

A Comparison of Health Perception, Entrapment, Suicidal Ideation, and Care Burden of Main Caregivers of Elderly Dementia Patients According to Depression Status

Suk Jung Han¹ and Jiyoung Chun²

¹*Department of Nursing, Sahmyook University
815 Hwarang-Ro, Nowon-Gu, Seoul 139-742, KOREA*

²*College of Nursing, Seoul National University
103 Daehak-Ro, Jongro-Gu, Seoul 110-799, KOREA
hansj@syu.ac.kr and jychun0827@gmail.com*

Abstract

With the rapid ageing of Korean society, the number of elderly dementia patients is on a sharp increase. Dementia cannot be cured; so, it has long-term effects not only on patients, but on their main caregivers, too. This descriptive comparative study seeks to analyze differences in the health perception, entrapment, suicidal ideation, and care burden of main caregivers of elderly dementia patients according to depression level and to identify the characteristics of elderly dementia patients. The study subjects are the main caregivers of dementia patients registered in dementia support centers under public health facilities in metropolitan areas. Sixty questionnaire copies were analyzed in this study. The results showed that the main caregivers' depression status had significant correlations with their entrapment ($r=.801$), suicidal ideation($r=.495$), care burden ($.562$), health perception($r=-.505$), and elderly dementia patients' hearing ($p=.01$). Given the study results, prevention and treatment of depression among main caregivers of elderly dementia patients may lower their entrapment, suicidal ideation, and care burden. In addition, since caregivers' depression is related to elderly dementia patients' hearing, it is necessary to take into account that relationship.

Keywords: *Elderly dementia patients, Main caregivers, Entrapment, Hearing*

1. Introduction

1.1. The Necessity of Study

In 2015, elderly people aged more than 65 years accounted for 13.1% of the Korean population. The elderly population continues to rise and is expected to reach 40.1% in 2060. The ageing index, which is calculated as the number of persons aged ≥ 60 years per 100 persons aged <15 years, was 94.1 in 2015 and is estimated to reach 104.1 in 2017. Sooner or later, a super-aged society where the elderly population outnumbers the young population will emerge [1]. An increase in age is accompanied by an increase in the prevalence of dementia, a geriatric illness. According to the Ministry of Health and Welfare, elderly people aged more than 65 years account for 9.6% (612,000) of the elderly population with dementia; it is estimated that this number will reach 15% or 2,710,000 in 2050. In particular, with the rapid ageing of Korean society, the number of dementia patients is expected to rise quickly. The increase is predicted to be faster than that of the elderly population [2].

Given the increase in the number of elderly dementia patients, their care costs were estimated to amount to KRW 11.7 trillion in 2013. The social cost for caring for dementia patients includes direct medical and care expenses for the patients, and the socio-

economic costs incurred as a result of their families' care provision. Due to the social cost for dementia reaching 1% of the GDP, the Korean government undertook a national dementia management project since 2008, that is expected end in 2020, in order to establish a system for early detection and prevention of dementia, and caring for dementia patients [2].

Beginning with memory impairment, a dementia patient shows cognitive function disorders including paranoia, hallucination, and increased impairment in judgment, and emotional and personality disorders. Dementia is a chronic and degenerative disease and does not have a cure. Therefore, a dementia patient needs continuous care and observation for 24 hours and for the long term [3, 4]. Accordingly, it is difficult for the caregiver of an elderly dementia patient to get out of care; thus, the caregiver does not rest enough. For this reason, such a caregiver experiences a decline in physical health and psychological health problems such as depression and anger [5]. In other words, caring for an elderly dementia patient results in a caregiver's emotional burnout, including depression, a sense of guilt, frustration, and shamefulness [6-8], or a surreal sense of reality or problems with self-perception [9]. The mental health of caregivers of elderly dementia patients is related to their care burden. Thus, the more caregivers experience depression and fatigue, the higher their care burden and the more unstable their mental health; this points to a vicious circle in the relationship between caregivers' depression and their care burden [10-12].

The burden of caring for elderly dementia patients leads to not only economic burdens, but also imposes limits on social activities and leads to a negative change in family relationships. The sense of balance of main caregivers and family members of dementia patients is negatively affected [13]. While main caregivers focus on care, tension and stress occur in the family relationship, negatively affecting caregivers' health and family members [5]. Therefore, families that care for elderly dementia patients experience more depression and lower satisfaction with quality of life than those that do not [10,14].

Most previous studies on the burden of caring for elderly dementia patients focus on patients, their activities of daily living, depression, and problematic behavior. Some studies on caregivers of elderly dementia patients concentrate on their physical health and stress, family support, and other social factors and policies [3, 15].

Therefore, this study aims to look into the psychological problems of caregivers and characteristics of elderly dementia patients in relation to caregivers' depression.

1.2. Purpose of Study

This study identifies differences in the health perception, entrapment, suicidal ideation, and care burden of main caregivers of elderly dementia patients, according to the main caregivers' depression status. The study purpose is presented in detail, as follows:

- 1) Identify study subjects' general characteristics and care characteristics.
- 2) Classify study subjects into a "normal," "risk," or depression group, according to the degree of their depression, and examine variables relating to main caregivers in each group and differences between the groups with regard to the characteristics of elderly dementia patients.
- 3) Investigate the correlations between study variables.

2. Study Methods

2.1. Design of Study

This descriptive comparative study classifies study subjects into a normal, risk, and depression group, according to the degree of their depression, and also analyzes the characteristics of each group.

2.2. Study Subjects and Data Collection

The study subjects were persons who visited the dementia support center of a public health center in a metropolitan area, who understood the study purpose and gave written consent. A structured questionnaire was used to collect the data.

With use of the G*power 3.19.2 program, significance level was set to .05, test power at .80, and effect size at .40. Accordingly, the minimum sample size necessary for the ANOVA was 66 persons. The researcher distributed 75 questionnaire copies among subjects; 15 copies had incomplete data and were excluded. As a result, a total of 60 copies were used for data analysis.

In the case of data collection, after receiving permission from the chief manager of the center, the researcher called each study subject to explain the visit and this study, and subsequently met with study subjects who accepted a visit for the administration of the questionnaire survey. The study subjects were allowed to withdraw their study participation at any time and understood that the collected data were processed anonymously and were never to be used for purposes other than the study purpose. Following completion of the questionnaire, a small gift was offered to each study subject.

2.3. Study Tools

2.3.1. Characteristics of Main Caregivers

(1) Depression

Depression is represented on a continuous line depicting a series of changes in feelings, from normal feelings to a pathological state. In particular, depression is represented by worry, a gloomy feeling, a sense of failure, and feelings of helplessness and worthlessness. This study used the Geriatric Depression Scale-Short Form Korean Version (GDSSF-K), to measure depression [16]. This tool consists of 15 questions. The answer, "yes," yields 1 point and "no," 0 points. The higher the number of points, the higher the degree of depression. Less than 5 points was interpreted as "normal," 5–9 points, a "high possibility of depression," and more than 10 points, "depression."

A Kuder-Richardson 20 (K-R20) coefficient of .903 was obtained in this study, indicating internal consistency.

(2) Health perception (perceived health status)

Health perception is the subjective evaluation of one's perceived current health status. In this study, it is represented by the points on Hong's measuring tool [17], which consists of 3 questions. On the 5-point Likert scale in Hong's tool, 1 point means "very bad" and 5 points, "very good." The higher the number of points, the higher one's health perception. In this study, Cronbach's $\alpha = .940$.

(3) Entrapment

Entrapment is one's perception of failure to escape from the current situation, relation, and emotion, despite a strong desire to do so [18]. For measurement, this study used the Korean version of the entrapment scale developed by Gilbert and Allan [19], which was standardized by Lee Jong-sun and Jo Jyeon-ju [20]. The scale is divided into internal entrapment and external entrapment subscales. The internal entrapment subscale consists of 6 questions about one's perception of entrapment, even though he or she tries to escape from the current thinking and emotion. The external entrapment subscale consists of 10 questions about one's perception of entrapment, even though he or she tries to escape from the current situation or relation. In the scale, 1 point means "never" and 5 points, "very likely." The higher the number of points, the higher the level of entrapment. The Cronbach's α of internal entrapment was .955 and that of external entrapment's was .953.

(4) Suicidal Ideation

To measure suicidal ideation, this study used the Suicidal Ideation Scale [21] of Harlow, Newcomb, and Bentler, translated by Park Sun-cheon [22]. The scale consists of five questions (thinking of longing to die, thinking of suicide, the experience of telling about someone suicide, thinking that life ends with suicide, and suicidal attempts). In the 4-point Likert scale, 1 point means “never” and 4 points, “often.” The higher the number of points, the higher the level of suicidal ideation. In this study, Cronbach’s alpha = .867.

(5) Care burden

Care burden represents the physical, psychological, and economic burdens that result from the difficulty experienced by a family caring for an elderly person of advanced age or who is ill. For measurement, this study used a tool [23] by Kwon Jung-don, who changed and supplemented the Burden Inventory Scale developed by Zarit [24]. In each question, the answer, “very likely,” yields 5 points, and the answer, “very unlikely,” 1 point. The higher the number of points, the higher the care burden. A Cronbach’s alpha of .9 indicated the reliability of the scale developed by Zarit. In Kwon’s research, Cronbach’s alpha was .908. In this study, Cronbach’s alpha was .963.

2.3.2. Characteristics of Elderly Dementia Patients

(1) Cognitive Function

This tool was developed by Seoul Metropolitan Center for Dementia, consisting of the following four factors: memory, orientation, problem-solving ability, and communication ability. On the scale, 0 points mean “no problem”; 1 point, “a little deteriorated”; 2 points, “considerably deteriorated”; and 3 points, “almost no memory.” The total score ranges from 0 to 12 points. The higher the number of points, the higher the deterioration of cognitive function. In this study, Cronbach’s alpha was .851.

(2) Problematic Behavior

This tool was developed by Seoul Metropolitan Center for Dementia, consisting of the following 6 factors: violent behavior, wandering behavior, rejecting behavior, other socially inappropriate behavior, sleep disorder, and delirium/hallucination. In this scale, a score of 0 means “no appearance,” 1 means “rare appearance” (less than twice a week), 2 means “frequent appearance” (3–5 times a week), and 3 means “almost daily” (more than 6–7 times a week). The total score ranges from 0 to 18. The higher the score, the more problematic the behavior. In this study, Cronbach’s alpha was .769.

(3) Activities of Daily Living (ADL)

This tool was developed by Seoul Metropolitan Center for Dementia, consisting of 9 questions about eating, bathing, personal hygiene, wearing, proper urination and defecation, use of a toilet, position move, and horizontal move. In this scale, 1 point means “possible independently”; 1 point, “necessity of a little help”; 2, “necessity of a lot of help”; and 3, “fully dependently.” A total score ranges from 0 to 24 points. The higher the number of points, the higher the level of dependence. In this study, Cronbach’s alpha was .952.

(4) Instrumental Activities of Daily Living (IADL)

This tool was developed by the Seoul Metropolitan Center for Dementia and consisted of the following seven factors: meal preparation, household affairs, money management, medication management, phone use, purchase of goods, and use of transportation. In the scale, 1 point means “possible independently”; 1 point, “necessity of a little help”; 2 points, “necessity of a lot of help”; and 3 points, “fully dependently.” A total score ranges

from 0 to 21 points. The higher the number of points, the higher the level of dependence. In this study, Cronbach's alpha was .937.

(5) Hearing

Hearing was measured with one sentence. Zero point meant "no problem"; 1 point, "a little deteriorated" (a little problem with hearing during a casual conversation); 2 points, "considerably deteriorated" (communicable if spoken in a loud voice); and 3 points, "hardly hearing" (almost no hearing, even when spoken in a loud voice). The higher the number of points, the higher the level of deterioration of one's hearing.

2.4. Data Analysis

The collected data were analyzed with SPSS 21.0.

- 1) For analysis of the general characteristics of main caregivers and the characteristics of burden, frequencies, percentages, means, and standard deviations were calculated.
- 2) Main caregivers' depression, health perception, entrapment, suicidal ideation, and care burden, and elderly dementia patients' cognitive function, problematic behavior, ADL/IADL, and hearing were analyzed through ANOVA, and Scheffé's test was used as a post-hoc test.
- 3) The correlations between main caregivers' depression, health perception, entrapment, suicidal ideation, and care burden, and elderly dementia patients' cognitive function, problematic behavior, ADL/IADL, and hearing were analyzed through Pearson's correlation coefficients.

3. Study Results

3.1. General Characteristics of the Study Subjects

The average age in years of the main caregivers of elderly dementia patients was 65.6 ± 11.5 , their average care years were 4.3 ± 4.5 , their average contact frequency per week was 5.4 ± 0.8 , their average care hours were 11.5 ± 8.6 , their average household labor hours per day were 6.3 ± 5.7 , and their average rest hours per day were 4.3 ± 3.9 .

With regard to sex, there were 44 (73.3%) female caregivers, among whom the depression group comprised 12 persons (27.3%), the risk group, 11 persons (25.0%), and the normal group, 21 persons (47.7%). There were 16 (26.7%) male caregivers, among whom the depression group comprised 7 persons (43.8%), the risk group, 4 persons (25.0%), and the normal group, 5 persons (31.3%). The men's depression group made up a larger percentage than that of women, but the cross analysis on sex and depression revealed that there was no significant difference. Forty-three persons (82.7%) were married and lived with their spouses, 4 persons (7.7%) were bereaved, and 5 (9.6%) were divorced or separated. Forty-five (76.3%) study subjects were living with their children. Thirty-six (72.0%) study subjects had a religion. The number of main caregivers engaging in economic activities was 23 (44.2%), 4 (17.4%) of whom were in the depression group, 5 (21.7%) in the risk group, and 14 (60.9%) in the normal group. Twenty-nine (55.8%) main caregivers did not engage in economic activities; 13 (44.8%) of these were in the depression group, 8 (27.6%) in the risk group, and 8 (27.6%) in the normal group. The cross analysis on economic activities and depression revealed that there were significant differences ($\chi^2=6.487$, $p=.039$). Thirty persons (63.8%) had a shift caregiver; 23 (43.4%), a spouse; and 9 (17.0%), a daughter.

Table 1. General Characteristics of the Subjects (N = 60)

Variables	Categories	n (%) or Mean \pm SD
Gender	Male	16(26.7)
	Female	44(73.3)
Marital status*	Married	43(82.7)
	Widowed	4(7.7)
	Not married	5(9.6)
Living together*	Yes	45(76.3)
	No	14(23.7)
Religion*	Yes	36(72.0)
	No	14(28.0)
Economic activity*	Do	23(44.2)
	Do not	29(55.8)
Rotation Supporter*	Yes	30(63.8)
	No	17(36.2)
Relationship*	Spouse	23(43.4)
	Daughter	9(17.0)
	Son	9(17.0)
	Daughter-in-law	3(5.7)
	Caregiver	7(13.2)
	Other (neighborhood, kinship)	2(3.8)
Age (years)		65.6 \pm 11.5
Support Period (years)		4.3 \pm 4.5
Contact Frequency(day/1wk)		5.4 \pm 0.8
Care (hour/day)		11.5 \pm 8.6
Household Labor (hour/day)		6.3 \pm 5.7
Rest (hour/day)		4.3 \pm 3.9

*Exclusion of Missing

3.2. A Comparison of Depression Variables of the Normal, Risk, and Depression Groups

The study subjects scored 7.57 on average for depression, of a total of 15 points. Within the range of 0~4 points of the normal state, the normal group obtained 1.71 \pm 1.44 points, on average. Within the range of 5~9 points of the risk of depression, the risk group obtained 7.31 \pm 1.37 points, on average. Within the range of 10~15 points of depression, the depression group obtained 12.01 \pm 1.61 points, on average.

They scored 8.84 \pm 3.13 on average for health perception, out of a total of 15 points. The normal group obtained higher points on health perception than did the depression group ($F=7.398$, $p=.001$).

The points obtained for internal and external entrapment, suicidal ideation, and care burden were found to be significantly highest in the depression group, followed the risk group, and with the least points obtained by the normal group. Elderly dementia patients' cognitive function, problematic behavior, and ADL were not related to main caregivers' depression degree, and elderly dementia patients' hearing was better in the normal group than in the depression group ($F=3.745$, $p=.030$).

Table 2. A Comparison of Variables of the Normal, Risk, and Depression Groups (N = 60)

Variables	Total (n = 60) Mean \pm SD	Normal group (n = 26) Mean \pm SD	Risk group (n = 15) Mean \pm SD	Depression group (n = 19) Mean \pm SD	F	p	Scheffé
Main Caregiver							
Depression	6.1 \pm 4.7	1.7 \pm 1.4a	6.3 \pm 1.3b	12.0 \pm 1.6c	272.837	<.001	a<b<c
Perceived Health Status	1.9 \pm 0.8	1.7 \pm 0.9a	2.2 \pm 0.7ab	1.9 \pm 0.7b	7.398	.001	a>b
Entrapment	2.4 \pm 1.3	1.4 \pm 0.6a	2.3 \pm 1.0b	3.8 \pm 1.0c	43.692	<.001	a<b<c
Internal	2.3 \pm 1.4	1.3 \pm 0.7a	2.2 \pm 1.0b	3.8 \pm 1.1c	41.196	<.001	a<b<c
External	2.4 \pm 1.3	1.5 \pm 0.6a	2.3 \pm 1.0b	3.7 \pm 0.9c	39.003	<.001	a<b<c
Suicide Ideation	1.2 \pm 0.5	1.0 \pm 0.1a	1.1 \pm 0.5a	1.5 \pm 0.6b	7.900	.001	a<b
Care Burden	1.6 \pm 1.1	1.1 \pm 0.8a	1.5 \pm 1.0a	2.5 \pm 1.1b	11.446	<.001	a<b
Demented Elderly							
Cognitive Function	7.5 \pm 3.2	6.7 \pm 3.6	8.6 \pm 2.7	7.6 \pm 2.8	1.705	.191	
Problem Behavior	3.3 \pm 3.5	2.9 \pm 2.7	2.7 \pm 4.3	4.2 \pm 3.9	0.918	.405	
ADL	13.1 \pm 9.9	12.9 \pm 9.6	14.7 \pm 11.1	12.1 \pm 9.8	0.292	.748	
IADL	16.6 \pm 6.4	15.9 \pm 7.1	16.7 \pm 6.2	17.6 \pm 5.9	0.393	.677	
Hearing	1.0 \pm 1.1	0.7 \pm 0.9a	1.0 \pm 1.1ab	1.5 \pm 1.0b	3.745	.030	a<b

3.3. Correlations between Depression Variables

Main caregivers' depression had significantly positive correlations with their entrapment ($r=.801$, $p<.001$), care burden ($r=.562$, $p<.001$), and suicidal ideation ($r=.495$, $p<.001$), depicted here in descending order. For this group, depression also had a negative correlation with health perception ($r=-.505$, $p<.001$).

Elderly dementia patients' cognitive function, problematic behavior, and ADL were not related to main caregivers' depression, whereas their hearing had a positive correlation with depression ($r=.341$, $p=.008$).

4. Discussion

This study explored the relations between the characteristics of elderly dementia patients and the health perception, entrapment, suicidal ideation, and care burden of elderly dementia patients' main caregivers, according to the latter's depression status. As a result, the group comprising main caregivers with depression reported more entrapment, suicidal ideation, and care burden and lower health perception than did the group without depression. In addition, elderly dementia patients' hearing had a positive correlation with main caregivers' depression.

Gilber and Alan (1998) reported that, when a person fails to overcome a situation on his or her own or fails to escape from stress, even while trying to do so, he or she develops entrapment and a psychological ill-health status similar to depression [19]. The result was also found among caregivers of patients with Alzheimer's disease and of children with disabilities, both of whom needed long-term care, due to both diseases being incurable [25, 26]. When caregivers perceive that it is difficult to escape from a long-term and difficult situation, their initial adaptation reaction becomes excessive, with stress subsequently

progressing to depression and anxiety [27]. With the continuous 12-hour care for an elderly dementia patient a day, a caregiver realizes his or her failure to escape and feel a

Table 3. Correlation among Variables (n = 60)

	Depression	Perceived Health Status	Entrapment	Suicide Ideation	Care Burden	Cognitive Function	Problem Behavior	ADL	IADL
	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)	r (p)
Perceived Health Status	-.505** ($<.001$)	1							
Entrapment	.801** ($<.001$)	-.537** ($<.001$)	1						
Suicide Ideation	.495** ($<.001$)	-.516** ($<.001$)	.591** ($<.001$)	1					
Care Burden	.562** ($<.001$)	-.483** ($<.001$)	.591** ($<.001$)	.443** ($<.001$)	1				
Cognitive Function	.120 (.360)	-.184 (.160)	.154 (.240)	.184 (.159)	.374** (.003)	1			
Problem Behavior	.205 (.117)	.061 (.643)	.073 (.580)	.331** (.010)	.219 (.093)	.187 (.153)	1		
ADL	-.051 (.701)	-.057 (.665)	-.077 (.559)	.096 (.464)	.276* (.033)	.736** ($<.001$)	.187 (.152)	1	
IADL	.084 (.522)	-.083 (.529)	.112 (.392)	.163 (.215)	.430** (.001)	.692** ($<.001$)	.239 (.066)	.706** ($<.001$)	1
Hearing	.341** (.008)	-.289* (.025)	.324* (.012)	.236 (.070)	.395** (.002)	.323* (.012)	.192 (.141)	.292* (.024)	.373** (.003)

* $<.05$, ** $<.01$

sense of failure and self-condemnation, ultimately experiencing a deterioration in mental health, such as entrapment and depression [27-29]. Main caregivers of elderly dementia patients are required to care for patients for long periods, such that they are highly likely to spend less time caring for themselves and to become socially isolated. Since dementia is not curable, caregivers can experience chronic fatigue and tension that ultimately lead to depression and are associated with care burden [30, 31]. The burden of caring for elderly dementia patients in Korea is more than that in other countries. This is attributable to Korea's traditional family-centric culture that emphasizes the responsibility for and duty of family care [32].

Many studies have been conducted on the relationship between depression and suicide. In particular, the fact that suicide among family members caring for dementia patients has become a social issue has led to such cases being reported in many public media. Suicide among family members caring for dementia patients occurs as a result of stress and depression; these family members typically commit suicide along with their dementia patients due to the lack of improvement in dementia [3]. Suicidal ideation among caregivers, as a result of depression, leads to action. In this manner, provision of direct care to dementia patients by their family members brings about fatal results. Therefore, it

is necessary to prevent and actively treat depression among main caregivers of elderly dementia patients. Prevention and treatment should, ideally, rescue them from suicidal ideation and positively influence their patient care.

Previous studies have reported that elderly dementia patients' cognitive function, problematic behavior, and ADL were related to their depression status. However, this study showed that these factors, with the exception of hearing, were not related to main caregivers' depression. A person with hearing loss is highly likely to have Alzheimer's disease or dementia [33]. The group with severe hearing loss had a dementia prevalence that was 4.9 times higher than that of the group with normal hearing [34]. In the development of dementia, a patient experiences a deterioration in hearing ability, which causes anxiety, mistakes, and delusion [35], and ends up increasing the main caregiver's care burden and depression. Hearing loss accelerates the decline in age-related cognitive function. Therefore, through active treatment of hearing, it is necessary to delay a decline in a patient's cognitive function and dementia [36]. Accordingly, it is necessary to prevent and treat hearing loss, so as to intervene in initial dementia or dementia risk factors.

Talking about one's personal stressors to acquaintances, rather than thinking about them repeatedly, positively influences health perception and physical and mental health [37]. Moreover, physical activities such as muscle exercises [38] and social support can help increase the health perception of main caregivers of elderly dementia patients, as well as alleviate their depression [14, 39, 40, 41]. Therefore, main caregivers of elderly dementia patients should inform acquaintances of their care burden and engage in physical activities and hobbies to relieve their care-related stress. Further, it is necessary to avoid a type of care method in which a spouse or daughter fully cares for a patient; instead, it is important to get all family members interested in caring for an elderly dementia patient. To do that, social support and active use of community resources are required.

References

- [1] Statistics Korea, "Population Status and Prospect of the World and Korea." Statistics Korea, (2015).
- [2] Ministry of Health and Welfare, "The 3rd Dementia Management Master Plan ('16-'20)." Ministry of Health and Welfare, (2015).
- [3] W. K. Kim, "Analysis of Newspaper Articles on Murder or Suicide on Family Caregivers with Dementia", Health and Social Welfare Review, vol. 34, no. 2, (2014), pp. 219–246.
- [4] J. H. Min, J. Y. Bae and Y. J. Kim, "Crisis in an Aging Society and the Burden of Dementia", Korean Journal of National Crisis and Emergency Management, vol. 2, no. 2, (2010), pp. 104–122.
- [5] H. J. Lee, J. M. Seo and S. H. Ahn, "The Role of Social Support in the Relationship between Stress and Depression among Family Caregivers of Older Adults with Dementia", Journal of Korean Academy of Nursing, vol. 33, no. 6, (2003), pp. 713–721.
- [6] G. Epstein-Lubow, J. D. Davis, I. W. Miller and G. Tremont, "Persisting Burden Predicts Depressive Symptoms in Dementia Caregivers", Journal of Geriatric Psychiatry & Neurology, vol. 21, no. 3, (2008), pp. 198–203.
- [7] J. L. Givens, C. Mezzacappa, T. Heeren, K. Yaffe and L. Fredman, "Depressive Symptoms among Dementia Caregivers: Role of Mediating Factors", American Journal of Geriatric Psychiatry, vol. 22, no. 5, (2014), pp. 481–488.
- [8] B. A. Springate and G. Tremont, "Dimensions of Caregiver Burden in Dementia: Impact of Demographic, Mood, and Care Recipient Variables", American Journal of Geriatric Psychiatry, vol. 22, no. 3, (2013), pp. 294–300.
- [9] A. Truzzi, L. Valente, I. Ulstein, E. Engelhardt, J. Laks and K. Engedal, "Burnout in Familial Caregivers of Patients with Dementia", Revista Brasileira de Psiquiatria, vol. 34, no. 4, (2012), pp. 405–412.
- [10] Y. M. Lee and I. Y. Yoo, "Care Burden, Depression and Social Welfare Service Utilization among Family Caregiver for Demented Elderly", Journal of the Korea Gerontological Society, vol. 25, no. 3, (2005), pp. 111–121.
- [11] Y. W. Lee, H. S. Kim and I. S. Cho, "Factors Influencing Care Burdens of Caregivers of Elders with Dementia who Request Dementia Domiciliary Welfare Services", The Journal of Fundamental of Nursing, vol. 15, no. 3, (2008), pp. 274–283.
- [12] Y. W. Lee, J. Y. Lim, J. Y. Kim, H. I. Cho and G. J. Ko, "A Prediction Model for Caregiver Burden and Life Satisfaction: Caring for a Patient with Dementia", Journal of Korean Gerontological Nursing, vol. 13, no. 3, (2011), pp. 204–214.

- [13] J. D. Kwon, H. J. Ko, S. E. Lim, S. H. Lee, W. S. Jang and Y. J. Lee, "Dementia and Their Family", Seoul: Hakjisa (2002).
- [14] S. Y. Kim, J. S. Kim and H. S. Yoon, "Predictors of Depression and Life Satisfaction among Family Caregivers for Demented Elderly", *Journal of the Korea Gerontological Society*, vol. 24, no. 2, (2004), pp. 111–128.
- [15] S. J. Han, S. Y. Lee, J. Y. Kim and H. S. Kim, "Factors Associated with Family Caregiver Burden for Patients with Dementia: A Literature Review", *Journal of Korean Gerontological Nursing*, vol. 16, no. 3, (2014), pp. 242–254.
- [16] B. S. Kee, "A Preliminary Study for the Standardization of Geriatric Depression Scale Short Form-Korea Version", *Journal of the Korean Neuropsychiatric Association*, vol. 35, no. 2, (1996), pp. 298–307.
- [17] Y. S. Hong, "A Structural Model for Health-Seeking Behavior in Midlife Women", *Korean Journal of Occupational Health Nursing*, vol. 7, no. 2, (1998), pp. 121–129.
- [18] G. W. Brown, A. Bifulco and T. O. Harris, "Life Events, Vulnerability and Onset of Depression: Some Refinements", *The British Journal of Psychiatry: The Journal of Mental Science*, vol. 150, no. 1, (1987), pp. 30–42.
- [19] P. Gilbert and S. Allan, "The Role of Defeat and Entrapment (Arrested Flight) in Depression: An Exploration of an Evolutionary View", *Psychological Medicine*, vol. 28, no. 3, (1998), pp. 585–598.
- [20] J. S. Lee and H. J. Cho, "The Reliability and Validity of the Korean Version of the Internal and External Entrapment Scale", *Korean Journal of Psychology: General*, vol. 31, no. 1, (2012), pp. 239–259.
- [21] L. L. Harlow, M. D. Newcomb and P. M. Bentler, "Depression, Self-derogation, Substance Use, and Suicide Ideation: Lack of Purpose in Life as a Mediational Factor", *Journal of Clinical Psychology*, vol. 42, no. 1, (1986), pp. 5.
- [22] S. C. Park, "A Study of Factors Influencing Suicidal Ideation of Elders", Master's Thesis, Ewha Womans University, Seoul (2005).
- [23] J. D. Kwon, "The Determinant Model of Caregiver Burden in Caring for the Demented Elderly in Korea", *Health and Social Welfare Review*, vol. 14, no. 1, (1994), pp. 1–16.
- [24] S. H. Zarit, K. E. Reeve and J. Bach-Peterson, "Relatives of the Impaired Elderly: Correlates of Feelings of Burden", *The Gerontologist*, vol. 20, No. 6, (1980), pp. 649.
- [25] P. Willner and R.C. Goldstein, "Mediation of Depression by Perceptions of Defeat and Entrapment in High-Stress Mothers", *British Journal of Medical Psychology*, vol. 74, no. 4, (2001), pp. 473–485.
- [26] Y. Martin, P. Gilbert, K. McEwan and C. Irons, "The Relation of Entrapment, Shame and Guilt to Depression, in Carers of People with Dementia", *Aging & Mental Health*, vol. 10, no. 2, (2006), pp. 101–106.
- [27] S. Y. Lee, H. J. Cho, J. H. Kwon and J. S. Lee, "The Effect of Defeat on Anxiety/Depression: The Serial Multiple Mediating Effect of Self-Cognition and Entrapment", *Cognitive Behavior Therapy in Korea*, vol. 14, no. 2, (2014), pp. 285–303.
- [28] P. Gilbert, S. Allan, S. Brough, S. Melley and J. N. V. Miles, "Relationship of Anhedonia and Anxiety to Social Rank, Defeat and Entrapment", *Journal of Affective Disorders*, vol. 71, no. 1, (2002), pp. 141–151.
- [29] S. H. Chun, "The Relationship among Perceived Entrapment, Depression and Subjective Well-being of Women as Family Caregivers Caring for Dementia Elderly", *Korean Journal of Women Health Nursing*, vol. 17, no. 3, (2011), pp. 285–293.
- [30] Y. J. Kim and P. S. Lee, "A Study on the Burdens and Depressive Reactions on Families who Cared for Patients Suffering from Senile Dementia", *Journal of Korean Academy of Nursing*, vol. 29, no. 4, (1999), pp. 766.
- [31] K. J. Lee, "Care Needs of Elderly with Dementia and Burden in Primary Family Caregiver", *Journal of the Korea Gerontological Society*, vol. 15, no. 2, (1995), pp. 30–51.
- [32] G. H. Youn, "Cultural Differences in Psychological Burden and Caregiving Obligation of Primary Caregivers for Senile Dementia Patients", *Journal of the Korea Gerontological Society*, vol. 18, no. 1, (1998), pp. 75–90.
- [33] K. Albers, "Hearing Loss and Dementia: New Insights", *Minnesota Medicine*, vol. 95, no. 1, (2012), pp. 52–54.
- [34] F. R. Lin, E. J. Metter, R. J. O'Brien, S. M. Resnick, A. B. Zonderman and L. Ferrucci, "Hearing Loss and Incident Dementia", *Archives of Neurology*, vol. 68, no. 2, (2011), pp. 214–220.
- [35] National Health Insurance Service, "Emergency Care." National Health Insurance Service: Specialized Dementia Training, (2016).
- [36] A. Peracino, "Hearing Loss and Dementia in the Aging", *Audiology and Neurology*, vol. 19, no. 1, (2014), pp. 6–9.
- [37] D. W. Hahn, J. H. Park and K. H. Kim, "Effects of Self-Disclosure and Rumination about Stressful Life Event and Emotional Experiences on Physical Health", *The Korean Journal of Health Psychology*, vol. 9, no. 1, (2004), pp. 99–130.
- [38] G. Y. Kim, B. E. Kwon, H. K. Hur, Y. S. Roh and M. J. Shin, "Effects of a Muscle Strengthening Exercise Program on Muscle Strength, Activities of Daily Living, Health Perception, and Depression in

- Post-stroke Elders”, The Korean Academic Society of Adult Nursing, vol. 24, no. 3, **(2012)**, pp. 317–326.
- [39] S. Y. Kim, “Factors Affecting on the QOL of the Demented Elderly Caregivers: Suggestions of Political Alternatives”, Social Welfare Policy, vol. 17, **(2003)**, pp. 77–105.
- [40] H. J. Lee, Y. S. Kim, K. R. Kim, J. S. Kim and J. M. Seo, “Predictors of Depression among Family Caregivers of Older Adults with Dementia”, Journal of Korean Academy of Nursing, vol. 33, no. 7, **(2003)**, pp. 936–944.
- [41] S. J. Han, J. Y. Chun, “Comparison of Suicidal Ideation and Care Burden of the Caregivers of Elderly Dementia Patients”, Asia-pacific Proceedings of Applied Science and Engineering for Better Human Live, vol.7, **(2016)**, pp.22-26.

