

# Verification of the mediation effect of recovery resilience according to the relation between elderly users' participation in exercise rehabilitation program and their successful aging

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This study aims to verify the mediation effect of recovery resilience according to the relation between Senior Citizen Community Center (SCCC) elderly users' participation in exercise rehabilitation programs and their successful aging. Toward that end, 400 65-yr or older participants and non-participants in SCCC's exercise rehabilitation programs, living in Incheon, were sampled. Of their answered questionnaires, 35 copies which were deemed low-reliability, duplicated, and inadequately specified were excluded from the analysis. And, the other data were coded through computers, and underwent a descriptive statistical analysis (DSA) and a standard multiple regression analysis (SMRA) using Windows SPSS/PC+21.0 Version statistical program. Thus it was firstly found that elderly people's participation or non-participation in exercise rehabilitation programs partially influenced their recovery resilience and successful aging. The participants group, compared with the non-participants group, had greater recovery resilience and experi-

enced successful aging. Second, the relation between the degree of participation in exercise rehabilitation programs, recovery resilience and successful aging revealed that the longer and the more frequent the participation in exercise rehabilitation programs was, the greater the recovery resilience was and the more successful aging was. Third, the verification of the mediation effect of recovery resilience in the relation between the program participation degree and the successful aging revealed that, compared with those of the model of direct effects of independent variables and dependent variables, the recovery resilience-mediated model's verification power and explanation power were greater.

**Keywords:** Rehabilitation Exercise participation, Successful aging, Resilience

## INTRODUCTION

South Korea saw its 65-yr old or older elderly people account for 7.2% of its total population in 2000, thus entering an aging society for the first time. The elderly people's percentage will be 14.3% in 2018, leading the country to enter an aged society, and it will reach 20.8% in 2026, leading the country to enter a super-aged society. With this rapid aging and a rapidly increasing elderly population, individuals and society are focusing their concern on elderly people.

Such aging society may bring various problems. Notably, people, entering the elderly stage, experience physical and physiolog-

ical deterioration, worsening their health, see their income decline due to marrying of their children and retirement, and with the society changing to a nuclear family-oriented one, they lose their roles at home and social ties. Also, they retire, spending dull leisure time, suffer from depressions, sense of isolation, despondency, and psychological weakening, also suffer from the lowering or hurting of physical and mental function, and deaths of friends. All this lowers elderly people's happiness.

Furthermore, an increase in elderly population reduces active-production population in our society, and weakens productivity, leading to slow economic growth and creating social insurance prob-

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lems. Specifically, problems associated with increased elderly population are not limited just to elderly people, but concern all our society. Thus, elderly people need to have healthy elderly life, to participate in production activities, and to reduce their insurance benefits due to diseases. And successful aging is not prevention of aging, but our society needs to help well aging.

Since 2000, Korea has seen an increasing academic interest in successful aging, along with empirical studies. Examples of concepts of successful aging can be found in the successful aging model, the way to successful aging (Riddick, 1985), and the comprehensive concept of successful aging, suggesting that elderly people's successful aging draws attention, making it an important social issue.

Elderly people's socio-psychological pathology has been tried to be solved through an approach to seeking quality of life as human instinctive pursuit and utilization of leisure-time activities. First, sociologists on aging, who triggered concern about the quality of elderly people's life, continued research to verify successful aging theories with focus on elderly people's life environment changes, and to improve the quality of elderly people's life (Riddick, 1985; Riddick and Daniel, 1984).

Furthermore, healthy physical activities are regarded as very important for the quality of life. In this regard, the major research paradigm involves activity theory, which emphasizes that active life and participation in physical leisure activities have positive relations with the quality of life. Notably, physical activities play an important role in elderly people's successful aging (Paffenbarger et al., 1986; Roberts, 1989).

In this context, exercise rehabilitation programs for elderly people provide opportunities to improve their physical health, socialize with others, be confident about their philosophy, values, and physical strength, and to enjoy their life, thus positively reducing their stress. Researches in developed nations have reported that sport activities can effectively prevent elderly people's problems and reduce their diseases, and that aerobics, swimming, jogging and other sport activities can effectively ease general people's stress (James, 1993).

As such, previous researches reveal relations between various variables such as the quality of life, sense of happiness, and psychological welfare for elderly people through their participation in leisure activities. However, research on elderly people's participation in exercise rehabilitation programs and successful aging has yet to be furthered. Notably, this study seeks to use the concept of recovery resilience - that can help resolve elderly people's physical, social and mental difficulties - in defining the mediation effect of recovery resilience in the relation between elderly people's partici-

pation in exercise rehabilitation programs and their successful aging. Thus, this study examines problems of socially alienated elderly people from the viewpoint of social problems to renew our perception of elderly people, and to help them enjoy an abundant life as members of society through leisure activities.

With the understanding that, with regard to the relation between elderly people's participation in leisure activities and their successful aging, recovery resilience would provide higher quality of life. Following specific problems are presented along with solutions. First, according to elderly people's participation or non-participation in exercise rehabilitation programs, do their recovery resilience and successful aging make a difference? Second, is there a positive relation between the degree of elderly people's participation in exercise rehabilitation programs, their recovery resilience and their successful aging? Third, how is the mediation effect of recovery resilience in relation to elderly people's participation in exercise rehabilitation programs and their successful aging?

## MATERIALS AND METHODS

### Subjects

To verify the effects of Senior Citizen Community Center (SCCC) elderly users' participation in exercise rehabilitation programs on their successful aging, a population of 65-yr old or older elderly people, living in Incheon in 2014, was set, and subjects were sampled using the systematic stratified cluster random sampling method. Specifically, according to the population's gender ratio, the number of subjects was determined, SCCC's were classified into active and non-active facilities, the covered areas were divided into Nam-gu, Yeonsu-gu, Namdong-gu, and Jung-gu, and a sampling framework was crafted. Then, by each area, SCCC's were classified into ones with the operation of exercise rehabilitation programs into ones without it, and a total of 16 CCCs with four CCCs involving participation and non-participation by elderly people in each area were selected, and 25 subjects were cluster sampled from each of 16 SCCC's. A total of 320 subjects were also set.

Of 400 subjects who answered the questionnaire, however, 365 were finally determined as effective subjects after excluding 35 poor or inadequate answers.

### Research tool

#### 1) Participation in exercise rehabilitation program

Subjects were classified into participation and non-participation in exercise rehabilitation programs, and the degree of participation consists of participation frequency, period, and strength. Par-

ticipation frequency asks how often do you participate a week? Participation period asks how long do you participate once or more a week? Participation strength asks how long do you exercise per frequency on average?

**2) Recovery resilience**

To identify elderly people’s recovery resilience, the questionnaire, which was adapted according to Korean situations by Sin et al. (2009), was used. Recovery resilience consists of 8 emotion control questions, 8 impulsion control questions, 8 optimism questions, 8 cause analysis ability questions, 8 empathy ability questions, 8 self-efficacy questions, and 8 questions about challenging oneself positively, totaling 56 questions. Each question was presented with the 5-point Likert scale such as Very much so (5 points) and Not so at all (1 point). The greater score means greater recovery resilience.

**3) Successful aging**

To measure successful aging, Garfin and Herzog (1995)’s successful aging measure was used. This measure consists of 5 autonomous life questions, 4 self-accomplishment-oriented questions, 4 positive participation in life questions, 5 child satisfaction questions, 3 self acceptance questions, and 3 others-acceptance questions, totaling 24 questions in 6 fields. Each question was presented with the 5-point Likert scale such as very much so (5 points) and not so at all (1 point). The greater score means more successful aging.

**Validity and reliability of questionnaire**

To verify the validity of the measuring tool, an explorative factor analysis was used, orthogonal rotation was used as the factor rotation method, and factor extraction was based on the initial eigen value of over 1.0. First, a factor analysis of 56 recovery resilience questions extracted 7 factors, which could explain 81% of the total variance. Also, Cronbach’s  $\alpha$  value of recovery resilience was found to be 0.720-0.925, suggesting a relatively reliable level.

In addition, a factor analysis of 24 successful aging questions extracted 6 factors, which could explain 78% of the total variance.

Also, Cronbach’s  $\alpha$  value of successful aging was found to be 0.680-0.923, suggesting a relatively reliable level.

**Survey procedure and data treatment**

To verify the mediation effect of recovery resilience with regard to the relation between elderly people’s participation in exercise rehabilitation programs and their successful aging, this researcher and assistants visited related areas, distributed the questionnaire, explained the purpose of the survey along with how to fill out, and requested subjects to fill out the questionnaire using the self-administering method. However, over 70% of elderly people filled out through face to face surveys with the researcher and assistants.

Of the collected data, those which were deemed low-reliability, duplicated, and non-specified were excluded from the analysis. Reliable data were coded using computers, and were computer processed according to the purpose of analysis using the Window SPSS/PC+21.0 Version statistical program. Then, the data underwent frequency analysis, DSA, factor analysis, t-test, SMRA, and hierarchical regression analysis.

**RESULTS**

**A difference in elderly people’s recovery resilience and successful aging according to their participation and non-participation in exercise rehabilitation programs**

**1) A difference in elderly people’s recovery resilience according to their participation and non-participation in exercise rehabilitation programs**

Table 1 shows t-test results for determining the difference in elderly people’s recovery resilience according to their participation and non-participation in exercise rehabilitation programs. As shown in Table 1, as for the difference in recovery resilience according to participation and non-participation in exercise rehabilitation programs, the participants group (M= 3.88, 3.64, 4.22, 4.10, 3.99), compared with the non-participants group (M= 3.14, 3.21, 3.84, 3.60, 3.42), showed greater emotion control power ( $P < 0.001$ ), im-

**Table 1.** T-test for elderly people’s recovery resilience difference according to their participation and non-participation in exercise rehabilitation programs

Participation type	Recovery resilience n	Emotion control power		Impulsion control power		Optimism		Cause analysis ability		Empathy ability		Self-efficacy		Positive challenging spirit	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Participation	186	3.88	0.52	3.64	0.45	4.22	0.56	3.78	0.77	3.88	0.55	4.10	0.61	3.99	0.55
Non-participation	179	3.14	0.68	3.21	0.54	3.84	0.87	3.60	0.78	3.67	0.61	3.60	0.68	3.42	0.62
t value		5.251***		2.514*		3.209**		1.548		1.023		3.854***		3.966***	

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

pulsion control power ( $P < 0.05$ ), optimism ( $P < 0.01$ ), self-efficacy ( $P < 0.001$ ), and positive challenging spirit ( $P < 0.001$ ).

**2) A difference in elderly people's successful aging according to their participation and non-participation in exercise rehabilitation programs**

Table 2 shows t-test results for determining the difference in successful aging according to participation and non-participation in exercise rehabilitation programs. As shown in Table 2, as for the difference in successful aging according to participation and non-participation in exercise rehabilitation programs, the participants group ( $M = 3.89, 3.78, 3.98$ ), compared with the non-participants group ( $M = 3.30, 3.32, 3.33$ ), showed greater positive participation in life ( $P < 0.001$ ) and acceptance of others ( $P < 0.001$ ).

**Relations between the degree of elderly people's participation in exercise rehabilitation programs, their recovery resilience and their successful aging**

**1) Relations between the degree of elderly people's participation in exercise rehabilitation programs and their recovery resilience**

Table 3 shows a multiple regression analysis of the effects that the degree of participation in exercise rehabilitation programs has

on recovery resilience's sub-variables, e.g., emotion control power, impulsion control power, optimism, cause analysis ability, empathy ability, self-efficacy, and positive challenging spirit. According to Table 3, emotion control power was significantly influenced by frequency ( $\beta = 0.221$ ) and period ( $\beta = 0.182$ ) in this order, explaining 22.2% of total variance. And, impulsion control power was significantly influenced by frequency ( $\beta = 0.378$ ) and period ( $\beta = 0.223$ ) in this order, explaining 31.4% of total variance. Optimism was significantly influenced by frequency ( $\beta = 0.388$ ) and period ( $\beta = 0.278$ ) in this order, explaining 35.2% of total variance. Cause analysis ability was significantly influenced only by frequency ( $\beta = 0.184$ ), explaining 21.5% of total variance. Empathy ability was significantly influenced by frequency ( $\beta = 0.210$ ) and strength ( $\beta = 0.159$ ) in this order, explaining 16.7% of total variance. Self-efficacy was significantly influenced by frequency ( $\beta = 0.254$ ) and period ( $\beta = 0.241$ ) in this order, explaining 18.4% of total variance. Positive challenging spirit was significantly influenced only by frequency ( $\beta = 0.213$ ), explaining 17.8% of total variance.

**2) Relations between the degree of elderly people's participation in exercise rehabilitation programs and their successful aging**

Table 4 shows a multiple regression analysis of the effects that

**Table 2.** T-test for elderly people's successful aging difference according to their participation and non-participation in exercise rehabilitation programs

Participation type	Successful aging n	Autonomous life		Self-achievement orientation		Positive participation in life		Satisfaction with children		Self-acceptance		Acceptance of others	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Participation	186	3.75	0.56	3.68	0.66	3.89	0.41	3.36	.52	3.78	0.62	3.98	0.58
Non-participation	179	3.69	0.62	3.45	0.74	3.30	0.62	3.10	.58	3.32	0.82	3.33	0.62
t value		0.457		1.102		2.874**		1.011		2.621*		4.102***	

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

**Table 3.** Multiple regression analysis of the relation between the degree of elderly people's participation in exercise rehabilitation programs and their recovery resilience

Degree of participation	Recovery resilience		Emotion control power		Impulsion control power		Optimism		Cause analysis ability		Empathy ability		Self-efficacy		Positive challenging spirit	
	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t
Participation frequency	0.210	3.312**	0.359	7.323***	0.471	8.918***	0.178	2.035*	0.191	2.428**	0.283	3.507***	0.231	2.941***		
Participation period	0.198	2.122*	0.211	2.958**	0.273	4.303***	0.023	0.510	0.004	0.080	0.252	2.458**	0.047	0.090		
Participation strength	0.042	1.046	0.089	0.987	0.073	1.253	0.148	1.641	0.176	2.254*	0.042	0.682	0.140	1.625		
R <sup>2</sup>	0.119		0.271		0.162		0.220		0.178		0.181		0.129			

\* $P < 0.05$ , \*\*\* $P < 0.001$ .

**Table 4.** Multiple regression analysis of the degree of elderly people’s participation in exercise rehabilitation programs and their successful aging

Degree of participation	Successful aging		Autonomous life		Self-achievement orientation		Positive participation in life		Satisfaction with children		Self-acceptance		Acceptance of others	
	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t	$\beta$	t
Participation frequency	0.211	3.496***	0.234	4.283***	0.212	4.238***	0.261	4.550***	0.280	3.123***	0.310	4.063***		
Participation period	0.181	2.462**	0.081	0.976	0.041	0.679	0.071	1.211	0.072	0.912	0.069	0.834		
Participation strength	0.059	1.095	0.182	2.194*	0.032	0.432	0.078	1.343	0.241	2.242**	0.112	1.562		
R <sup>2</sup>	0.192		0.220		0.182		0.299		0.310		0.117			

\* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .

**Table 5.** Mediation effect of recovery resilience with regard to the effects of exercise rehabilitation programs for elderly people on successful aging

Variables	Model 1 (the degree of participation in exercise rehabilitation programs → successful aging)		Model 2 (the degree of participation in exercise rehabilitation programs → recovery resilience)		Model 3 (the degree of participation in exercise rehabilitation programs, recovery resilience, successful aging)	
	$\beta$	P	$\beta$	P	$\beta$	P
Gender	0.272	0.000	0.198	0.009	0.211	0.009
Age	0.055	0.074	0.288	0.000	0.234	0.000
Education	0.034	0.199	0.098	0.087	0.102	0.072
Average monthly available income	0.348	0.000	0.064	0.256	0.220	0.030
Health	0.251	0.000	0.199	0.032	0.213	0.008
Recovery resilience (R)	0.362	0.000	0.259	0.018	0.221	0.005
The degree of participation in exercise rehabilitation programs (P)					0.340	0.000
Successful aging (S)						
	R <sup>2</sup> = 0.398 adjusted R <sup>2</sup> = 0.382 F = 38.852***		R <sup>2</sup> = 0.112 adjusted R <sup>2</sup> = 0.107 F = 15.014***		R <sup>2</sup> = 0.535 adjusted R <sup>2</sup> = 0.512 F = 174.526*** Model 1 → model 3 R <sup>2</sup> variance = 0.137***	

\*\*\* $P < 0.001$ .

the degree of participation in exercise rehabilitation programs has on successful aging’s sub-variables, e.g., autonomous life, self-achievement orientation, positive participation in life, satisfaction with children, self-acceptance, and acceptance of others. According to Table 4, autonomous life was significantly influenced by frequency ( $\beta = 0.232$ ) and period ( $\beta = 0.190$ ) in this order, explaining 20.1% of total variance. And, self-achievement orientation was significantly influenced by frequency ( $\beta = 0.242$ ) and strength ( $\beta = 0.191$ ) in this order, explaining 24.2% of total variance. Positive participation in life was significantly influenced only by frequency ( $\beta = 0.240$ ), explaining 19.0% of total variance. Satisfaction with children was significantly influenced only by frequency ( $\beta = 0.253$ ), explaining 22.0% of total variance. Self-acceptance was significantly influenced by frequency ( $\beta = 0.242$ ) and strength ( $\beta = 0.239$ ) in this order, explaining 32.2% of total variance. Acceptance of others was significantly influenced only by

frequency ( $\beta = 0.299$ ), explaining 15.4% of total variance.

### Verification of the mediation effect of recovery resilience with regard to the relations between exercise rehabilitation programs for elderly people and their successful aging

This study aims to examine the relations between exercise rehabilitation programs for elderly people and their successful aging, and to identify the mediation effect of the variable recovery resilience between the two variables. Thus, the first model examined the effects of the degree of participation in exercise rehabilitation programs on successful aging. The second model examined the effects of the degree of participation in exercise rehabilitation programs on recovery resilience. The third model verified the mediation effect of recovery resilience with regard to the effects of the degree of participation in exercise rehabilitation programs on suc-

successful aging. Thus, each model's explanation power, and a change in and significance of independent variables' and mediation variable's standardized regression coefficient value were analyzed to examine the relations between the three variables. An analysis of all models is shown in Table 5.

### **1) Effects of the degree of participation in exercise rehabilitation programs for elderly people on successful aging**

Model 1 shows the verification of the effects of the degree of participation in exercise rehabilitation programs on successful aging. The model explanation power  $R^2 = 0.398$  explains the degree of participation in exercise rehabilitation programs vis-a-vis successful aging 39.8%, making it statistically significant ( $P < 0.000$ ). As for the specific influence of variables, first, of control variables, gender ( $\beta = 0.272$ ,  $P < 0.000$ ), average monthly available income ( $\beta = 0.348$ ,  $P < 0.000$ ), and health ( $\beta = 0.251$ ,  $P < 0.000$ ) were found to be significant variables for elderly people's successful aging. Thee independent variable, the degree of participation in exercise rehabilitation programs, had a significant positive effect ( $\beta = 0.362$ ,  $P < 0.000$ ), suggesting that longer and more frequent participation in exercise rehabilitation programs may boost successful aging.

### **2) Effects of the degree of participation in exercise rehabilitation programs on recovery resilience**

Model 2 shows the verification of the effects of the degree of participation in exercise rehabilitation programs on recovery resilience. Model explanation power  $R^2 = 0.112$  explains the degree of participation in exercise rehabilitation programs vis-a-vis recovery resilience 11.2%, making it statistically significant ( $P < 0.000$ ). As for the specific effects of variables, first, of control variables, gender, ( $\beta = 0.198$ ,  $P < 0.009$ ), age ( $\beta = 0.288$ ,  $P < 0.000$ ) and health ( $\beta = 0.199$ ,  $P < 0.032$ ) were found to be significant variables for elderly people's recovery resilience. The independent variable, the degree of participation in exercise rehabilitation programs, also had a significantly positive effect on elderly people's recovery resilience ( $\beta = 0.259$ ,  $P < 0.018$ ), suggesting that more frequent or longer participation in exercise rehabilitation programs may boost elderly people's recovery resilience.

### **3) Mediation effect of recovery resilience with regard to the effects of the degree of participation in exercise rehabilitation programs on successful aging**

Model 3 included all of the degree of participation in exercise rehabilitation programs, recovery resilience and successful aging, and

the model explanation power  $R^2 = 0.535$  was statistically significant ( $P < 0.000$ ). Model 3 explanation power  $R^2 = 0.137$ , which added the mediation variable of recovery resilience to model 1 having only the independent variable, the degree of participation in exercise rehabilitation programs, thus increasing, was statistically significant ( $P < 0.000$ ). Specifically, control variables that influenced the dependent variable of successful aging were found to be gender ( $\beta = 0.211$ ,  $P < 0.009$ ), age ( $\beta = 0.234$ ,  $P < 0.000$ ), and health ( $\beta = 0.213$ ,  $P < 0.008$ ). Explanation power of the independent variable of the degree of participation in exercise rehabilitation programs vis-a-vis successful aging was found to be still significant ( $\beta = 0.340$ ,  $P < 0.000$ ), but had a smaller value than .362 which was the standardized regression coefficient of the degree of participation in exercise rehabilitation programs presented in model 1.

## **DISCUSSION**

This study aims to define the effects of SCCC elderly users' participation in exercise rehabilitation programs on their successful aging through the mediation of recovery resilience to provide basic data to promote elderly people's health, to boost the importance of elderly exercise rehabilitation programs promotion and policy development from the aspect of reducing medical costs, and to contribute to improving the quality of elderly people's life and their successful aging process. Based on analysis results, the meaning of relations between such variables and of findings is discussed below.

First, an analysis of the difference in recovery resilience and successful aging according to elderly people's participation or non-participation in exercise rehabilitation programs revealed that, compared with non-participants, participants showed greater emotion control power, impulsion control power, optimism, self-efficacy, and spirit of challenging oneself positively of recovery resilience.

Specifically, compared with non-participants, participants showed greater recovery resilience, proving that recovery resilience through such participation can help positively resolve elderly people's various social and psychological problems. Notably, recovery resilience can significantly help overcome elderly people's depressions, sense alienation, sense of emptiness, sense of helplessness, and psychological weakening, as well as stress. Schike (1991) reported that elderly people, through exercise, overcomes sense of social alienation, experiences more emotional stability, thus satisfies their life, and this supports the findings of this study.

An analysis of a difference in successful aging according to participation and non-participation in exercise rehabilitation pro-

grams revealed that, compared with non-participants, participants showed greater positive participation in life and acceptance of others of successful aging, as well as a greater autonomous life. Specifically, compared with non-participants, participants lived their lives more positively, and showed greater social acceptance ability. Physical health, the primary factor of biomedicine, has been longest regarded as an important leading variable in determining successful aging. Physical activity, namely, exercise, is the most important factor in determining such physical health, making the findings of this study very meaningful.

Zaiko et al. (2009) report that exercise (physical activity) is seen as the means of minimizing the physiological disorders from aging and preventing chronic diseases or disorders, and thus that efforts to raise expectations for a positive life is the method of achieving successful aging. This supports the findings of this study. Thus, policies should be implemented to enable elderly people to positively practice diverse productive activities, and an access to such activities should be provided.

Second, an analysis of the relations between the degree of elderly people's participation in exercise rehabilitation programs, their recovery resilience and their successful aging revealed that as the participation period and frequency increased, the recovery resilience rose and the feeling of successful aging was furthered. This suggests that greater frequency and longer period can lead to affirmative and positive recovery resilience, including for elderly people's aging.

The positive viewpoint is that aging is not simply a disabling period but includes the concept of development and growth. Thus, aging entails deterioration in cognitive and physical functions, but has a complex meaning of further growth along with increased wisdom in life. WHO defined successful aging as good physical (functional state), emotional (emotional and cognitive state), and social health (productive participation) (Garfein and Herzog, 1995). Such research results suggest that, with regard to elderly people's successful aging, recreational sport activities and recovery resilience play a considerably positive role in their physical, mental and social activities.

Third, with regard to the relations between the degree of elderly people's participation in exercise rehabilitation programs and their successful aging, the mediation effect of recovery resilience was examined, revealing that, rather than the model of direct effects of independent and dependent variables, the recovery resilience-mediated model showed greater verification power and explanation power.

These results suggest that recovery resilience plays a very posi-

tive role in elderly people moving to successful aging through physical activities. Recovery resilience is positive power to overcome difficulties and hardships. Most of elderly people's problems and physical and psychological anxieties can be overcome through recreational sport activities and other productive physical activities which can boost recovery resilience.

Therefore, in aging society, to solve elderly people's problems, diverse approaches should be attempted, but to improve the health and life quality of elderly people, diverse appropriate exercise programs geared toward promoting their welfare need to be developed and spread, and such activities should be positively encouraged. Also, sports policies for elderly people should be implemented with high priority to enable elderly participants to continue to participate in physical activities. With such policies, the exercise rehabilitation programs, upheld in the government's policy for elderly sports and health, should be activated, not only to extend their health life and cut medical costs, but also to ensure successful aging for their happy lives.

## CONFLICT OF INTEREST

There are no potential conflicts of interest relevant to this article.

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