

ORIGINAL RESEARCH

Patient and Family Member Factors Influencing Outcomes of Poststroke Inpatient Rehabilitation



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Abstract

Objective: To investigate how family members' attitudes toward functional regain, and patients' knowledge and intention of independence influence poststroke rehabilitation.

Design: Cross-sectional study.

Setting: Three rehabilitation inpatient settings.

Participants: Younger (n=79) and older (n=84) poststroke patients, along with their family members (spouses, n=104; children, n=59).

Interventions: Not applicable.

Main Outcome Measures: Custom-designed questionnaires were used to tap into the patients' knowledge about rehabilitation (Patient's Rehabilitation Questionnaire—Knowledge About Rehabilitation) and intention of independence (Patient's Rehabilitation Questionnaire—Intention of Independence), and family members' attitudes toward patients in performing basic activities of daily living (BADL) (Family Member Attitudes Questionnaire—BADL) and instrumental activities of daily living (Family Member Attitudes Questionnaire—instrumental activities of daily living). The rehabilitation outcomes included gains in motor, cognitive, and emotional functions, and self-care independence, measured with common clinical instruments.

Results: The Family Member Attitudes Questionnaire—BADL predicted cognitive outcome and the Patient's Rehabilitation Questionnaire—Intention of Independence predicted motor outcome for both groups. Differential age-related effects were revealed for the Patient's Rehabilitation Questionnaire—Intention of Independence in predicting emotional outcome only for the younger group, and self-care independence only for the older group.

Conclusions: Patients' intention of independence positively affected motor recovery, while family members' positive attitudes promoted cognitive regain. The findings suggested plausible age-related differences in how patients' intentions affect emotion versus self-care independence outcomes. Future studies should explore strategies for promoting positive attitudes toward independence among patients and family members during poststroke rehabilitation.

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Poststroke rehabilitation is a long process that puts tremendous pressure on a patient's family.¹ In addition to caring for the patient, family members play an active role in augmenting the patient's functional recovery by assisting in functional training and therapeutic exercises.² Filial piety is common in Eastern societies and affects patients' functional independence.^{3,4} Children of older Chinese patients provide care and assistance to fulfill filial duties. The support that the patient receives from family members can negatively affect the patient's attitude toward and motivation for independence; this kind of support is counterproductive for poststroke rehabilitation.⁵ The theory of planned behavior proposes that behavior is determined by an individual's intention to perform such a behavior, which is affected by the individual's attitude, perceived behavioral control, and subjective norms.⁶ Attitudes and behavioral control are based on the perspective of the self. Subjective norms are also based on social pressure, which is due to the perspectives of others. In this context, knowledge about the treatment process would affect a patient's intention of independence and hence participation in rehabilitation. Family members' attitudes can be a source of social pressure perceived by the patient, which similarly would affect the patient's intention of independence and participation in rehabilitation.

Previous studies^{7,8} have indicated that family members' beliefs regarding, and attitudes toward, physical activity mediate stroke survivors' outdoor travel, diet, and physical activity. Negative attitudes toward outings and paid work deter poststroke patients' participation in these activities.⁹ Some of these studies⁷⁻⁹ were limited by relatively small sample sizes, their qualitative nature, and the use of subjective outcomes. In addition to attitudes, family members' and caregivers' knowledge about poststroke recovery was reported to significantly affect patients' rehabilitation outcomes.¹⁰ These studies proposed that a better understanding of the process of recovery and rehabilitation can help to form realistic expectations among family members or caregivers, which can facilitate patients to move through a rehabilitation program by improving their adherence to therapeutic intervention.¹¹

Stroke recovery is a complex process involving a poststroke survivor's coping with changes in cognition, functional independence, and mental health. Poststroke rehabilitation outcome could be influenced by a variety of factors. The 2 factors of interest were family members' attitudes toward patients' independence, and patients' intention of independence and their knowledge about poststroke rehabilitation. This study aimed to investigate how the family member and patient factors would influence poststroke rehabilitation. These 2 factors were measured with 2 custom-built instruments. The rehabilitation outcomes included motor, cognition, and emotion functions as well as self-care independence. We anticipated that the patient and family member factors may or may not influence the rehabilitation outcomes of younger and older patients in the same way. Because younger and older patients had different life roles, support systems, and expectations, and those would interact with the patient and family factors and reflect on

the patients' rehabilitation outcomes. The results would shed light on the need to develop interventions for enhancing the outcomes of inpatient poststroke rehabilitation.

Methods

Participants

The participants were poststroke inpatients recruited from 3 major hospitals in China between August 2013 and November 2014. The inclusion criteria were as follows: (1) diagnosis of first stroke; (2) age between 40 and 80 years; (3) 3 to 12 weeks after onset; and (4) moderate to severe neurologic function according to the National Institutes of Health Stroke Scale (score ≥ 6). The age of 60 years was used as the cutoff for the younger and older groups, which matches the statutory retirement age in China. The same cutoff criterion was used in other clinical studies on older Chinese patients.¹²⁻¹⁴ Patients were excluded if they had comorbidities with other medical illnesses that would hinder the rehabilitation process, such as heart, kidney, liver, or nervous system disease. The patients' family members also participated in this study. Ethical approval was obtained from the ethic committees of each of the 3 hospitals, and written informed consent was obtained from all participants.

Procedure

The staff physicians in rehabilitation medicine or the rehabilitation therapists at the participating hospitals carried out the data collection. The researchers trained the physicians and therapists on administering the instruments. The clinician conducted the interviews by completing the Patient's Rehabilitation Questionnaire with the patient and the Family Member Attitudes Questionnaire with the patient's family member. The 4 clinical instruments were then administered to the patient in the following order: Fugl-Meyer Assessment (FMA), the Chinese version of the Beck Depression Inventory-II (BDI-II-C), the Chinese version of the Modified Barthel Index (MBI-C), and the Chinese Fuzhou version of the Montreal Cognitive Assessment (MoCA). The second administration of the 4 clinical instruments on the patient was conducted 6 weeks after the baseline assessment, following the same procedure.

Instruments

Patient's Rehabilitation Questionnaire

The Patient's Rehabilitation Questionnaire has 7 short statements (supplemental appendix S1, available online only at <http://www.archives-pmr.org/>). It was designed to assess the patient's knowledge about the poststroke rehabilitation process (Patient's Rehabilitation Questionnaire—Knowledge About Rehabilitation, 3 items) and the patient's intention of independence (Patient's Rehabilitation Questionnaire—Intention of Independence, 4 items). Explorative factor analysis (principal component and varimax rotation) revealed a 2-factor structure accounting for 49.5% variance (Kaiser-Meyer-Olkin = .57; $\chi^2_{135,53} = 135.53$, $P < .001$). Evidence of structural validity indicated that the 2 subscales possessed different test dimensions.

Family Member Attitudes Questionnaire

The Family Member Attitudes Questionnaire consisted of 16 task items (see supplemental appendix S1). It was designed to assess the

List of abbreviations:

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|-----------------|--|
| BADL | basic activities of daily living |
| BDI-II-C | Chinese version of the Beck Depression Inventory-II |
| FMA | Fugl-Meyer Assessment |
| IADL | instrumental activities of daily living |
| MBI-C | Chinese version of the Modified Barthel Index |
| MoCA | Montreal Cognitive Assessment |

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