

Factors Influencing Depression among Elderly Patients in Geriatric Hospitals

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Abstract. [Purpose] The purpose of this study was to investigate the prevalence of depression among elderly patients and identify the factors influencing depression in a geriatric hospital in Korea. [Subjects] A self-report questionnaire was administered to the patients in community geriatric hospitals. Participants were 195 elderly patients. [Methods] The instruments utilized in this study were the Geriatric Depression Scale Short Form Korea (GDSSF-K), an activity of daily living scale, a self-esteem scale, a social support scale, and a life satisfaction scale. Data were collected from April 20 to June 20, 2011. Data were analyzed using descriptive statistics, Pearson correlations, and multiple logistic regression analysis using SPSS 15.0 and Stata 11.0. [Results] The average GDSSF-K score of the participants was 8.94, indicating a moderate level of depression. About 78.4% of the elderly patients in this study were classified as predisposed toward depression. Significant predictors for depression included the patients' perceived health status and life satisfaction. [Conclusion] The results indicate that elderly patients face a high risk of developing depression and that efforts should be made to address it wherever possible. Regular depression screening will be beneficial for early detection of depression in patients at community geriatric hospitals.

Key words: Depression, Elderly, Nursing care

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INTRODUCTION

Depression is becoming a very important issue in modern society. With ensuing social problems to be expected, it may become the disease with the greatest social burden after ischemic heart disease^{1, 2)}. Considering that depression is the most common psychological problem in old age³⁾, its management in the elderly population is essential.

More psychological problems will develop in older adults residing in rehabilitation clinics as the number of visitors they receives declines with time. Depression will be one of the most common problems in old age. Suicide ideation or recurring thoughts of death are common in people suffering from depression. Elderly people with depression have a particularly poor prognosis as compared with people in other age groups, as they have a relatively higher risk of suicide and mortality^{4, 5)}. Factors correlating with depression include reduced ability in daily activities⁶⁾, reduced level of self-respect, reduced satisfaction with life, pain⁷⁻¹⁰⁾, lower economic standards and income¹¹⁾, fatigue¹²⁾, and absence of social support^{13, 14)}. Previous studies on depression in elderly patients include studies that have compared self-reported depression between those who live in hospitals and

at home¹⁵⁾ and the relationship between depression and ill health in elderly patients in rehabilitation clinics¹⁶⁾. However, these studies either used simplistic correlation between depression and a couple of variables of interest or studied depression as a scale on a continuous variable. Accordingly, they have been restricted to research on the linear correlation of depression with related factors and patients' severity of depression. Few studies have categorized their sample clinically into different groups of depression, or used scales with cut-offs that are indicative of categories of clinical diagnoses.

Against this background, the purpose of this study was to highlight the prevalence of depression in elderly patients residing in rehabilitation clinics, determine potential predictors of depression in them, and inform the development of preventive programs with our results.

SUBJECTS AND METHODS

This was a cross-sectional study that explored the prevalence of depression and its predictors in a group of 195 elderly patients from four geriatric hospitals in South Korea. Patients who have been hospitalized for more than three months comprised the target group for this study, as this is known to cause severe anxiety and depression due to the change in residence¹⁷⁾. The main researcher approached these patients to communicate the details of participation, which included the study's purpose, confidentiality of response and research data, and freedom of withdrawal. The inclusion criteria were (1) no psychological diseases, (2) a Korean Mini-Mental State Examination (K-MMSE) score

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higher than 18¹⁸), (3) residence at the rehabilitation clinic for more than 3 months, and (4) having an understanding of the purpose of the study and willingness to participate. Sample characteristics are shown in Table 1. Power analysis revealed that the current sample size was sufficient for obtaining a medium effect size, which is considered acceptable in most studies². It also exceeded the minimum sample size of 115 required for multiple logistic regression analysis. G*power 3.1 was used to calculate the sample size required to produce a medium effect size with 11 predicted variables at $\alpha=0.05$ and $\beta=0.20$. Data collection was carried out by four research assistants, trained by the researcher, in the period of April 20 to June 20, 2011. Approval was obtained from the four geriatric hospitals, and consent was obtained from the patients who agreed to participate. There is no institutional review board overseeing studies being carried out within small organizations such as the four rehabilitation clinics approached in this study. Therefore, permission was obtained from the guardians of the patients on a "Patient's Family Visiting Day" after explaining the study's purpose and methods. The questionnaire was supposed to be answered by the participants. However, the researcher or research assistants read the questionnaire to patients who required help and filled in answers on such patients' behalf. Among the 200 questionnaires distributed, all were returned (response rate: 100%), and 5 questionnaires with incomplete response were excluded.

In measuring depression, the questions used consisted of the scale developed by Sheikh and Yesavage¹⁹, and 15 questions from the Geriatric Depression Scale Short Form – Korean Version as modified by Ki¹⁹. Each item was coded as "1" for "Yes" and "0" for "No," while questions 1, 3, 4, 5, 6, 9, 10, 13, 14, and 15 were reverse coded. A higher score indicated greater severity of depression, and based on the studies by Sheikh and Yesavage¹⁹, and Ki²⁰, a cut-off point of 5 was used. A score of more than including 5 was considered to indicate being depressed, and a score of less than 5 was considered to indicate not depressed (nondepressed). Reliability analyses revealed that the scales used in Ki's study²⁰ and the current study achieved Cronbach's α coefficients of 0.88 and 0.85 respectively.

In measuring the ability to perform daily activities, the 8 questions used were items regarding activities of daily living (ADL), which was developed by Song²¹. Items were scored on a 4-point Likert scale in which "1" represents "possible" and "4" represents "very well." A higher score represented greater ability to perform daily activities. At the time of development, the Cronbach's α of Song's instrument²¹ was 0.98, and its Cronbach's α was 0.91 in this study.

To measure self-esteem, the 10-question tool developed by Rosenberg was used²². Each item was scored on a 5-point Likert scale with options varying from "1" for "almost never" to "5" for "almost always." Questions 5, 7, 8, 9, and 10 were reverse coded. A higher score indicated greater self-esteem. The translated version of the scale has a Cronbach's α of 0.63 in the study by Kim and Kang⁷ and a Cronbach's α of 0.80 in the current study.

To assess social support, the scale modified by Jang was used²³. This scale was based on the social support

Table 1. General characteristics of the subjects

Characteristics	Classification	n	%
Gender	Male	49	25.1
	Female	146	74.9
Age (years)	65–69	24	12.3
	70–79	89	45.6
	80–89	82	42.1
	None	74	37.9
Education	Elementary school	69	35.4
	Middle school	21	10.8
	High school or above	31	15.9
	None	50	25.6
Religion	Buddhist	84	43.1
	Christian	51	26.2
	Catholic and others	10	5.1
Spouse	None	161	82.6
	Have	34	17.4
Children	Have	181	92.8
	None	14	7.2
Economic status	High	12	6.2
	Middle	126	64.6
	Low	57	29.2
Perceived health status	Bad	138	70.8
	Moderate	37	19.0
	Good	20	10.3

Values are numbers

index developed by Park²⁴. The aspects of support were categorized into support provided by hospital staff, volunteers, colleagues, relatives, and non-relatives. There were 30 questions within each category of support. Items were measured against a 3-point Likert scale that ranged from "1" for "never" to "3" for "always." A higher score represented higher levels of social support. The Cronbach's α of the scale in Jang's²³ study was 0.81, and that in the current study²⁴ is 0.84.

In measuring satisfaction with life, the 20-question tool developed by Choi was used²⁵. The items measured past, present, and future satisfaction with life from various aspects including psychological and environmental points of view. Each question was answered on a 3-point Likert scale with "1" representing "no" and "3" representing "yes." A higher score represented a greater satisfaction with life. At the time of development of this index, the Cronbach's α was 0.83, and Cronbach's α was 0.62 in this study.

Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) 15.0 and Stata 11.0. χ^2 tests and t-tests were conducted to compare the depressed patients with the nondepressed patients with regard to various variables of interest. In examining the predictive factors of depression, multiple logistic regression analysis was performed using the forward selection method. Factors found to be significant at $p<0.05$ in the univariate analyses were set as the independent variables, and the level of depression was set as the dependent variable. The limits of entry

Table 2. Comparison of variables between the nondepressed and depressed groups

Variables	Categories (mean)	Nondepressed group (n=42)	Depressed group (n=153)
		Mean \pm SD or n (%)	Mean \pm SD or n (%)
GDSF-K	8.94 \pm 1.53	3.45 \pm 1.53	10.45 \pm 1.53
Gender	Male	16 (8.2)	33 (16.9)
	Female	26 (13.3)	120 (61.5)
Age (years)	65–69	6 (3.1)	18 (9.2)
	70–79	16 (8.2)	73 (37.4)
	80–89	20 (10.3)	62 (31.8)
	None	12 (6.2)	62 (31.8)
Education	Elementary school	14 (7.2)	55 (28.2)
	Middle school	7 (3.6)	14 (7.2)
	High school or over	9 (4.6)	22 (11.3)
Perceived health status	Bad	21 (10.8)	117 (60.0)
	Moderate	11 (5.6)	26 (13.3)
	Good	10 (5.1)	10 (5.1)
Activity of daily living		37.79 \pm 10.54	31.43 \pm 9.15
Social support		44.74 \pm 8.00	43.35 \pm 8.55
Self-esteem		32.02 \pm 7.59	27.29 \pm 7.04
Life satisfaction		41.83 \pm 3.30	36.95 \pm 3.60

Values are means \pm SD

and removal of the independent variables were set at 0.05 and 0.10, respectively, and a cross ratio and 95% confidence interval were given for each factor. The model's predictive power for depression was analyzed using the receiver operating characteristic (ROC) curve and by evaluating the model's accuracy of categorization.

RESULTS

Gender ($\chi^2=4.78$, $p=0.026$), state of health ($\chi^2=12.73$, $p=0.002$), ability to perform everyday activities ($t=-3.86$, $p<0.001$), level of self-esteem ($t=-3.80$, $p<0.001$), and satisfaction with life ($t=-7.93$, $p<0.001$) significantly differed between depressed and nondepressed subjects (Table 2). Of those who were depressed, 61.5% were female. Participants who were depressed accounted for less than 10% of those who were in their 60s but 69.2% of those in their 70s. There were no significant differences between depressed and nondepressed participants in terms of age ($\chi^2=7.05$, $p=0.133$), education level ($\chi^2=3.90$, $p=0.272$), and perceived level of social support ($t=-0.95$, $p=0.345$).

To examine the predictors of depression, factors that were significantly different between the depressed and nondepressed were included within the logistic regression. Predictability testing for these factors using simple logistic regression showed that all of them were significant ($p<0.05$), and hence, all five of these variables were included within the regression formula. Using the forward selection method, multiple logistic regression analysis revealed that state of health ($p=0.030$) and satisfaction with life ($p<0.001$) emerged as significant. A Hosmer-Lemeshow test of the regression model suggested that there was an acceptable fit between the model's estimate and the data ($\chi^2=7.14$, degrees

of freedom (df)=8, $p=0.521$). The null hypothesis, which stated that the model with two predictors and the basic model with only intercepts (constant) in the entire model coefficient test were the same, was rejected. This was because the former model was significant following the Hosmer-Lemeshow test ($\chi^2=65.55$, $df=5$, $p<0.001$). The model with two predictors was evaluated as having better fit than the basic model. In the regression model, the dependent variable explained 44% (Nagelkerke's R^2) of the variance. The percentage of the depression group status explained for 95.4% of the dependent variable. In terms of odds ratios, the likelihood of depression decreased by 2.02 times with every unit increase in the patient's state of health, and the likelihood of depression increased by 1.47 times with every unit increase in a patient's satisfaction with life. In other words, the likelihood of depression was expected to increase with a lower state of health as well as satisfaction with life.

DISCUSSION

The purpose of this study was to identify the prevalence of depression in a group of elderly patients from rehabilitation clinics and the difference in characteristics between the depressed and nondepressed groups. Further, this study aimed to highlight significant predictors of depression and hence inform the development of preventive programs.

The present study found that 78.4% of the elderly patients were depressed, and this is higher than the 45.1% of elderly patients found to be depressed in general hospitals in a previous study by Shin²⁶. However, this difference can be explained by the lower cut-off point of 5 used in this study as compared with the original cut-off point of 8 used in Shin's study. Since the present study and Sheikh and Yesavage's¹⁹

study used the same cut-off point of 5, comparison with this latter study would be better. Further, the Korean patients in Shin's²⁶ study scored a mean depression score of 7.

The present results revealed no differences between the depressed and nondepressed groups based on age, education level, and perceived social support but revealed significant differences in gender, state of health, ability to perform daily activities, level of self-respect, and satisfaction with life. These results, while similar to those from a study by Yoo and Lim¹⁶, were different from those of the study of Lee and Lee²⁷ study, in which age was significantly different between the study groups. The difference in context of these studies was that while the current study and that by Yoo and Lim¹⁶ recruited hospitalized elderly patients from clinics and hospitals, the participants in the study of Lee and Lee²⁷ were elderly patients in long-term rehabilitative care residing in the community. For the elderly patients who were hospitalized, age was not significantly different between the depressed and nondepressed groups, perhaps due to an overriding health problem they were facing. However, there might be a relationship between age and depression for older adults who are living independently and are generally in good health. In general, there is a stigma towards growing old that might lead to an increase in depression with age. As such, it is necessary to change the aging culture to one where people are very comfortable in accepting the natural course of aging. This can be done by portraying a positive image of aging through education. In the study by Seo, Jung, and Kim²⁸, education and social support were not significantly related to depression. The level of social support of these participants was below average regardless of their depression status, and this was likely due to feeling detached from their family members after a long period of hospitalization. However, Seo, Jung, and Kim²⁸ found that for older adults who lived at home, level of satisfaction towards their family members was not significantly related to depression. Therefore, although depression in the elderly is affected by close friends and family members for older adults living at home and in hospitals, this factor does not yield any significant difference. The current study revealed that gender, state of health, ability to perform daily activities, level of self-respect, and satisfaction with life are significantly related to depression. The conclusion of this study is similar to that in the study of Kang and Jung²⁹, who stated that the level of depression in elderly Koreans is more affected by psychological and physical factors than social and demographical factors. Psychological factors include satisfaction with life and level of self-esteem, and physical health includes level of comorbidity and ability to perform daily activities. Social and demographical factors include gender, age, education level, and religion. One difference between the studies is that while Kang and Jung's sample had similar numbers of men and women (93 men and 108 women), the current sample had a larger proportion of women (49 men and 108 women). While a number of factors affected depression, state of health and satisfaction with life were significant predictors of depression.

The present results suggest that health-care providers in rehabilitation clinics can have the biggest influence on pa-

tients' psychological well-being, especially in terms of being a source of emotional support. A multilevel approach is recommended, and this includes educational mediation programs, volunteer services, health enhancement programs, and physical programs for the elderly.

Limitations of this study include its cross-sectional nature and the limited population from which the sample was obtained. Its findings should be generalized with caution.

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