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Influence of Stress on Self-Esteem and the Moderating Effects of PHYSICAL ACTIVITIES in KOREAN Elderly People

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Abstract

The purpose of this study was to examine the influence of the stress of Korean elderly people on their self-esteem and the moderating effects of physical activities. The subjects in this study were 350 male and female senior citizens who used senior welfare centers located in Chungcheong Province and North Gyeongsang Province in 2015, and the number of the actual cases used in this study were 327.

The instruments used in this study were structured questionnaires that used a four-point Likert scale. The instrument used to measure stress was a scale that rearranged scale with some modifications based on Elderly Stress Scale and Mccubbin, Wilson & Oattersondml File and by consulting the data of Olsen and Boss.

The instrument used to evaluate self-esteem was adapted version of Self-Esteem Scale that was used in study. This scale was used in this study after it was modified and complemented to serve the purpose of the study.

The instrument used to assess physical activities was a short-sentence self-administered questionnaire that was one of the International physical Activity Questionnaires, or IPAQ. The IPAQ is to measure the degree of walking, moderate activities and strenuous activities over the last seven days such as leisure, indoor, outdoor, work-related or traffic-related activities and to calculate total scores that indicate the level of overall activities by gathering all the information on the frequency and duration of the activities. As for the amount of activity, MET-minutes are calculated based on energy demand, which is defined as METs, and by giving different weights to the different types of activity. Regarding the value of METs, average METs scores are calculated based on a study on the reliability of the IPAQ, which was conducted in 2000 and 2001, and based on MET scores for each activity type that were reported.

A statistical package SPSS WIN 18.0 was employed, and factor analysis, reliability analysis, correlation analysis and regression analysis were made. The findings of the study were as follows: First, the stress of the senior citizens affected their self-esteem.

They were less self-esteemed when they were more stressed out due to economic difficulties, family problems, residential problems or health problems. Second, physical activities were found to have produced moderating effects when their stress had an impact on self-esteem. The group that engaged in less physical activities were less self-esteemed when they were under more stress, whereas the group that engaged in more physical activities were highly self-esteemed even though their stress became heavier.

[Keywords] *Physical Activities, Korean Elderly People, Aged Society, Stress, Self-Esteem*

1. Introduction

South Korea became an aged society in 2000 because of an increase in the elderly

population, and is on the verge of being a super-aged society as the elderly population is expected to account for 24.3 percent of the entire population in 2030. Indeed, there is a

tendency that the elderly population is steadily on the rise[1]. Elderly people are usually confronted with common problems. They have been dedicated to their families in their lifetime, and they have a lot of boring free time after retirement. They are stressed under the circumstances, and they are bound to lead an unsatisfactory life due to waning or impaired physical and mental functions[2]. It's inevitable for them to become physically, psychologically and socially intimidated, and they experience various sorts of stress as they are filled with a greater sense of loss than in any other time of their lives.

Studies found that it affects self-esteem when elderly people are stressed out in boring everyday life[3]. Self-esteem is a barometer of psychological satisfaction in old age, and refers to how much elderly people respect themselves and consider themselves to be valuable[4]. And that represents how much they accept themselves and how much faith they have in themselves[5]. It results in detracting from environmental adaptability when they become less self-esteemed[4], and senior citizens whose self-esteem is higher are likely to better adapt themselves to various changes in old age to lead a better life[6].

Physical activities can be said as one of the factors to ensure the quality of life in old age. Physical activities enable senior citizens to improve not only their health but their quality of life[7], and also make it possible for them to feel less lonely about the loss of roles, to have more respect for themselves, to pursue self-realization and ultimately to feel more satisfaction and happiness in daily routine life[8]. Moreover, active physical activities contribute to the improvement of psychological happiness and the decrease of tension, anxiety and stress, and these activities are a means to prevent elderly people from aging and to give more vitality to their lives[9].

The purpose of this study was, therefore, to examine the moderating effects of physical activities on the influential relationship between elderly people's stress and self-esteem.

2. Method

2.1. Subjects

The subjects in this study were 350 senior citizens who were selected from senior welfare centers located in South Chungcheong Province and North Gyeongsang Province. After this researcher and six assistant researchers who received education on this study in advance explained the purpose of this study in the senior welfare centers, each of the male and female senior citizens who understood the purpose of the study and consented to participate was separately interviewed. And the data from 327 respondents were selected except for the data from 23 elderly people that included unfaithful answers or were incomplete. Out of the 327 respondents, the men and the women respectively numbered 130 and 197. 71 elderly people were aged between 65 and 69, and 185 respondents were in their 70s. 71 senior citizens were at the ages of 80 and up.

2.2. Instrumentation

The instruments used in this study were structured questionnaires that used a four-point Likert scale. The instrument used to measure stress was a scale[10] that rearranged[11]'s scale with some modifications based on[12]'s Elderly Stress Scale and McCubbin, Wilson & Oaterson's dml File and by consulting the data of Olsen and Boss.

The instrument used to evaluate self-esteem was[13]'s adapted version of[14]'s Self-Esteem Scale that was used in[15]'s study. This scale was used in this study after it was modified and complemented to serve the purpose of the study.

The instrument used to assess physical activities was a short-sentence self-administered questionnaire that was one of the International physical Activity Questionnaires, or IPAQ. The IPAQ is to measure the degree of walking, moderate activities and strenuous activities over the last seven days such as leisure, indoor, outdoor, work-related or traffic-related activities and to calculate total scores that indicate the level of overall activities by gathering all the information on the frequency and duration of the activities. As for

the amount of activity, MET-minutes are calculated based on energy demand, which is defined as METs, and by giving different weights to the different types of activity. Regarding the value of METs, average METs scores are calculated based on a study on the reliability of the IPAQ, which was conducted in 2000 and 2001, and based on MET scores for each activity type that were reported in [16].

2.3. Data analysis

A statistical package SPSS 18.0 was employed to analyze the collected data. An exploratory factor analysis and Cronbach alpha

coefficients were utilized to test the validity and reliability of the instruments. A correlation analysis was made to determine the relationship of the elderly people's self-esteem to social support according to the level of exercise, and a regression analysis was made to produce more generalizable results after their scores were converted into standard scores. The level of statistical significance was set at .05.

3. Results

3.1. The results of the correlation analysis

Table 1. The correlations of self-esteem, social support and the level of physical activities.

	Economic problems	Family problems	Residential problems	Health problems	Positive self	Negative self	Physical activities
Economic problems	1						
Family problems	.231***	1					
Residential problems	.375***	.246***	1				
Health problems	.423***	.277***	.170**	1			
Positive self	-.176**	-.136	-.189**	-.115*	1		
Negative self	-.286***	-.341***	-.241***	-.307***	.326***	1	
Physical activities	-.084	.012	-.080	-.052	.449***	.134*	1
Average	2.1682	1.9460	1.8135	2.4230	3.2959	3.0379	1770.26
standard deviation	.61011	.47191	.54033	.64914	.57240	.45513	1667.219
Stewness	.467	.130	.373	-.085	-.384	-.116	3.131

Note: *p<.05, **p<.01, ***p<.001

3.2. The relationship of stress to self-esteem

According to <Table 2> on the results of the regression analysis, the stress of the sen-

ior citizens was found to have affected negative self-esteem. Negative self-esteem was under the influence of economic problems ($\beta = -1.968$), family problems ($\beta = -4.482$), residential problems ($\beta = -2.000$) and health problems ($\beta = 3.073$).

Table 2. The results of the regression analysis on stress and self-esteem.

Self-esteem	Positive		Negative	
	β	t	β	t
Stress				
Economic problems	-.097	-1.526	-.116	-1.968*
Family problems	-.073	-1.256	-.239	-4.482***
Residential problems	-.129	-2.173*	-.110	-2.000*
Health problems	-.032	-.521	-.173	-3.073**
F	4.482**		19.407***	
R	.234		.441	
R ²	.055		.194	

Note: *p<.05, **p<.01, ***p<.001

3.3. The moderating effects of physical activities on the relationship between job stress and self-esteem

[17]’s The hierarchical regression analysis was made to determine the moderating effects of physical activities on the relationship between stress and self-esteem. The results are shown in <Table 3>. Physical activities

were found to have had moderating effects on the relationship between stress and self-esteem. The group that engaged in less physical activities became less self-esteemed when their stress became heavier, whereas the group that engaged in more physical activities became more self-esteemed even though they were more stressed out.

Table 3. The moderating effects of the level of physical activities on the relationship between stress and self-esteem: the results of the hierarchical regression analysis.

Model	Self-esteem								
	Model 1			Model 2			Model 3		
	B	β	t	B	β	t	B	β	t
Stress	-.412	-.383	-7.470***	-.382	-.355	-7.454***	-.398	-.370	-7.741***
Physical activities				.147	.351	7.356***	.139	.332	6.904***
Stress X physical activities							.100	.111	2.300*
R ²	.147			.269			.280		
Δ R ²	.269			.264			.274		
F	55.802***			59.512***			41.964*		

Note: *p<.05, **p<.01, ***p<.001

4. Discussion and Conclusion

So far, whether physical activities produced any moderating effects when the stress of the senior citizens affected their self-esteem was analyzed.

There was a tendency that the findings of the study on the relationship of the elderly people's stress and self-esteem corresponded to those of two earlier studies[3][18]. Their self-esteem became lower

when they were more stressed out because of financial difficulties, family problems, residential problems and health problems.

The physical activities of the senior citizens were found to have had moderating effects on the relationship between stress and self-esteem. The group that performed less physical activities became less self-esteemed when they were under more stress, while the group that performed more physical activities became more self-esteemed even though they were more stressed. Studies established that elderly people's physical activities serve to promote health and a chance of having much contact with neighbors serves to ease stress[19], that physical activities contribute to psychological happiness by relieving tension and bolstering self-fulfillment and subsequently boost self-esteem[20], and that physical activities offer emotional assistance by helping elderly people to keep an amicable relationship with others and discuss personal problems with them[7]. All the findings of these studies lend credibility to the findings of this study.

As a matter of fact, it's not easy for the elderly to engage in physical activities due to lack of time, financial reasons or the possibility of injury such as a hurt from a fall, but there is a definite evidence that active physical activities are of both physical and mental help. Therefore, senior citizens are expected to promote or maintain their physical and mental health if they participate in exercise programs offered by their local communities. Also, that is expected to be of use for the reduction of national health care burden.

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