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Changes in the Level of Social Avoidance and Distress, and Depression among the Elderly Living Alone accordingto the COVID-19 Outbreak

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ABSTRACT

Purpose of this study is to provide the basic information by analyzing the changes in the social avoidance and distress, and depression level of the elderly living alone according to the COVID-19 outbreak. Study subjects were 32 elderlies living alone and the level of social avoidance and distress, and depression were analyzed. To measure the social avoidance and distress, Korean ver. Social Avoidance and Distress Scale was used. To measure the depression, Beck Depression Inventory was used. As the results, the level of social avoidance and distress, and depression of study subjects was statistically significant increased according to the COVID-19 outbreak. COVID-19 outbreak contributes for the elderly living alone to increase of the social avoidance and distress, depression level. Thus, to manage the social avoidance and distress, depression level of the elderly living alone, active management and approach should be needed.

Keywords
COVID-19 outbreak, Depression, Elderly living alone, Social avoidance and distress

1. Introduction

Due to the worldwide spreadof the new Coronavirus (COVID-19), World Health Organization (WHO) declared a pandemic on March 12, 2020 [1]. COVID-19 is a respiratory infectious disease that is newly emerging every time, such as the novel swine-origin influenza A (H1N1) in 2009 and Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in 2013 and it is an infectious disease that is not only feared in individuals and communities, but also has a significant national, social and economic impact on huge losses [2]. In accordance with the concerns about COVID-19 infections in daily life, the general public have reduced the scope and content of activities of social participation, and restricted the visits to hospitals and medical institutions, and uses to the public transportation. Accordingly, the lots of problems throughout the daily life have been occurred continuously due to the negative changes in routine and flow in daily life and the considerable difficulties in doing what was planned in advance [3].

In Korea, since the outbreak of COVID-19 first infected patient on January 20 in 2020, COVID-19infections by group have continued to occur throughout the community, including the long term care hospital for the elderly, call centers, religious facilities, and adult entertainment places [4]. According to these infection throughout the communities, government politically implemented the social closure and isolation as a policy and these policies were applied strongly for diverse subjects including the elderly, who are vulnerable to and at high risk for COVID-19 infection [5].Accordingly, changes in daily life and social society due to the COVID-19 pandemic have been directly affected on the individuals' emotions and psychological changes and these effects have led to increase the level of individual anxiety and fear [6].

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In the COVID-19 pandemic, most studies reported that the elderly are classified as a vulnerable group having a higher risk of infection than other age groups, and they tend to receive more negative effects on their physical, mental, psychological, and social health than other age groups. In particular, they are managed by the most vulnerable group in physical health to COVID-19 [6]. Based on the survey of Korea Center for Disease Control and Prevention (KCDC), due to the weakened immunity and possession of underlying and chronic illnesses of the elderly, the average age of COVID-19 deaths showed 77.8 years, of which the elderly were accounted for 92.7% of all deaths. These results indicated the rate of lethality of the elderly is very high compared to other age groups [7]. Moreover, in the Tenforde et al.'s study [8], they reported that most ofhospitalized inpatients due to COVID-19 are the elderly, and their rate increase as the age increases. Accordingly, the group infection of COVID-19 among the elderly have been occurred mainly in long term care hospitals [9].

The elderly living alone means the elderly who make up a single-person household while living alone in community [10]. The number of them is increasedcontinuously along with the increase in the number of the elderly due to the rapid entry into a super-aging society. The elderly as of 2020 accounted for 15.7% of the total population in Korea, of which of the elderly living alone showed 16.0%. However, the rate increased to 19.5 in 2019, and the number of the elderly living alone in aged 65 and over accounted for 34.2, and the number of them is increased continuously [11]. According to their living characteristics, they are classified into a vulnerable group who may exposed to various risks and their social interaction with others are much limited, making them vulnerable to network and health care activities to receive the supports for daily living [12].

According to the life time, generally, the elderly experience the break with the participation in social activities and relationship and the elderly living alone particularly experience the psychological problems in lypophrenia and the loss of self-esteem and presence [13]. These caused psychological problems show relatively much more than those of general elderly [14]. In order to reduce the effects of these problems, the customized care service for the elderly was integrated and implemented, and the various services have been provided for the elderly living alone, such as supporting the life safety, life education, and the activities of daily life, social participation, resource-linked and specialized service [12]. The outbreak and continued spread of COVID-19 have caused the significant problems in the throughout the daily life of the elderly living alone and have exacerbated the social isolation, poverty, and health problems they are experienced [15]. Moreover, especially, these effect for the elderly living alone on the exacerbation of the psychological problems such as anxiety and depression [12].

Studiesfor the study subjects of the elderly related to the COVID-19 outbreak were variousand these have been reported continuously.However, most of previously reported studies only focused on epidemiological survey and clinical features of the elderly after the COVID-19 outbreak[16].Moreover, based on these conditions above, the studies for the study subjects of the elderly living alonewas in sufficient, and there was no study about the psychological and emotional changes in the elderly occurring after the COVID-19 outbreak. In the period of large-scale spread of infectious disease, most reported studies emphasized importantly that the elderly have greater potential fear of infection and spread than actual risk of the infection itself[17], with causing the serious psychological problems such as fear and anxiety[18-19].

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Thus, this study was aimed to analyze the changes in the level of social avoidance and distress, and depression among the elderly living alone according to the COVID-19 outbreak.

2. Methods

2.1 Study subjects and period

Study subjects were 32 elderly women living alone attending at the W elderly welfare venter in J city in Korea. Selection criteria of study subjects were as follows: Only an individual 1) who is an elderly living along and normal person who has not any cognitive impairment, 2) who has no orthopedic and neurological problems in physical function and structure affecting theperformance of each assessment, 3) who has no problems in visual and auditory system, 4) who is not taking any antipsychotic medication affecting directly on the performance and behavior during each assessment, 5) who is a person to consent voluntarily the participation in this study after understanding this study's purpose and methods.

Prior to the participation in this study, the sufficient information of this study's purpose and methods was provided for study subjects and then explained to understand these contents enough. Accordingly, after the process, the subjects were allowed to participate in this study voluntarily. The consent of the participation in this study was offered by writing. This process was conducted by an occupational therapist who is a researcher in this study and a social worker in charge was coopered.

This study was performed for 12 weeks fromJuly 1 to September 30 in 2020 according to the consideration of the COVID-19 social distancing policy at the Korean Centers for Disease Control and Prevention Agency (KCDC).

2.2 Study procedures

To analyze the changes inthe level of social avoidance and distress, and depression among the elderly living alone according to the COVID-19 outbreak, the single group experiment study design and pre-post analysis within a group were applied. The criteria of pre-post assessment period were implemented based on the changes in the social distancing stage of the KCDC COVID-19 infection preventive policy. Accordingly, the pre-test was implemented on July 1, when the 1 stage of social distancing was applied due to the decrease in the spread of COVID-19 infection. In addition, the post-test was implemented on August 31, when the 2 stage of social distancing was applied from 1 stage due to the increase in the spread of COVID-19 infection. After the pre-test, study subjects were allow to maintain their daily lives with following the infection prevention instruction and personal hygiene managements based on the social distancing stage in KCDC.

The each assessment of social avoidance and distress, and depression was performed individually in the major classroom at the J college in J city, Republic of Korea after the arranging the distracted and complicated environment. These assessment was implemented by an occupational therapists who is a researcher in this study and a social worker in charge was coopered. Prior to these, the sufficient explanation about the purpose and methods of the each assessment was offered for study subjects.

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2.3 Social avoidance and distress assessment

To measure social avoidance and distress level, Korean ver. of Social Avoidance and Distress Scale (K-SADS)was used. K-SADS was developed in 1969 by Watson & Friend and then was translated into Korean in the study by Lee &Choi's study [20]. K-SADS is an effective tool to measure the level of anxiety experienced in the situation of social interaction and the tendency to avoid social conditins expected to be unpleasant, K-SADS is consisted of 28 items and it is an assessment as a self-reported survey. The each items are performed by 5 points Likert scale from 1 to 5 points. The total score is from 28 to 140 points, and the higher score indicates the higher level of social avoidance and distress. The Cronbach's a was showed at .92[20].

2.4 Depression assessment

To measure depression level, Beck Depression Inventory (BDI) was used. BDI was developed in 1967 by Beck and then was translated into Korean based on the Lee & Song's study [21]. BDI is a sensitive and effective tool to measure the level of depression independent of any diagnosis [22]. BDI is consisted of 21 items and it is an assessment as a self-reported survey. The each items are performed by 4 points Likert scale from 0 to 3 points. The total score is from 0 to 63 points, and the higher score indicates the higher level of depression. Interpreting the total scores, the scores of 0-9 are classified as not depressed, 10-15 as the level of mild depression, 16-23 as the level of moderate depression, and 24-6 as the level of severe depression. The Cronbach's a was showed at .854 in the Lee et al.'s study [21].

2.5 Statistical analysis

The collected data were coded and then analyzed using SPSS version 23.0. Descriptive statistics were used to analyze the study subjects' general characteristics. To analyze the changes in the level of social avoidance and distress, and depression, Paired T-Test was used. The significant level was set to 0.05.

3. Results

3.1 General characteristics of study subjects

The results of the general characteristics of study subjects showed as follows (Table 1). Study subjects were 32elderly women living alone. In the age of the study subjects, their average age showed 79.80 years and separately, 75-79 years showed 16 elderly (50.0%), 80-84 years showed 10 elderly (31.3%), and 85-89 years 6 elderly (18.7%). The results of Montreal Cognitive Assessment-Korean ver. (MoCA-K) showed at the average 24.58 points. Based on the MoCA-K assessment instruction manual, if the total score is over 23 points, the level of cognitive function indicates the normal. Accordingly, all the study subjects in this study showed the normal level of cognitive function.

The average working period of study subjects showed 28.00 months with 4 (13.3%) from 1 to 12 months, 20 (66.7%) from 13 to 24 month, and 6 (20.0%) over 25 month. The average number of

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patients treated per day was 14.33 patients, all of which were found to treat from 13 to 16 patients per day.

Table 1. General characteristics of study subjects (n=32)

Age (years)		**Sex (n, %)**		**MoCA-K (points)**
Items	**n (%)**			
75-79	16 (50.0)	Female	32 (100.0)	24.58±1.45
80-84	10 (31.3)			
85-89	6 (18.7)			
Mean±S.D	79.80±4.00			

3.2 The results of social avoidance and distress

The results of social avoidance and distress were showed as follows (Table 2). The results showed the increase at average 5.32 points from the results before the COVID-19 outbreak showed at average 80.54 points to the results after the COVID-19 outbreak showed at average 85.86 points. After the statistical verification about these results, there showed the statistically significant difference at the 99% significant level (t= 2.942, p= .006). Thus, the increase in the level of social avoidance and distress among the elderly living alone showed according to the COVID-19 outbreak.

3.3 The results of depression

The results of depression were showed as follows (Table 2). The results showed the increase at average 4.97 points from the results before the COVID-19 outbreak showed at average 9.09 points to the results after the COVID-19 outbreak showed at average 14.06 points. After the statistical verification about these results, there showed the statistically significant difference at the 99% significant level (t= 2.973, p= .005). Thus, the increase in the level of depression among the elderly living alone showed according to the COVID-19 outbreak.

Table 2 Results of social avoidance and distress, and depression

Variables	**Pre (Mean±S.D)**	**Post (Mean±S.D)**	**T**	**P**
Social avoidance and distress(points)	80,54±9.34	85.86±7.79	2.942	.006**
Depression(points)	9.09±7.32	14.06±10.03	2.973	.005**

** $p < 0.01$

4. Discussion

The elderly living alone often have no family and friends due to the living alone for a long period of time, and most of them attend to the community facilities, such as community welfare centers, day care centers and religious facilities, by relying on the support and relationships including the volunteering and social care. Because of the loneliness and isolated life of the elderly living alone, the changes in daily life and social alienation caused by COVID-19 easily increase the psychological problems such as anxiety and depression [23]. Accordingly, for the elderly living alone, this study analysed the changes in the level of social avoidance and distress, and depression of them according to the COVID-19 outbreak. As the results, the statistically

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significant increase showed in the level of social avoidance and distress, and depression of the elderly living alone after the COVID-19 outbreak. Thus, we judged that this study has clinical significance.

According to the COVID-19 outbreak, the level of social avoidance and distress of the elderly living alone showed statistically significant increase in this study. Generally, the elderly have the vulnerable characteristics ofinfectious disease such as COVID-19 due to the low level of immunity caused by aging and the retention of underlying diseases [6]. Accordingly, after the COVID-19 outbreak, Meo et al.'s study [24] reported that they showed high lethality rate and risk relatively compared to other age groups, and as their age increases, the rate of transition to sever disease and hospitalization due to COVID-19 have been increased. In the Shin et al.'s study [6], they reported that physical and psychosocial effects caused by COVID-19 pandemic act negatively for elderly and these problems are exerting a relatively strong effects on the elderly compared to other age groups, based on their characteristics and the negative situation of the COVID-19 pandemic.

Seong et al. [25]'s study also reported that the elderly is sensitive to exposure to infection as a high-risk group for infectious disease, and they are limiting their participation in social interaction and activities by themselves, having higher fears of COVID-19 than other age groups. Based on studies report above, this study was judged that the results showed the increase of the level of social avoidance and distress among the elderly living alone according to the COVID-19 outbreak. This results were supported by various studies. In the study by Lee & Kang [16], they reported that COVID-19 is a high-risk infectious disease for the elderly and it effects significantly on throughout their daily life. In addition, they reported that they confirmed the characteristics of avoiding the social meeting with others due to high concerns and anxiety about infection. Kim & Shim [26]'s study reported the elderly retrain from going out to reduce unnecessary contact with others in these conditions above. Therefore, in the condition of COVID-19 outbreak and pandemic, the appropriate measure and consideration should be needed to decrease the level of social avoidance and distress among the elderly living alone.

According to the COVID-19 outbreak, the level of depression among the elderly living alone shoed the statistically significant increase in this study. The social distancing,which applied as a policy, have been suggested as an effective preventive measure according to the COVID-19 situation [27]. However, in the Brooks et al.'s study [28], they pointed out that the elderly have the risks inducing the social isolation, and as a results of social isolation, the incidence of psychosocial problems such as loneliness and depression and anxiety significantly increased. Brooke & Jackson [29] reported that the use of elderly welfare facilities is restricted due to concerns about the infection in group facilities for them, and these situation effects for the elderly to experience the social isolation in their changed lives of COVID-19. Accordingly, the number of the elderly suffering from the loneliness, and depression have been increased.

Lee et al. [30] reported that the restriction of social activities and the changes in daily life of the elderly during the COVID-19 pandemic cause the increase of the level of stress and contribute directly to occur the psychological problems such as anxiety and depression.Especially, they explained that these effects is more showed in the case of the elderly living alone compared with the elderly living with their family. Based on these reported above, in this study, it is judged that the level of anxiety among the elderly is much high in the situation of COVID-19 pandemic and

infection occurred from others. Actually, according to the various studies related in the outbreak and pandemic of infectious disease including the study by Ramalingawanmi [17], they reported that the potential fear of elderly is greater than the actual risk if the infection itself. Moreover, the studies related in the SARS (Sever Acute Respiratory Syndrome) by Cheng [18] and Leung et al. [19] reported that the psychological effects such as fear and anxiety occur more seriously in the elderly than the risk of the infectious disease

In addition, in the Lee & Kang [16]'s study, they reported thatthe anxiety and fear are induced by the news of the increase in the number of inpatients with COVID infection and deaths and specifically the anxiety of study subjects is caused by excessive information and continuously reported news about COVID-19 pandemic. Kim's study [31] reported that the fear of disease and concerning of the health condition are increased by reporting the possibility of infection intensively through the various report media. Accordingly, based on these, it is judged that the increase of depression among the elderly living alone is caused both the social isolation caused by the social restriction of social activities according to the application of social distancing, and continuous and excessive exposure of information about the COVID-19 infection. Therefore, in order to decrease the level of depression among the elderly living alone during COVID-19 pandemic, it is judged that the psychological supports and appropriate approach should be managed for them.

Study limitation were as follows. This study was only analyzed inthe changes in each variable by applying the pre-post analysis. Accordingly, it is judged not to confirm the continuous changes of each variable. Thus, based on this study's methods, the study should be neededto identify the changes in the social avoidance and distress, and depression among the elderly living alone according to the COVID-19 outbreak. Additionally, this study was only analyzed by using the single group of the elderly living alone. Accordingly, it is judged not to explain the difference in the changes of the each variable comparted with other age groups. Thus, the comparative study should be needed to analyze the various changes caused by COVID-19 outbreak.
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5. Conclusions

The purpose of this study was to analyze the changes in social avoidance and distress, and depression among the elderly living alone according to the COVID-19 outbreak. As the results, the results showed the statistically significant increase of the level of social avoidance and distress, and depression among the elderly living alone according to the COVID-19 outbreak. COVID-19 outbreak should be contributed to increase the level of social avoidance and distress, and depression among the elderly living alone. Thus, the consideration of managing the level of social avoidance and distress, and depression should be needed for the elderly living alone according to the COVID-19 pandemic.

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