, Willcox BJ, Willcox DC, et al. (2015). *Defining successful aging: A tangible or elusive concept?* 55(1), 14-25. DOI:10.1093/geront/gnu044
3. Lee M. S. (2010). *Chronic Diseases, Depressive Symptoms and the Effects of Social Networks in Korean Elderly Population*. Social Science. 27(1), 5-30.
4. Kwon Y. L., Jeon H. O. (2013). *Effects of Perceived Health Status, Self-esteem and Family Function on Expectations*

- Regarding Aging among Middle-aged Women.* Journal of Korean Academy of Nursing. 43(2), 176-84. DOI:10.4040/jkan.2013.43.2.176
5. Willis S, Martin M & Rocke C. (2010). *Longitudinal perspectives on midlife development: stability and change.* Springer.
 6. Kwon S. J., Kim D. W., Park S. R., Park H. Y., Shin S. Y., Shim J. Y., et al. (2010). *A Study on the Relationships Between Self Efficacy, Depression and Health Promoting Behavior of Middle-aged Women.* Journal of the Nursing Academic Association of Ewha Womans University. 44(1), 17-29.
 7. Cho J, Martin P, Poon LW & Gerontologist GCSJT. (2015). *Successful aging and subjective well-being among oldest-old adults.* 55(1), 132-43. DOI:10.1093/geront/gnu074
 8. Jeong Y. M. (2007). *Study on the quality of life and social network of solitude elderly residents living in permanent rental houses.* Master's thesis. Daegu University. Retrieved from: Daegu. https://academic.naver.com/article.naver?doc_id=80027324
 9. Seo H. M. (2001). *Construction of Health Promoting behaviors model in Elderly.* Seoul University Graduate School. Doctoral dissertation. Seoul. Retrieved from: https://academic.naver.com/article.naver?doc_id=79350929
 10. Park G. H. (2013). *The Effects of Perceived Successful Aging of the Middle Aged Women's on Quality of life.* Master's thesis. Daegu Haany University. Daegu. Retrieved from: https://academic.naver.com/article.naver?doc_id=176615567
 11. Lee S. H., Jang H. S. & Yang Y. H. (2016). *The Influence of Subjective Health Status, Post-Traumatic Growth, and Social Support on Successful Aging in Middle-Aged Women.* Journal of Korean Academy of Nursing. 46(5), 744-52. DOI:10.4040/jkan.2016.46.5.744
 12. Lee Y. J. & Park J. S. (2015). *Relationship between Perception for Successful Aging and Health Promotion Behavior of Late Middle Aged Women.* Journal of the Korean Data Analysis Society. 17(2), 1073-86.
 13. Kim Y. J., Lee J. H. & Lee Y. J. (2018). *Factors Affecting the Successful Aging of Late Middle-Aged Adults.* Korean Journal of Health Promotion. 18(2), 90-7. DOI:10.15384/kjhp.2018.18.2.90