The effects of time-use intervention on the quality of life of outpatients with chronic stroke

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Abstract. [Purpose] The purpose of this study was to examine the effects of time-use intervention on the quality of life of outpatients with chronic stroke. [Participants and Methods] This study randomly allocated 31 chronic stroke outpatients into an experimental group (n=16) and a control group (n=15). The experiment group was given general rehabilitative therapy three times per week for eight weeks, and time-use intervention through counselling once per week for eight weeks. The control group was given general rehabilitative therapy only for three times per week for eight weeks. The World Health Organization Quality of Life-BREF (WHOQOL-BREF) was used to measure the changes in the quality of life of the participants. [Results] After the intervention, the experimental group showed a significant improvement in the overall quality of life in comparison with the control group. Looking at specific categories, the experimental group showed significant improvements in the physical, spiritual, and environmental areas in contrast to the control group. [Conclusion] The findings of this study demonstrated the positive effects of time-use intervention on an improvement in the quality of life of outpatients with chronic stroke.

Key words: Time-use intervention, Quality of life, Stroke

INTRODUCTION

For chronically and severely disabled persons, time use can be very unbalanced, with a heavier weight on specific items such as passive leisure or sleeping in their daily routines1–3). This unbalanced time use results in a focus on activities inclined toward one part of their daily routines, leaving no room for other activities. Such an imbalance in their activities may deteriorate their general health and quality of life3). Time-use intervention has been designed to provide these patients, who are experiencing an imbalance in their time use, with an opportunity to participate in meaningful activities to live a rhythmic life, prevent physical and psycho-social stress, and maintain their health1, 2, 5). Many studies have reported the positive effects of time-use intervention on the efficient time use of healthy adults as well as the chronically and severely disabled3, 6–8). However, there have been few studies focused on the impact of such time-use intervention on outpatients with chronic stroke, who spend more time to themselves in local communities after being discharged from the hospital. As such, this study examines the effects of time-use intervention on the quality of life of outpatients with chronic stroke.

PARTICIPANTS AND METHODS

This study was conducted on patients who had been receiving outpatient care in three hospitals in South Korea after being diagnosed with hemiplegia by stroke. For the participant selection criteria, the standards in the studies9) that have applied time-use intervention to patients with chronic diseases were modified and applied to this study. Thirty one patients...
were selected that met the following criteria: capable of participating in counselling and training with the researcher with a score of 24 or above in the Korean version of Mini-Mental State Examination (MMSE-K); minimally capable of performing the selected activities for time-use intervention with 61 points or above in the Korean version of Modified Barthel Index (K-MBI); and being without any speech, visual or hearing disability or other neuropsychiatric disorder. They were then randomly assigned into the experiment group of 16 who would receive time-use intervention in physical therapy and counselling in addition to their outpatient occupational therapy, and the control group of 15 who would be given outpatient occupational therapy, physical therapy and free time. All participants were fully informed of the purpose of this study before submitting their written consent to participate in this study. The ethical standards of the Declaration of Helsinki were fully observed. Table 1 shows the general characteristics of the participants.

| Table 1. General characteristic of the participants |
|---------------------------------------------------|
| Gender (Male/Female) | Mental practice | CON |
| Age (years) | 68.0 ± 6.4 | 66.0 ± 8.2 |
| Onset (months) | 21 ± 11.0 | 24 ± 10.9 |
| Paretic side (Right/Left) | 8/8 | 8/7 |
| All variables are mean ± standard deviation (SD). CON: control group. |

Table 2. Time-use intervention program

| No. | Program | Description |
|-----|---------|-------------|
| 1 | Time-use analysis | - Analysis on the time use content using ‘Occupational Questionnaire’. |
| 2 | Researcher’s intervention | Time management and motivation - Therapist in charge counsels patient on the importance of time management and motivation once per week during an outpatient visit. Activity assignment - Two activities are selected that are important and achievable for the participants but are not currently performed. - Selected activities primarily assigned to the available time period (4 times per week). - The participant and researcher promise to perform the selected activity in the assigned time period. - Self-checklist to record daily accomplishment provided. Checkup and motivation - Checkup by the therapist in charge with the checklist once a week during outpatient visit. |

The experimental group received inter-use intervention through counselling once per week in addition to outpatient occupational therapy and physical therapy for three times per week and 30 minutes a day for eight weeks. Similarly, the control group received outpatient occupational therapy and physical therapy three times per week and 30 minutes a day for eight weeks, outside of which the patients were given free time. The Occupational Questionnaire (OQ) was used to analyze the time use by the experimental group in their daily routines, and the World Health Organization Quality of Life-BREF (WHOQOL-BREF) was used to measure the quality of life of the participants in the experimental group and control group before and after the intervention. The OQ has been developed to examine the lifestyle of a test participant as a useful survey to design a new lifestyle for them[10]. The test-retest reliabilities were 68% for daily activities by time period; 84% for activity type; 77% for activity performance; 81% for activity values; and 77% in interest in activity[11]. WHOQOL-BREF used the Korean version of the convenient scale on the quality of life, developed by the World Health Organization and adapted by Min et al.[12] with 26 questions: 24 questions in the four domains of physical health, psychology, social relationships, and environment, and two additional questions on the overall quality of life. A higher score indicates higher quality of life. The reliability of this testing tool is confirmed with a Cronbach’s alpha of 0.89[13]. The time-use program applied in this study is a modified version of the program used in previous studies on chronically and severely disabled persons[13]. Table 2 shows the details. This study was conducted with three occupational therapists who had five years of clinical experience or more and were trained in the methods of the measurement instruments and time-use intervention program. SPSS ver. 18.0 was used to calculate the means and standard deviations of the findings, and descriptive statistics were used to analyze the general characteristics of the participants. The independent t-test was used to investigate the differences in the quality of life scores between the two groups. The significance of all data was acceptable at p<0.05.
RESULTS

After the intervention, a comparison of quality of life between the two groups showed a statistically significant improvement in the overall quality of life in the experimental group compared to the control group (p<0.05). The sub-categories of physical, psychological and environmental domains showed significant improvements in comparison with the control group (p<0.05) (Table 3).

DISCUSSION

This study examined the potential therapeutic effects of time-use intervention on the quality of life of outpatients with chronic stroke. Generally, chronically disabled persons have no time for leisure, or spend a long time engaged in unproductive activities in their daily routines13). This unbalanced time use may deteriorate their health and quality of life3). The findings of this study confirmed statistically significant improvements in the quality of life of the experimental group who received time-use intervention in comparison with the control group. Such findings support the previous analyses, which showed that effective time use is correlated to the quality of life, satisfaction and self-esteem of patients5, 7). In addition to the findings of the previous studies that reported improvements in self-esteem and quality of life and decline in depression through time-use intervention on patients with various chronic diseases3, 6–8), the findings of this study support the positive effects of time-use intervention on the quality of life of outpatients with chronic stroke. In terms of the limitations of this study, the small number of study participants makes it difficult to generalize the findings, as well as impossible to control for all of the different factors that may have affected the quality of life of the participants in the groups. As such, further studies in this area should use a larger participant group and control for a variety of factors for analysis.

Conflict of interest

None.

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Table 3. Comparison of WHOQOL-BREF score of each group

| WHOQOL-BREF                  | Time-use intervention   | CON          |
|------------------------------|-------------------------|--------------|
|                              | Pre-test | Post-test | Pre-test | Post-test |
| Physical health               | 17.29 ± 4.02 | 23.71 ± 3.01 | 17.38 ± 4.62 | 17.62 ± 4.05 |
| Psychological                | 13.59 ± 3.87 | 20.20 ± 1.98 | 13.87 ± 2.66 | 14.25 ± 3.00 |
| Social relationship           | 8.29 ± 2.64  | 8.40 ± 2.10  | 8.16 ± 2.03  | 7.84 ± 1.88  |
| Environmental                | 19.51 ± 4.91 | 25.80 ± 2.49 | 19.02 ± 4.29 | 19.13 ± 5.20 |
| Overall                      | 5.71 ± 1.29  | 6.07 ± 0.92  | 5.43 ± 1.85  | 6.15 ± 1.08  |
| Total*                       | 62.80 ± 13.85 | 84.26 ± 6.87 | 63.53 ± 12.29 | 64.27 ± 9.83 |

All variables are mean ± standard deviation (SD). CON: control group, WHOQOL-BREF: World Health Organization Quality of Life-BREF. *p<0.05.