Original Article

Implication of Mauk Nursing Rehabilitation model on Adjustment of Stroke Patients

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Objectives: Stroke is a neurological syndrome with sudden onset or gradual destruction of brain vessels, which may take 24 hours or more. Complications of stroke effect in the variation aspects of the individual. According to De Spulveda and Chang's Studies, disability reduced the effective adjustment. This study aimed to overview the adjustment of stroke patients based on the main concepts of rehabilitation nursing Mauk model.

Methods: In a quasi-experimental one group pre-posttest design study, data was collected in the neurology clinic of Imam Khomeini hospital and stroke patient rehabilitation centers in Tehran (Tabassom). Data collection included demographic and adjustment questionnaires of stroke patients. The intervention included seven sessions as Mauk model, each session with one hour training, for seven patients. Data analysis performed with SPSS software with paired t-test and was compared with previous results.

Results: There were significant differences between the mean scores of patients with stroke adjustment questionnaire in the pre-test - post-test. But in the adjustment sub-scales, except for relationship with wife and Personal adjustment, in other areas, there is no statistically significant difference between the pre and posttest.

Discussion: The results indicated that training has been affected on some aspects of adjustment of stroke patients in order to, as improving functions, complications and its limitations. Nurses can help then with implementing of plans such as patients education in this regard

Keywords: Stroke rehabilitation, Adjustment, Stroke nursing care, Mauk model

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Introduction

Stroke is a neurological syndrome with sudden onset or gradual destruction of brain vessels, which may take 24 hours or more (1). The incidence of stroke between 100 to 300 per 100,000 person per year in western countries and 372 per 100,000 people per year in Iran (2). Complications effect on the individual adjustment in order to various changing. According to of De Spulveda and Chang's studies, inability could reduce the adjustment amount effectively. Considering that stroke has not treatment, it is necessary for patients that adjusted with self-chronic illness in order to take action their duties and responsibilities. It must obviously be provided conditions of adaptation and acceptance of the disease for stroke patient. These patients are looking for strategies to adjust with the inability to maintain or rebuild sense of coherence and

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consistency in their life after stroke (3). Some evidence states that adjustment after injuries of stroke, will lead to success in rehabilitation. Many patients, who have disabilities caused by brain damage, do not have necessary adjustment to continue living and deal with complications. Consequently, in order to achieve maximum capabilities of the physical, social and economic performances are in trouble (4). University of Maryland researchers have declared that knowing coping strategies for working with patients helpful in the rapeutic stages, therefore, determination of strategies associated with adjustment helps to expand rehabilitation services effectively and efficiently (5). Rehabilitation of patients with cerebral vascular accident is the use of coordinated programs and medical, social, educational and vocational methods for retraining individuals to achieve the maximum desirable level of physical, psychological, social and vocational despite environmental and physiological constraints (6). There are several rehabilitation nursing models that are used in the rehabilitation of stroke patients. These models include: Henderson model (definition and nature of nursing), that attention to physical dimensions and considered patient's independency in the some dimensions. Orem (self-care) is not defined nurse-patient relationship and paid attention to physical aspects of patient's only. Roper models (model based on the life) that is used only for acute illness. In all these theories, there are not specific to stroke patients (7).

The Mauk model is the only model that focuses on stroke patients. This model is substantive theory which is applicable clinically. In fact, it is the comprehensive process that assesses the patients of all aspects of the physical, psychological and social. This model is affordable due to guidance of the patient, in order to use of the appropriate treatments and rehabilitation interventions and not use of co-morbid test of treatment. This model also Provide a framework of after stroke recovery that is specific for cerebrovascular accident patients which can help the nurses to do the practical work associated with stroke event (8). Kirkevold developed a theoretical framework for the nursing therapeutic and interventions role in stroke and according to this model, Eastonin, presented a descriptive-analytical model for the recovery and rehabilitation following stroke, she stated that people after stroke crossing six stages (8). Mauk in 2004 promoted the Easton's theory. Since according to the model of Easton, patient during the final three stages are being adjusted with the effects and limitations caused by the disease. Mauk has developed education and rehabilitation interventions appropriate with the each stage of Easton's theory to help patients to achieve adjustment in life after stroke (9). These patients undertook the six stages of Mauk model to enable of live after a stroke, which respectively, including the agonizing phase, fantasizing, realizing, blending phase, framing and owning. The purpose of the second three phases (blending, framing and owning), to achieve the patients' ability could reduce the ineffective adjustment (10). The Effective adjustment to new conditions by patients and their careers was one of the most important steps for improving a normal life in stroke patients which helps people to confront with their disease realistically (11).

Considering the critical role of nurses in the field of rehabilitation of patients with physical and mental disabilities, who are able to assist patients in achieving the highest level of adjustment and reduced the social, psychological and economic problems (12), nurses can help patients and their families in the implementing of rehabilitation interventions based on the Mauk model. It helps to assess and identifying family's strengths and weaknesses in the care, empowerment of the patient and family in relation to disability caused by stroke, prevent of happening again cerebrovascular accident and its costly expenses, and establishes appropriate model for the medical staff. In this study, the researches investigate the implementation of the second three-stage of Mauk rehabilitation model, in order to create appropriate way for improving life after stroke, using appropriate rehabilitation interventions based on scientific evidence, and help the stroke patient in order to achieve adjustment with the remaining its effects of cerebrovascular accident.

Methods

In a quasi-experimental one group pre-posttest design study, data was collected in the neurology clinical of Emam khomieni hospital and Tabassom rehabilitation center in Tehran in 2013. Seven stroke patients, age from 55 to 70 years, could read and write, married and have no history of stroke or TIA were selected. The other patients who suffered from an acute illness were excluded from the study. The data were collected by demographic and stroke patient's adjustment questionnaires. Demographic

questionnaire were consisting of 11 questions, including demographic information (age, sex, marital status, education, life style and occupation) and information about the disease (duration, number of hospitalizations, symptoms associated with the disease, and health care provider), respectively. Stroke patients' adjustment questionnaire that based on the multi problem screening questionnaire instructions were codification by Walter Hudson in 1997 in both English and Spanish and considering the western culture. The original questionnaire contained 8 subsets and 65 questions. Answers were the ranged from 1 to 7 (none of the time to all of the time), number 1 was as a "none of the time", 2 is "Very rarely", 3 is "a little of the time", 4 is "some of the time", 5 is "a good part of the time", 6 is "most of the time" and 7 is "all of the time". Sub scales were included personal adjustment (14 questions), partner relationship (7 questions), family adjustment (9 questions), work adjustment (7 questions), school adjustment (8 questions), social adjustment (7 questions), financial problems (8 questions), play and leisure (5 questions). Subset of the questionnaire has been ranged from 0 to 100 points. Fewer points indicated the less problem and higher score indicated more severe problems. The score of each item was equal to the average total score for each sub scale and total scores were equal to the average of sum of 8 items. Face and content validity and reliability of the instrument were done for all subsets. The reliability of tools was above 0.8 and SD was 0.5 or less (13).

The procedure was as follow: first, the chronic illness adjustment questionnaire was translated in to fluent Persian according to Iranian culture. The scientific validity was examined by 10 persons qualified and experts with utility of formal validity method. After investigating the content validity of mentioned instruments amendments made to the text items and the questionnaire contained 25 to 65 questions. In order to determine the questionnaire reliability, the internal consistency was measured. 10 stroke patients (non-participants) filled the questionnaire and after two weeks, they completed the same questionnaire again. Accordingly, Alpha Cronbach for adjustment questionnaire was calculated 0.95. Then 7 eligible patients were selected by Accessible sampling methods from Imam Khomeini hospital and stroke Rehabilitation Center in Tehran (Tabassom). Necessary the objectives, procedures and duration of the study were explanations to the stroke patients. After filling informed consent by participants, they were interviewed to identify second three stages of the Mauk model. The demographic and stroke adjustment questionnaires were presented to them to complete and further explanation was provided to patients. At the next stage, training program explained to participants, and the training phase began. The training included 7 educational sessions, one hour for every individual, face to face, and the same was done to the patient and the caregiver. Educational topics was consisted of an overview of the disease process of stroke and its complications, stroke rehabilitation, managing stress and fatigue, self-care, prevention of the reoccurrence of the incident, communication, social support, recommendations for patient families and introducing to peer groups.

The final session included an overview of the collected data points in education and replenishes the questionnaire by the patients. At the end, they were appreciated for participating in the study. Finally, the data were analyzed by SPSS (version19) and paired t-test. In order to summarize and classify, the demographic data were used in frequency distribution tables. As ethical considerations, the ethical approval was obtained from the university ethics committee, and informed consent was filled by to participants.

Results

Based on demographic data 71.4% of participants were male and 28.6% were female and the average age was 60.57 years, 42.9% had primary education and 42.9% of them were retired. Regarding the type of stroke, 71.4 % had ischemic type and 28.6% had hemorrhagic type stroke. None of them has special information about stroke during hospitalization and previous histories of stroke were not reported. Data analysis indicates the mean scores obtained from participants in the post-test have reduced significantly comparing with pre-test, on all components of adjustment test. Lower mean scores indicated a greater impact of rehabilitation program based on Mauk model in stroke patients' adjustment. The results in table (1) shows that, calculated as (4.88) at 0.003 is significant; therefore, zero hypothesis was rejected and has been results that there are significant differences between the mean scores of stroke patients adjustment in the pretest and posttest ($P< 0.05$).

Table1. Descriptive indicators relating to the adjustment data from the pretest and posttest

Measurement Stage	Number	Average	Standard deviation	Average Difference	Standard Deviation	Test criteria	Significance level
Pre test	7	88.71	18.06	15.57	8.44	4.88	0.003
Post test	7	73.14	10.62				

*P<0.05

According to table (2), findings shows that there is a significant difference between scores of partner relationship in the pre-test and post-test partner (t=2.563, df=6, p=0.043), and also between personal adjustment scores of the subjects in the pre-test and post-test (t=5.817, df=6, p=0.001). That subjects reported fewer score in the Post test but in other areas, there is no significant difference statistically.

Table 2. Descriptive indicators relating to the subscales of adjustment data

Variables	number	Pretest		Post test	
		mean	Sd	mean	Sd
Personal adjustment	7	31.28	8.59	21.71	6.04
Partner relationship	7	11.14	6.91	8.71	5.05
Family adjustment	7	7.85	2.91	7.14	2.03
social adjustment	7	19.00	3.82	17.57	3.64
financial problems	7	11.57	2.87	10.71	2.92
play and leisure	7	7.85	2.96	7.28	2.28

Discussion

The results of this study is similar to King and colleagues research (14). King indicated significant improvement in the understanding of health (p<0.05), but there were no significant changes in rates of depression (p>0.05). In this regard, in study by Hekary with the aim of adjustment in female patients with coronary artery disease based on the Roy model, finding showed that there was significant difference between education level and household size, median family income and the amount of adjustment (P<0.001). The Adaptation rate based on the four dimensions of psychological, self-concept, role playing and independence/dependence was significantly (P<0.00).

Assess the adjustment in the four dimensions showed that subjects had a moderate adjustment on the physiological and the self-concept dimensions. Whereas the independence/dependence dimension mentioned few adjustment and the role playing adjustment was moderate (15). Racht (16) described changes in the adjustment process within six months after the first stroke and identify areas of collaboration and depressive symptoms, also indicate stress reduction as well as the scale of adaptation were significantly lower in the patient group (p<0.05). According to the these studies adjustment aspects in two times measuring in personal adjustment and partner relationship was different significantly, but it is not significant in the subscales of social adjustment, family adjustment, financial problems and play and Leisure. The lack of significant differences in the scales can be attributed to the following factors. Individuals' performance in mentioned scale is affecting from various factors Such as family relationships, culture, attitudes, and social and economic status. Regarding to the intervention times seems that might be able to provide better results with implementation of the program in further time and increase the number of session's proportional the disease with a control group. However, for a closer examination it requires further research and intervention through more time and the larger sample size. Individual differences in patients' responses to the questionnaire, the inherent ability of individuals to respond to medical care and rehabilitation were the limitations of this study. Individual differences, psychological support and care by family members is different for each individual patient and it can also affect the results that are outside the control of the researchers.

Overall, it can state that the stages of model and its interventions were more holistic, and more time was needed to implementation of its stages. Also it could be more clearly expressed that the model emphasized to team approach in stroke patient. Because, according to the model nursing education should be provided parallel with the rehabilitation team to be effective. The blending stage described totally and researchers did not know which kinds of adjustment such as psychological adjustment, family adjustment or other should be involved. Despite of all limitations of the study which should be considered and efforts to implement the models,

patient education was performed and ongoing physical rehabilitation was carried on. These interventions had an impact on results of the research and according to the views of the patients; improvement was in the effectiveness of these interventions that has been beyond of the research assumptions. However, this study could be the basis for future studies and beginning of implementing nursing theories especially for stroke.

Conclusion

The aim of the present study was to determine the effect of implementation of rehabilitation nursing Mauk model (Blending, Framing, Owning), on the adjustment of stroke patients that admitted to the neurology clinic. The results indicated that the implementation of the rehabilitation Mauk model have promoted the adjustment of participants. Present findings indicated that teaching had effects on some aspects of adjustment and causing improvement of stroke patients in the field of adjustment with stroke, complications and limitations arising from it. Nurses can assist the stroke patients in the Mauk model process by implementing patient education for development of psychological, physical and mental health. Findings of this research can be used in the area of nursing rehabilitation care and treatment centers, in form of books, pamphlets, appropriate guidelines for education to patients, their families, nurses and others who care stroke patients.

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