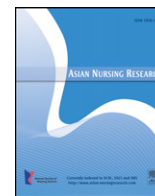


Contents lists available at [SciVerse ScienceDirect](http://SciVerse.ScienceDirect.com)

Asian Nursing Research

journal homepage: www.asian-nursingresearch.com

Research Article

Association Between Knowledge and Attitude About Aging and Life Satisfaction Among Older Koreans

Soonrim Suh, RN, PhD,* Heejung Choi, RN, MSN, Choonji Lee, RN, MSN, Miyoun Cha, RN, MSN, Inhee Jo, RN, MSN

College of Nursing, Research Institute of Nursing Science, Kyungpook National University, Daegu, South Korea

ARTICLE INFO

Article history:

Received 22 February 2012

Received in revised form

10 July 2012

Accepted 24 July 2012

Keywords:

aged

attitude

knowledge

personal satisfaction

SUMMARY

Purpose: The purpose of this study was to measure knowledge and attitude about aging and life satisfaction among older Korean adults and to examine the influence of attitude and knowledge about aging on these adults' life satisfaction.

Methods: A cross-sectional and correlational design was used. A total of 405 older adults were surveyed using a written questionnaire at six elderly welfare centers in a metropolitan city in South Korea in mid April 2011. The data were analyzed using descriptive statistics, Pearson's correlation analysis, and multiple regression.

Results: The score of knowledge on aging was below the medium level. Attitude about aging was neutral, and life satisfaction was at the medium level. Variables such as female sex, age, economic status, monthly allowance, living with a spouse, self-rated overall health, knowledge and attitude about aging accounted for 33.8% of the total variance in predicting life satisfaction of the older adults. Older age and lower economic status reduced life satisfaction. Being female, having a monthly income of 300,000 Korea Republic Won or more, living with a spouse, and better knowledge and attitude about aging were associated with enhanced life satisfaction.

Conclusion: The effect of knowledge and attitude about aging on life satisfaction is significant. Economic status, living with a spouse and self-rated overall health status are also predictive factors in life satisfaction. Consequently, nursing interventions for education and psychological support to increase knowledge about aging and induce a positive attitude towards it should be developed to improve older adults' life satisfaction.

Copyright © 2012, Korean Society of Nursing Science. Published by Elsevier. All rights reserved.

Introduction

The size of the older population has increased rapidly due to the prolonged average life span. With a longer age span, older adults are more concerned with healthy lives than simply long lives. They are also concerned with leading independent and productive lives. Healthy life indicates successful aging, which is based on the premise of aging (Rowe & Kahn, 1998). Healthy aging contributes to maintaining the quality of life of older adults by allowing them to manage positively their health problems, to survive into late life free of major life-threatening illnesses and to maintain the ability to

function physically and mentally (Peel, Bartlett, & McClure, 2004). Older adults who achieve healthy aging continue their active lives, which positively affect their life satisfaction (Melendez, Tomas, Oliver, & Navarro, 2009).

Life satisfaction, defined as a positive perspective on past and present life activities, is considered an indicator of subjective well-being and overall quality of life (Choi, 1986; Liu & Guo, 2008). Understanding the life satisfaction of older individuals is particularly important for identifying individuals who are experiencing a quality of life that is less than optimal (Keister & Blixen, 1998). In gerontological nursing, it is necessary to identify life satisfaction in an attempt to provide quality care that can maintain active and healthy lives for older adults rather than simply managing disease and dependency. It is necessary to identify life satisfaction and its predictors as part of the clinical decision-making process to provide appropriate nursing care.

* Correspondence to: Soonrim Suh, PhD, College of Nursing, Research Institute of Nursing Science, Kyungpook National University, Gunggu Dongin Dong 2-101, Daegu, South Korea.

E-mail address: srsuh@knu.ac.kr (S. Suh).

According to a study on changes in life satisfaction among Korean elderly individuals (Chung & Lee, 2011), comparisons of national survey results from 1994, 2004 and 2008 suggested that life satisfaction decreased during the years. It is therefore necessary to identify the determinants of life satisfaction so as to explore approaches that maintain the quality of life of older Koreans. Revealed as the determinants of life satisfaction were subjective economic and health condition in 1994; age, gender, education, monthly income, subjective economic and health condition in 2004; and education, spouse, job, daily activities, subjective economic, health condition and perception of aging in 2008 (Chung & Lee). These findings showed different influencing factors on life satisfaction at each survey year. Fernandez-Ballesteros, Zamarron, and Ruiz (2001) studied several factors as predictors of life satisfaction, such as age, gender, marital status, income, education and health condition. Rather than age, gender, and marital status, health condition (self-perceived health and physical illness), education and income were revealed as influencing factors. Other studies (Kim, 2009; Lee, 2010) reported that monthly allowance, self-perceived health, and physical illness affected life satisfaction, and that health condition, spouse, and income also influenced life satisfaction. These studies on life satisfaction indicated that several inconsistencies still remain with regard to its determinants. Therefore, more study is warranted to find factors influencing life satisfaction, including sociodemographic factors.

In addition to these variables, psychological well-being is a major predictor of life satisfaction. Psychological well-being is related to self-acceptance, which can be achieved by older adults who have a good knowledge about aging and a positive attitude toward themselves (Kim & Kim, 2008; Melendez et al., 2009). According to previous studies, limited knowledge on aging negatively contributes to quality of life, including psychological well-being (Jeon & Shin, 2009; Kim, 2003). Knowledge on aging, as defined by Palmore (1980), is factual statements that covered the basic physical, mental, social facts, and also common misconceptions about aging. It is needed in order to understand the aging process correctly. More knowledge about aging is associated with more positive attitudes toward the aged because knowledge about aging is used as a clarification of misconceptions that involve images of age. Knowledge contributes to attitude. Attitude is the central issue that predicts, explains and continuously influences behavior and determines emotion, thought and behavioral style (Kim, Kang, & Lee, 2004). Only one study has examined the relationship between knowledge of aging and life satisfaction (Davis & Friedrich, 2004). This study has reported that the knowledge is composed of physical, psychological and social factors that are closely connected to well-being, and that realistic and accurate knowledge of aging by older adults is associated with lower worrying scores about aging. A positive well-being correlated with better life satisfaction. Although direct research has not examined how attitude towards aging affects life satisfaction, it appears that positive attitude towards it reflects successful aging, which is related to life satisfaction (Kim & Kim).

However, there is very little empirical information on how knowledge and attitude about aging are related to life satisfaction. These factors have not been examined in the context of predicting life satisfaction among elderly individuals in Korea. It is necessary to identify the factors that predict life satisfaction among older populations to develop effective nursing interventions that can enhance the life satisfaction of these populations.

To achieve healthy aging, older adults need to enhance their life satisfaction through knowledge and positive attitudes about aging. To this end, this study attempts to identify individuals' knowledge and attitude about aging and to determine how these factors affect

life satisfaction. The findings of this study may provide information necessary to develop nursing interventions to enhance life satisfaction.

Method

Study design

This study used a cross-sectional and correlational design to identify knowledge and attitude about aging, life satisfaction and other factors that influence life satisfaction among older adults.

Sample and data collection

The research was approved by the institutional review board at the Catholic University of Daegu (approval no. CR-11-023-Res-01-R). For data collection, participants were recruited from the elderly population that had been registered at welfare centers in the D city of South Korea by convenience sampling method. Study inclusion criteria were (a) individuals aged 65 and over, (b) elderly performing activity of daily living (eating, bathing, getting dressed, using the bathroom, moving, walking) independently, (c) individuals capable of communication and social activity, (d) individuals capable of reading and writing, (e) individuals who volunteered to participate in the study.

A sample size above 324 was needed for one-way analysis of variance (ANOVA) and regression by test power of .95, a significant level of .05, a medium effect size using G* power version 3.1.2 program (Institute for Experimental Psychology of Heinrich-Heine University, Dusseldorf, Germany). Initially, 458 older adults among the target population (3,400 individuals) who registered at the centers participated from April 8 to 18, 2011, but 53 individuals showed insufficient responses or did not complete the questionnaire. Therefore, the final sample included 405 individuals. Each participant signed a written consent after receiving information about the study goals, data collection, and confidentiality. They were told that the data collection process could be stopped at any time with no penalty.

The researchers had been trained for the survey method and had discussions for consistent measurement before visiting the centers. Data were collected using face to face interview with a structured questionnaire.

Measures

The Facts on Aging Quiz developed by Palmore (1980) was used to measure knowledge about aging. This tool consisted of 25 items comprising physical (11 items), psychological (6 items) and social (8 items) subcategories. Responses indicating no stereotypes and no discrimination based on aging were scored 1, and responses indicating stereotypes and discrimination were scored 0. The total score ranged from 0 to 25, with a higher score indicating a higher level of correct knowledge about aging. The original English version developed by Palmore was translated with permission into the Korean language and back-translated prior to use. The Cronbach's α in this study was .66.

The questionnaire that we used in this study to measure older adults' attitudes on a semantic differential scale was initially developed for young adults by Sanders, Montgomery, Pittman, and Balkwell (1984). A recent study, however, indicated that attitude score obtained by the questionnaire did not vary between different age groups (Han, 2004). The questionnaire consisted of 20 items, each scaled from 1 (*very positive*) to 7 (*very negative*). Seven of the 20 items were on a reverse scale. The total score ranged from 20 to 140, with a higher score indicating a more negative attitude. A score

of 70–90 was regarded as a neutral attitude. Cronbach's α in this study was .79.

Life satisfaction was measured with Choi's tool (Choi, 1986), which consisted of 20 items. It was used for this study with approval from the author. Responses indicating agreement were scored 2, neutral responses were scored 1 and disagreement was scored 0. The total score ranged from 0 to 40, with a higher score indicating greater life satisfaction. Cronbach's α was .81 in the original study and .79 in this study.

Data analysis

SPSS program 19.0 (SPSS Inc., Chicago, IL, USA) was used to analyze the data. Descriptive statistics were used to identify the general characteristics of the participants. A *t* test and ANOVA between groups were used to compare differences in the scores of knowledge and attitude about aging, and life satisfaction according to general characteristics. The Scheffe's test was conducted as a post-comparison test. The Pearson correlation coefficient was used to determine the relationship between knowledge and attitude on aging, and life satisfaction. Hierarchical multiple regression analyses were performed to determine the predictors of life satisfaction among older adults. The categorical variable was changed to a dummy variable.

Results

General characteristics of participants

The participants included approximately equal numbers of men and women. The mean age of the participants was 73.01 ± 4.95 years. The largest educational category was high school graduates (33.6%). The largest group by economic status was the middle economic status group (49.1%). The largest income group (23.2%) had a monthly allowance of 100,000–190,000 Korea Republic Won (KRW). Individuals living with a spouse were the largest group in terms of living arrangements (48.9%). The mean score for self-rated overall health was 3.09 ± 1.15 (Table 1).

Knowledge and attitude about aging and life satisfaction

The mean score for knowledge and attitude about aging was 11.45 ± 2.84 and 75.31 ± 16.82 respectively. The mean score for life satisfaction was 22.50 ± 8.08 . The participants' scores for knowledge on aging differed significantly according to their economic status ($F = 2.55, p = .039$) and self-rated overall health ($F = 2.47, p = .045$). Participants with high economic status and good self-rated overall health had more knowledge on aging. The participants' scores for attitude about aging differed significantly according to gender ($t = 3.50, p = .001$), age ($F = 3.43, p = .017$), economic status ($F = 3.38, p = .010$), and self-rated overall health ($F = 5.28, p = .001$). The results showed that females, younger individuals, those with higher economic status, and individuals with higher self-rated overall health had more positive attitudes. The participants' level of life satisfaction differed significantly according to gender ($t = -2.19, p = .029$), age ($F = 5.55, p = .001$), education level ($F = 2.78, p = .018$), economic status ($F = 12.74, p = .001$), monthly allowance ($F = 4.03, p = .001$), and self-rated health status ($F = 12.74, p = .001$). Female participants had higher life satisfaction than men did. The 65–69 and 70–74 age groups showed higher scores for life satisfaction than the other age groups did. Higher life satisfaction was found among participants with a college education or higher, middle economic status or higher, monthly allowance of 300,000 KRW or more, and a moderate or higher level of self-rated overall health (Table 2).

Table 1 General Characteristics of Participants (N = 405)

Characteristic	n (%)	M (SD)
Gender		
Male	201 (49.6)	
Female	204 (50.4)	
Age (yr)		73.01 (4.95)
65–69	111 (27.4)	
70–74	152 (37.6)	
75–79	99 (24.4)	
≥80	43 (10.6)	
Education		
≤ Elementary	96 (23.7)	
Middle	92 (22.7)	
High	136 (33.6)	
≥ College	81 (20.0)	
Economic status		
Very low	30 (7.4)	
Low	104 (25.7)	
Middle	199 (49.1)	
High	48 (11.9)	
Very high	24 (5.9)	
Monthly allowance (10,000 KRW)		
<5	39 (9.6)	
5–9	74 (18.3)	
10–19	94 (23.2)	
20–29	67 (16.6)	
30–39	56 (13.8)	
≥40	75 (18.5)	
Living arrangement		
Alone	81 (20.0)	
Spouse	198 (48.9)	
Spouse & children	46 (11.3)	
Children	64 (15.8)	
Others	16 (4.0)	
Self-rated overall health		3.09 (1.15)
Very poor	45 (11.1)	
Poor	67 (16.5)	
Moderate	147 (36.3)	
Good	97 (24.0)	
Very good	49 (12.1)	

Note. KRW = Korea Republic Won.

Correlation between knowledge and attitude about aging and life satisfaction

A positive relationship was found between knowledge about aging and life satisfaction ($r = .20, p = .001$). Although less strong than above, knowledge about aging showed some correlation with attitude about aging ($r = -.17, p = .001$). Note that the correlation coefficient was given in a negative value in this case because higher scores were assigned for lower attitude in the original questionnaire. Likewise, a significant relationship was found between attitude about aging and life satisfaction ($r = -.38, p = .001$), although the correlation coefficient was negative for the same reason (Table 3). Thus, these results indicated that participants with greater knowledge had a higher life satisfaction and a group with more positive attitude about aging showed a higher life satisfaction.

Predictors of life satisfaction

Model 1 indicates that being female, younger individual, middle and high economic status, with monthly allowance of 400,000 KRW or more, living with a spouse, living with a spouse and children and self-rated overall health significantly influence life satisfaction ($F = 7.00, p = .001$). In model 2, knowledge ($\beta = .12, p = .008$) and attitude ($\beta = -.22, p = .001$) about aging significantly predict life satisfaction, and being female, younger individual, with monthly allowance of 300,000 or more KRW, living with a spouse, and self-rated overall health remain significant predictors of life

Table 2 Differences in Knowledge and Attitude of Aging and Life Satisfaction by General Characteristics (N = 405)

Characteristic	Knowledge		Attitude		Life satisfaction			
	M (SD)	F or t (p) Scheffe	M (SD)	F or t (p) Scheffe	M (SD)	F or t (p) Scheffe		
Gender								
Male	11.32 (2.89)	−0.89 (.376)	78.21 (15.74)	3.50 (.001)	21.62 (8.43)	−2.19 (.029)		
Female	11.57 (2.79)		72.44 (17.39)		23.36 (7.64)			
Age (yr)								
65–69	11.50 (3.16)	2.31 (.075)	71.25 (18.78) ^a	3.43 (.017)	23.89 (7.99)	5.55 (.001)		
70–74	11.16 (2.71)		76.98 (15.05)		a < b		23.22 (7.81) ^a	a > b
75–79	12.03 (2.67)		75.67 (17.35)				21.52 (8.18)	
≥ 80	11.00 (2.65)		79.02 (14.56) ^b				18.58 (7.76) ^b	
Education								
≤ Elementary	11.48 (2.54)	0.84 (.522)	74.21 (16.66)	1.58 (.164)	21.66 (7.85)	2.78 (.018)		
Middle	11.23 (2.76)		76.62 (14.75)				21.82 (7.46)	
High	11.47 (2.94)		76.32 (18.24)				22.24 (8.31)	
≥ College	11.54 (3.08)		73.41 (16.77)				24.62 (8.16)	
Economic status								
Very low	10.30 (2.34) ^a	2.55 (.039)	83.57 (11.11) ^a	3.38 (.010)	17.23 (8.25) ^a	12.74 (.001)		
Low	11.14 (2.90)		a < b		77.14 (16.63)		a > b	19.48 (8.12) ^b
Middle	11.66 (2.83)		74.07 (17.77)				23.99 (7.42)	
High	11.46 (2.84)		70.75 (17.19) ^b				26.44 (7.62) ^c	
Very high	12.42 (2.81) ^b		76.42 (9.47)				21.83 (6.53)	
Monthly allowance (10,000 KRW)								
<5	11.28 (2.99)	0.60 (.703)	79.74 (11.22)	0.92 (.467)	19.97 (9.06) ^a	4.03 (.001)		
5–9	11.49 (2.96)		75.49 (19.50)				20.96 (8.79)	
10–19	11.74 (2.75)		75.94 (18.50)				21.35 (7.92)	
20–29	11.16 (2.48)		74.07 (15.64)				22.69 (7.14)	
30–39	11.11 (3.18)		75.46 (16.40)				24.84 (6.76) ^b	
≥40	11.64 (2.81)		73.01 (15.44)				24.84 (7.91) ^c	
Living arrangement								
Alone	11.28 (2.80)	0.74 (.592)	77.05 (16.56)	0.25 (.942)	21.11 (8.99)	1.52 (.182)		
Spouse	11.60 (2.90)		74.78 (17.34)				23.43 (8.13)	
Spouse & children	11.61 (2.85)		75.07 (19.18)				22.07 (8.21)	
Children	11.11 (2.84)		74.77 (14.82)				22.42 (6.87)	
Others	11.31 (2.24)		75.81 (12.67)				19.44 (5.07)	
Self-rated overall health								
Very poor	10.62 (2.81)	2.47 (.045)	82.44 (12.75) ^a	5.28 (.001)	17.71 (8.15) ^a	12.74 (.001)		
Poor	11.34 (2.59)		79.61 (13.98) ^b		a > b > c		18.78 (6.36) ^b	
Moderate	11.24 (2.81)		74.44 (16.27)				23.39 (7.75) ^c	
Good	12.03 (2.74)		70.70 (19.46) ^c				25.48 (7.95)	
Very good	11.84 (3.28)		74.57 (16.74)				23.39 (7.84)	
Total	11.45 (2.84)		75.31 (16.82)		22.50 (8.08)			

Note. KRW= Korea Republic Won.

satisfaction. Very low and low socioeconomic groups were significant predictors of life satisfaction. The variables in model 2 contribute 6.1% more to life satisfaction than the variables in model 1. The R^2 of the final regression model was .338 ($F = 8.47, p = .001$) (Table 4).

Discussion

The mean score of older adults' knowledge on aging was below the medium level. This result means that the participants had a low level of knowledge about aging—lower than the scores of students, nurses, and other age groups in various studies, respectively (Kang, Jung, & Kim, 2009; Kim, Yang, Oh, & Kim, 2002; Lim, Kim, & Kim, 2002). This finding indicates that older adults have misconceptions about aging; most old people are regarded as fragile due to physical and psychological health problems and functional disabilities (Ory, Hoffman, Hawkins, Sanner, & Mockenhaupt,

2003). Thus, an educational program is needed for older adults to extend the current knowledge base for a positive perspective on aging.

An attitude is defined as a positive or negative response toward people, objects, or ideas that is learned and changed by different situations (Fishbein & Ajzen, 1975). In this study, attitude refers to self-image, such as a person's perception of themselves as wise or not wise, kind or not kind, or intelligent or unintelligent. Older adults had neutral attitudes towards themselves. These responses were similar to the responses of the young adult participants, including students and middle-aged groups (Kang et al., 2009; Kim et al., 2004). However, these results were different from the results of a meta-analysis review suggesting that the attitudes of older adults were more negative than the attitudes of younger adults (Kite, Stockdale, Whitley, & Johnson, 2005). Elderly people need a positive attitude about themselves to adapt to the aging process rather than neutral attitude. Therefore, nurses may consider nursing care that encourages a positive attitude.

The elderly adults in this study reported a middle level of life satisfaction. This finding is in accordance with the findings of Chung and Lee (2011) and Kim's (2009) studies of the life satisfaction of elderly Koreans. Regarding the association of general characteristics with life satisfaction, the female group had a higher score for life satisfaction than the male group did. This finding is in accordance with the results of previous studies by Hur (2004) and

Table 3 Summary of Intercorrelations of Knowledge and Attitude About Aging and Life Satisfaction (N = 405)

Variable	Attitude <i>r</i> (<i>p</i>)	Life satisfaction <i>r</i> (<i>p</i>)
Knowledge	−.17 (.001)	.20 (.001)
Attitude		−.38 (.001)

Table 4 Predictors of Life Satisfaction (N = 405)

Variable	Model 1				Model 2			
	B	SE	β	p	B	SE	β	p
Gender (female)	3.40	0.88	.21	<.001	2.37	0.86	.15	.006
Age (yr)	-0.30	0.08	-.18	<.001	-0.27	0.07	-.17	<.001
Economic status								
Very low ^a	-1.73	1.54	-.06	.262	-3.30	1.45	-.13	.007
Low ^a	—	—	—	—	-3.11	0.85	-.17	<.001
Middle ^a	3.52	0.88	.22	<.001				
High ^a	4.86	1.30	.20	<.001	1.15	1.12	.05	.306
Very high ^a	1.39	1.80	.04	.441	-2.00	1.65	-.06	.226
Monthly allowance (10,000 KRW)								
< 5 ^a	0.13	1.41	.01	.925	0.39	1.35	.01	.772
5–9 ^a	0.22	1.13	.01	.844	0.26	1.08	.01	.807
20–29 ^a	1.20	1.17	.06	.305	1.30	1.12	.06	.247
30–39 ^a	2.12	1.22	.09	.082	2.57	1.17	.11	.029
≥ 40 ^a	3.00	1.19	.15	.012	2.93	1.14	.14	.011
Living Arrangement								
Alone ^a	2.87	2.11	.14	.175	2.81	2.03	.14	.167
Spouse ^a	4.19	1.98	.30	.016	4.28	1.91	.27	.025
Spouse & children ^a	4.43	2.20	.17	.045	3.78	2.12	.15	.075
Children ^a	1.79	2.20	.06	.416	1.61	2.11	.06	.445
Others ^a	4.29	2.37	.13	.071	4.33	2.27	.13	.058
Self-rated overall health	1.75	0.32	.25	<.001	1.35	0.31	.19	<.001
Knowledge of aging					0.33	0.12	.12	.008
Attitude of aging					-0.16	0.02	-.22	<.001
Total R ²	.277				.338			
F(p)	7.00 (.001)				8.47 (.001)			

Note. KRW= Korea Republic Won.

^a Dummy coded to yes = 1, no = 0.

Park (2004). However, this finding is contrary to the study by Fernandez-Ballesteros et al. (2001), which reported significantly higher life satisfaction among men than women. Furthermore, no gender difference was identified for life satisfaction in studies by Subasi and Hayran (2005) and Berg, Hassing, Mcclern, and Johansson (2006). This gender-based difference of life satisfaction is thought to stem from differences in life style, socioeconomic condition, and health condition between men and women. Thus, we need to consider gender as co-variants like these variables.

Age was also a significant predictor of life satisfaction in the present study. Younger participants showed higher scores in life satisfaction than older participants did. This finding is in accordance with the findings of previous studies (Fernandez-Ballesteros et al., 2001; Hur, 2004). However, Park's (2004) study did not find a significant effect of age on life satisfaction. Life satisfaction of older old adults decreased more than that of younger old adults because older old adults had more health problems than younger old adults (Fernandez-Ballesteros et al.). Park's study suggested that decreasing health condition due to aging is more influential than biological age itself on life satisfaction. Therefore, it is thought that age is also considered as an interrelated variable to health condition.

Higher economic status significantly increased life satisfaction in this study. This finding is in line with the results of Berg et al. (2006), Chung and Lee (2011) and Fernandez-Ballesteros et al. (2001). These studies showed that economic status had a consistently important influence on life satisfaction. Older adults with a higher monthly allowance had higher life satisfaction. This finding is similar to the findings of Park's (2004) study showing a consistent increase in life satisfaction due to high economic status. It is regarded that high economic status is related to a good social well-being which may contribute to enhanced life satisfaction.

Living with a spouse was a potent determinant of life satisfaction in this study. Older adults with spouses have higher life

satisfaction because their spouses support them. Chung and Lee's (2011) study found that living with a spouse was associated with enhanced life satisfaction among older adults in 2004 and 2008. However, other studies (Hur, 2004; Park, 2004) have showed no significant effect of living with a spouse on life satisfaction. The findings of the preceding studies may be limited because the number in the group with spouse was small. In an aging society, with rapidly increasing number of family consisted of only older adults, it is likely that spouse influences directly on the life satisfaction of older adults.

Health status was also an important variable in the prediction of life satisfaction. Self-rated overall health has been found to have a stronger relationship with the health of older adults than objective health status (Berg et al., 2006). In studies of the factors influencing life satisfaction, self-rated overall health was revealed as a significant factor in life satisfaction by contributing to both physical and psychological well-being (Chung & Lee, 2011; Fernandez-Ballesteros et al., 2001; Kim, 2009). Thus, management for keeping up a good health status is important for enhancing life satisfaction.

As we found from this study, women and younger old adults had a higher life satisfaction than their counterpart group, respectively. Also, participants having higher monthly allowance, living with spouse, and having better self-rated overall health had a higher life satisfaction than their respective counterpart groups. Therefore, different approaches are necessary for groups of different genders and ages to provide health promotion and disease control program to enhance the subjective health status. It is also necessary to encourage economic and social activities that are integrated into the program because of a strong interrelation among these variables, namely, aging and health or economic status with health.

Psychological well-being is another important predictor of life satisfaction. Psychological well-being is based on self-acceptance. Good knowledge and a positive attitude contribute to self-acceptance. Thus, this study examined whether knowledge and attitude were associated with life satisfaction. We found that knowledge about aging is associated with life satisfaction, similar to the findings of Davis and Friedrich (2004). However, knowledge about aging was a weak predictor of life satisfaction ($\hat{\alpha} = .12$). No other research has yet identified a relationship between knowledge about aging and life satisfaction, except the study by Davis and Friedrich. Future studies should examine this relationship further.

Attitudes about aging were a more significant factor for enhancing life satisfaction than knowledge about aging. Previous studies have not identified a direct relationship between attitudes about aging and life satisfaction, although older adults with more positive attitudes had better physical, emotional, and economic situations and were able to achieve successful aging (Kim et al., 2004). Successful aging is defined as older adults living without disease, maintaining relatively high physical and cognitive functioning, leading satisfied lives, and positively participating in social activities (Kim & Kim, 2008). Based on the findings of these studies, it can be inferred that attitude about aging is a significant factor in enhancing life satisfaction.

As shown in this study, the effect of knowledge and attitude about aging on life satisfaction is significant. Economic status, living with a spouse and self-rated overall health status are also predictive factors in life satisfaction. Therefore, to maintain their quality of life and to lead satisfying lives in old age, people should maintain great knowledge and positive attitudes about aging, good health, family support and high socioeconomic levels. We think that an income support policy to promote a stable life for elderly persons and a health care program are important for maintaining the physical and psychological well-being for healthy aging. An education program to help older adults develop positive attitudes and see

themselves as valuable people would be helpful for promoting life satisfaction. Nurses encountering older adults should properly assess their levels of current knowledge and attitudes about aging, and life satisfaction, and provide appropriate education and psychological support.

We note that over 50% of the participants of this study received education that was higher than high school, which might limit the generalizability of the findings of this study to the whole elderly population. We note that the attitude about aging measurement tool used in this study was initially developed to measure young adults' attitude toward the elderly. There are few studies in which old people assess their attitudes toward aging. Although a similar attitude score was obtained between age groups according to the study based on Sander's tool (Han, 2004), results of this study in older people might have overestimated the positive or negative attitude of themselves.

Despite these limitations, this study expands existing knowledge on aging because it is the first study to address the relationship between knowledge and attitude about aging and life satisfaction. Previous research provided separate examinations of the relationships between general characteristics, knowledge and attitude about aging and life satisfaction. This study is the first to integrate these variables. It may provide a valuable explanatory framework for the relationship between knowledge and attitude on aging and life satisfaction.

Furthermore, this study has implications for nurses who are concerned with helping older adults maintain good life satisfaction. Assessing older adults' life satisfaction and its predictors and providing appropriate nursing intervention may be an important strategy for increasing life satisfaction. Nurses have an important role to play in teaching and encouraging older adults' positive attitudes about aging so as to enhance their subjective well-being. Nurses might identify the factors that influence life satisfaction and help older adults receive appropriate nursing intervention to minimize the negative effects of low life satisfaction.

Conclusion

Older adults were found to have somewhat low levels of knowledge about aging. However, the participants had a neutral attitude toward themselves. Life satisfaction was at the medium level. Living with a spouse and attitude about aging were the most powerful predictors of life satisfaction, followed by perceived health status, which had some predictive value for life satisfaction. Thus, the tendency to perceive oneself positively and good health may lead to a higher level of life satisfaction in older adults. Attitude and health status are factors that can be changed, and they can be considered variables in developing interventions to improve the life satisfaction of older adults. Therefore, it is suggested that education and psychological support to improve physical and psychological health and achieve positive attitudes should be developed and disseminated for older adults.

Conflict of interest

The authors declare no conflict of interest.

References

- Berg, A. I., Hassing, L. B., McLearn, G. E., & Johansson, B. (2006). What matters for life satisfaction in the oldest-old? *Aging and Mental Health, 10*, 257–264.
- Choi, S. J. (1986). A study on the development of life satisfaction scale for elderly. *Korean Culture Research, 49*, 233–258.
- Chung, S. D., & Lee, S. H. (2011). Changes in life satisfaction of Korean elderly: comparisons of 1994, 2004 and 2008 national survey results on the elderly life conditions and welfare need. *Journal of the Korean Gerontological Society, 31*, 1229–1246.
- Davis, N. C., & Friedrich, D. (2004). Knowledge of aging and life satisfaction among older adults. *Aging and Human Development, 59*, 43–61.
- Fernandez-Ballesteros, R., Zamarron, M. D., & Ruiz, M. A. (2001). The contribution of sociodemographic and psychosocial factors to life satisfaction. *Aging and Society, 21*, 25–43.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: an introduction to theory and research*. Reading, MA: Addison-Wesley.
- Han, J. R. (2004). Development of the scales for attitude toward age groups. *Journal of the Korean Gerontological Society, 24*(3), 197–210.
- Hur, J. S. (2004). Life satisfaction of community resident elderly persons. *Journal of Welfare for the Aged, 24*, 127–151.
- Jeon, S. N., & Shin, H. G. (2009). The effects of perceived health and ageism experience on successful aging. *Journal of the Korean Gerontological Society, 29*, 1383–1396.
- Kang, J. S., Jung, D. U., & Kim, Y. Y. (2009). Women university students' supporting awareness, knowledge and attitude toward the elderly. *Journal of the Korean Gerontological Society, 29*, 851–865.
- Keister, K., & Blixen, C. (1998). Quality of life and aging. *Journal of Gerontological Nursing, 24*(5), 22–28.
- Kim, K. H., & Kim, J. H. (2008). Influences of life satisfaction on successful aging: focusing on the elderly having partners. *Korean Journal of Family Welfare, 13*(2), 87–106.
- Kim, S. Y., Yang, K. M., Oh, H. E., & Kim, J. S. (2002). Nursing and social welfare: students' knowledge and attitudes toward the elderly. *Journal of the Korean Gerontological Society, 22*(3), 21–36.
- Kim, W. (2003). An exploratory study on ageism experienced by the elderly and its related factors. *Journal of the Korean Gerontological Society, 23*(2), 21–35.
- Kim, W. B. (2009). A study on the determinants of life satisfaction for elderly Koreans: with a focus on activity and resource theory. *Social Welfare Policy, 36*(3), 449–470.
- Kim, Y. J., Kang, I., & Lee, C. S. (2004). A study on attitudes toward older adults: comparative analysis of young, midlife and older adult. *Journal of Korean Home Management Association, 22*(1), 65–75.
- Kite, M. E., Stockdale, G. D., Whitley, B. E., & Johnson, B. T. (2005). Attitudes toward younger and older adults: an updated meta-analytic review. *Journal of Social Issues, 61*(2), 241–266.
- Lee, J. G. (2010). Predictors of life satisfaction among older adult in South Korea: differences by education level. *Journal of the Korean Gerontological Society, 30*, 709–726.
- Lim, Y. S., Kim, J. S., & Kim, K. S. (2002). Nurses' knowledge and attitudes toward the elderly. *Journal of the Korean Gerontological Society, 22*(1), 31–46.
- Liu, L., & Guo, Q. (2008). Life satisfaction in a sample of empty-nest elderly: a survey in the rural area of a mountainous county in China. *Quality of Life Research, 17*, 823–830.
- Melendez, J. C., Tomas, J. M., Oliver, A., & Navarro, E. (2009). Psychological and physical dimensions explaining life satisfaction among the elderly: a structural model examination. *Archives of Gerontology and Geriatrics, 48*, 291–295.
- Ory, M., Hoffman, M. K., Hawkins, M., Sanner, B., & Mockenhaupt, R. (2003). Challenging aging stereotypes. *American Journal of Preventive Medicine, 25*(Suppl. 2), 164–171.
- Palmore, E. (1980). The facts on aging quiz: a review of findings. *The Gerontologist, 20*, 669–672.
- Park, K. N. (2004). Gender differences in the life satisfaction of elderly. *Journal of the Korean Gerontological Society, 24*(3), 13–29.
- Peel, N., Bartlett, H., & McClure, R. (2004). Healthy ageing: How is it defined and measured? *Australian Journal on Ageing, 23*(3), 115–119.
- Rowe, J., & Kahn, R. (1998). *Successful aging*. New York: Random House.
- Sanders, G. F., Montgomery, J. E., Pittman, J. F., & Balkwell, C. (1984). Youth's attitudes toward the elderly. *Journal of Applied Gerontology, 3*, 59–70.
- Subasi, F., & Hayran, O. (2005). Evaluation of life satisfaction index of the elderly people living in nursing homes. *Archives of Gerontology and Geriatrics, 41*, 23–29.