2018년도 국민건강영양조사에 근거한 19세 이상 한국 성인의 주관적 건강상태와 현재 우울증 존재와의 연관성

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Association between Self-Rated Health Status and the Presence of Current Depression in Korean Adults over 19 Years Old: Based on 2018 Korean National Health and Nutrition Examination Survey

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Background: Self-rated health status is a proxy variable for actual health status and a predictor of mortality. It also affects various diseases, including chronic diseases, and is also related to socioeconomic factors. Therefore, I aim to confirm the clinical significance of self-related health status by studying the relationship between self-rated health status and the presence of current depression.

Methods: Of the 6,489 adults aged 19 years and above who participated in the 3rd year of the 7th National Health and Nutrition Survey conducted in 2018, 5,995 people, excluding "I don't know/no answer" and unmarked, were targeted. A chi-square test was performed to determine the relationship between each variable and self-rated health status. After adjusting for significant variables, multiple logistic regression analysis was used to determine the relationship between self-rated health status and the presence of current depression.

Results: The results of the chi-square test of variables for self-rated health status, gender, age group, household income, education level, monthly drinking status, degree of stress perception, and aerobic physical activity were significant. Multiple logistic regression analysis revealed that self-rated health status and the degree of stress perception were significantly related to the presence of current depression.

Conclusion: Self-rated health status and presence of current depression were correlated.

Keywords: Health status; Depression; Adult

INTRODUCTION

Recently, Korea, in addition to other developed countries, has become increasingly interested in the health of individuals with economic development. As a result, the concept of self-rated health recognition has emerged, referring to self-evaluation of an individual's health status.¹⁾ The self-rated health recognition survey is a concept that encompasses questions about current health status and current health status compared

with previous surveys.¹⁾ However, in this study, I aim to determine the self-rated health status, which examines the current health status. Depression is a common mental illness, estimated at more than 264 million people worldwide, and can lead to suicide and dysfunction.^{2,3)} In Korea, the lifelong prevalence rate of major depressive disorders as of 2016 was 5.0% (3.0% for men and 6.9% for women) in the prevalence survey of major mental disorders conducted every 5 years from 2001.⁴⁾ Therefore, I investigate the relationship between self-rated health status and the pres-

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ence of current depression.

METHODS

1. Study population

Study participants were selected based on data from the 3rd year of the 7th Korean National Health and Nutrition Survey, 2018 (KNHANES, 2018). KNHANES is a nationwide population-based cross-sectional survey that consists of health interviews, health examinations, and nutritional surveys.⁵⁾ It was implemented every 3 years from 1998 to 2005 and has been implemented every year since 2007 to improve the timeliness of national statistics.⁵⁾ Households of 3,518 participated in the 3rd year of the 7th KNHANES (2018), and 7,992 people participated.^{5,6)} Of the total 7,992 participants in this study, 6,489 were over 19 years old.^{5,6)} Among them, 5,995 people were selected for the final analysis, excluding 494 people including “Don’t Know/No Response” and unmarked people about their self-rated health status.^{5,6)} The KNHANES is approved by the institutional review board of the Korea Centers for Disease Control and Prevention (KCDC).⁵⁾ All participants in KNHANES signed an informed consent form.⁵⁾ This study was conducted without the approval of a separate Institutional Review Board (IRB) because it used the publicly available data from the National Health and Nutrition Survey for scientific use.

2. Data collection method and classification method

This study collected most of the data from the National Health and Nutrition Survey through a health survey. To understand the sociodemographic characteristics, gender, age, and household income were used in the household survey category, the education level questionnaire in the education category and the stress perception question in the mental health category were used. To investigate the characteristics of health behavior, I used current smoking status, degree of monthly drinking, and aerobic physical activity in the analysis.^{5,6)}

In questions related to the subject of this study, self-related health status in the quality of life category and the presence of current depression in the mental health category were used. Ages were classified into 19–64 years old and ≥65 years old for categorization. Household income was classified as “higher,” “middle-high” into the top 50%, “middle-lower” and “lower” into the bottom 50% in the questionnaire.^{5,6)}

In terms of education level reclassification code, “below elementary

school graduates,” “middle school graduates” were classified as “below high school graduates” and “high school graduates” and “university graduates” as “high school graduates or above”.^{5,6)} Current smoking status was classified into “past smoking/nonsmoking” and “current smoking” as used in the current smoking rate question answer.^{5,6)}

Monthly drinking status was classified into “Non-drinking/less than 1 shot glass per month” and “More than 1 shot glass per month,” according to the questionnaire response.^{5,6)} Whether aerobic physical activity was practiced or not was classified by the response to whether it was practiced or not in the physical activity category (“Practiced”/“Not practiced”).^{5,6)} Aerobic physical activity refers to the amount of time that corresponds to each activity by performing at least 2 hours and 30 minutes of moderate-intensity physical activity, or at least 1 hour and 15 minutes in high-intensity physical activity, or a mix of moderate and moderate levels. It refers to the case of spending high-intensity physical activity (1 minute high, 2 minutes medium).^{5,6)} As for the degree of stress perception, “Feeling a lot of stress” and “Feeling a little stress” were used as the response of the stress recognition rate survey in the mental health category.^{5,6)} The self-rated health status was classified as “Very good,” “Good” and “Fair” as “Healthy group”, and “bad”, “very bad” as “Non-healthy group”.^{5,6)} As for current depression the questionnaire answers “Yes,” “No” were used as it is.^{5,6)}

3. Data analysis method

Statistical analysis was performed using IBM SPSS Statistics Trial version (IBM Corp., Armonk, NY, USA) was used, and the statistical significance level (P-value) was <0.05. To understand the general characteristics of the study participants, a chi-square test was conducted for classification according to self-rated health status, gender, age group, household income, education level, current smoking status, monthly drinking status, degree of stress perception, and aerobic physical activity. A chi-square test was used to confirm the relationship between self-related health status and the presence of current depression, and multiple logistic regression analysis was performed with the correction variables (gender, age group, household income, education level, monthly alcohol consumption status, degree of stress perception, whether aerobic physical activity practice or not).

RESULTS

1. General characteristics of the study participants

Of the total 7,992 participants in this study, 6,489 were over 19 years old.^{5,6)} Among them, 5,995 people were selected for the final analysis, excluding 494 people including “Don’t Know/No Response” and unmarked people about their self-rated health status.⁶⁾ The self-rated health status was classified as “Very good”, “Good” and “Fair” as “Healthy group” (n=4,820), and “bad”, “very bad” as “Non-healthy group” (n=1,175). The general characteristics of the study participants according to the groups (healthy/non-healthy) are shown in Table 1. Approximately 80.4% were classified as the healthy group and approximately 19.6% were classified as the non-healthy group (Table 1).

Looking at the distribution of general characteristics and health behaviors among the self-rated health status groups (Healthy/Non-healthy), There were significant differences in self-rated health status according to gender (P<0.001), age group (P<0.001), household income level (P<0.001),

education level (P<0.001), monthly drinking status (P<0.001), whether aerobic physical activity practice or not (P<0.001), and degree of stress perception (P<0.001) (Table 1).

2. Relationship between self-rated health status and the presence of current depression

Depression in adults over 19 years of age in Korea showed a difference of 43.4% and 72.2%, respectively, in the healthy and non-healthy groups in self-rated health status, was statistically significant (P<0.001) (Table 2).

To analyze the factors affecting self-rated health status and the presence of current depression, multiple logistic regression analysis was performed by correcting variables such as gender, age group, household income level, education level, degree of monthly alcohol consumption, degree of stress perception, and aerobic physical activity practice.

As a result of the analysis, no significant results were obtained in gender (P=0.482), age group (P=0.893), Household income level (P=0.719), education level (P=0.060), degree of monthly drinking (P=0.356) and

Table 1. General characteristics of study subjects

Characteristic	Self-rated health status		P-value
	Healthy group (n=4,820)	Non-healthy group (n=1,175)	
Gender			<0.001
Man	2,156 (44.7)	457 (38.9)	
Woman	2,664 (55.3)	718 (61.1)	
Age (y)			<0.001
19-64	3,763 (78.1)	689 (58.6)	
≥65	1,057 (21.9)	486 (41.4)	
Household income			<0.001
Top 50%	2,916 (60.7)	492 (41.9)	
Bottom 50%	1,888 (39.3)	682 (58.1)	
Education level			<0.001
High school graduates or higher	3,604 (75.1)	604 (51.8)	
Below high school graduates	1,194 (24.9)	561 (48.2)	
Current smoking status			0.362
Past smoking/non-smoking	3,957 (82.3)	951 (81.1)	
Current smoking	852 (17.7)	221 (18.9)	
Monthly drinking status			<0.001
Non-drinking/less than 1 shot glass per month	2,078 (43.2)	693 (59.1)	
More than 1 shot glass per month	2,734 (56.8)	479 (40.9)	
Degree of stress perception			<0.001
Feeling a little stress	3,754 (78.0)	683 (58.3)	
Feeling a lot of stress	1,058 (22.0)	488 (41.7)	
Whether aerobic physical activity was practiced or not			<0.001
Practiced	2,095 (43.7)	383 (32.9)	
Not practiced	2,702 (56.3)	782 (67.1)	

Values are presented as number (%).
Obtained using chi-square test for categorical variables.
P-values are obtained by chi-square test.

whether aerobic physical activity practice or not ($P=0.718$). By contrast, significant results were measured for the degree of stress perception ($P=0.017$) and self-rated health status ($P<0.001$) (Table 3).

In self-rated health status, the current risk of depression was 2.914 times higher in the non-healthy group than in the healthy group (odds ratio, 2.914; 95% confidence interval, 1.737–4.889; $P<0.001$). At the degree of stress perception, the current risk of depression was 1.887 times higher in the group who felt stress a lot than the group who felt stress a little (odds ratio, 1.887; 95% confidence interval, 1.122–3.173; $P=0.017$) (Table 3).

DISCUSSION

According to the previous studies, self-rated health status is evaluated by a single question and is relatively simple and easy compared to the actual health status survey.¹⁾ Therefore, it is known that self-rated health status can be predicted to be widely used as a proxy variable for individual health status.¹⁾ Other studies have shown that self-rated health status is predictable of mortality from various diseases even after correcting for age, socioeconomic status, and other variables.^{7,8)} Another study reported that depression, fatigue, weakness and musculoskeletal pain as well as

chronic diseases such as neurological diseases, rheumatoid arthritis and cancer, were also associated with self-rated health status in the middle-aged and elderly population.⁹⁾ Another study reported that chronic pain is independently associated with low self-rated health in the general population.¹⁰⁾ Studies have also shown that factors at the individual level (e.g., low income, low education, and smoking) are strongly associated with poor self-rated health status.¹¹⁾ According to a research paper on the relationship between the body shape index and poor self-rated health status conducted in Korea, there is a correlation between the body shape index and self-rated health status, and that it is at a statistically significant level.¹²⁾ Therefore, further research is needed to find out the relationship between self-rated health status and overall disease of all age groups, including youth.

The limitations of this study are as follows: First, although other studies have suggested that the self-rated health status question is a variable that can contain significant measurement errors and verification of whether it is a reliable proxy variable is an important task.¹⁾ This question asks about individual subjective thoughts, so objectivity may be poor. Second, since it is a survey through a survey, errors may occur owing to the unfaithful answers of the survey participants themselves.¹⁾ There are five questions on subjective health status (very good, good, fair, bad, or very bad). However, in this study, because the investigation was categorized into two groups, different results may be produced if each response is investigated. Third, since there are many other independent variables that can influence the presence of current depression, this study did not find any association with other independent variables. In subsequent studies, it will be important to supplement the limitations of this study by using more standardized, objective, and detailed self-rated health status scales. It is judged that it will be necessary to use it to pre-

Table 2. Relationship between self-related health status and the presence of current depression

The presence of current depression	Self-related health status		P-value
	Healthy (n=4,820)	Non-healthy (n=1,175)	
No	81 (56.6)	37 (27.8)	<0.001
Yes (depression)	62 (43.4)	96 (72.2)	

Values are presented as number (%).

P-values are obtained by chi-square test.

Table 3. Multiple logistic regression analysis for the presence of current depression

Variable	The presence of current depression		
	Odds ratio	95% confidence interval	P-value
Self-rated health status (non-healthy)	2.914	1.737–4.889	<0.001
Degree of stress perception (feeling a lot of stress)	1.887	1.122–3.173	0.017
Education level (below high school graduates)	1.653	0.978–2.791	0.060
Monthly drinking status (more than 1 shot glass per month)	0.767	0.437–1.347	0.356
Gender (woman)	0.785	0.400–1.541	0.482
Whether aerobic physical activity was practiced or not (not practiced)	1.104	0.646–1.885	0.718
Household income level (bottom 50%)	1.110	0.628–1.963	0.719
Age group (≥ 65 y)	1.047	0.537–2.039	0.893

P-values are calculated by the analysis of logistic regression model for the presence of current depression of self-rated health status, after adjustment for gender, age, household income level, education level, monthly drinking status, whether aerobic physical activity was practiced or not, degree of stress perception.

dict personal health by checking the association with other diseases besides depression.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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