ORIGINAL ARTICLE

J Korean Acad Community Health Nurs (지역사회간호학회지)

ISSN 1225-9594 (Print) / ISSN 2288-4203 (Online)
Vol. 28 No. 4, 440-449, December 2017
https://doi.org/10.12799/jkachn.2017.28.4.440

The Death Anxiety and Depressive Symptoms among Poor Older Women in Rural Areas: The Moderating Effect of Social Support

Lim, Seung Joo[1] · Ko, Young[2] · Kim, Chunmi[3] · Lee, Hung Sa[3]

[1]Department of Nursing, Research Institute for Basic Science, Hoseo University, Asan
[2]Department of Nursing, Gachon University, Incheon
[3]Department of Nursing Science, Sunmoon University, Asan, Korea

Purpose: This study was conducted to identify the moderate effect of social support on the relationship between death anxiety and depressive symptoms among poor older women in rural areas. **Methods:** This was a secondary analysis of the data from 209 women who were participated in the intervention study to evaluate the effectiveness of depression prevention program. Data were collected between April and September 2012. The data were analyzed using moderate multiple regressions. **Results:** Among these poor older women, depressive symptoms were associated with death anxiety and social support. Self-esteem support had a moderating effect on the relationship between death anxiety and depressive symptoms. **Conclusion:** The results indicate that the self-esteem support was effective in decreasing depressive symptoms and death anxiety in poor older women. In order to reduce their depression and make positive changes in their lives, self-esteem improvement programs are needed.

Key Words: Elderly, Anxiety, Depression, Social support, Self esteem, Death

INTRODUCTION

1. The Background of Research

Death always coexists with human life. However, as people enter the old age, they deny and avoid death, have a perception that life ends with death, or even consider it taboo to talk about their own death [1,2]. Thus, they have little chance of exploring death and live with vague anxiety about death [1,2].

Death anxiety is a negative attitude towards death, includes cognitive and emotional anxiety, and anxiety about physical changes. It refers to fear, dread or worry about death itself and the process of dying. Templer [3] defined death anxiety as 'an unpleasant thought and feeling about one's own death.' It is important to note that death anxiety should be seen not as an external influence but as an emotion felt within the individual. However, death anxiety can be triggered by thinking or witnessing the death of another person. Older adults who accept death positively regard the past life as meaningful, have little anxiety being satisfied with the present life, and tend to be optimistic about the prospect of future life [1,2,4]

Death anxiety is affected not only by variables related to one's own life itself but also by various variables such as age, gender, economic level, health status, and environmental events [5]. In addition, death anxiety has been reported to have a significant positive correlation with depression [2,6-8]. Older adults perceive death as an unavoidable event they are expected to undergo. Because of vague fear and anxiety about death, they have depression, which is a negative emotion. Depression of older adults can be a cause of suicide or loneliness [2]. Therefore, it is very important to lead older adults to accept death properly and lead their life positively in helping older adults to enjoy a better quality life and reducing their depression [1].

In previous studies, social support has been reported as an intervention to reduce the death anxiety and depression of the older adults. High social support has been reported as a factor reducing death anxiety by some studies

Corresponding author: Ko, Young
College of Nursing, Gachon University, 191 Hambangmoe-ro, Yeonsu-gu, Incheon 21936, Korea.
Tel: +82-32-820-4208, Fax: +82-32-820-4201, E-mail: camassia@naver.com

Received: May 26, 2017 / Revised: Nov 15, 2017 / Accepted: Nov 15, 2017

conducted in Korea [9]. In Jang and Lee [10], service support and emotional support were negatively related to death anxiety. In addition, social support has been reported to be a significant moderator variable decreasing depressive symptoms [11-13]. However, most studies have been conducted on the relationship between social support and depression or the relationship between death anxiety and depression in older adults [2,9-13]. There have been few studies that investigate correlations between them by considering these three variables together.

Death anxiety, depression, and social support of older adults are highly related to their gender, residence area and socioeconomic level. A low socioeconomic level was reported to be a significant predictor of unhealthy health status in both older women and men [1,14]. It was reported that the lower the income level, the lower the levels of family support and social support [14]. In addition, older women were found to have a lower socioeconomic level than older men [14], and they were reported to have higher levels of death anxiety [1] and depression [14,15]. It was also found that older women living in urban areas do more health-promoting behaviors and have higher social support than those living in rural areas [16]. Moreover, social support, which was reported to be lower in older adults living in rural areas than in those living in urban areas, was found to be significantly associated with depression [13]. Based on the overall results of previous studies described above, it is expected that poor older women in rural areas will have higher levels of death anxiety and depression.

As Korean society has entered the aging society very rapidly and the average age of population is increasing, the death of older adults has become a social issue. In particular, the average life expectancy of older women has been prolonged, and as a result, problems such as living alone, financial difficulties, and fear of death resulting from the death of the spouse are attracting attention as the problems of older women [1,4]. Thus, the purpose of this study was to examine the levels of death anxiety and depression in poor older women in rural areas, investigate the relationship between three variables of death anxiety, social support and depression, and to investigate the effect of social support on the relationship between death anxiety and depression. Through such research, we intended to provide useful basic data for setting up the direction of the program for social support to decrease death anxiety and depression of poor older women in rural areas and to prevent depression that may occur in connection with death anxiety.

2. The Purpose of Research

The purpose of this study is to provide basic data for establishing strategies to prevent and reduce depression in poor older women in rural areas. For this purpose, we aim to investigate the relationship between death anxiety, social support, and depressive symptoms in poor older women in rural areas, and specific objectives of this study are as follows:

First, we intend to investigate the degree of death anxiety, depressive symptoms, and social support in poor older women in rural areas.

Second, we aim to analyze the characteristics of death anxiety, social support, and depressive symptoms according to general characteristics of poor older women in rural areas.

Third, we intend to examine the relationship between death anxiety, depressive symptoms and social support in poor older women in rural areas, and analyze the effect of death anxiety on depressive symptoms and the moderating effect of social support.

METHODS

1. Research Design

This study is a descriptive correlational study to investigate the effect of death anxiety on depressive symptoms in poor older women in rural areas and to confirm the moderating effect of social support on the relationship between death anxiety and depressive symptoms.

2. Participants

The participant of this study were a total of 233 older adults aged 65 and over who were receiving the home visiting healthcare service provided through the public health center. Older adults who agreed to participate in the study and were able to communicate verbally were included in this study. The data of 209 older women of them were used in the analysis. The sample size was confirmed using the G-Power 3.1 program. The purpose of this study was to investigate the effect of death anxiety on depressive symptoms and analyze the moderating effect of social support. The predictors were 10 variables, including death anxiety, social support and 8 general characteristics, the significance level was .05 and the power was .80. The effect size was determined as medium (.15) on the basis of previous studies investigating the relationship between death anxiety and depressive symptoms [2,3], in which the explana-

tory power R^2 of death anxiety and general characteristics variables for depressive symptoms was .25[3], and the explanatory power R^2 of depressive symptoms and general characteristics for death anxiety was .12[2]. The sample size calculated under the assumption that multiple regression analysis would be performed was 118 persons. The number of participants in this study were 209. Therefore, the sample size required for statistical analysis was met.

3. Instruments

1) Death Anxiety

Death anxiety was measured using the Templer Death Anxiety Scale (DAS) developed by Templer [3] and adapted by Ko et al.[11]. The questionnaire consisted of 15 items rated on a binary scale (Yes=1 point and No=0 point). The scores of all items were added together to produce the score for death anxiety. A higher score indicates a higher level of death anxiety. Reliability was .75 in the previous studies [17], and Cronbach's α was .73 in this study.

2) Depressive symptoms

To measure the level of depressive symptoms in older adults, the Short Form of Geriatric Depression Scale (SGDS), which was developed by Sheikh and Yesavage [18] and standardized by Kee [19], was used. It consisted of a total of 15 items on a two-point scale (0 point for No and 1 point for Yes). Scores ranged from 0 to 15 points, with a higher score indicating a higher level of depressive symptoms. 0~4 points indicate a normal level of depressive symptoms, 5~9 points indicate mild depressive symptoms, and 10~15 points indicate moderate or severe depressive symptoms [18]. The reliability at the time of development was .94[18] and in this study, Cronbach's α was .79

3) Social support

Social support was assessed with the instrument developed by Song [20]. It consisted of a total of 20 items rated on a 4 point scale (1 point for 'Not at all', 2 points for 'Occasionally', 3 points for 'Frequently', and 4 points for 'Always'). The total score for social support ranged from 20 to 80 points. A higher score indicated a higher level of social support. The sub-domains of social support were informational support (6 items), material support (5 items), emotional support (5 items), and self-esteem support (4 items), and the score of each of the individual sub-domains was presented as the mean value of the relevant items. Informational support means the perception and availability of a person whom one can talk to about one's problems. Material support means the perception and availability of material help. Emotional support refers to the perception and availability of a person whom an individual can count on to be with himself or herself. Finally, self-esteem support means the perception that an individual is able to have a positive view of himself or herself when comparing himself or herself to others [20]. The reliability of this instrument at the time of development was .97[20], and Cronbach's α in this study was .90.

4) General Characteristics

The general characteristics were the age, the subjective economic level, Korean literacy, the presence of family living together (yes, no), medical expenditure burden, the number of diseases, and pain. For the subjective economic level, the participants were asked to choose among 'generally well-off,' 'moderate,' and 'generally badly off,' and it was divided into 'generally badly off' and 'not badly off' ('generally well-off' or 'moderate'). Korean literacy was examined as the index representing the level of education and it was classified into 'able to read Korean' and 'unable to read Korean'. For the presence of medical expenditure burden, it was classified into 'yes,' 'to some degree,' and 'no.' For the number of diseases each participant had, it was examined whether or not each participant had physician-diagnosed hypertension, diabetes, stroke, arthritis, urinary incontinence, cancer, heart disease and chronic respiratory diseases. Pain was assessed on a 10-point scale from 0 point for no pain to 10 points for extreme pain.

5) Data Collection

This study utilized the data of a study for evaluation of the effect of the depression intervention program [21], which was conducted through research funding from the local government of South Chungcheong Province in 2012, as the secondary data. For the analysis of this study, we used the data of the preliminary survey among older women who were receiving the home visiting healthcare service, which was conducted by the public health center to screen the participants in the depression intervention program. This study was carried out after receiving the approval of the IRB (Hoseo University IRB-20120010) of the university to which the researcher belongs. Before carrying out this study, the purpose and procedures of the study were explained to the director of the public health center and the nurse for the home visiting healthcare service and obtained their cooperation and permission. After that, the researcher and the home visiting healthcare service nurse at the public health center explained to the participants that the study purpose and personal information would be kept confidential and that they could withdraw

from the study at any time during the research. Then, only if they agreed in writing, the data were directly collected using questionnaires.

6) Statistical analysis

Data were analyzed using the SPSS statistical program. First, descriptive statistics and correlation analysis were used to identify the characteristics of death anxiety, depressive symptoms, and social support. Second, the Pearson's correlation coefficient, t-test and ANOVA were used to assess death anxiety, depressive symptoms, and social support according to general characteristics. Third, Pearson's correlation coefficient was used to determine the correlation between death anxiety, depressive symptoms, and social support. Moderate multiple regressions were used for verification to examine the effects of death anxiety on depressive symptoms and the role of social support. The mean centering variable was used to eliminate the multicollinearity of the interaction term of death anxiety, the independent variable, and social support, the moderating variable. An interaction term was created by multiplying the mean centering variable by the moderating variable. For regression analysis of social support, Model 1 included general characteristics (the subjective economic level, medical expenditure burden and the number of diseases) and death anxiety, which were reported to be related to depressive symptoms. In Model 2, social support was used as a variable. In Model 3, the interaction terms of death anxiety and social support were introduced. In addition, moderated regression analyses were conducted to confirm the moderating effect of each sub-domain of social support.

RESULTS

1. The Levels of Death Anxiety, Depressive symptoms and Social Support in Poor Older Women in Rural Areas

In poor older women in rural areas, the level of death anxiety was 8.74±3.20 points and the level of depressive symptoms was 7.43±3.32 points. The level of social support was 39.40±9.70 points (Table 1). With respect to the depressive symptoms level, it was normal in 37 participants (17.7%), mild in 107 participants (51.2%) and moderate or severe in 65 participants (31.1%). For the score for each subdomain of social support, they were 2.06±0.58 points for material support, 2.00±0.58 points for emotional support and 1.86±0.59 points for self-esteem support in descending order (Table 1).

2. Differences in Death Anxiety, Social Support and Depressive Symptoms according to General Characteristics of Poor Older Women in Rural Areas

The mean age of participants was 74.6±5.97 years and 53.1% of them were living alone. For the subjective economic level, 52.6% of participants answered that they were generally badly off, and 59.3% said that they were feeling the burden of medical expenditures. The mean number of accompanying chronic diseases was 2.56 and the most common disease was high blood pressure, followed by arthritis and diabetes. The degree of pain was 5.68 points (on a 10 point scale). 75.5% of participants reported that they experienced the death of a meaningful person within the past one year (Table 2).

The analysis of data regarding the characteristics of death anxiety, depressive symptoms and social support depending on general characteristics showed that there was a significant difference in the levels of depressive symptoms and social support according to the subjective economic level and medical expenditure burden ($p<.05$). And it was found that the higher the number of diseases an individual had, the higher the level of depressive symptoms and the lower the level of social support ($p<.05$). When there was family living together, social support was significantly higher (t=-2.45, $p=.015$). There was no significant difference in death anxiety according to the sub-

Table 1. Death Anxiety, Depressive Symptoms and Social Support (*N*=209)

Variables	Range	Min	Max	M±SD
Death anxiety	0~15	0	15	8.74±3.20
Depressive symptoms	0~15	0	14	7.43±3.32
Social support	20~80	22	70	39.40±9.70
Informational support	1~5	1.00	3.33	1.85±0.57
Material support	1~5	1.00	3.60	2.06±0.58
Emotional support	1~5	1.00	4.00	2.00±0.58
Self-esteem support	1~5	1.00	4.00	1.86±0.59

jective economic level, medical expenditure burden and number of diseases the participant had, and there was no significant difference in death anxiety, depressive symptoms, and social support depending on age, Korean literacy, pain, and the experience of the death of a meaningful person (Table 2).

3. Correlations between Death Anxiety, Depressive Symptoms, and Social Support

Death anxiety showed a significant positive correlation with depressive symptoms (r=.17, p=.008). Death anxiety was not associated with overall social support, but it had a significant negative correlation with emotional support (r=-.13, p=.047) and self esteem support (r=-.16, p=.012) among the subdomains of social support.

Social support was significantly negatively correlated with depressive symptoms (r=-.29, p<.001). In particular, among the subdomains of social support, material support (r=-.20, p=.002), emotional support (r=-.37, p<.001) and self-esteem support (r=-.30, p<.001) had a significant negative correlation with depressive symptoms (Table 3).

4. The Effect of Death Anxiety on Depressive Symptoms: The Moderating Effect of Social Support

Moderated regression analysis was conducted to examine the effect of death anxiety on depressive symptoms and the moderating effect of social support. Before performing the analysis, the presence of autocorrelation was verified using the Durbin-Watson test and it was found to be 2.08. Therefore it was confirmed that the variables were independent variables without autocorrelation. In order to examine the effects of death anxiety on depressive symptoms, in Model 1, variables such as the subjective economic condition, medical expenditure burden, number of diseases, and death anxiety were entered. As a result, the higher the level of death anxiety (β=.16, p=007), the higher the level of depressive symptoms. The explanatory power of general characteristics and death anxiety for depressive symptoms was 19.01%. In Model 2, where the moderating variable was entered, explanatory power of 2.23%p was increased by adding social support (p<.05) and the overall explanatory power was 21.24%. The higher the level of social support (β=-.16, p=.012), the lower the level of depressive symptoms. Model 3 tested the moderating effect of so-

Table 2. Death Anxiety, Depressive Symptoms and Social Support by General Characteristics (*N*=209)

Variables		n (%) or M±SD	Death anxiety		Depressive symptoms		Social support	
			M±SD	t or F or r (p)	M±SD	t or F or r (p)	M±SD	t or F or r (p)
Age (year)	65~74 ≥75 	105 (50.2) 104 (49.8) 74.6±5.97	8.66±3.23 8.81±3.18	-0.34 (.734)	7.04±3.35 7.88±3.09	-1.90 (.059)	39.19±9.78 38.30±8.63	0.70 (.485)
Subjective economic status	Not hard Hard	99 (47.3) 110 (52.6)	8.52±3.27 8.93±3.13	-0.98 (.328)	6.55±3.33 8.28±2.95	-4.00 (<.001)	42.64±9.65 35.24±7.21	6.22 (<.001)
Health literacy	No Yes	43 (20.6) 166 (79.4)	9.07±3.20 8.66±3.20	0.77 (.443)	7.72±3.40 7.39±3.21	.59 (.554)	36.40±8.98 39.36±9.20	-1.89 (.060)
Living with someone	No one Yes	111 (53.1) 98 (46.9)	8.94±2.89 8.52±3.49	-1.01 (.315)	7.74±3.16 7.14±3.33	1.33 (.186)	37.30±9.02 40.39±9.19	-2.45 (.015)
Burden of medical service expense	Yes[a] So so[b] No[c]	124 (59.3) 60 (28.7) 25 (12.0)	9.01±3.12 8.71±3.42 7.43±2.77	2.90 (.057)	8.27±2.93 5.83±3.40 7.32±2.94	12.75 (<.001) c<a	36.90±8.29 40.97±9.61 42.56±10.53	6.72 (.001) a<c
Comorbidity		2.56±1.18		-0.04 (.553)		.18 (.008)		-0.17 (.010)
Pain (0~10)		5.68±2.16		0.06 (.361)		.03 (.639)		-0.05 (.504)
Experience of death of significant one	Yes No	176 (75.5) 57 (24.5)	8.80±3.17 8.53±3.32	-0.56 (.574)	7.08±2.77 7.59±3.39	-1.00 (.320)	38.49±10.81 38.83±8.64	-0.21 (.835)

cial support. In Model 3, the increase of the coefficient of determination was 0.65%p but was not significant, so social support was found not to moderate the effect of death anxiety on depressive symptoms (Table 4).

Moderated regression analyses were performed to examine the effect of death anxiety on depressive symptoms and the moderating effects of sub-domains of social support. In other words, the moderating effects of material support, emotional support, and self-esteem support, which were found to be significantly related to death anxiety and depressive symptoms in the analysis of correlations with death anxiety and depressive symptoms, were analyzed.

In order to verify the moderating effect of material support for the effect of death anxiety on depressive symptoms, material support was added to Model 2 after entering the subjective economic level, medical expenditure burden, number of diseases and death anxiety in Model 1, but there was no significant increase in the explanatory power. There was no moderating effect of material support in Model 3, either. In order to verify the moderating effect of emotional support in the effect of death anxiety on depressive symptoms, we added emotional support to Model 2 after entering general characteristics and death anxiety in Model 1. As a result, explanatory power increased by 5.27%p ($p<.05$) and overall explanatory power was 24.28%. The higher the emotional support (β=-.25, $p<.001$), the lower the depressive symptoms level. However, in Model 3, the increase in the coefficient of determination was 1.41%p, and there was no moderating effect of emotional support. In other words, it was found that emotional support is an independent variable that has a significant effect on depressive symptoms.

In order to verify the moderating effect of self-esteem support in the effect of death anxiety on depressive symptoms, we added self-esteem support to Model 2 after entering general characteristics and death anxiety in Model 1. As a result, explanatory power was increased by 2.12 %p ($p<.05$) and overall explanatory power was 21.18%. The higher the self-esteem support (β=-.18, $p=.005$), the lower the depressive symptoms level. In Model 3, the coefficient of determination was significantly increased by 2.61%p ($p<.05$). Therefore, self-esteem support was found to have a moderating effect in the effect of death anxiety on depressive symptoms and it also had a significant effect on depressive symptoms, so it was found to be a quasi moderating variable (Table 5).

Table 3. Correlation among Death Anxiety, Depressive Symptoms, and Social Support (*N*=209)

Variables	Death anxiety	Depressive symptoms
	r (*p*)	r (*p*)
Depressive symptoms	.17 (.008)	
Social support	-.10 (.134)	-.29 (<.001)
Informational support	.01 (.880)	-.10 (.117)
Material support	-.10 (.142)	-.20 (.002)
Emotional support	-.13 (.047)	-.37 (<.001)
Self-esteem support	-.16 (.012)	-.30 (<.001)

DISCUSSION

This study analyzed the degree of depressive symptoms in poor older women in rural areas, and analysis was focused on the correlation between death anxiety, social

Table 4. Factors related to Depressive Symptoms: Moderating Effect of Social Support (*N*=209)

Variables	Model 1		Model 2		Model 3	
	β	*p*	β	*p*	β	*p*
Subjective economic status-hard	.18	.012	.12	.109	.12	.102
Burden of medical service expense-yes	.01	.927	.01	.928	.02	.319
Burden of medical service expense-so so	-.25	.010	-.24	.011	-.23	.402
Comorbidity	.11	.091	.09	.137	.08	.192
Death anxiety	.16	.007	.18	.003	.17	.007
Social support			-.16	.012	-.16	.013
Death anxiety*social support					.08	.173
R^2 (%)	19.01		21.24		21.89	
$\triangle R^2$ (%)			2.23		0.65	
F (*p*)	10.66 (<.001)		10.16 (<.001)		9.01 (<.001)	
△F (*p*)			6.41 (.012)		1.87 (.173)	

Table 5. Factors related to Depressive Symptoms: Moderating Effect of Self-esteem Support (*N*=209)

Variables	Model 1		Model 2		Model 3	
	β	*p*	β	*p*	β	*p*
Subjective economic status-hard	.18	.012	.11	.122	.13	.085
Burden of medical service expense-yes	.01	.927	-.00	.982	-.00	.983
Burden of medical service expense-soso	-.25	.010	-.24	.011	-.24	.009
Comorbidity	.11	.091	.10	.098	.09	.142
Death anxiety	.16	.007	.17	.005	.14	.017
Self-esteem Support			-.18	.005	-.18	.004
Death anxiety*self-esteem Support					.16	.008
R^2 (%)	19.01		21.18		23.79	
$\triangle R^2$ (%)			2.17		2.61	
F (*p*)	10.66 (< .001)		10.12 (< .001)		10.03 (< .001)	
$\triangle$F (*p*)			6.22 (.013)		7.70 (.002)	

support and depressive symptoms, and the moderating effect of social support. According to the study results, poor older women showed mild depressive symptoms, and the degree of depressive symptoms was different according to the subjective economic level and medical expenditure burden. Death anxiety was positively correlated with depressive symptoms, and social support was negatively correlated with depressive symptoms. The interaction between death anxiety and self-esteem support increased the explanatory power of depressive symptoms, so it was confirmed that self-esteem support can moderate the effect of death anxiety on depressive symptoms. Based on the above results, we discuss the levels of death anxiety and depressive symptoms in poor older women, and the effects of death anxiety and social support on depressive symptoms.

The mean score of death anxiety in the participants of this study was 8.74 points on a 15 point scale. In Jeon [22], which assessed the level of death anxiety in older adults with the same tool, the mean score of death anxiety was 7.73 points in older women and 7.36 points in older adults in rural areas. These levels of death anxiety were higher than the score of death anxiety of older adults in Western countries of 5.74 points reported in Templer [23]. The mean score of depressive symptoms in the participants of this study was 7.43 points, and 31.1%(10 points or more) showed moderate or severe depressive symptoms.

In Kwon [6], which assessed the depressive symptoms level with the same instrument, older adults in welfare facilities for older adults showed a moderate level of depressive symptoms, and Park et al.[8] reported that the depressive symptoms level of older women in rural areas was 4.14±3.22 points, which indicates a normal level of depressive symptoms. In addition, Lee et al.[15] reported that 23.3% of older women in urban areas showed moderate to severe depressive symptoms (10 points or more). The results of this study are in agreement with previous studies reporting that the depressive symptoms level was higher in older adults living in nursing homes or long-term care facilities [24] and in poor older adults [1,8,14,25] than in older adults living at home. The participants of this study were poor older women living in rural areas, and they showed a lower level of depressive symptoms than older adults in nursing homes or long-term care facilities [6], but they showed a higher level of depressive symptoms than rural older women [8] and urban older women [15]. It is thought that the participants of this study exhibited high levels of death anxiety and depressive symptoms as a result of the interaction of three factors, such as residence in rural areas, poverty, and women.

In this study, there was a correlation between death anxiety and depressive symptoms in poor older women in rural areas. This finding was consistent with previous research [7,26,27] for older adults, but was not consistent with the results of Park et al.[8], which reported that death anxiety was not correlated with depressive symptoms in older women using senior welfare centers in rural areas. Death anxiety is an unpleasant and negative emotion that an individual feels while considering the death of oneself or others. It is an emotion that occurs when one experiences the difficulties in everyday life rather than a feeling experienced once at the moment of death [3]. Depressive

symptoms is also an emotion caused by repeated stressful life events. The level of depressive symptoms was reported to be higher in older women than in older men, and it was found to be higher in poor older adults who usually experience difficulty in life repeatedly than in ordinary older adults [28]. Wu et al.[27], which was a study conducted with older adults in Hong Kong, also reported that death anxiety was highly related to stress and depressive symptoms. In Chang [26], Aday and Shahan [7], and this study, participants showed a high level of death anxiety and depressive symptoms, but Park et al.[8] reported that there was no significant correlation between death anxiety and depressive symptoms. It may be explained by the fact that the levels of both death anxiety and depressive symptoms were low in older women using senior welfare centers. In other words, it is thought that death anxiety was positively correlated with depressive symptoms in this study because the participants were poor older women. Poor older women experience negative emotions repeatedly due to financial difficulties in life.

In this study, social support did not show a significant correlation with death anxiety, but among the sub-domains of social support, emotional support and self-esteem support were negatively correlated with death anxiety. The results of this study are consistent with the findings of Jang and Kim [10], which reported that there was no significant relationship between material support and death anxiety in older adults living in metropolitan, medium-sized and small cities and that as the level of emotional support became higher, the level of death anxiety was significantly lowered. In this study, social support was negatively correlated with depressive symptoms, and especially, material support, emotional support, and self-esteem support showed a negative correlation with depressive symptoms. Social support and depressive symptoms were significantly correlated with each other in many previous studies [3,10,12,26], supporting the results of this study. Kim et al.[13] reported that although older adults in rural areas had a lower level of depressive symptoms than those living in urban areas, they lacked social support, and the correlation between the lack of social support and depressive symptoms was stronger in rural areas. Lee and Yun [16] also reported that women in rural areas had lower social support than women in urban areas. Therefore, the existing perception that the sense of community or informal network is stronger in rural areas than in urban areas may not hold true in older women living in rural areas [16]. These findings suggest that because social support is very low in older women living in rural areas, the degree of death anxiety and depressive symptoms may be higher in them. Therefore, social support should be a strategy when establishing a program for older women in rural areas. In addition, all members of society should recognize that social networks are important for establishing and maintaining social safety nets in rural areas.

Moderated regression analysis showed that death anxiety and self-esteem support had a direct effect on depressive symptoms, and the interaction between death anxiety and self-esteem support had a positive effect on depressive symptoms. In other words, self-esteem support not only directly lowered depressive symptoms but also had a moderating effect between death anxiety and depressive symptoms. Considering that the self-esteem support was highly correlated with depressive symptoms in this study, self-esteem support for older adults is very important. The results of this study are also consistent with Oh and Choi [24], which also reported that death anxiety directly affected depressive symptoms in both older adults living at home and those living in nursing homes or long-term care facilities, and that among the subdomains of self-esteem, self-efficacy support had an indirect effect on depressive symptoms through death anxiety whereas self-acceptance support and self-efficacy support directly affected depressive symptoms. In addition, the results of this study are also in agreement with the results of Oh et al.[2], which verified the moderating effect of self-esteem in the relationship between depressive symptoms and death anxiety. These results confirmed that the support for strengthening self-esteem is necessary for prevention of death anxiety and depressive symptoms of older adults.

Self-esteem is a concept referring to emotional evaluation of how one perceives about one's value and importance and it is closely related to the desire for love and sense of belonging [20]. In old age, decreases in self-esteem resulting from the decline of physical function, the loss of family members and friends, changes in roles, the loss of economic independence, and an increase of dependency make people think of themselves as worthless, so it is associated with depressive symptoms [2,19].

In particular, older adults living alone or poor older adults are faced with a situation in which their self-esteem is relatively lowered, so they can easily experience psychological crises and depression. In addition, there is a high possibility that the opportunities for them to choose and use necessary services are blocked for financial reasons, and that they are not able to recover from negative feelings because of a lack of social support, including family support [13,16]. Therefore, it is necessary to perform interventions for improvement of self-esteem which enable poor older women to achieve successful aging by helping

them to adapt effectively to crises and changes in old age. In rural areas, social support and encouragement should be provided to enable older adults to have positive self-images through various and continuous interactions [29].

Thorson and Powell [30] described the characteristics of death anxiety as denial of death, fear of one's or someone else's death, avoidance of death, and inability to care for a dying person. Older adults often encounter the death of a person close to them, and may have to take care of the death of their spouse [1,2]. Death anxiety is an event that anyone may experience in old age, and the degree of death anxiety may vary according to the resources for coping with it. Therefore, it is a way of preventing and reducing depressive symptoms to help poor older women in rural areas overcome their feelings of death anxiety and lead their lives in a positive way. Although many older adults use senior centers or senior welfare centers, there are still many older adults who are at risk of dying a lonely death. Therefore, it is necessary to identify older adults who do not have any link with the local community and to initiate programs for older adults living at home or home visiting healthcare projects for them.

CONCLUSION

According to the results of this study, death anxiety and social support were the explanatory factors of depressive symptoms in poor older women in rural areas, and self-esteem support had a moderating effect. In other words, while death anxiety had a direct influence on the depressive symptoms of poor older women, depressive symptoms was found to be decreased by the interaction between death anxiety and self-esteem support. In a rapidly changing society, it is difficult for older adults to adjust to changes in society, and these days, it has become very difficult for poor older adults to achieve successful aging. In addition, since death anxiety of poor women increases depressive symptoms, social efforts are needed to help them to lead a positive life through continuous interactions with community resources. In this regard, we present the following suggestions based on the results of this study. First, it is necessary to develop programs that can help older adults overcome internal negative feelings so that welfare projects for older adults or home visiting healthcare projects can provide practical help for changing the lives of older adults positively. Second, social efforts to identify poor older women are needed. The levels of death anxiety and depressive symptoms are high in poor older women, and they are likely to be particularly problematic in rural areas where social support is lacking. Since older adults may not be linked with community networks, it is necessary to develop long-term programs in order to provide continuous support through a longitudinal follow-up investigation for people in old age.

This study has limitations in the generalization of the study results because it was conducted with poor older women in rural areas. Therefore, we propose conducting replication studies by expanding not only the research area but also expanding the participants to include older men. In addition, we suggest intervention studies for developing self-esteem improvement intervention programs for older adults in rural areas and evaluating the effect of an decrease in the level of death anxiety and depressive symptoms.

REFERENCES

1. Park SA, Hur JS. Determinants of the death anxiety among the elderly. Mental Health and Social Work. 2012;40(1):59-88.
2. Oh SG, Cho J, Kim YH, Choi JM. Influence of depression on psychological death anxiety of the elderly: Moderate effect of self-esteem. The Journal of the Korea Contents Association. 2012;12(2):243-254. https://doi.org/10.5392/JKCA.2012.12.02.243
3. Templer DI. The construction and validation of a death anxiety scale. The Journal of General Psychology. 1970;82(2):165-177. https://doi.org/10.1080/00221309.1970.9920634
4. Lee HJ, Jo KH. A pathmodel for death anxiety to suicidal ideation of the elderly. Journal of the Korean Gerontology Society. 2006;26(4):717-731.
5. Neimeyer RA, Wittkowski J, Moster RP. Psychological research on death attitudes: An overview and evaluation. Death Studies. 2004;28:309-340. https://doi.org/10.1080/07481180490432324
6. Kwon OG. A survey on the determinants of death anxiety in nursing-home residents. Journal of Welfare for the Aged. 2008; 41:27-50.
7. Aday RH, Shahan DR. Elderly reactions to death education program in a nursing home setting. Gerontology & Geriatrics Education. 1995;15(3):3-18. https://doi.org/10.1300/J021v15n03_02
8. Park KE, Kwon MH, Kwon YE. Correlation among depression, death anxiety, and quality of life aged women. Journal of Korean Public Health Nursing. 2013;27(3):527-538. https://doi.org/10.5932/JKPHN.2013.27.3.527
9. Jang DH, Lee SM. The effect of family factors on death anxiety of the aged. Journal of Welfare for the Aged. 2007;37:89-110.
10. Jang IS, Kim SM. The relationship between social network and death anxiety in elders. Journal of Korean Gerontological Nursing. 2002;4(1):80-92.

11. Ko JH, Choi JO, Lee HP. The reliability and factor structure of K-templer death anxiety scale. The Korean Journal of Health Psychology. 2006;11(2):315-328.
12. Dickinson WJ, Potter GG, Hybels CF, McQuoid DR, Steffens DC. Change in stress and social support as predictors of cognitive decline in older adults with and without depression. International Journal of Geriatric Psychiatry. 2011;26(12):1267-1274. https://doi.org/10.1002/gps.2676
13. Kim JM, Stewart R, Shin IS, Yoon JS, Lee HY. Lifetime urban/rural residence, social support and late-life depression in Korea. International Journal of Geriatric Psychiatry. 2004;19(9):843-851. https://doi.org/10.1002/gps.1175
14. Oh SE, Ko Y. Activities of daily living, depression, and self-rated health and related factors in Korean elderly: Focused on socioeconomic status and family support. Journal of Korean Academy of Community Health Nursing. 2015;26(2):140-149. https://doi.org/10.12799/jkachn.2015.26.2.140
15. Lee HJ, Kahng SK, Lee JY. The effects of socioeconomic position and health behavior on geriatric depressive symptom. Journal of the Korean Gerontological Society. 2008;28(4):1129-1145.
16. Lee JY, Yun SN. A comparative study on health promotion behaviors and affecting factors of aged women in urban and rural area. Journal of Korean Academy of Community Health Nursing. 2005;16(1):13-22.
17. Ali TM, Behrooz A. Investigation of validity and reliability of Templer death anxiety scale. Thought & Behavior in Clinical Psychology. 2011;6(21):72-80.
18. Sheikh JI, Yesavage JA. Geriatric Depression Scale (GDS): Recent evidence and development of a short version. Clinical Gerontologist. 1986;5(1-2):165-173. https://doi.org/10.1300/J018v05n01_09
19. Kee BS. A preliminary study for the standardization of Geriatric Depression Scale short form-Korea version. Journal of the Korean Neuropsychiatric Association. 1996;35(2):298-307.
20. Song MS. Construction of a functional status prediction model for the elderly [dissertation]. [Seoul]: Seoul National University; 1991. 141 p.
21. Lim SJ, Lee HS, Kim CM, Ko Y. The effects of a positive psychology improvement program on elders' depression and death anxiety. Journal of Korean Academy of Community Health Nursing. 2015;26(3):238-247. https://doi.org/10.12799/jkachn.2015.26.3.238
22. Jeon YG. A study of factors influencing the death anxiety in the old age [master's thesis]. [Daejeon]: Mokwon University;2000. 80 p.
23. Templer DI. Death anxiety as related to depression and health of retired persons. Journal of Gerontology. 1971;26(4):521-523.
24. Oh MN, Choi WS. A study on self-esteem, death anxiety and depression of the elderly in home and facilities. Journal of the Korean Home Economics Association. 2005;43(3):105-118.
25. Yu J, Li J, Cuijpers P, Wu S, Wu Z. Prevalence and correlates of depressive symptoms in Chinese older adults: A population-based study. International Journal of Geriatric Psychiatry. 2012;27(3):305-312. https://doi.org/10.1002/gps.2721
26. Chang KE. A study on the ecological factors affecting the death anxiety among the elderly. Journal of Welfare for the Aged. 2010;49:267-286.
27. Wu AM, Tang CS, Kwok TC. Death anxiety among Chinese elderly people in Hong Kong. Journal of Aging and Health. 2002;14(1):42-56. https://doi.org/10.1177/089826430201400103
28. Lehto RH, Stein KF. Death anxiety: An analysis of an evolving concept. Research and Theory for Nursing Practice: An International Journal. 2009;23(1):23-41.
29. Campbell A. The sense of well-being in America: Recent patterns and trends. New York: McGrawHill; 1981. 263 p.
30. Thorson JA, Powell FC. Elements of death anxiety and meanings of death. Journal of Clinical Psychology. 1988;44(5):691-701. https://doi.org/10.1002/1097-4679(198809)44:5<691::AID-JCLP2270440505>3.0.CO;2-D