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A Study on the Convergence of Underlying Diseases and Physical Activity Influencing the Diagnosis of Depression in the Elderly over the Age of 65

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Abstract

The objective of this study was to look at the connection between depression diagnosis and basic and chronic illnesses in older individuals north of 65 years old to give essential data on institutional groundwork for mental health and address the issue of expanding old despondency welcomed on by populace maturing. In 2019, 1,535 grown-ups 65 and over were surveyed as a feature of the National Health and Nutrition Survey, a public institutional measurable information assortment project show to the Korea Centers for Disease Control and Prevention of the Ministry of Health and Welfare. Specialists made 92 (6%) depression diagnoses, but 1443 (94%) did not. As a result of this investigation, there was a significant difference in the diagnosis of depression when arthritis, osteoporosis, and cirrhosis were identified (p=0.043, p0.001, and p=0.001, respectively), and the association with physical activity was 1 week's number of walking days (p=0.002) and aerobic exercise practice rate (p=0.038). This study is meaningful in that the effect of underlying diseases and physical activity on the diagnosis of depression of the elderly aged 65 or older in Korea is confirmed based on the KNHANES, and it is meaningful to provide basic data for institutional support measures and sports education programs for the elderly.

Keywords: Depression, Underlying Disease, KNHANES, Physical activity

1. INTRODUCTION

Results from the National Statistical Office indicate, the elderly population ratio represents an aging society, with approximately 7% of the total population in 2000 considered elderly, and this ratio steadily increased to 8,151,867 in 2020, i.e., 15% of the total population of 51, 836, 239[1]. Given the growing elderly population worldwide, chronic diseases and senile depression are important public health challenges. Elderly individuals experience poverty owing to income loss, loss of health, death of spouses and known individuals, and loss of social roles [2].Although the average suicide rate in OECD nations is declining, Korea's suicide rate is rising quickly, and during the past 20 years, the suicide rate among the elderly has more than quadrupled [3]Suicide is defined as suicidal behavior, attempted suicide, and suicidal ideation [4]. Moreover, prevention is critical, given that idea of suicide can lead to death [5]. Previous studies have shown that nearly 60% of individuals who experience suicidal thoughts plan or attempt suicide within a year [6].Risk factors for self-destruction incorporate psychological instability, medication or liquor misuse, life stress, low pay, and joblessness, particularly despondency, which was found to display the best impact on self-destructive contemplations[7, 8]. Considering demographic and sociological factors, individuals who live alone experience high levels of depression and suicidal thoughts [9].According to certain research, depression is more common when other conditions affecting the central nervous system, such as dementia, Parkinson's disease, Parkinson's disease, and stroke, are also present[10]. According to a survey, the elderly also experience poverty owing to medical expenditure, which constitutes a large proportion of spending, resulting in considerable income loss [2, 11].With regards to the social causation hidden the connection among destitution and discouragement, sadness in the old warrants significant social consideration, given that poverty can induce depression [12, 13]. Compared with other untreated chronic diseases, depression was found to markedly worsen mental and physical health, which can broadly increase the healthcare burden across the population [14].We therefore sought to give fundamental information for institutional planning of mental health in accordance with underlying disorders among the elderly in the current study. Likewise, utilizing data from the Korea National Health and Nutrition

Examination Survey, we thought about the association among gloom and fundamental problems in the old.

2. RESEARCH METHOD

2.1. Research design

This investigation on the causes of elderly depression used raw data from the KNHANES and was authorized by the Korea Centers for Disease Control and Prevention's Research Ethics Review Committee.

2.2. Collecting research methods and data

Among 8,110 participants in the 8th KNHANES, we included 1,535 elderly individuals aged ≥ 65 years, excluding those with missing values.

2.3 Statistical Analysis

IBM SPSS Measurements 20.0 (IBM Enterprise, Armonk, NY, USA) was utilized to examine the information and a p-worth of 0.05 or lower was viewed as statistically significant. Utilizing the 2test, contrasts between Sociodemographic qualities and elements impacting depression were examined.

3. RESULTS

3.1. General traits of the subjects

Considering the general traits of the subjects, we enrolled 1,535 elderly individuals aged ≥ 65 years: 665 (43%) males and 870 (57%) females. Considering the age distribution, 929 (60%) individuals were aged 65–74 years, and 606 (40%) were aged ≥ 75 years. Overall, 92 (6%) were diagnosed with depression by physicians, whereas 1443 (94%) had no depression diagnosis.

Table 1:General traits of the subjects

Characteristic		N	%
Gender	Male	665	43
	Female	870	57
Age(y)	65~74	929	60
	≥75	606	40
Diagnosis of depression	Yes	92	6
	No	1443	94

3.2. Correlation between General Characteristics and Depression

Analyzing the correlation between general characteristics and depression, females had a significant diagnosis of depression when compared with males (p=0.006), and no statistically significant difference was noted when classified into two groups, i.e., 65–74 and ≥ 75 years. Considering the household income quintile (fourth quintile), the lower the income quintile, the greater the statistical significance (p=0.034)

Table 2: Correlation between General Characteristics and Depression

characteristic		Depression		P-value
		No (n=1535)	Yes (n=346)	
Gender	Male	638	27	0.005
	Female	805	65	
Age(y)	65~74	879	50	0.227
	≥75	564	42	
Marital status	Married	1430	91	0.796
	Single	12	1	

Educational level	≤Elementary school	784	55	0.173
	Middle school	233	17	
	High school	271	17	
	≥College graduate	147	3	
	No response	8	0	
Household income quartile	Low	660	556	0.034
	Middle-low	425	23	
	Middle-high	226	8	
	High	126	5	
National basic livelihood security	Yes	136	16	0.013
	No	1307	76	
Marital status	Living together	967	53	0.089
	Separation	19	0	
	Dereavement	386	35	
	Divorce	58	3	
Health insurance type	National health insurance(local)	433	32	0.028
	National health insurance(workplaces)	900	47	
	Medical benefits	109	13	
commercial health insurance	Yes	723	37	0.072
	No	712	54	

3.3. Relationship between Diagnosis of Underlying Disease and Depression

Based on the correlation analysis of the underlying disease type and depression, we detected no statistically significant difference between a diagnosis of depression and cardiovascular diseases such as hypertension, hyperlipidemia, stroke, and myocardial infarction. Conversely, arthritis (p=0.043), osteoporosis (p<0.001), and cirrhosis (p=0.001) significantly correlated with depression.

Table 3:Relationship between Diagnosis of Underlying Disease and Depression

Characteristics		**Depression**		**p-value**
		No (n=1443)	**Yes (n=92)**	
Hypertension	No	620	46	0.187
	Yes	823	46	
Diabetes	No	1128	70	0.64
	Yes	315	22	
Dyslipidemia	No	912	49	0.056
	Yes	531	43	
Storke	No	1347	84	0.45
	Yes	96	8	
Myocardial infarction	No	1391	88	0.712
	Yes	52	4	
Angina pectoris	No	1355	85	0.56
	Yes	88	7	
Arthritis	No	979	53	0.043
	Yes	464	39	
Osteoarthritis	No	1010	56	0.065
	Yes	433	36	
Rheumarthritis	No	1388	87	0.436

	Yes	55	5	
osteoporosis	No	1107	56	0.001
	Yes	336	36	
Tuberculosis	No	1356	85	0.54
	Yes	87	7	
Asthma	No	1381	85	0.137
	Yes	62	7	
Thyroid disease	No	1380	85	0.148
	Yes	63	7	
Renal failure	No	1432	91	0.732
	Yes	11	1	
Hepatitis B	No	1422	91	0.773
	Yes	21	1	
Hepatitis C	No	1434	92	0.447
	Yes	9	0	
Cirrhosis	No	1438	89	0.001
	Yes	5	3	

3.4. Association between Chronic Disease (Cancer) and Depression Diagnosis

Considering differences between the diagnosis of chronic diseases and depression, gastric cancer (p=0.512), liver cancer (p=0.109), colon cancer (p=0.755), lung cancer (p=0.326), and thyroid cancer (p=0.061) were not significantly associated with a diagnosis of depression.

Table 4: Association between Chronic Disease (Cancer) and Depression Diagnosis

Cancer		**Depression**		**P-value**
		No (n=1535)	**Yes (n=346)**	
Stomach cancer	No	1413	91	0.512
	Yes	30	1	
Liver cancer	No	1440	91	0.109
	Yes	3	1	
Large intestine cancer	No	1418	90	0.755
	Yes	25	2	
Lung cancer	No	1428	92	0.326
	Yes	15	0	
Thyroid cancer	No	1435	90	0.061
	Yes	8	2	

3.5. Physical Activity and Depression Diagnoses are Associated

Considering the differences between Physical Activity and Depression Diagnoses, the number of walking days (p=0.002) and aerobic exercise practice rate (p=0.038) significantly differed based on a diagnosis of depression.

Table 5:Physical Activity and Depression Diagnoses are Associated

Characteristic		**Depression**		**P-value**
		No(n=1535)	**Yes(n=346)**	
The number of walking days in a week	not doing at all	332	36	0.002
	1st	87	0	
	2nd	110	2	

	3rd	195	12	
	4th	91	8	
	5th	131	7	
	6th	56	1	
	7th	443	24	
Aerobic Physical Activity Practice Rate	No	956	71	0.038
	Yes	477	21	

4. DISCUSSION

We used data from the 8th KNHANES in this study to attempt to investigate the link between depression and underlying disorders in the elderly aged 65 years in Korea, as this database provides basic data for institutional preparation of mental health. In most previous studies considering gender differences in general characteristics, females across all ages were found to exhibit higher depression experiences and suicidal thoughts than males [15]. In the present study, we detected a higher diagnosis of depression in females than in males. Considering the relationship between poverty and depression according to income level (i.e., social causation), depression could occur due to poverty and nutritional intake was imbalanced depending on income level, negatively impacting the risk of chronic diseases and mental health [12, 13]. However, previous reports found that the relationship between household income, suicidal thoughts, and depression varies according to demographic characteristics [15]. The elderly become more vulnerable to senile depression as they experience a reduction in social roles, owing to environmental changes, physical diseases, and the death of their spouses. Various factors can cause depression, and it has been reported that depression can be attributed to underlying diseases [14]. Geriatric depression is rapidly increasing worldwide owing to a rapidly aging population, especially patients with one or more comorbidities [14]. Depression rates in patients with diabetes are approximately 9 to 28%, which approach ~40% among patients with hypertension and 15 to 17% among those with other chronic diseases [16-18].In the ongoing review, we analyzed the connection between the determination of despondency and the presence and nonappearance of basic problems, and we also confirmed the link between the diagnostic of depression and arthritis, osteoporosis, and cirrhosis. Various efforts have been made to reduce depression among the elderly. Moreover, some studies have reported that the degree of depression decreases after continuous participation in walking exercise programs for the elderly with knee arthritis, and aerobic exercise could effectively relieve depression [19]. Exercise in elderly patients with depression can effectively relieve depression, and regular exercise, muscle exercise, and physical activity positively correlate with reduced depression in the elderly considering mental health [20]. Herein, we confirmed the relationship between walking days per week, aerobic exercise practice rate, and depression diagnosis. We analyzed the relationship between underlying diseases and depression among the elderly using previous data from a national survey. We believe it is necessary to prepare an institution for the mental health of elderly individuals at the national level to prevent chronic diseases and subsequent aging-related depression.

5. CONCUSION

The National Health and Nutrition Survey data were used in this study to spark more interest in the connection between underlying illnesses and depression in senior people, which led to the validity of the study's findings.

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Authors' contributions

All authors agreed to be accountable for all elements of this work and contributed to data analysis, drafting, and revision of the publication.

Declaration of Conflicts of Interests

The authors affirm their lack of any conflicts of interest.

Consent for Publication

Each author has reviewed the article and is aware that it will be published in the Journal for Reattachment Therapy and Developmental Disabilities.

Data Availability Statement

Due to privacy concerns, the database created and/or analysed during the current work is not publically accessible, however it is available from the corresponding author upon justifiable request.

Declarations

All works are original, according to the author(s), and this material hasn't been published in another journal.

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