

Patient Preference for Community-based Rehabilitation Programs after Stroke

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Abstract. [Purpose] We evaluated the level of patient satisfaction for community-based rehabilitation programs using a modified questionnaire to identify subjective preferences and plan an optimal clinical program. [Subjects and Methods] Over a period of 12 weeks, 13 patients who had suffered a stroke participated in three exercise programs and two educational programs. The three exercise programs included a circuit exercise program, mat exercise program, and a game activity program, and they were performed weekly. The educational programs consisted of tapping and stress-education programs. After 12 weeks, the satisfaction level for each program was analyzed using a five-point scale, with higher points meaning a higher level of satisfaction. [Results] Satisfaction was the highest in the mat exercise program and the lowest in the stress-education program, with a significant difference between these programs. There was no significant difference between the educational programs or among the exercise programs. [Conclusion] The findings suggest that patients prefer direct rehabilitation programs to improve function after a stroke. A mat exercise program could be used in clinical rehabilitation to increase the rate of participation and improve the therapeutic efficacy.

Key words: Community-based rehabilitation, Satisfaction index, Stroke

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INTRODUCTION

Community-based rehabilitation (CBR) uses community resources and manpower and is effective in the rehabilitation and integration of disabled people into society^{1,2)}. Although its definition and major objectives have not changed, the concepts of CBR have recently evolved to include inequalities in human rights and alleviation of poverty³⁾. A standard model of CBR cannot be applied in every country; therefore, each community must develop its own unique model.

Physical therapists can play a major role in the community⁴⁾, because they are an important resource, have a wide range of skills. Therapists can conduct effective client-centered community-based educational programs⁵⁾. The World Confederation for Physical Therapy (WCPT) recommends that physical therapists help to educate communities that do not have regular health care cover. Therapists can also counsel disabled people to identify those with the most positive changes as a result of rehabilitation and help with the investigation of such individuals into the community⁶⁾.

Currently, in South Korea, physical therapists commonly participate in CBR via home-based physical therapy and

group rehabilitation-exercise classes for patients who have suffered a stroke and have returned to living in the community after discharge⁷⁻⁹⁾. In particular, group rehabilitation-exercise classes recruit student volunteers from universities¹⁰⁾ and have become a good model of CBR, properly utilizing of community resources such as manpower and materials. However, CBR is not successful in the area of patient participation because it does not meet patients' expectations¹¹⁾. Various studies have been conducted to raise such participation. According to Park¹²⁾, the greatest demand of housebound patients with disabilities is rehabilitation therapy. Kindness shown by the caregiver is the most effective tool in CBR¹³⁾. Clark and Smith¹⁴⁾ claim that patient motivation is a critical factor influencing the outcome of rehabilitation therapy. Further, Lee¹⁵⁾ reported that factors related to motivation in the rehabilitation of patients after a stroke are financial stress, depression, occupation, conjugal affection, and education. Also, the types of CBR programs that have been carried out have mainly been group exercise programs^{8,9)}, task oriented circuit programs^{10,16-19)}, home visiting programs and the studies of the effects of those programs; but, analyse of these programs has not been conducted.

Considering the hypothesis that patient satisfaction is the

Table 1. General characteristics of subjects (n=13) (Means)

Variables	Sex (M/F)	Age (years)	Type (%)	Duration of disability (years)
Characteristics	12(92.3)/ 1(7.7)	58.0 ± 8.5	9(71.4) 4(21.4)	6.5 ± 6.1

Table 2. Comparison of levels of patient satisfaction among the five CBR programs (Mean±SD)

Programs	Mat	Game	Task-oriented	Tapping	Stress
satisfaction	4.46 ± 0.66*	4.00 ± 1.08	4.23 ± 0.43	3.92 ± 0.75	3.46 ± 0.77

* p<0.05.

most important variable in CBR programs, investigation of the programs is necessary to improve the participation rates in programs. Therefore, we estimated the level of satisfaction of patients who participated in such programs after suffering a stroke with the aim of identifying the subjective preferences in order to plan the most suitable clinical rehabilitation program.

SUBJECTS AND METHODS

Thirteen patients (male/female: 12/1; mean age: 58.0 ± 8.47 years) were recruited from Seoul city. The inclusion criteria for participation in the study were as follows: (1) living at home after discharge from all rehabilitation services, (2) ability to walk 10 m with or without an assistive device, (3) ability to understand and follow directions given by a researcher during the program, (4) elapse of at least three months since the stroke incident, and (5) a score of more than 24 on the Mini-Mental State Examination Korea (MMSE-K). Patients were excluded if they had any medical condition that would prevent participation in the training program. Before beginning the program, the study purpose and procedures were fully explained to them, and their written informed consent was obtained.

The CBR programs were divided into exercise and educational programs. The exercise programs (90 min) comprised a circuit exercise program (30 min), mat exercise program (30 min), game activity program (20 min), light warm-up (5 min), and cool-down period (5 min), and were conducted once a week for 12 weeks. The patients participated in the educational programs, which consisted of tapping and stress education. The physical therapy student volunteers who conducted the programs, learned the methods and characteristics of the programs before initiating them.

On completion of the programs, we evaluated and compared the level of satisfaction in each program using a modified questionnaire based on the survey by Kwon and Kwon²⁰. The satisfaction index was a five-point scale with higher points indicating a higher level of satisfaction.

The circuit exercise program was planned so that the patients completed one task before beginning the next. They were seated in a circle and were encouraged to perform the tasks without seeking assistance from the student

volunteers. The tasks included (1) walking along a ladder laid out on the floor with a colleague, (2) walking on a line, (3) walking on a parallel bar, (4) turning in a circle, (5) walking on a different surface (sand, gravel, a small rock), (6) walking along a Z-shaped route, (7) holding and throwing a small object while balancing on an exercise ball, (8) bouncing on an exercise ball, (9) moving a ring while sitting on a physical therapy roll, (10) ascending and descending stairs, (11) jumping from a parallel bar. The patients were challenged to complete increasingly difficult tasks each week.

The mat exercise program was a direct one-to-one treatment on a mat and consisted of a breathing exercise, rolling, a pelvic exercise, and trunk rotation. Again, the patients were challenged to complete increasingly difficult tasks each week.

The game activity program comprised various activities for accomplishment by a team to stimulate interest in group treatment. The games included ball relay, balloon throwing, darts, bowling, golf, and dodge ball.

The tapping program was conducted to reduce pain and support the musculature for proper movement. The stress education involved proper understanding of stress and strategies to deal with it. This program gave the patients an opportunity to discuss their anxieties with each other.

One-way ANOVA and a post-hoc test were used to compare the differences among the exercise programs. Paired t-tests were performed to verify the differences between the educational programs. p<0.05 was considered statistically significant. All data are presented as the mean and standard deviation.

RESULTS

Table 1 presents the patient demographics and the collective satisfaction scores of the programs.

Among the five CBR programs, the mat exercise program was rated the highest, whereas the stress-education program was rated the lowest (Table 2). We found a significant difference among the programs using one-way ANOVA and therefore used the post-hoc test to identify differences in each program. We found a significant difference between the mat exercise program and the stress-education program (Table 3) (p<0.05).

Table 3. Post hoc test results for levels of patient satisfaction among the five CBR programs

Mat	Tapping	Stress	Task-oriented	Mat
Stress	0.677			
Task-oriented	0.903	0.182		
Mat	0.535	0.037*	0.964	
Game	0.999	0.535	0.964	0.677

* $p < 0.05$.

Among the three exercise programs, satisfaction with the mat exercise program was the highest followed by the circuit exercise program and game activity program (Table 2), without a significant difference among the programs (Table 2) ($p > 0.05$).

Between the educational programs, tapping was rated higher than the stress-education program, but without significant difference (Table 2) ($p > 0.05$).

DISCUSSION

Stroke is a major cause of disability¹⁷⁾. Wolfe and Tilling²¹⁾ reported that CBR after discharge from hospital for patients who suffered a stroke is feasible and cost-effective. Currently, CBR teams in our country apply group mat exercise programs and home-based physical therapy, and task-oriented circuit programs for discharged stroke patients.

Several studies have been conducted to examine rehabilitation after discharge from hospital. In particular, studies on meeting clinical demands continue to be presented in the literature.

English et al. claim that group circuit exercise therapy is as effective as individual physical therapy sessions for inpatient stroke rehabilitation. Further, the effect of each activity in group therapy has been studied. An et al.⁹⁾ reported that a group exercise program improves cognitive function, activities of daily living, and balance ability of the elderly. Kim and Oh¹⁰⁾ evaluated the effect of a weekly group exercise program on functional performance, flexibility of the trunk and lower extremities and balance of individuals with chronic stroke, and they reported improvements in functional performance and flexibility.

The potential benefits of task-related circuit training after stroke is uncertain¹⁹⁾, but the program was selected as a good model of a CBR program. According to Salbach¹⁸⁾, a task-orientated intervention enhances the walking distance and speed of patients who have suffered a stroke. Cho¹⁶⁾ reported the task-related circuit program results in more functional improvement than group participation in conventional physical therapy and recommended a task-related circuit program consisting of a longer session for stroke patients. Kim et al.²²⁾ also claimed that a task-oriented functional training program was effective at improving standing balance of stroke patients.

Most of the studies have indicated that such programs have an effect on the functions and abilities of patients, but studies on the programs themselves have not been

conducted.

The roles of physical therapists in CBR programs are educator, consultant, leader and physical therapist⁶⁾. So, a physical therapist has to plan a CBR program according to his role. Educational programs for disabled people have to be planned by a therapist. Physical therapists also have to identify which program is most suitable for such people.

For the above reasons, we conducted 3 exercise programs and 2 education programs for stroke patients with the aim of determining the optimal program in terms of patient contentment and using this information to develop a clinical program for raising the rate of participation.

Among the five rehabilitation programs performed in this study, the mat exercise program resulted in the highest level of satisfaction whereas the stress-education program was rated the lowest. These findings mean that the participants preferred direct therapy rather than education for functional improvement, which is consistent with the results of Park¹²⁾ that homebound people with a disability prefer rehabilitation therapy, especially CBR.

Among the three exercise programs, the rating of satisfaction was the highest for the mat exercise program, followed by the task-oriented exercise and game activity programs, but no significant differences were found among the programs.

From the above results, we surmise that: 1) since patients were accustomed to the exercise, having performed it in hospital, they preferred this exercise after their discharge; and 2) patients might think the quantity of movement in the game activity and task-oriented programs is less than that in the mat exercise. Therefore, it was natural for the patients to prefer the mat exercise.

Regarding the educational programs, tapping was rated higher than the stress-education program, but without significant difference. This finding means that the patients preferred an educational program related to functional improvement.

Interpretation of the results of our study is limited, because the numbers of subjects was small, and because we sought only preferences for programs excluding the effects of the programs. In the future, we need to evaluate factors that affect the satisfaction of the subjects.

In conclusion, when the satisfaction rating of the five CBR programs was tabulated, the mat exercise program was the most preferred and the stress-education program was the least preferred. We suggest that a mat exercise program be utilized as the major feature of a clinical rehabilitation program to increase the rate of participation and improve the therapeutic efficacy.

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