

# Effects of Stress, Depression, Self-efficacy, and Social Support on Quality of Life of Community Dwelling Elderly with Chronic Diseases

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## Abstract

**Background/Objectives:** The purpose of this study was to analyze factors having effects on the quality of life of elderly with chronic diseases.

**Method/Statistical Analysis:** This study targeted 113 subjects in their 60 or up, residing in M city, D metropolitan city, C city, and G city. The data were analyzed using the descriptive statistics, t-test, ANOVA, Pearson's correlation coefficient and stepwise multiple regression using the SPSS Window 23.0 program.

**Findings:** The stress ( $r=-.54$ ,  $p<.001$ ), and the depression and quality of life ( $r=-.62$ ,  $p<.001$ ) of subjects showed negative correlations while the self-efficacy ( $r=.68$ ,  $p<.001$ ), and the social support and quality of life ( $r=.69$ ,  $p<.001$ ) showed positive correlations. The self-efficacy ( $\beta=.39$ ), social support ( $\beta=.39$ ), the number of diseases ( $\beta=.14$ ), depression ( $\beta=-.18$ ) and age ( $\beta=.13$ ) had effects on the quality of life of subjects, which showed 68.0% explanatory power.

**Improvements/Applications:** It would be necessary to increase self-efficacy that is confidence in their abilities, and to encourage and support elderly. In order not to get exposed to more diseases in the current state, it would be needed to seek for the measures for supporting, daily life management, and use of medication, decreasing depression, and giving a boost to live younger even when getting aged.

**Keywords:** *Chronic disease, Elderly, Social support, Depression, Self-efficacy, Quality of life.*

## Introduction

Due to the rapid aging in Korea, the aged in their 65 or up which was 14.9% in 2019 is estimated to be increasing to 46.5% in 2067. The change rate of medical expenses under health insurance for the aged in their 65 or up in 2018 was 14.7%, which was 2.8% higher than the whole change rate (11.9%). The elderly evaluate their own health status as average or pretty bad, and more and more of them regard their health status as bad as they get

older<sup>[1]</sup>, so that there should be efforts in health care of the elderly.

Meanwhile, as a subjective well-being that evaluates the multi-dimensional elements of physical, functional, emotional, and social well-being, and also implies the concept of happy, satisfactory, and positive emotion and spirit, the quality of life expresses the well-being and satisfaction of life<sup>[2]</sup>. Especially, in the results reviewing the preceding researches related to the quality of life of the elderly, the elderly with chronic diseases had the lower quality of life than the elderly without chronic diseases<sup>[3]</sup>, so that there should be more researches targeting them. They have to live with their chronic diseases for the rest of their lives. And as they get older, the quality of life gets lowered by various physical diseases.

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As the factors having effects on the quality of life, the daily stress<sup>[4]</sup>, the number of chronic diseases, depression, social support as social networks<sup>[5]</sup>, and self-efficacy were presented. Once the social support was provided with the mediation of self-efficacy, the quality of life of the elderly got improved<sup>[3]</sup>. Thus, when the degree of daily stress and depression was higher, the quality of life tended to be lowered, which showed the inverse correlations between stress and quality of life, and between depression and quality of life<sup>[4,6]</sup>. When the self-efficacy is higher, the quality of life gets increased, so that it would be necessary to increase the self-efficacy. And it has been reported that the quality of life is high when the elderly perceive the receipt of social support<sup>[3]</sup>. However, there are not many researches comprehensively reviewing such factors.

The purpose of this study is to establish the basic data for the development of nursing intervention necessary for improving the quality of life through the maintenance/enhancement of health of the elderly with chronic diseases, by analyzing the relations of those variables, and revealing the influence factors on the quality of life.

## METHOD

1. **Subjects:** The subjects of this study are the elderly in their 60 or up with chronic diseases, actively working in religious institution and senior citizens center while residing in D metropolitan city, M, C, and G city. To verify the fitness of the sample size, the G\*Power 3.1.9.4 program was used and a significance level of .05, effect size of .15, verification power of .80 and 11 predictive factors were applied to the regression analysis to acquire the final number of 111 subjects. Total 113 copies were used for the final analysis.
2. **Instruments:**
  - 2.1. **Stress:** This study used the BEPSI-K which was modified/complemented by Lim, et al.<sup>[7]</sup>. Total 12 items are based on the 4-point Likert scale. The higher score means the higher degree of stress. When the tool was developed, the reliability was Cronbach's  $\alpha=.85$ , which was .90 in this study.
  - 2.2. **Depression:** This study used the Short Form Geriatric Depression Scale with 15 items, which was standardized into Korean-version short form geriatric depression scale by Kee<sup>[8]</sup>. This tool has total 15 items based on the two-point scale like 0 or 1 point. The higher score means the higher degree of depression. When the tool was developed, the reliability was Cronbach's  $\alpha=.84$ , which was .83 in this study.
  - 2.3. **Self-efficacy:** This study used the general self-efficacy scale developed by Chen, Gully, & Eden<sup>[9]</sup>, which was adapted by Noh<sup>[10]</sup>. This tool has total eight items based on the 5-point Likert scale. The higher score means the higher degree of self-efficacy. In the research by Noh, the reliability was Cronbach's  $\alpha=.83$ , which was .96 in this study.
  - 2.4. **Social support:** This study used the scale used by Kim<sup>[11]</sup> by modifying/complementing the MSPSS (Multi-dimensional Scale of Perceived Social Support). This tool has total 12 items based on the 5-point Likert scale. The higher score means the higher degree of social support. When the tool was developed, the reliability was Cronbach's  $\alpha=.90$ , which was .94 in this study.
  - 2.5. **Quality of life:** This study used the Korean-version WHO Quality of Life Short Form Scaled developed by Min et al.<sup>[12]</sup>, which was modified/complemented by Shin<sup>[13]</sup>. This tool has total 26 items based on the 5-point Likert. The higher score means the higher degree of the quality of life. In the research by Min et al. the reliability of this tool was .90, which was .94 in this study.
3. **Data collection & Ethical consideration:** Approval was acquired by the ethics committee of K University (KNU\_IRB\_2020\_24). After explaining the research purpose and contents to the presidents of religious institutions and senior citizens centers in D metropolitan city, M, C, and G city, and then receiving their permission, the researcher and the trained research assistant explained the research purpose and how to fill out the questionnaire to elderly people, and then received the written consents. We collected data by reading the questions in the questionnaire to help them to complete the questionnaire. It took about 20-25 minutes to fill out the questionnaire.
 

**Data Analysis:** Using the SPSS 23.0 program, this study used the descriptive statistics like percentage for the general characteristics and the degree of variables, the t-test and ANOVA for comparing the quality of life of subjects according to the general characteristics, and the Scheffe test for post-test. This study also used Pearson correlational coefficients for the relations of variables,

and the stepwise multiple regression for analyzing the factors having effects on the quality of life.

### Results

**1. General characteristics of subjects:** There were total 113 elderly people with chronic diseases, and they were suffering from various types of diseases such as hypertension, diabetes, heart diseases, joint diseases, respiratory diseases, nervous diseases, thyroid gland diseases, cerebral diseases, and hearing disorder. Subjects' age was from 60 to 91, and the mean age was  $72.01 \pm 7.65$ . The female elderly were more than the majority ( $n=80, 70.8\%$ ). The case of cohabiting with spouse was more than the majority ( $n=68, 60.7\%$ ). The graduation from middle school or higher was more than the majority ( $n=74, 66.1\%$ ). The number of mean diseases of subjects was  $2.77 \pm 1.21$ . The case of having two diseases was 39.4% while the case of having three diseases was shown in 27 subjects (24.8%). Most of the cases responded to their health status as pretty good or average ( $n=91, 81.3\%$ ). The case of exercising regularly or sometimes was more than the majority ( $n=75, 66.4\%$ ). In case of doing exercise, total 18 subjects (25.4%) mostly walked everyday, and 21 subjects (30.4%) exercised for about 60 minutes each time. The exercise hours were evenly distributed from ten minutes to 120 minutes. The case of responding to their economic status as average was more than the majority ( $n=63, 55.8\%$ ).

**2. Degree of stress, depression, self-efficacy, social support, and quality of life of subjects:** The

subjects' stress scored 2.19 point out of 4 points, depression scored 0.37 point of 1 point, self-efficacy scored 3.03 point out of 5 points, social supports scored 3.54 point of 5 points, and quality of life scored 3.22 point out of 5 points [Table 1].

**Table 1. Degree of stress, depression, self-efficacy, social support, and quality of life of subjects**

Variables	M±SD	Range
Stress	2.19±0.57	1~4
Depression	0.37±0.33	0~1
Self-efficacy	3.03±0.96	1~5
Social support	3.54±0.78	1~5
Quality of life	3.22±0.64	1~5

**3. Differences in the quality of life according to the general characteristics:** There were differences in the quality of life in the statistically-significant level according to the age ( $F=3.92, p=.023$ ), relationship with spouse ( $t=4.17, p<.001$ ), the number of diseases ( $F=8.82, p<.001$ ), occupation ( $t=2.61, p=.010$ ), health status ( $t=4.08, p<.001$ ), exercise ( $t=4.14, p<.001$ ), and economic level ( $F=11.34, p<.001$ ).

**4. Correlations of stress, depression, self-efficacy, social support, and quality of life in subjects:** The stress ( $r=-.54, p<.001$ ), the depression and quality of life ( $r=-.62, p<.001$ ) of subjects showed such negative correlations while the self-efficacy ( $r=.68, p<.001$ ), the social support and quality of life ( $r=.69, p<.001$ ) showed such positive correlations [Table 2].

**Table 2. Correlations of stress, depression, self-efficacy, social support, and quality of life in subjects (N=113)**

Variables	Stress $r(p)$	Depression $r(p)$	Self-efficacy $r(p)$	Social support $r(p)$	Job competence $r(p)$
Stress	1				
Depression	.58(<.001)	1			
Self-efficacy	-.55(<.001)	-.51(<.001)	1		
Social support	-.65(<.001)	-.63(<.001)	.52(<.001)	1	
Quality of life	-.54(<.001)	-.62(<.001)	.68(<.001)	.69(<.001)	1

**5. Factors having effects on the quality of life in subjects:** To understand the factors having effects on the quality of life of subjects, this study conducted the multiple regression analysis by performing the dummy treatment on the age, spouse, number

of diseases, occupation, health status, exercise, and economic status that showed the significant results in the general characteristics, and also the independent variables. Regarding the issue of multicollinearity expected in case when conducting

the multiple regression analysis, the tolerance limit was .550~.933, which was higher than 0.1. The Variance Inflation Factors(VIF) were 1.071~1.819, which was not higher than the standard as 10, so that there was no problem with the multicollinearity. Also, the Durbin-Watsonvalue was 2.068, so that there was no problem of autocorrelation.

In the results of analysis, the self-efficacy ( $\beta=.39$ ), social support ( $\beta=.39$ ), the number of diseases ( $\beta=.14$ ), depression ( $\beta=-.18$ ) and age ( $\beta=.13$ ) had great effects on the quality of life of subjects, which showed 68.0%explanatory power [Table 3].

**Table 3. Factors having effects on the quality of life in subjects**

Variables	B	SE	$\beta$	t	p
Constant	1.40	.27		5.195	<.001
Self-efficacy	.25	.05	.39	5.568	<.001
Social support	.31	.06	.39	5.103	<.001
Number of disease (one)	.30	.13	.14	2.363	.020
Depression	-.33	.14	-.18	-2.305	.023
Age(70~79)	.17	.08	.13	2.196	.030
R <sup>2</sup> = .680 Adj. R <sup>2</sup> = .664 F = 42.431 p < .001					

**References:** Number of disease = one, age = 60~69 years

## Discussion

In the results of this study, the subjects showed the inverse correlations between stress, depression and quality of life while showing the positive correlations between self-efficacy, and social support and quality of life. Such results accord with the results<sup>[5]</sup> showing that the quality of life related to health of subjects had positive correlations with self-efficacy and social support. The daily stress and quality of life of the elderly in long-term care facilities had a negative correlation<sup>[4]</sup>, and the depression of female elderly at home showed the inverse correlation with the quality of life<sup>[6]</sup>. When the stress and depression of the elderly get higher, the quality of life could get lowered. And the social support of the elderly with disaster damage showed the positive correlation with the quality of life while the depression showed the inverse correlation with the quality of life<sup>[14]</sup>. With the mediation of resilience of the elderly, stress showed the indirect effects and partially-mediating effects on the quality of life. Therefore, it would be necessary to develop and vitalize the community health enhancement program. This study recommends to conduct a further research by adding a variable of self-efficacy with a meaning similar to resilience.

Also, the self-efficacy, social support, the number

of diseases, depression, and age of subjects were the variables having effects on the quality of life, which showed 68.0%explanatory power. This was similar to the results<sup>[5]</sup> of a study reporting that the age and self-efficacy had effects on the quality of life, and the social support had effects on the quality of life related to health with the mediation of self-efficacy. By considering Korean culture regarding family as important, this is similar to the results<sup>[13]</sup> reporting that the family support had effects on the quality of life of the elderly. Thus, the social support from others might have very important effects on the quality of life. The effects of depression on the quality of life would be different depending on the level of social support<sup>[14]</sup>. It would be necessary to apply the nursing intervention for improving the quality of life to the self-efficacy programs, and it would be also helpful to provide the programs related to social support. The subjects are the elderly with one or more chronic diseases. Considering that the health status gets poorer when the age is higher, it would be needed to establish the support programs providing helps from family and experts, by increasing the self-care ability related to chronic diseases. The results were similar to the results<sup>[6]</sup> of a study reporting that the depression of the female elderly at home had negative effects on the quality of life with the mediation of daily activities. It would be

necessary to seek for the measures for lowering the depression by researching the progress of diseases when the age gets higher.

The local governments and healthcare specialists should vitalize the volunteer activity programs targeting the elderly with chronic diseases in community, and also operate the physical/psychological healthcare programs for the elderly in which the residents could actively participate.

### Conclusions

To improve the quality of life of the elderly with chronic diseases in daily life, it would be necessary to increase the self-efficacy which is confidence in abilities and also to encourage and support them all the time. Also, in order not to get exposed to more diseases in the current state, it would be needed to seek for the measures for educating and supporting in relation to disease control like medical check-up, daily life management, and use of medication, decreasing the feeling of depression, and giving a boost to live younger even when getting aged. This requires not only the efforts from the elderly, but also the active development and operation of programs by their families and experts. This study suggests a further research for revealing much more factors.

**Ethical Clearance:** Not required

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