The Relationship Among Leisure Activities, Depression and Quality of Life in Community-Dwelling Elderly Koreans

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Abstract
Objectives: This study aimed to identify the relationship among leisure activities, depression, and quality of life of community-dwelling elderly in Korea.
Methods: We assessed 100 community-dwelling older adults. Leisure participation and leisure exploration were assessed by using the leisure participation for the elderly. Depression was measured using the Korean version of the Short Form of Geriatric Depression Scale, and quality of life was assessed using EQ-5D. Statistical analysis was performed using the independent-sample t test, the chi-square test, Spearman correlation analysis, and multiple regression analysis.
Results: EQ-5D scores of the depression group were significantly higher (p < .01). Geriatric Depression Scale (GDS) and EQ-5D scores showed a significant correlation with leisure participation and leisure exploration. Furthermore, leisure satisfaction was a significant factor in depressive symptoms (β = -.320, p < .01). There was a significant correlation between depression or quality of life and leisure activities corresponding to games, social activities, cultural activities, outings, and information and communication.
Conclusion: This study showed that leisure participation and leisure exploration of the elderly were significantly related to depression and quality of life. Social, emotional, active, and productive activities were the leisure activities that positively affected depression and quality of life.

Keywords depression, elderly, leisure participation, leisure exploration, quality of life

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Introduction
In 2017, Korea was classified as an aging society, with >14% of the population comprising older adults. According to a report by the National Statistical Office, young adults in their 20s and 30s spent about 100 min/week on leisure activities, those in their 60s spent 234.6 min, and those in their 70s spent 287.8 min; thus, older adults spent a significantly higher amount of time in leisure activities (Statistics Korea, 2014). Kim et al. (2017) found that the leisure time increased significantly and progressively with increasing age in those aged ≥ 60 years. Kang and Park (2017) reported that elderly subjects spent the highest time each day in leisure activities (316.9 min). Successful leisure participation in old age helps in relieving psychological stress and improving life satisfaction and life quality (Dupuis & Smale, 1993; Rowe & Kahn, 1997). Previous studies have emphasized the importance of psychological factors for healthy aging and reported the importance of leisure activity as a positive method (Hwang, 2014; E. H. Jeong & Park, 2018; Leitner & Leitner, 1985; Ragheb & Griffith, 1982). In particular, depression among the elderly was an important factor that negatively recognizes their purpose by taking their existence meaningless and ultimately reduces their quality of life (J. W. Lee et al., 2014). Among elderly, depression is characterized by a lack of interest in life, low activity level, and negative outlook toward their situation, accompanied by physical symptoms. Depression in the elderly is mainly exacerbated by complex relationships, such as social interaction, mental stress, physiological changes, and loss of
roles. Active participation in leisure activities can have a positive effect on the mental health of the elderly and improve their quality of life wherein the mental, physical, and social factors of the elderly are intricately intertwined (Edginton et al., 1992; J. W. Lee et al., 2014).

Voluntary leisure exploration and leisure participation influence the formation of positive leisure perception, an important factor for continuous leisure participation and satisfaction in performing leisure activities (Hwang, 2014; Leitner & Leitner, 1985; Ragheb & Griffith, 1982). The leisure participation assessment tool for the elderly developed by E. H. Jeong (2019) is an evaluation tool that is used not only for leisure participation but also for leisure exploration. It is an evaluation of the frequency and satisfaction of leisure activities and the frequency and interest of leisure activities in which the participants are willing to participate. Therefore, the most overarching aim of this study was to add to the knowledge in the field of the leisure activities performed by the elderly by examining how the level of leisure participation and leisure exploration identified using the leisure participation tool for the elderly correlated with depression and quality of life.

Method

Participants
This prospective study was designed to identify the relationships among leisure activities, depression, and quality of life in community-dwelling older adults in Korea. The study was conducted on subjects living in Seoul, Gyeonggi Province, and North Jeolla Province. A total of 100 community-dwelling subjects aged ≥ 65 years (38 men and 62 women, \( M_{\text{age}} = 75.2 \pm 7.9 \) years) who were involved with senior centers and village halls and provided informed consent for study participation were enrolled. As per the inclusion criteria, those who were never diagnosed with any physical, cognitive, or mental disorder and had no serious cognitive deficits were included. Data were collected through face-to-face surveys and questionnaire distribution.

Measurements

Leisure participation assessment tool for the elderly. Leisure participation assessment tool for the elderly is a standardized leisure participation assessment tool developed by E. H. Jeong (2019). This tool quantitatively and qualitatively measures leisure participation and exploration in the elderly. The measurement includes leisure participation (frequency of participation and satisfaction), leisure exploration (frequency of participation and interest), and interference factors (eight factors interfering with leisure participation; physical, economic, time, information, environmental, and attitude constraints). The frequency of leisure participation was recorded as either of the following: no, weekly, monthly, or annually. Then, the subject was required to enter the number of times they participated in the activity. Similarly, the frequency of leisure exploration was chosen based on the following: no, weekly, monthly, or annually. The subject was then asked to enter the number of times they wanted to participate. Satisfaction and interest were measured using a 10-point scale that allowed subjects to directly score the client’s present condition. The closer the score is to 1, the more dissatisfied or less interested is the individual; closer the score is to 10, greater the satisfaction or interest. The constraints that interfere with leisure participation were measured using a 5-point Likert-type scale as follows: 1 = very likely; 2 = somewhat likely; 3 = neutral; 4 = somewhat unlikely; 5 = very likely.

Short Form of the Geriatric Depression Scale (SGDS)—Korean version. The screening tool used to measure depression in the elderly was the SGDS. This is an abbreviation of the 30-item Geriatric Depression Scale (GDS) that was developed by Yesavage et al. (1983). The scale is a one-point scale that is to be answered in yes/no. The score ranges from 0 to 15; more severe the depression, higher the score. In this study, a standardized Korean version of SGDS-K by Bae Jae-nam (1996) was used. It was highly correlated with the Korean version of the GDS (\( r = .959 \)) and demonstrated reliability and validity (S. C. Lee et al., 2013). In this study, six points were selected as per the cutoff suggested by S. C. Lee et al. (2013).

EQ-5D. EQ-5D is structured to gather information about the current health conditions through five questions to assess the quality of life associated with health (Rabin & Charro, 2001). The health status system through EQ-5D is divided into the following five areas: mobility (M), self-care (SC), daily activities (UA), pain/discomfort (PD), and anxiety/depression (AD). For each area, the index is configured to select the response that best suits the current state of the person among the three classes of “no disruption,” “some disruption,” and “severe disruption.” The EQ-5D index can be calculated by applying weights to each of the 243 possible health states according to three conditions for each of the five EQ-5D questions. The EQ-5D index score does not formally set a cutoff value that can be judged to impair the health-related quality of life. According to the Korean EQ-5D measurement standards presented by the Korea Centers for Disease Control and Prevention, a patient with a score of 1 for all five questions was considered to be completely healthy. The worse the health condition, the smaller the value is. If there is a response of “2” or “3,” EQ-5D = 1 - h, and h uses the weighting formula below (Y. K. Lee et al., 2009):

\[
\text{EQ-5D index} = 1 - (0.05 + 0.096 \times M2 + 0.418 \\times M3 + 0.046 \times SC2 + 0.136 \\times SC3 + 0.051 \times UA2 + 0.208 \\times UA3 + 0.037 \times PD2 + 0.151 \\times PD3 + 0.043 \times AD2 + 0.158 \\times AD3 + 0.05 \times N3).
\]
**Results**

Table 1 shows the results of the analyses of differences in the general characteristics according to the presence of depression. The age of those who were depressed was significantly higher ($p < .01$). Lower education levels showed a higher likelihood of depression ($p < .05$). Significantly more subjects who were unemployed were depressed (90.7%; $p < .01$). Significantly more subjects who lived alone were depressed (48.8%; $p < .05$). EQ-5D scores showed a significant difference between the two groups ($p < .01$).

Table 2 shows the result of the correlation analysis of depression and quality of life with leisure participation and leisure exploration. The GDS score showed a high negative correlation with the frequency of leisure participation ($r = -.539$, $p < .01$), the number of leisure activities ($r = -.489$, $p < .01$), and leisure satisfaction ($r = -.483$, $p < .01$). The EQ-5D scores showed a high positive correlation with the frequency of leisure participation ($r = .373$, $p < .01$), the number of participating leisure activities ($r = .371$, $p < .01$), and leisure satisfaction ($r = .281$, $p < .01$).

Table 3 shows the results of multiple regression analysis of the depressive symptoms and factors affecting the quality of life. The results showed that leisure satisfaction was a significant factor that influenced depressive symptoms ($p < .01$).

Table 4 shows the result of the correlation analyses of leisure activity type with depression and quality of life.
There was a significant negative correlation between the GDS score and sports ($r = -0.276$, $p < 0.01$), visiting ($r = -0.468$, $p < 0.01$), communicating ($r = -0.471$, $p < 0.01$), gardening ($r = -0.236$, $p < 0.05$), appreciation and watching ($r = -0.230$, $p < 0.05$), reading ($r = -0.361$, $p < 0.01$), traveling ($r = -0.383$, $p < 0.01$), shopping ($r = -0.335$, $p < 0.01$), driving ($r = -0.335$, $p < 0.01$), and using the internet media ($r = -0.342$, $p < 0.01$). However, watching television ($r = 0.207$, $p < 0.05$) showed a positive correlation. There was significant positive correlation between the EQ-SD scores and sports ($r = 0.264$, $p < 0.01$), visiting ($r = 0.329$, $p < 0.01$), communicating ($r = 0.312$, $p < 0.01$), appreciation and watching ($r = 0.276$, $p < 0.01$), reading ($r = 0.220$, $p < 0.05$), traveling ($r = 0.345$, $p < 0.01$), shopping ($r = 0.314$, $p < 0.01$), driving ($r = 0.320$, $p < 0.01$), listening to the radio ($r = 0.230$, $p < 0.05$), and using the internet ($r = 0.312$, $p < 0.01$).

### Discussion

This study showed that leisure participation and leisure exploration among the elderly were significantly associated with depression and quality of life. This study added to the current understanding of the relationship of leisure participation and leisure exploration with depression and life quality by finding a high correlation among the frequency of leisure participation, the number of leisure activities, and leisure satisfaction. Among them, leisure satisfaction was a factor that significantly influenced depressive symptoms, as reported previously (Li et al., 2010). Contrary to the study of Byeon (2006) that reported that women had higher scores of depression than men, there were no sex-based differences in the symptoms of depression in this study. However, the depressive symptoms of the elderly were affected by age, education level, and family type. As with previous studies, this study found that among elderly, depression rises with age (Laura et al., 2006) and that higher education level is factor influencing depression (Crozeen et al., 2015; Yoon, 2009) because this factor is related to income and living standard. As per a study, having a life partner influenced the presence of depression in the elderly (H. S. Yoon & Koo, 2009), consistent with our results. These factors affect the participation of elderly in leisure activities. Studies have reported that higher the education level among the elderly, greater the participation in leisure activities, and through reports that the person without a spouse does relatively no leisure activities than the person with a spouse, it was confirmed to be an important factor in leisure activities (Pettee et al., 2006). Above all, the present results are consistent with previous studies showing that depression is related to the quality of life in the elderly. Depressive symptoms in the elderly lower the social quality of life and are an important factor in health-related quality of life (D. H. Jeong & Shim, 2018; Moon & Park, 2019). As a whole, it suggests that research on the fundamental factors that affect elderly depression and quality of life should be an interesting area in gerontology research, along with the study of elderly leisure participation.

We found that the depression and quality of life of the elderly were more positive with higher frequency of leisure participation, the number of leisure activities participating, and high satisfaction level. Many studies have shown a significant correlation between depressive symptoms and leisure participation in the elderly (Chiu et al., 2013; Sieverdes et al., 2012). Especially, in this study, leisure satisfaction was a significant factor in depressive symptoms of the elderly. Ragheb and Griffith (1982) suggested that quality is more important than quantity of leisure, and that greater participation in leisure activities, higher their satisfaction with leisure, and the higher their satisfaction, the higher their life satisfaction. In addition, active leisure participation in old age tends to increase significantly in cognitive, physical health, and social relationships, and has been reported to have a positive impact on the quality of life (Son, 2017). These evidences, including our findings, strongly suggested that the active leisure participation of the elderly is closely related to reduction of depression among elderly and improved quality of life. In old age, active exploration and spending time during leisure time have a positive impact on the quality of life. Lim and Lee (2016) concluded that eliciting the leisure needs of the elderly had a significant effect on the quality of life, psychosocial status, and subjective health status in old age. Therefore, it is important for active leisure participation through the exploration and planning of interesting leisure activities in old age. It is important to provide leisure opportunities for the elderly by providing various leisure programs. To explore leisure, it is necessary to develop and revitalize customized programs with the support of the local government promotion, education of leisure awareness, leisure needs, and leisure activities in old age.

### Table 2. Correlation Between Depression and Quality of Life and Leisure Participation and Leisure Exploration.

| Variables                          | GDS              |          | EQ-SD              |          |
|-----------------------------------|------------------|----------|--------------------|----------|
|                                   | Coefficient      | $p$      | Coefficient        | $p$      |
| Frequency of leisure participation | $-0.539$         | $0.000^{**}$ | $0.373$            | $0.000^{**}$ |
| Number of leisure activities      | $-0.489$         | $0.000^{**}$ | $0.371$            | $0.000^{**}$ |
| Satisfaction                      | $-0.483$         | $0.000^{**}$ | $0.281$            | $0.005^{**}$ |
| Number of leisure activities with participation intention | $-0.177$ | $0.079$ | $0.139$ | $0.169$ |
| Interest                          | $-0.178$         | $0.076$  | $0.028$            | $0.785$  |

Note. GDS = Geriatric Depression Scale.

$^{**}p < .01$. 

There was a significant negative correlation between the GDS score and sports ($r = -0.276$, $p < 0.01$), visiting ($r = -0.468$, $p < 0.01$), communicating ($r = -0.471$, $p < 0.01$), gardening ($r = -0.236$, $p < 0.05$), appreciation and watching ($r = -0.230$, $p < 0.05$), reading ($r = -0.361$, $p < 0.01$), traveling ($r = -0.383$, $p < 0.01$), shopping ($r = -0.335$, $p < 0.01$), driving ($r = -0.335$, $p < 0.01$), and using the internet media ($r = -0.342$, $p < 0.01$). However, watching television ($r = 0.207$, $p < 0.05$) showed a positive correlation. There was significant positive correlation between the EQ-SD scores and sports ($r = 0.264$, $p < 0.01$), visiting ($r = 0.329$, $p < 0.01$), communicating ($r = 0.312$, $p < 0.01$), appreciation and watching ($r = 0.276$, $p < 0.01$), reading ($r = 0.220$, $p < 0.05$), traveling ($r = 0.345$, $p < 0.01$), shopping ($r = 0.314$, $p < 0.01$), driving ($r = 0.320$, $p < 0.01$), listening to the radio ($r = 0.230$, $p < 0.05$), and using the internet ($r = 0.312$, $p < 0.01$).
Among the leisure activity categories suggested by the leisure participation evaluation tool for the elderly used in this study, there was a significant correlation of depression/quality of life with leisure activities corresponding to games, social activities, cultural activities, outings, and information and communication. Thus, mainly activities that require social interaction with others, emotional activities, and active and productive activities have positive effects on depression and quality of life. Among them, “watching television” was the overwhelming first place for leisure participation, and this result was consistent with previous reports according to which, “watching television” is the most frequent leisure activity among the elderly. However, the results

Table 3. Factors Affecting Depression Symptoms and Quality of Life.

| Variables                              | Model A |          | Model B |          |
|----------------------------------------|---------|----------|---------|----------|
|                                        | B       | β        | p       | B        | β        | p       |
| Frequency of leisure participation     | -0.078  | -286     | .071    | 0.002    | .205     | .227    |
| Number of participating leisure activities | -0.275  | -280     | .111    | 0.004    | .006     | .476    |
| Satisfaction                           | -1.120  | -320     | .000*** | 0.20     | .176     | .072    |
| Number of leisure activities with participation intention | 0.350   | 284      | .016    | 0.001    | .031     | .841    |
| Interest                               | -0.047  | -043     | .623    | -0.006   | -168     | .096    |
| Adjusted R²                            | .350    | 146      |         |          |          |         |

Note. Independent variable: Model A (GDS), Model B (EQ-5D).

Table 4. Correlation of the Type of Leisure Activities with Depression and Quality of Life.

| Items                  | GDS      |          | EQ-SD    |          |
|                       | Coefficient | p       | Coefficient | p       |
| Exercise              | -.154    | .127    | .130     | .199    |
| Game                  |          |         |          |         |
| Sports                | -.276    | .005**  | .264     | .008**  |
| Board games           | .030     | .713    | .013     | .874    |
| Video games           | -.060    | .480    | .105     | .222    |
| Social activity       |          |         |          |         |
| Visiting              | -.468    | .000**  | .329     | .001**  |
| Gathering             | .089     | .379    | .051     | .613    |
| Participating in events | -.138   | .172    | .117     | .248    |
| Volunteering          | -.151    | .134    | .076     | .453    |
| Communicating         | -.471    | .000**  | .312     | .002**  |
| Culture               |          |         |          |         |
| Art and creative activities | -.058   | .568    | .138     | .170    |
| Gardening             | -.236    | .018*   | .117     | .246    |
| Appreciation and watching | -.230   | .021*   | .276     | .005**  |
| Reading               | -.361    | .000**  | .220     | .028*   |
| Learning              |          |         |          |         |
| Attending in classes  | .069     | .497    | -.140    | .165    |
| Refresh               | .145     | .151    | -.187    | .063    |
| Relaxation activities |          |         |          |         |
| Outing                |          |         |          |         |
| Traveling             | -.383    | .000**  | .345     | .000**  |
| Camping               | -.159    | .115    | -.074    | .463    |
| Shopping              | -.335    | .001**  | .314     | .001**  |
| Driving               | -.335    | .001**  | .320     | .001**  |
| Information and communication |       |         |          |         |
| Watching television   | .207     | .039*   | -.172    | .087    |
| Listening to the radio | -.142   | .159    | .230     | .021*   |
| Using the Internet media | -.342  | .000**  | .312     | .002**  |

Note. GDS = Geriatric Depression Scale.

*p < .05. **p < .01.
of this study showed that the higher the depressive symptoms, the higher the frequency of participation in watching television. These results were consistent with previous studies that showed that television viewing and leisure satisfaction of the elderly were factors influencing the depression of the elderly (H. J. Yoon, 2015). “Watching television” is a favorite leisure activity for the elderly because it does not require much effort and energy to prepare and carry out for leisure activities and is easy to participate. However, recent studies have shown that static activities such as watching television are negative leisure activities that cause metabolic disorders, increase obesity, and increase the risk of depression (Gardiner et al., 2011; Inoue et al., 2012; Lucas et al., 2011). Thus, it is important for the elderly to have successful leisure participation through participation in active and productive leisure activities rather than consumptive and passive activities. Therefore, our study emphasizes the importance of developing a way to engage in active and productive leisure activities. Previous studies have reported that performing active leisure activities, such as sports, sports, dance, travel, self-development, or social participation, help improve the physical health, life satisfaction, and self-esteem of the elderly (Akn & Cheon, 2015; H. S. Lee & Shin, 2016; Neugarten et al., 1961). Korean older people need to build an active and social leisure culture to engage with their peers and feel a sense of belonging with the society by participating in outdoor activities. Efforts should also be made to raise the awareness that the elderly themselves are active, social, and productive leisure activities are important for life and successful aging. Therefore, the elderly leisure exploration and participation should be multidimensionally evaluated to improve the depression and quality of life of the elderly so that customized services based on the leisure needs of the elderly can be designed to ensure successful aging. As the health, education, and income level of prospective seniors are higher than those of the current generation, the leisure needs of the elderly are expected to be more diversified. The government should endeavor to create conditions and institutional foundations for the active leisure industry in the private sector.

The limitation of this study is that the results cannot be generalized because the study was conducted in three cities. Thus, more reliable research methods need to be conducted in more regions. In addition, because this study was conducted on elderly people living in the city, a biased survey was conducted. Therefore, it is necessary to conduct additional research considering various living environments such as rural areas.

Conclusion
This study showed that leisure participation and leisure exploration of the elderly were significantly related to depression and quality of life. There was a high correlation between depression/quality of life and the frequency of leisure participation, the number of participating leisure activities, and leisure satisfaction/interest. Among them, leisure satisfaction was a significant factor in depressive symptoms. Social, emotional, active, and productive activities were the leisure activities that positively affected depression and quality of life. In other words, it is important for the elderly to participate in successful leisure activities by engaging in active, social, and productive leisure activities themselves rather than consumptive and passive activities. Therefore, leisure exploration and participation of elderly should be multidimensionally evaluated to reduce depression and improve the quality of life of the elderly to promote successful aging.

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