

The Effects of the Depression Management Program based on the Social Support Theory on Elderly Women Living Alone

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Abstract

This study investigated the effects of a social support program for depression management in elderly women living alone. Individuals who scored more than five points on the Geriatric Depression Scale Short Form Korea Version were selected as participants. They were divided between two depression management programs: 37 received an individual approach and 45 received a group approach. For data analysis, independent samples t-test, chi-square t-test, Fisher's exact test, and Repeated Measures ANOVA were conducted using SAS 9.3. The results revealed that the depression score of older women living alone in farm villages decreased for the individual approach group in areas with an interaction between approach type and point of time. Depression decreased in the individual approach group for participants with no educational background. Group approach may help manage depression for elderly women living in diverse regions, with different academic backgrounds and depression levels.

Keywords: Aged; Elderly women; Depression; Korea; Social support theory

1 Introduction

The proportion of the elderly Korean population, which was 13.8% in 2017, is expected to increase to over 20% in 2025, 30% in 2036, and 40% in 2051 (Statistics Korea, 2019). Elderly people, especially those living alone, are likely to be isolated from their surroundings due to a lack of family support. They may experience psychological conflicts and depression due to isolation because it may be difficult for them to access and acquire social resources, and they may not be able to respond quickly in the event of emergencies (Bak et al., 2010; Kim & Jung, 2002).

Women account for 81.3% of the elderly people in Korea living alone. The incidence of depression is higher in older women, and their onset of depression occurs faster than in men. They reportedly experience more depression, which is becoming an important factor in reducing their quality of life (Kornstein et al., 2000).

Most elderly women have lived in restricted living environments centered around their families, which suggests they will have more problems compared to other social groups as they are physically, economically, and socially vulnerable. In particular, elderly women living alone tend to have poor employment conditions and less education, so the suspension of income-earning activities in old age combined with the deterioration of health could lead to serious problems (Baek, 2006; Choi, 2005). Therefore, they require increased social support at a national level.

Social support is the emotional, informational, material, and evaluative support that individuals can gain through social cohesion, which has a positive effect on preventing or reducing stress and the intensity of stress (Caplan, 1974). According to health program research for the elderly living alone and research on the effectiveness of health promotion centers for the elderly, social support has a positive impact on elderly people (Kim 2012; Park & Kim, 2009).

The community plays a role in helping the elderly who live alone, maintaining their self-esteem through financial, health, and social support, which are essential factors for maintaining independence. In particular, health centers are engaged in a project to respond to emergencies and secure social support by providing door-to-door health care services for senior citizens living alone in low-income households (S. H. Kim, 2012). Providing a social support-based depression management program for elderly women who live alone via a health center's door-to-door health care project could be highly effective. One-to-one access through visits can provide the targeted person with the necessary customized care, which can be effective for managing depression.

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The cost-benefit analysis of home visit health care projects also has shown that the economic benefits of depression management amounted to 14.824.92 billion Korean Won (KRW). The benefits of implementing projects in densely populated areas where there is no alternative to health care other than home visits are even more substantial (H. K. Kim et al., 2010).

This study intended to compare and analyze the effects of depression management programs developed in keeping with the social support theory, which promotes the generation of support networks for enhanced social support, by separating individual and group access groups for elderly women who participate in a health center's visiting health care project.

2 Method

2.1 Research design

The relevant literature was reviewed to develop the depression management program, which was instituted from January 2013 to February 2014. An advisory board consisting of 13 members, including six nursing professors, one mental health center nurse, one occupational therapist, and five visiting nurses, was formed to review the validity of the program. They revised and supplemented the contents of the program. Based on the supplementation, a Focus Group Interview was completed to collect opinions from field practitioners.

Thus, the program content was organized to include all four elements in each session: emotional support, informational support, material support, and evaluative support. Emotional support consisted of singing, laughing aloud, and listening closely, while informational support consisted of providing disease information and depression and stress management education, and conversation after making life graphs. Material support consisted of providing means of transportation and checking blood pressure and blood sugar levels during the program, while evaluative support consisted of providing care and encouragement by calling the subjects at least once a week. The individual and group programs are listed in Table 1.

Table 1 *Research Design*

Pre-test	Treatment (8 sessions)	1 st Post-test	Self-management (for 2 weeks)	2 nd Post-test
General characteristics	Depression	Depression	Self-management	Depression
Depression	management	IADL*		IADL
IADL	program	Social support		Social
Social support				support

*IADL; Instrumental Activities of Daily Living

2.2 Participants

The survey was conducted with women aged 65 or older who were eligible for visitation health management from two of the health centers in X Province (one urban and one rural). Of those with mild depression, who scored 5 or above on the Korean abridged version of Geriatric Depression Scale Short Form (GDSSF-K), we selected elderly women living alone based on the following three criteria: 1) they were mobile, 2) they had not been diagnosed with major depression disorders and other mental disorders, and 3) they had not participated in other depression management programs in the past year. The caregiver in charge of the sessions educated the participants about the purpose and progress of the program, the advantages of participating in the study, and the possibility of discontinuation. It was explained that the data collected for the protection of the rights of the participants were used only for research purposes to ensure the privacy and anonymity of the individuals. This study was conducted with the approval of XXX Research Review Board (IRB No. XXX).

The size of the sample to achieve the objectives of this study was calculated using the G*Power 3.1 Program (Faul et al., 2007). It was based on number of groups (2), significance level (0.05), and statistical power (0.8). The effect size was set at 0.5 based on the study by Thompson et al. (1987) for senior citizens with major depression. The minimum sample size determined by Cohen and Hoberman's (1983) formula was 32 people, a total of 64 people in two groups, and calculated as 77 people considering the elimination rate of 20%.

The number of people who agreed to participate in the study totaled 82, with 45 from urban health centers and 37 from rural health centers. Thirty-seven were assigned to individual access groups and 45 to collective access groups. From the urban health centers, 22 were in the individual access group and 23 in the collective access group. From the rural health center, 15 were in the individual access group and 22 were in the collective access group. All participants remained in the study until the mediation was completed.

2.3 Measures

The general characteristics consisted of seven questions: age, marital status (unmarried, bereaved), education level (uneducated, primary school graduate or above), number of children, subjective health conditions (bad, normal), and number of chronic diseases. The questions used were as presented in the Visit Health Management Project questionnaire for senior citizens living alone in Gyeonggi-do in 2014.

Depression was measured using the Korean version of the GDSF-K19 tool, modified by Gi Baek-seok, based on Yesavage et al.'s (1983) Geriatric Depression Scale. The tool consisted of 15 questions with proven reliability and validity, and classified 4 points or less as normal, 5–9 points as mild depression, and 10–15 points as severe depression. The reliability of the tool was Cronbach's alpha=.886 as used in the study by Cho et al. (1998), averaging 8.7 points, Cronbach's alpha=.710, in this study.

The tool for investigating daily performance comprised nine questions with scores ranging from 9–27 points: 3 for "I can do it alone," 2 for "I need a little help," and 1 for "I need a lot of help." The higher the score, the greater the ability to perform instrumental daily life activities. In this study, the average instrumental performance capability was 22.3 points, and Cronbach's alpha=.920.

Social support fell within the four areas: emotional support, informational support, material support, and evaluative support. There were 25 questions measured on a five-point scale, with the possible score ranging from 25–125. The higher the score, the greater the degree of social support. The average in this study was 59.5 and Cronbach's alpha=.984. All tools used in this study have been approved and used by the developer.

A week before the beginning of the depression management program, a visiting nurse visited the homes of the individual and collective access groups and conducted the survey in person. The first follow-up survey was conducted at the end of eight interventions on depression management programs in both the individual and collective access groups. The second follow-up survey was conducted after the end of the eight depression management sessions by a visiting nurse at the homes of the individual and collective access groups, who had self-managed using the contents of the program for two weeks. Data were collected from July 8 to September 3, 2014.

2.4 Data analysis

The data were analyzed using SAS 9.3 (SAS Institute Inc., Cary, NC). First, the general participant characteristics were presented as frequency, percentage, average, and standard deviation. Second, the general characteristics of the individual and collective access groups, depression, instrumental performance ability, and homogeneity of social support, were analyzed using Fisher's exact test, t-test, and chi-square test. Major variables such as depression, instrumental performance, and social support were analyzed using independent samples t-test. Third, in order to test the effectiveness of the depression management program, the comparison of the differences before and after the intervention on depression, instrumental daily performance, and social support was analyzed using repeated ANOVA measurements. For the ANOVA, a test of sphericity was conducted to determine whether the dependent variable was normally distributed or had the same variance.

3 Results

3.1 Participants' general characteristics

There was no difference in average age between the two groups, with 77.90 (± 6.30) for the individual access group and 77.80 (± 5.80) for the collective access group ($p=.117$). In terms of subjective health in the individual access group, 67.6% reported it was bad and 32.4%

reported it was normal. In terms of subjective health in the collective access group, 66.7% reported it was bad and 33.3% reported it was normal. The number of chronic diseases in the individual access group was 2.00 (± 1.00) and the number of chronic diseases in the collective access group was 2.10 (± 1.10). Regarding the question about the type of chronic diseases, 81.1% and 82.2% reported hypertension in the individual and collective access groups, respectively. About 27% of respondents in the individual access group and 33.3% in the collective access group had diabetes, while 51.4% in the individual access group and 55.6% in the collective access group had arthritis.

For the general characteristics, such as age, region, number of children (if any), marital status, education level, subjective health level, type of chronic disease, and number of chronic diseases, the characteristics for both individual and collective groups were statistically homogeneous in all the variables (Table 2).

Table 2 *General Participant Characteristics of the Individual and Group Approaches*

General characteristics	Individual (N=37)	Group (N=45)	χ^2 or t (p)
	Total (%)	Total (%)	
Age	79.90±6.30	77.80±5.80	1.59 (.117)
Depression	9±2.4	8.5±2.1	0.02 (.332)
IADL*	22.4±2.6	22.3±3.0	0.11 (.916)
Social support	58.4±18.5	60.4±19.2	0.46 (.647)
Region			
Urban	22.00 (59.5)	23.00 (51.1)	0.57 (.449)
Rural	15.00 (40.5)	22.00 (48.9)	
Children†			
Yes	33.00 (89.2)	41.00 (91.1)	.770
No	4.00 (10.8)	4.00 (8.9)	
Number of children	2.70±1.60	2.80±1.60	0.21 (.831)
Marital status†			
Single	3.00 (8.1)	1.00 (2.2)	.323
Widowed spouse	34.00 (91.9)	44.00 (97.8)	
Education†			
Illiteracy	21.00 (56.8)	24.00 (53.3)	.808
≥Elementary	16.00 (43.2)	21.00 (46.7)	
Subjective health status			
Poor	25.00 (67.6)	30.00 (66.7)	1.11 (.575)
Moderate	12.00 (32.4)	15.00 (33.3)	
Chronic diseases†			
Hypertension	30.00 (81.1)	37.00 (82.2)	.894
Diabetes	10.00 (27.0)	15.00 (33.3)	.537
Arthritis	19.00 (51.4)	25.00 (55.6)	.704
Others	16.00 (43.2)	16.00 (36.5)	.654
Number of chronic diseases	2.00±1.00	2.10±1.10	0.25 (.800)

†Fisher's exact test; *Instrumental Activities of Daily Living

3.2 Changes in the overall depression score before and after the intervention program

After the depression management program, the depression score had decreased from 9.01 points in the individual access group to 6.62 points in the first follow-up survey after the intervention and to 5.41 points in the second follow-up. The depression score of the collective access group had decreased from 8.52 points in the pre-survey to 5.54 points in the first follow-up after intervention and to 5.14 points in the second follow-up. There was a difference between the time points of the intervention program between the individual and collective access groups ($p < .001$), but there was no interaction between time and group (Table 3).

Table 3 *Effect of the Experiment on the Depression Scale Scores*

Variables	Pretest	1st test	2nd test	F (p)
	M±SD	M±SD	M±SD	
Individual (N=37)	9.01±2.42	6.62±2.12	5.41±2.33	
Group (N=45)	8.52±2.13	5.54±2.23	5.14±2.24	
Type				0.83 (.102)
Time				2.81 (<.001)
Type×Time				0.34 (.240)

3.3 Changes in depression score by subgroup

3.3.1 Depression variation of the individual and collective access groups by region

The change in depression was identified in the individual and collective access groups by dividing the target population into urban and rural residents.

For cities, the changes in the individual access group's depression went from 10.60 points in the pre-survey to 8.10 points in the first follow-up and 8.10 points in the second. The change in the collective access group's depression went from 10.50 in the pre-survey to 6.50 in the first follow-up and 6.50 in the second, with only the difference in time ($p < .001$).

In rural areas, the changes in depression in the individual and collective access groups had difference in time ($p < .001$) and interaction between approach type and point in time ($p = .010$). The individual access group had lower depression scores. In cases of significant interactions, follow-up analysis shows that depression decreased in the first follow-up examination in rural areas (Table 4).

Table 4 *Changes in Depression according to Region*

Variables	Depression (M±SD)			F (p)
	Pretest	1st test	2nd test	
Urban				
Individual (N=22)	8.31±2.34	6.01±2.12	5.54±2.63	
Group (N=23)	8.14±2.43	4.43±2.11	4.32±2.24	
Type				0.40 (.055)
Time				3.57 (.001)
Type×Time				0.69 (.196)
Rural				
Individual (N=15)	10.01±2.23	7.54±1.73	5.32±1.92	
Group (N=22)	8.94±1.74	6.63±1.64	6.02±1.93	
Type				2.62 (.400)
Time				1.38 (.001)
Type×Time				0.30 (.010)

3.3.2 Depression variation of the individual and collective access groups by education level

The participants were divided into those who had no schooling and those who had graduated from elementary school or above. Changes in depression in the individual and collective access groups were then identified. For elementary school graduates and above, the changes in depression in the individual and collective access groups differed between points in time ($p < .001$), and there was interaction between approach type and the point in time ($p = .020$). The collective access group had a lower depression score. A follow-up analysis of significant interactions showed a decrease in depression in graduates of primary school and above in the first follow-up. The results are summarized in Table 5.

Table 5 *Changes in Depression according to Educational Level*

Variables	Depression ($M \pm SD$)			$F (p)$
	Pretest	1st test	2nd test	
Illiteracy				
Individual ($N=21$)	9.61 \pm 0.42	6.82 \pm 0.51	5.12 \pm 0.54	
Group ($N=24$)	8.63 \pm 0.43	6.31 \pm 0.42	5.62 \pm 0.43	
Type				1.44 (.521)
Time				3.11 (.001)
Type \times Time				0.86 (.521)
\geqElementary				
Individual ($N=16$)	8.12 \pm 0.54	6.51 \pm 0.53	5.84 \pm 0.52	
Group ($N=21$)	8.43 \pm 0.51	4.63 \pm 0.52	4.61 \pm 0.42	
Type				1.41 (.100)
Time				0.45 (.001)
Type \times Time				1.25 (.020)

3.3.3 Depression variation of the individual and collective access groups by depression level

Depending on the level of depression, changes in depression were identified in the individual and collective access groups by dividing the subjects into mild (5–9) and severe depression (10 or above). In the cases of mild depression, the changes in depression in the individual and collective access groups differed between points in time ($p < .001$), and there was interaction between approach type and point in time ($p = .046$). The collective access group had a lower depression score. In the case of severe depression, there was only a difference between point in time of depression in the individual and collective access groups ($p < .001$), and there was no interaction between approach type and point in time. A follow-up analysis of significant interactions indicated a decrease in depression in the first follow-up in the cases of mild depression (Table 6).

Table 6 *Changes in Depression according to Depression Level*

Variables	Depression ($M \pm SD$)			$F (p)$
	Pretest	1st test	2nd test	
Mild				
Individual ($N=24$)	7.62 \pm 0.42	6.23 \pm 0.43	5.54 \pm 0.34	
Group ($N=32$)	7.53 \pm 0.31	4.84 \pm 0.32	4.63 \pm 0.32	
Type				1.51 (.031)
Time				2.61 (.001)
Type \times Time				0.24 (.046)
Severe				
Individual ($N=13$)	11.54 \pm 0.62	7.53 \pm 0.62	5.23 \pm 0.62	
Group ($N=13$)	11.02 \pm 0.62	7.24 \pm 0.63	6.42 \pm 0.63	
Type				1.55 (.835)
Time				0.95 (.001)
Type \times Time				0.10 (.210)

4 Discussion

This study applied a depression management program based on the social support theory by separating elderly women who participated in the health center's visiting health care project into individual and collective access groups. Our goal was to identify the effects on changes in depression and to determine the persistence of the effects.

The first follow-up survey conducted after the eight intervention sessions in both the individual and collective access groups showed a significant decrease in the depression of the elderly women living alone. The significant effect in individual access groups is thought to have occurred because the visiting nurses conducted customized intervention by managing the target person on a one-to-one basis. Further, the significant effect in the

collective access group was driven by the fact that each session of the program produced a significant effect because social relationships such as encouraging and making friends were formed. The study by Kim and Kim (2011), which implemented a depression management program for elderly women in the community using group therapy methods, also showed that the collective management program had a significant effect on depression reduction, which was consistent with this study.

In addition, the second follow-up, which was conducted after two weeks of self-care programs following the first follow-up, showed that the effects of depression remained constant; indicating that the intervention program conducted in this study had a lasting effect. Based on the result it is assumed that depression management programs based on social support helped alleviate physical and mental health deterioration as well as the stress and shrinkage of social relationships that can result from aging, which appears to have helped in maintaining physical and psychological health (Suh & Kim, 2003; Lee, 2002). However, the depression management programs in this study did not show significant differences between the individual and collective access groups, which could be because each group had its own meaningful intervention for the participants. Studies that mediate both individual and collective access groups at the same time have generally found no difference in the effect of mediation intervention in terms of behavior or mental state (Befort et al., 2010). This suggests it is more efficient to employ customized strategies based on the specific characteristics of the targeted individual.

The changes in depression identified in this study were subdivided into region, education level, and depression level and were analyzed within subgroups, which showed differences depending on the characteristics of the participants.

In some areas, people living in urban areas become less depressed in collective access groups than in individual access groups (Befort et al., 2010). Those residing in rural areas were confirmed to have lower depression levels in individual access groups than in collective access groups. This could be because in cities, when women who live alone without social links participate in a program using collective access, they tend to form friendships with elderly women of the same age, creating a situation in which they can rely on each other (Sun et al., 2007). This process is thought to reduce depression. In the case of rural areas, it is believed that elderly people living alone do not have the time to participate in the collective program, given that they often have to continue working in the fields (Kim & Lee, 2012). Therefore, it is necessary to organize the future programs differently based on the level of depression (Yi, 2009).

The overall depression management program shows that the trust created by visiting caregivers in person-to-person meetings in the individual access group made the participants feel comfortable. This raises expectations for the program as the participants become more aware of the visiting nurse. This expectation is thought to have prompted active participation in the program. In the collective access group, it is believed that other people's experiences and sentiments were shared, and negative thoughts were turned into positive thinking through the mutual process of the group.

Amid the growing social burden due to a sharp rise in medical costs as the population continues to age, calls are being made to strengthen strategies and management measures to improve health in the age of aging. This calls for a change in local health care delivery and approach. Although the population-based approach is effective for spreading health promotion projects, low-income and vulnerable individuals are often less aware of health promotion and disease prevention management and lack the opportunity and ability to access such services. Therefore, it is necessary to enable community or individual access to health-related services (J. S. Kim et al., 2016; M. I. Kim et al., 2017).

The visiting nurses, who play an important role in the community health care projects, visit many vulnerable groups with complex problems. Future visiting caregivers should carry out individual access management while simultaneously planning, performing, and assessing the project in the context of the entire area in question as a unit, in order to provide efficient service to a larger number of people (Sok & Yun, 2011).

However, the possibility of a third variable intervention that could affect the results of this study intervention cannot be ruled out, as this study is a semi-experimental design study, which could not be randomized due to the nature of the visiting health care project. Despite these limitations, the study is significant in that it identified the effects of individual approaches being undertaken by the existing visiting health care project for elderly women living alone, as well as the effects of the collective approach that can educate a larger number of subjects. In individual access groups, closer intervention is achieved through the formation of trust between the visiting nurse and the target, whereas in collective access groups, the advantage is that a larger number of participants can be mediated. In the future, a depression management program can be considered that pursues both individual and collective access in accordance with the circumstances of the subject and the health center.

5 Conclusion

This study can help to apply a customized social support strategy by region, level of education, and level of depression. If actively utilized in a health center's visiting health care project, the program could employ a flexible and systematic approach strategy in the form of either individual access or group access.

The depression management program developed was effective in reducing the depression of elderly women living alone. In cases of depression, residents in urban areas should consider collective access, while residents in rural areas should consider individual access. Individual access was more effective for those with no schooling, and collective access was more effective for elementary school graduates and above. Group access was more effective for mild depression, while individual access was more effective for severe depression.

Based on these findings, we would like to make the following suggestions. First, it is necessary to efficiently combine individual and collective access to promote the visiting health care project, given the varying effects across the subgroups found in this study. Second, since this study was conducted with elderly women living alone in low-income households who are eligible for the health center's visiting health care project, it is necessary to apply this program to elderly women who are living alone in general. Third, it is necessary to apply the depression management program not only to elderly women but also to elderly men living alone.

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