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Effect of Happiness on Aging, Self-esteem, Life Satisfaction, Family Support, and Social Participation of the Elderly in the Community on the Depression

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Abstract
The purposes of this study were to understand the depression, happiness on aging, self-esteem, life satisfaction, family support, and social participation level of the elderly people, and to analyze the variables to impact on their depression. **Methods**: The subjects were 170 elderly people of 10 community welfare centers in North Choongchung Province, who were informed of the purposes and agreed the participation in the study. The study data were analyzed by descriptive analysis, t-test, ANONA, Pearson's Correlation Coefficient, and stepwise multiple regression analysis. **Results**: The most influential variables on the elderly depression were self-esteem with 26.2% of explanatory power (β=-.474, p<.001), followed by happiness on aging with 4.5% (β=-.216, p=.002), and both explained totally 30.7% of the elderly depression. **Conclusion**: The appropriate operations of the nursing intervention programs are required to decrease the elderly depression, and they should be prepared by the strategies to improve the self-esteem and happiness on aging of the elderly. In addition, the opportunity to check the mental health of the elderly people earlier should be activated to include the mental health check-up during their regular check-up programs, and the mental health programs should also be promoted in the health education programs of the community.

Keywords: Depression, Self-esteem, Family support, Happiness, Social participation, Elderly

Introduction

With the recent advancements of medicine and improvement of dietary life, the average life expectancy of the elderly has been increased with more population of them. Korea had already entered the aging society defined by UN exceeding 7% of aging population over 65 years old in 2000, and 12.7% in 2014 with increasing trend every year, to be expected the aged society soon [1]. With extension of the elderly period in the life cycle, the individual as well as social interests are increasing to enjoy the elderly life by enhancing the quality of life with proper health management.

The poverty rate of the elderly was 48.0% very high upon the rise of life expectancy [2]. Looking into the difficulties of the elderly, health and economic problems were the highest with 65.2% and 53.0%, respectively. Health problems and loneliness became higher as the age increased. Currently, the poverty rate of the elderly is very serious showing the elderly suicide rate with 64.2 per 100,000, also the same case as the age increased [1].

The most prominent feature in the population aging is the rise of depression, demonstrating 20 – 50% of them, known as one of their common health problems [3].

Depression has been known as the important predictor of the suicide. This results in the aggravation of chronic diseases and decline of the daily life functions in the elderly, leading their poor quality of life, [4] which is very important health problem. Therefore, we need to understand the variables to impact on the depression, and confirm the possible interventions in order to prevent and support their pathogenic depression status.

According to the previous studies on the elderly depression, its level was higher in the cases of no spouse, no school education background, low income level, and no religion, [5,6] and was lower in the cases of higher levels on happiness on aging [7], self-esteem, social and family supports. [6,8] Acknowledged stress, [8,9] activity and participation [10], and elderly job participation were confirmed to impact on the level of life satisfaction. Also, we found that the variables of depression had mediated in both elderly job participation and life satisfaction [11].

The variables related to the elderly happiness on aging included the family relationship, physical and mental health, economic level, social activity and self-esteem, self-efficacy, self-achievement and mental peace, directly or indirectly [12]; and acknowledged heath status, acknowledged stress, depression, and quality of life affected that [13]. Happiness on aging was proven as the variable to impact on the depression, however, few studies on the comprehensive variables including happiness on aging had been progressed so far.

Self-esteem, as it is the concept to evaluate self as the valuable and positive person, was considered as the most important psychological factor because it functioned to evaluate the achievement on the control and counter measure on the proper situation [14]. Therefore, if the elderly person sets the goal with his or her important meaning and achieved it under the positive evaluation, self-esteem will be higher,

while in case of failure, it will show the negative outcomes for him or herself.

The meanings of life satisfaction include the multiple feelings of the pleasure in the daily life, the meaning and responsibility of his or her life, achieving the goal, and maintaining the optimistic attitude and feeling to consider him or herself as a valuable person with the positive concept in spite of the weaknesses [15]. Life satisfaction of the elderly can be the factor to affect the depression and it has been known as the relieving factor of depression and suicide thought in the study with the elderly subjects [16]. Also, the suicide thought of the elderly showed the significant correlation with health status, society support, and life satisfaction. The proven variable to impact on the elderly suicide thought was health status, while the other necessary variables confirmed were acknowledged health status, society support, and life satisfaction to lower the suicide thought [17].

The social participation, which enabled them to live their lives with confidence in the community relieving from the sense of isolation and loss of roles in the society and to recover the positive attitude and energy [18], has been regarded as the critical factor to improve the quality of their late lives [19]. So we conducted this study with the elderly subjects who were using the welfare centers with little difficulty in daily life activities.

Hence, we would like to provide the strategic direction of the nursing intervention to lower the elderly depression level by understanding the impact of the variables on the depression, including happiness on aging, self-esteem, life satisfaction, family support, and social participation, together with the socio-demographic characteristics in the subjects with the elderly people who go to the community welfare centers.

Purpose

The purposes of this study were to understand the depression, happiness on aging, self-esteem, life satisfaction, family support, and social participation level of the elderly people, and to analyze the variables to impact on their depression. The detailed purposes of the study are as follows;

1) Understand happiness on aging, self-esteem, life satisfaction, family support, social participation level, and depression level of the subjects;
2) Understand the differences of the depression level by demography of the subjects;
3) Understand the correlation of happiness on aging, self-esteem, life satisfaction, family support, and social participation level with depression level of the subjects;
4) Understand the variables to affect the depression of the subjects.

Methods

Research design

This is the descriptive correlation study to find out the variables to affect the elderly depression in the community.

Subjects

The subjects were 170 elderly people of 10 community welfare centers in North Choongchung Province, who were informed of the study purposes and agreed the participation in the study. Their selection criteria are as follows;

1) The elderly person of 65 years old or more who is literate without cognitive dysfunction
2) The person who agreed the study participation

The number of subjects was calculated by G Power 3.1.7 program. The required sample size is 109 to maintain the conditions of 8 predictors, size of efficacy level .15, significance level .05, and power .80. We decided 170 data to be collected considering drop-out rate. Excluding 21 cases that cannot evaluate due to insincere or missing answers, we used 149 sample data in the analysis

Instruments

Happiness on aging

For happiness on aging, we utilized the tool developed by Oh which included 6 sub-domains with total 34 questionnaires; 9 questionnaires on the generosity, 8 on the recognition, 6 on the liberalization, 6 on the meditation, 3 on the peacefulness, and 2 on the acceptance of death [7]. The indexes are 4 point scales of each with 1 point for 'very unlikely,' 2 for 'unlikely,' 3 for 'likely,' and 4 for 'very likely.' Total scores of 34 questionnaires were calculated meaning the higher scores, the higher level of happiness. When Oh developed the tool with the subjects of home-bound elderly people, Cronbach's α was .94 while the reliability of our study was .91.

Self-esteem

We utilized the tool developed by Rogenberg for self-esteem [20]. This tool consists of 10 questionnaires, 6 positives and 4 negatives with 5-point Likert scale. In the positive questionnaires, 5 point means 'very likely,' and 1 point 'very unlikely,' while in the negative questionnaires, the reverse ways were applied, meaning the higher scores, the higher level of self-esteem. Cronbach's α was .75 when he developed the tool, while the reliability of our study was .80.

Life satisfaction

Life satisfaction means personal positive feeling in overall life. We utilized the modified LSI-A (Life Satisfaction Index-A) by Young Min Park [15]. 5-point Likert scale was used on life satisfaction with 1 point for 'very unlikely,' and 5 point for 'very likely,' meaning the higher scores, the higher level of overall life satisfaction.

The reliabilities on life satisfaction were shown as Cronbach's α = .88 in the male elderly, and .89 in the female elderly people.

Family support

In this study, we used the tool of family support index by Kim [21]. This index consists of 10 questionnaires including 5 for relationship with family members and 5 for economic, emotional, and instrumental helping; 8 positives and 2 negatives. For the negative questionnaires, the scores of 5-

point Likert scale were calculated by reverse way, 1 point for 'very unlikely,' and 5 for 'very likely.' It ranges from 10 to 50 points meaning the higher scores, the higher level of family support. The reliability on family support was shown as Cronbach's α= .88 in this study.

Social participation

To evaluate social participation level, we used the tool by Kim [21]. This tool consists of 10 questionnaires including 6 on love, help, encouragement, new expectation on self, and satisfaction level on the consentience, and 4 on the hope and level for social participation. 5-point Likert scale was applied, 5 for 'very likely,' and 1 for 'very unlikely,' meaning the higher scores, the higher level of social participation. The reliability in Kim's study was shown as Cronbach's α = .85 [21] while ours was .87.

Depression

To evaluate the level of depression, we used the tool developed by Kim [21]. The index of depression in our study consists of 8 questionnaires including depressed feeling, anxiety, enervation, nothingness, unhappiness, inconvenience, and feeling on the death, 3 positives and 5 negatives. 5-point Likert scale was applied, 1 for 'very unlikely,' and 5 for 'very likely,' meaning the higher scores, the higher level of depression. The reliability of the tool was shown as Cronbach's α = .85.

Data collection

The data of this study were collected from June 1 to August 31, 2015. Visiting 10 heads of community welfare centers in C city, North Choongchung Province, we got approvals from them and targeted the elderly people who were 65 years old or more using the welfare centers. The eligible subjects were informed on the purposes of the study with written informed consent, and distributed the systemized survey form to complete by themselves. In case that the subject had difficulty in completing the survey directly or he/she wanted, the investigator and her assistants read them and completed the form instead.

The assistants were one social worker and one nurse. They discussed with the investigator on the study purposes and background before collecting the data, and were trained on the contents of the survey and preparation method. To maintain the consistency of the study results, we had a series of meetings on the survey contents so as to understand them completely. Also, we conducted the pilot test to collect the consistent data from the investigator as well as the assistants.

Ethical consideration

For the study contents and methods, we got approval of Institutional Review Board in K University (IRB No. 2015-19) and were complied with the recommendations of study ethics during the study period. The data was collected after getting the agreement on the study from the head of each community welfare center. We informed the subjects of the study background and purposes before collecting the data, and let them know whenever they could withdraw or terminate the study if they did not want to. In addition, after completion of signed informed consent mentioning that the collected data would be used only for the study purposes, and the unanimity and the independency of the subjects would be secured, the survey forms were distributed.

Methods of data analysis

The collected data was statistically analyzed by SPSS Win 19.0 program.

1) For the demography, descriptive statistics were used with frequency, percentage, mean, and standard deviation. The data were analyzed with mean and standard deviation by descriptive analysis including happiness on aging, self-esteem, life satisfaction, family support, social participation, and depression level.
2) The differences of depression level by each demographic variable were analyzed by t-test and ANONA, and post-hoc analysis by Scheffe test.
3) To understand the correlation of happiness on aging, self-esteem, life satisfaction, family support, and social participation with depression level in the subjects, Pearson's Correlation Coefficient analysis was performed.
4) To understand the explanatory power of the variables to impact on the depression level of the subjects, stepwise multiple regression analysis was performed.

Results

General characteristics of the subjects

The demography of the study subjects were shown in Table 1. The mean age of the subjects was 75.6 years old, and the greatest age group was 70 – 79 years old. Males were more predominant, 55.7% while 44.3% of females. In terms of marital status, 61.7% were married while 32.9% were separated by death. Regarding the education level, 26.8% were elementary school graduates followed by 26.2% middle school graduates. 87.9% of the subjects had no occupation. More than half, 50.3% of them had religion. For monthly household income, 55.7% were not more than 1 million won. 25.5% was the highest group of monthly pocket money with W110,000 – 200,000, and 26.8% of the subjects expressed it insufficient. 50.3% of the subjects regularly performed the physical exercise.

Table 1: General characteristics of Subjects (N=149)

Characteristics	Range	N (%)	M±SD
Age (years)	60-69	16(10.7)	75.69±5.45
	70-79	104(69.8)	
	80-89	26(17.4)	
	≥90	3(2.0)	
Sex	Male	83(55.7)	
	Female	66(44.3)	
Marital status	Not married	1(0.7)	
	Married	92(61.7)	
	Separated by death	49(32.9)	

	Other	6(4.7)	
Education level	No school graduate	15(10.1)	
	Graduate elementary school	40(26.8)	
	Graduate middle school	39(26.2)	
	Graduate high school	36(24.2)	
	Graduate university	19(12.8)	
Occupation	Yes	18(12.1)	
	No	131(87.9)	
Religion	Yes	75(50.3)	
	No	74(49.7)	
Monthly household income	W1MM or less	83(55.7)	
	W1.01~ 1.5MM	27(18.1)	
	W1.51~ 2.0MM	16(10.7)	
	W2.01~ 2.5 MM	10(6.7)	
	W2.51~ 3.0 MM	4(2.7)	
	W3MM or more	9(6.0)	
Thought on the pocket money	Insufficient a lot	9(6.0)	
	Insufficient	40(26.8)	
	Normal	71(47.7)	
	Enough	29(19.5)	
Monthly pocket money	W100,000 or less	12(8.1)	
	W110,000 - 200,000	38(25.5)	
	W210,000 - 300,000	27(18.1)	
	W310,000 - 400,000	24(16.1)	
	W410,000 - 500,000	19(12.8)	
	W500,000 or more	29(19.5)	
Exercise	Regularly	75(50.3)	
	Often does	63(42.3)	
	None	11(7.4)	

Happiness on aging, self-esteem, life satisfaction, family support, social participation, and depression level of the elderly

Table 2 shows happiness on aging, self-esteem, life satisfaction, family support, social participation, and depression level of the elderly. Depression level of the elderly people showed moderate level 2.44±.56 points (range: 1~5 points). Happiness on aging and self-esteem showed more than moderate level, 3.58±.55 points (range: 1~5 points) and 3.01±.34 points (range: 1~5 points), respectively, while life satisfaction with 3.12±.79 points (range: 1~5 points). For family support and social participation, both showed more than moderate level, 3.83±.67 points (range: 1~5 points) and 3.84±.64 points (range: 1~5 points), respectively.

Table 2: Happiness on aging, self-esteem, life satisfaction, family support, social participation, and depression level of the elderly

Variables	M±SD	Range
Happiness on aging	3.01±.340	1~4
Self-esteem	3.58±.553	1~5
Life satisfaction	3.12±.790	1~5
Family support	3.83±.674	1~5
Social participation	3.84±.645	1~5
Depression	2.44±.563	1~5

Differences of the elderly depression level by demography

Table 3 shows the differences of the elderly depression level by demography. It showed significant differences by age and education level. In terms of age group and education level, 80 ~ 89 year-old group demonstrated the highest level of depression (F=3.388, p=.020), and the subjects of middle school graduates showed the highest (F=2.667, p=.035).

Table 3: Differences of the elderly depression level by characteristics (N=149)

Variables		M±SD	t or F	p
Age(years)	60-69	2.13±.646	3.388	.020
	70-79	2.49±.535		
	80-89	2.52±.560		
	≥90	1.83±.381		
Sex	Male	2.49±.538	1.119	.265
	Female	2.38±.592		
Education level	No school graduate	2.28±.596	2.667	.035
	Graduate elementary school	2.46±.615		
	Graduate middle school	2.62±.513		
	Graduate high school	2.44±.491		
	Graduate university	2.15±.555		
Occupation	Yes	2.43±.597	.126	.900
	No	2.44±.561		
Religion	Yes	2.38±.627	1.377	.171
	No	2.51±.486		
Monthly household income	W1MM or less	2.49±.579	1.557	.176
	W1.01~ 1.5MM	2.38±.556		
	W1.51~ 2.0MM	2.53±.501		
	W2.01~ 2.5 MM	2.58±.294		
	W2.51~ 3.0 MM	2.18±.462		
	W3MM or more	2.02±.692		
Thought on the pocket money	Insufficient a lot	2.73±.818	1.662	.178

	Insufficient	2.54±.487		
	Normal	2.38±.610		
	Enough	2.37±.412		
Monthly pocket money	W100,000 or less	2.64±.558	.748	.589
	W110,000 - 200,000	2.49±.544		
	W210,000 - 300,000	2.44±.561		
	W310,000 - 400,000	2.48±.650		
	W410,000 - 500,000	2.34±.578		
	W500,000 or more	2.32±.518		
Exercise	Regularly	2.49±.569	.994	.373
	Often does	2.37±.535		
	None	2.53±.675		

Correlation of happiness on aging, self-esteem, life satisfaction, family support, and social participation with depression level in the elderly

Table 4 shows the correlation of happiness on aging, self-esteem, life satisfaction, family support, social participation and depression level in the elderly. Upon the correlation analysis, depression level demonstrated the significant inverse correlations with happiness on aging (r=-.298, p<.001), self-esteem (r=-.512, p<.001), life satisfaction (r=-.384, p<.001), family support (r=-.264, p=.001), and social participation. (r=-.211, p=.010) That means the elderly depression level would be lower, as happiness on aging, self-esteem, life satisfaction, family support, and social participation were higher.

Table 4: Correlation of happiness on aging, self-esteem, life satisfaction, family support, and social participation with depression in the elderly

	Happiness r(p)	**Self-esteem r(p)**	**Life satisfaction r(p)**	**Family support r(p)**	**Social Participation r(p)**	**Depression r(p)**
Happiness	1					
Self-esteem	.173 (.035)	1				
Life satisfaction	.182 (.027)	.545 (<.001)	1			
Family support	-.046 (.577)	.406 (<.001)	.365 (<.001)	1		
Social participation	.042 (.611)	.405 (<.001)	.301 (<.001)	.474 (<.001)	1	
Depression	-.298 (<.001)	-.512 (<.001)	-.384 (<.001)	-.264 (.001)	-.211 (.010)	1

Variables to impact on the elderly depression

To find out the variables to impact on the elderly depression, we performed the multiple regression analysis with 7 variables, including age, education level, happiness on aging, self-esteem, life satisfaction, family support, and social participation which were proven to be the statistically significant variables as the independent ones. As a result, the highest influential variable was self-esteem with 26.2% (β=-.474, p<.001) of explanatory power, followed by happiness on aging with 4.5% (β=-.216, p=.002), explaining 30.7% with both variables (Table 5).

Prior to the multiple regression analysis, multicollinearity, independence, normality, and homoscedasticity were tested. Upon multicollinearity test results, tolerance limit was shown to be .970~ 1.000, not less than 0.1, and variance inflation factor (VIF) was 1.000 ~ 1.031, not exceeded 10. Since condition index was 1.000 ~ 22.458, not exceeded 30, multicollinearity analysis was excluded. In addition, Durbin-Watson statistics was 1.856 close to 2 to be confirmed as no autocorrelation, upon autocorrelation test of errors. The range of standardized residuals was -1.231~ 1.370 to meet homoscedasticity, upon residual analysis, and also normality was confirmed.

Table 5: Variables to impact on the elderly depression

Variables	**B**	**SE**	**β**	**t**	**p**
Constant	5.255	.397		13.225	<.001
Self-esteem	-.483	.071	-.474	-6.781	<.001
Happiness on aging	-.358	.116	-.216	-3.086	.002

R^2=.307, Adj R^2 = .297, F=32.325, p<.001

Discussion

This study was conducted to understand happiness on aging, self-esteem, life satisfaction, family support, and social participation level of the elderly people, and to analyze the variables to impact on their depression. We would like to discuss the followings upon the study results.

The depression of the elderly was shown as the moderate level 2.44 points (range: 1~ 5 points) in this study. This is higher than the study result of Min Sun Song, et al in the urban elderly subjects, 4.30 points (0~ 15 points) [22]. On the other hand, the score of happiness on aging was 3.01 points (1~ 4 points), which is higher than the study results of Youn in the subjects with urban house-bound elderly, 2.74 points (1 ~ 4 points) [9], and higher than those of Oh, 2.90 points (1 ~ 4 points) [7]. Depression is very common mental problem in the elderly who show the depressed state due to weakening of physical functions, diseases, spouse's death, worsening of economic status, isolation from the society and family, decrease of daily life control, and regret on the past life, and so on[23]. The symptoms of depression can be overlooked because the elderly depression progresses with the other matters like health problems so as to be easily neglected. High scores of happiness on aging might result from the fact that most subjects were the rural elderly who lived their lives without greed in the close relationships with neighbors.

The score of self-esteem was 3.58 points (1~ 5 points), higher than moderate level. This is higher than the study

result of Kim, et al. [24] in the subjects with urban elderly people who were using the welfare centers. The result of higher self-esteem in this study subjects than those in the urban or solitary elderly might be from high and positive recognition of their existences and values among the family members by independent economic and leisure activities including farming in the rural areas, and from the perception of themselves to live the valuable lives.

The score of life satisfaction was 3.12 points (1~ 5 points), higher than the study result of Yang 2.98 points in the elderly subjects [25]. This might result from the cases that they had a pastime with farming, capability to support their lives, and economic power.

The score of family support was high with 3.8 points (1~ 5 points), similar to the study result of Woo 3.7 points (1~ 5 points) in the urban elderly subjects [26]. The subjects of this study seemed to have high emotional stability by harmonious interaction with the family members and their support.

The score of social participation was 38.42 points (10~50 points) in our study, similar to the result of Kim's study [21], 36.1 points. This means that the elderly people who were using the welfare centers actively participated in the programs in the welfare center or utilized the center. Being aged, they experience the loss of roles with physical limitation, however, active participating in various activities as they did in the middle or late middle age can help to maintain positive self image and adapt the aging life successfully [27]. Hence, we need to make an effort to provide them with the practical opportunities to participate in the economic activities, community services, and leisure activities in order to facilitate their active social participation. Yet, considering the condition that employment positions are limited for the elderly people practically and most of the leisure activities are performed in the limited places such as welfare centers for the elderly, the supporting programs for their social participation should be performed in the public and private institutions such as senior centers or lifelong education institutions where the elderly can be easily accessed.

In this study, the level of elderly depression was differentiated by the age and education background among various demographic variables. The age group of 80 – 89 years old showed the highest level of depression, which is consistent with the study results of Son, et al. that the age group of 80 years or more had shown significantly higher score of depression than the age groups of 65 – 69 and 70 – 74 years old [28]. This can be explained that the depression level is increased by the weakening of health due to various chronic diseases and aging as the aging process is progressed. Since the importance of the elderly depression continues to increase due to the increases of chronic disease prevalence and senile population with the rise of average life expectancy, diversified nursing interventions are required to lower the elderly depression.

In terms of depression by education background, the scores of middle school graduates were the highest while those of university graduates with the lowest. This is similar to the results of Choi's study that the lower the level of depression was, the higher the education level was [29]. From the result that the higher the education level, the lower the level of depression, the education level was confirmed to be the critical role in the depression. To intervene this, the strategy will be crucial to enhance the self-esteem of the elderly by lifelong education so as to lower the depression.

From the correlation of depression variables in our subjects, it demonstrated that the lower the depression of the elderly was, as the higher the happiness on aging, self-esteem, life satisfaction, family support, and social participation.

Upon the correlation analysis between depression and happiness on aging in the study of Oh [7], the trend of depression showed significant difference from happiness on aging. Also the study of Youn [9] showed the consistent result with ours demonstrating the lower the depression, the higher happiness on aging.

According to the analysis of correlation between social support and self-esteem in the study of Kim, et al. [30], they confirmed statistically significant difference and the age was shown significance as the control variable. That means self-esteem of the elderly people would be raised by their social support increase. This is similar to the study result of Lee [31] that the elderly social support increased their self-esteem in the subjects of retired male elderly.

The study of Yang [25] showed the significant positive correlation between self-esteem and life satisfaction, which is consistent with Yoon and Lee's study result [32]. As self-esteem becomes higher, life satisfaction becomes higher. Therefore, the strategy should be prepared to enhance the elderly self-esteem and life satisfaction so as to reduce the elderly depression. To do so, individual approach should be prepared considering individual features rather than collective one. Accordingly, a range of measures to improve life satisfaction should be performed such as recommendations of employment to provide with their living expenses and economic power, and expansion of participation opportunities of a variety of leisure lives by understanding of their individual needs.

In Kim's study in the subjects with retired elderly people over 65 years old [21], he found out that active participation in the social life made not only the positive self identity but also the level of successful aging life. In the study of Kim, et al.[33] in the subjects with elderly people without their spouses, social participation showed the mediated effect to lower the elderly depression. From these results, we confirmed the positive impact of the elderly social participations, and it is necessary to facilitate the active participations of the elderly people in the community social activities and a variety of leisure activities using welfare centers.

Upon the result of multiple regression analysis to find out the variables to impact on the elderly depression, the highest variable to impact on it was self-esteem with 26.2% (β=-.474, $p< .001$) explanatory power, followed by happiness on aging 4.5% (β=-.216, $p=.002$), and both explained totally 30.7% of the elderly depression. Self-esteem was suggested as the important factor to maintain the aging life, [34] and the lowered self-esteem made the old age life difficult so as to increase the possibility to spend the late life maladaptive and unhappy [35], which reflected the lowered self-esteem to be the important predictor of depression.

The study result of Youn [13] did not show the explanatory power of depression and happiness on aging, which is different from our study result. However, because there were only a few studies conducted to apply the developed tools of happiness on aging [7, 9] and lack of studies to represent the elderly happiness on aging, it has the limitation to discuss the differences with our results, which requires further studies on this topic. Another limitation of this study was to use the subjects who were using the welfare centers in one community, so it could be hard to generalize the study result. Further repeated studies are required to confirm the variables to impact on the elderly depression by expanding the number of subjects with inclusions of different variables.

Currently, the interest in healthy life individually and socially has been increased remarkably, however, they have not activated realistic supports to lead the effective healthy life practice, and early detection and intervention opportunity to prevent cognitive function lowering and depression of the elderly people. The symptoms of elderly depression can induce the physical, cognitive, and social dysfunction, to reduce overall quality of life, therefore, it is the area requiring active interest in the society. Hence, the concrete approaches are essential to prevent the elderly depression, to prepare the intervention to help them when they have the symptoms of depression, to enhance their self-esteem by proper social activity participation, and to maintain the cognitive function.

With these results, we proved that the variables to impact on the elderly depression were self-esteem and happiness on aging, so we have to make an effort to enhance both variables in order to lower their depression. Though not significant explanatory power, the improvements of life satisfaction, family support, and social participation were confirmed as the variables to lessen the elderly depression. Thus, it is required to operate the programs to lower the elderly depression and we should prepare the strategies to improve the self-esteem, happiness on aging, life satisfaction, family support, and social participation.

Conclusion and suggestion

We confirmed that the lower the level of the elderly depression, the higher happiness on aging, self-esteem, life satisfaction, family support, and social participation, upon the study results. According to the variable analysis to impact on the depression, self-esteem explained 26.2% of the elderly depression and 30.7% adding happiness on aging, therefore, both self-esteem and happiness on aging were confirmed as the variables to impact on the elderly depression.

However, since the subjects of this study were users of welfare centers in only one community, this may be the limitation to generalize the study result. Further studies are required to confirm the variables to impact on the elderly depression by expanding the number of subjects with inclusions of different variables. Proper nursing interventions by program operation are required to lower the elderly depression, and this should include the strategy to improve the self-esteem and happiness on aging of the elderly people. Moreover, the opportunity of earlier checking with the inclusion of mental health during medical check-up should be promoted and the mental health program should also be activated in the community health training program.

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