DEVELOPMENT AND EVALUATION OF THE ELDERLY HEALTH MILEAGE FOR HEALTH PROMOTION

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Abstract- Purpose: The purpose of this study is to develop the Health Mileage program for the promotion of health amongst the elderly and to assess the feasibility of the program. Methods: A literature review to identify previously published relevant studies done in Korea and other countries was conducted. Focus groups were held to assess the exercise programs. The Elderly Health Mileage (EHM) program was developed based on these assessments. EHM was tested in three regions (one large city, one small city, and one rural area). Outcomes included attendance rate, the number of participants, the proportion of participants who received health education, and the proportion of participants who underwent measurement of their physical and mental status. Results: After beginning EHM, senior centers reported an increase in attendance. Eighty percent or more of the participants received incentives. More than 85% of participants underwent assessment of their physical and mental status. The proportion of participants who received health education varied between the three regions. Conclusions: The Elderly Health Mileage program increased participation and interest in exercise programs for the elderly. Problems were raised concerning the availability of elderly exercise programs. To expand EHM, it will be necessary to invest in infrastructure, including facilities, equipment, and knowledgeable instructors.

Key Words- Elderly, Reimbursement, Incentive, Health Promotion, Health Impact Assessment, Exercise Program

I. INTRODUCTION

According to the 2014 Senior Survey, the exercise amount below the recommended level increased from 11.3% to 14.2% as compared to the survey in 2014 [1]. Therefore, proper exercise programs for the Korean elderly should be extended to more old people. A variety of effort is needed to provide well-structured exercise programs to a larger number of the elderly population.

In order to reduce unhealthy behaviors and to maintain and increase healthy behaviors, insurers in other countries have developed activities to promote the health status and have offered incentives according to improvements in health status. Incentives for preventative actions lead to a change in attitude amongst the insured and, in the long run, reduce national health expenditures. In Germany, individuals with chronic diseases who participate in health promotion, prevention, and screening programs are offered bonuses such as cash, gifts, or deductions in payment [2]. There have been reports from the United States of a rise in unhealthy behaviors amongst individuals in some states that have implemented a "disincentive" (salary limit) for those with Medicaid who refuse to partake in preventive services [3]. There are positive and negative effects of financial incentives for prevention [3, 4]. In several countries, incentive program in prevention program showed effect on improvement of health behavior, so it can be applied to Korean elderly. We intend to develop the elderly health mileage model which is one of the incentive program in order to induce the elderly to practice their healthy life and to evaluate the effectiveness of it.

II. METHODS

1. Focus group interview for exercise instructors

In order for the Elderly Heath Mileage (EHM) model, which focuses mainly on exercise programs, to succeed, the role of the instructors leading the exercise programs is crucial. Accordingly, this study conducted focus group interviews with 7 elderly exercise program instructors. During two-hour interview, the interviewees were asked questions regarding the aspects of a successful elderly exercise program.

2. Development of EHM and verification of validity

We developed the EHM program. The contents of EHM were developed based on literature review and opinion from experts in preventive medicine, health sciences, physical education, and social welfare.

3. Application

This study selected 3 areas for pilot projects considering urbanization, community cooperation, community networking, willingness to participate, senior center accessibility, and the proportion of the population. D-gu (a large city), S-si (a medium to small city), and Y-gun (a county district) were selected for surveys. 677 individuals from D-gu, 1,225 from S-si, and 973 from Y-gun participated, making the total number of participants 2,875.

4. Evaluation

1) Impact evaluation

The purpose of EHM is to increase the rate of participation in the exercise program through giving incentives. Therefore, the indicators for impact evaluation were the proportion of the elderly participating in health mileage programs, the proportion of the elderly receiving gifts as incentives, the number of the elderly receiving health education.

2) Data

At the start of the exercise program, registration lists were recorded in Excel files. Monthly attendance status and before and after measurements were added to the registration files. Pre-program measurements were carried out in the second or third week of August, 2015 and post-

program measurements were carried out in the third or fourth week of November, 2015.

3) Analysis

Descriptive statistics were used to analyze impact evaluation of EHM.

5. Ethical considerations

This study was approved by the Ethics Committee of the * University (Approval No: 1044396-201504-HR-016-01).

III. RESULTS

1. Focus group interview on exercise instructors

In focus group interviews, four categories of factors (instructor-related factors, accessibility factors, program-related factors, and participant-related factors) were assessed to determine their influence on exercise amongst the elderly. Subcategories were as follows: instructor-related factors included ongoing interest and leadership, intimate relationships with the participants, and personalized service. Accessibility factors included the number of programs available in relation to demand and the needs of rural areas. There were problems with limitations on the maximum number of participants, cooperation with senior centers and welfare facilities in terms of space, and a lack of instructors at locations with exercise equipment. There is a need for diverse programs in terms of program management and tangible goals and an effective checklist to monitor goals and outcomes. A subcategory regarding age-related diseases and symptom management was devised. Problems with symptom management included a lack of individual awareness of the need to exercise, a lack of knowledge on the correct ways to exercise, the atmosphere in the senior centers, motivation, and an inadequate sense of accomplishment.

2. Development of EHM

EHM aimed to improve participation of exercise program and to cover all the elderly in a community. There were not enough resources to implement the EHM, so the following aspects were considered for effective implementation. In the initial stage, we took into consideration age, affordability, and geographical accessibility. Elderly people using the senior centers were selected as subjects of EHM because the senior centers were located near the residence of the elderly.

The operating procedure of EHM is divided into four steps. First, a regional committee is organized. Second, the committee reviews and approves the exercise programs in the community according to the standards set forth. Third, the elderly register in the exercise programs. Whenever enrolled the elderly participate in the exercise program, mileage accumulates to them. Forth, the elderly use their mileage if the amount of their mileage reaches a certain level at the end of exercise program. The standards for the approval of the exercise programs were made based on references related to the effectiveness of exercise programs and WHO guidelines [5]. The standards for mileage accumulation were established by reference to relevant cases in Korea and other countries. The factors derived from the focus group interview were reflected in the operational process of EHM.

3. Impact evaluation of EHM

1) General characteristics of the senior centers and the elderly participated in EHM

Participants in D-gu were on average 79.3 years of age, while those in S-si were 77.7 years old and those in Y-gu were 75.9 years old. Exercise categories varied by region. Silver-exercises for the elderly made up the highest proportion of the exercises done in all three regions. Y-gu had a high proportion of yoga and Qigong. D-gu and S-si showed a high rate of participation in the exercise programs offered by NHIS. The rate of participation of Y-gun was highest when the programs were offered by health centers.

2) Outcome indicators

The percentage of the elderly who received gifts in EHM was 84.5% in D-gu, 91.1% in S-si, and 87.8% in Y-gun. The majority of the participants fully took part in the exercise programs and received mileage awards. The percentage of the elderly who received health education once a month was 29.4% in D-gu, 87.8% in S-si, and 58.0% in Y-gun. This reveals a significant difference between regions. The percentage of the elderly who took part in before and after measurements of their physical and mental capacities was 85.2% in D-gu, 89.9% in S-si, and 90.6% in Y-gun.

Table 1 General Characteristics of the participants of EHM

			D-gu		S-si		Y-gun	
			n	%	n	%	n	%
The	Gender	Male	44	6.9	160	14.6	129	13.8
		Female	597	93.1	938	85.4	808	86.2
	Age (year)	65~69	32	4.9	100	8.6	141	15.1
		70~74	111	17.1	259	22.2	227	24.3
		75~79	193	29.6	345	29.5	278	29.8
		≥80	315	48.4	465	39.8	287	30.8
		Mean(±SD)	79.3(±6.19)		77.7(±6.59)		75.9(±6.44)	
	Kinds of exercise	Silver Gymnastics	612	90.4	1,225	100	503	51.7
		Yoga					326	33.5
		Aerobic	44	6.43				
		Stretching	63	9.3			9	0.9

The participants	exercise	Stretching	63	9.3			9	0.9
		Qigong					113	11.6
		Other	2	0.3			22	2.3
	Operating organization	NHIS	415	61.3	546	44.6	291	29.9
		The Korean Senior Citizen Association			398	32.5	171	17.6
		Community Health Center	61	9.0	47	3.8	427	43.9
		Welfare Center	80	11.8	206	16.8		
		Korea Council of Sports for All	121	17.9	28	2.3	84	8.6
	Total		677	100	1,225	100	973	100

Table 2 Increase in Attendance, Completion of Exercise Programs, Participation in Health Education, and Measurement of Physical and Mental Status

			D-gu	S-si	Y-gun
			N(%)	N(%)	N(%)
Senior centers	2013	The number of exercise program	24(100)	25(100)	18(100)
		The number of Increase of Attendance Rate	11(45.8)	17(68.0)	7(38.9)
	2014	The number of exercise program	22(100)	23(100)	17(100)
		The number of Increase of Attendance Rate	11(50.0)	14(60.9)	7(41.2)
Participants	The number of participants		677(100)	1,225(100)	973(100)
	The number of participants received the gift		572(84.5)	1,116(91.1)	854(87.8)
	The number of participants received health education at least once a month		199(29.4)	1,076(87.8)	564(58.0)
	The number of participants received measurement of physical and mental status (pre and post)		577(85.2)	1,101(89.9)	882(90.6)

CONCLUSION

We developed EHM based on literature review and the guidelines by experts. The role of the committee was found to be important in the overall process of EHM. There was a difference in the competence of the committee depending on the characteristics of the region. When we apply the EHM in other regions, it is necessary to consider the characteristics of the region for efficient operation of the committee. After applying EHM, the number of senior centers offering exercise programs was expanded by providing financial support from NHIS. Measurements of physical and mental status were conducted at the beginning and end of the exercise program. More than 80% of the participants completed the exercise program. To expand EHM, it is necessary to increase the infrastructure available for elderly exercise programs (such as facilities and knowledgeable instructors). Since it takes a lot of time and effort to conduct pre-and post-program measurements, there is need for a cost-effective measure to replace this process.

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