

2019 Doctoral Dissertation (Abstract)

Relevant Factors of Home Exercise in Home-care Patients
with Parkinson's Disease

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1. Introduction

1.1 Background

Parkinson's disease (PD) is a neurodegenerative disease in which not only motor symptoms (static tremor, rigidity, akinesia, postural instability), but also various non-motor symptoms extend to chronic progressive. Furthermore, PD symptoms fluctuate severely. Most cases of PD develop at the age of 50-70, and the number of patients is expected to continue to increase in Japan, where aging is progressing. Drug treatment is an effective treatment tool, and exercise therapy has been regarded as an auxiliary tool. However, in recent years, effective exercise therapy has been demonstrated for PD patients, and it had been shown that applying exercise of sufficient strength and frequency can suppress the progression of PD symptoms. However, in the long-term care insurance system in Japan, it was difficult to secure a sufficient treatment frequency for exercise therapy. For this reason, it was considered essential to carry out home exercise (HE) in order to secure a sufficient exercise frequency. The HE implementation status in home-care Patients with PD was reported to be 60-70%. This indicates that exercise therapy was more routinely performed in home-care Patients with PD than other rehabilitation service users. However, there were also reports that about 80% of the surveyed people did not exercise in the way they were instructed, and that the frequency of exercise decreased when assistance was needed. Because of this, it was considered that the introduced HE could not cope with the fluctuation and progression of symptoms.

1.2 Previous research on factors related to Home Exercise

In order to support the implementation of HE, it is necessary to know the related factors. The factors related to the continuation of exercise in healthy elderly people included physical, psychological, environmental and social factors. Similarly, in the elderly with the disease or disorder, physical, psychological, social, and environmental factors acted on both promotion and inhibition of HE. In PD patients, maintaining clear life goals and focusing on their own changes and feelings of self-efficacy with regard to daily living activities had been shown to promote the continuation of exercise therapy. However, the factors associated with continued HE implementation in PD patients were unclear.

1.3 Purpose of this study

In order to support the continuation of HE in home-based PD patients, we must understand how they link their own physical condition to HE. Therefore, in this research, we applied the exploratory Mixed Methods Research design, and proceed with research from a qualitative to quantitative approach. In the first study, we tried

to search for factors related to the implementation and continuation of HE corresponding to the progression of PD severity from the viewpoint of home-based PD patients. In the second study, a questionnaire was created from the relevant factors obtained in the first study, and factors related to HE obtained by the qualitative approach were examined by the quantitative approach.

2. The first study: Search for continuation factors of Home Exercise in home-care patients with Parkinson's disease

The purpose of this study is to search for persistence factors of home exercise corresponding to progress of severity from the viewpoint of patients with PD. The subjects were 13 home-based patients with PD (Hoehn-Yahr Stage II to IV). After semi-structured interviews, the method used the Steps for Coding and Theorization to search for factors that promote or inhibit the execution and continuation of home exercise. As a result, 21 promoting factors and 9 inhibitory factors were extracted. These factors could be classified into factors extracted in the entire process of Stage II to IV, at the autonomous level in the progress process, and at the assistance level. Furthermore, from the comparison with factors influencing the establishment of exercise habits of healthy elderly and necessary support and home movement of care recipients, "understanding patient's own PD" and "combining self-care and exercise" were specific promoting factors for this subject. In addition, in the event that assistance was needed, "to carry out when the movement of the body is good" was a specific promotion factor for these subjects.

3. The second study: Cross-sectional investigation of factors related to Home Exercise in home-care patients with Parkinson's disease

In this study, the factors for continuous HE implementation obtained in the first study were redefined as factors related to HE in home-based PD patients. Then, to clarify the awareness of home-based PD patients regarding individual related factors, we made a 29-item questionnaire. The purpose of this study is to clarify whether there is a difference in the scores of individual question sentences depending on whether or not HE continues to be implemented. In addition, quantitative studies were also conducted to demonstrate the classification corresponding to the progression of severity of the factors related to HE from the first study.

For the method, the actual condition of the basic attribute was clarified for 67 people who participated in the HE course and answered the questionnaire. Next, univariate analysis was performed on 48 Stage II to IV patients, excluding 19 Stage I patients not included in the subjects of the first study. This univariate analysis was used to examine whether the continuation of HE could be predicted by the score of 29 questions about factors related to HE obtained from the first study. In addition, a

hypothetical model of factors associated with HE corresponding to the severity progression process identified in the first study was subjected to a confirmatory factor analysis. For the results, Stage I PD patients had a lower HE continuation status and rehabilitation service utilization status than Stage II-IV PD patients. From the results of univariate analysis, it was not possible to demonstrate that the factors related to HE extracted in the first study were specifically related to the severity classification of the extraction source. However, at stages II to IV, the score for the HE continuation group was significantly higher for the five facilitators. The five factors are “monitoring and guidance of rehabilitation professionals”, “performing combining self-care and exercise”, “encouragement by rehabilitation professionals”, “the existence of an adviser other than the rehabilitation profession”, and “feeling of the effectiveness of exercise habit”. In the confirmatory factor analysis, the factor related to HE was packaged into nine observed variables, and the hypothesis model with the promoting and inhibiting factors as latent variables was the best in terms of fitness. The result of univariate analysis on observed variables, was that the score of the HE continuation group was significantly higher in the subprocess and assistance level promotion factors that were packaged. However, among the observed variables, only the facilitator could demonstrate internal consistency.

4. Conclusion

In order to support the continuation of HE implementation in home-based PD patients, the first study explores the HE implementation continuation factors from the viewpoint of home-based PD patients, and the second study conducted a questionnaire survey on the factors related to the generated HE. The factors associated with HE in home-based PD patients demonstrated through the first and second studies do not change with severity progression, but in the subjects of all processes in this study from Stage II to IV, it was commonly accepted. In particular, related factors that the PD patients at home consider themselves to be important for the continuation of the implementation of HE were “monitoring and guidance of rehabilitation professionals”, “performing combining self care and exercise”, “encouragement by rehabilitation professionals”, “the existence of an adviser outside of the rehabilitation profession” and “feeling of the effectiveness of exercise habit”. Furthermore, it became clear that “the appropriate action from the career is performed”, “exercise for the purpose of reducing the burden of nursing care”, “home exercise by choosing a good time for movement of the body” and “good relationship with the career” included in the assistance level promoting factor had the potential to promote the continuation of the implementation of HE.