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Investigating the effects of nurse post-discharge follow-up phone calls on the self-efficacy of patients caregivers suffering from stroke



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ABSTRACT

Introduction: Caring for a person suffering from a chronic illness creates a lot of stress for the caregiver and family of the patient. Self-efficacy is a tool to improve health and training to the caregiver; promoting self-efficacy is a significant procedure in patient care and behavioral modification. The purpose of this study was to determine the effectiveness of follow-up calls by nurses on the self-efficacy of stroke patients' caregivers.

Methodology: In this research, a clinical trial study was carried out using pre-test and post-test with the participation of 70 stroke patients' caregivers. They have selected through simple sampling and were randomly assigned to control and intervention groups. Demographic information questionnaire and Sherer general self-efficacy scale were selected as tools for collecting data. Data were analyzed through independent t-test, paired t-test and Chi-Square using SPSS software version 21.

Results: In the present study, the mean age of caregivers was 36.48 ± 10.44 , and the majority of caregivers were patients' children. There was no significant difference in mean score of self-efficacy between the two groups before the intervention ($P \geq 0.05$), but after the intervention, a significant difference ($P \leq .05$) was observed following an increase in the mean score of self-efficacy in the intervention group. The comparison of self-efficacy score in the intervention group before and after the study demonstrated that the mean score of self-efficacy increased to 63.87 ± 8.79 before the intervention and 68.43 ± 7.17 after the intervention. This increase was statistically significant ($P = .001$).

Conclusion: According to the results of the current study, it can be concluded that the nurse's follow-up phone call program resulted in the self-efficacy of caregivers of patients suffering from stroke.

Keywords: Stroke, follow-up phone call, self-efficacy, caregivers

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INTRODUCTION

Cerebrovascular accidents are one of the most important and common neurological diseases in adults, leading to high numbers of deaths and disabilities in patients. A majority of cerebrovascular accidents is brain stroke;¹ it is considered as one of the main causes of disability and the second cause of death in the world,² and it is regarded as the sixth cause of disease throughout the world, which is expected to reach fourth by 2020.³ Stroke is a syndrome characterized by acute appearance of neurological symptoms for at least 24 hours⁴ when blood flow to a part of the brain is impaired and stopped, and this part of the brain cannot function naturally. Stroke can be caused by either a blockage or rupture of a blood vessel supplying the brain.⁵

The impact which stroke has on the patient is different and unique. Depending on the degree of harm, the essential functions such as recognition, communication, and physical abilities are all affected.⁶ Stroke is accompanied by paralysis and numbness, a decrease of sensation in the hands and feet of one side of the patient's body; Inability to understand and produce speech as well as vision

and balance disturbances. A patient suffering from stroke is prone to other problems, such as pneumonia, urinary tract infection, pulmonary embolism, deep vein thrombosis of legs, and bedsores, which can be considered as the causes of death in patients with stroke.⁷ Based on study reviews in Iran, the prevalence of stroke has been reported between 33 and 373 per 100000 people.⁸ Every 45 seconds, one case of cerebrovascular accident occurs in the world, and every 3 minute one person suffering from stroke dies. Each year, 1.1 million people develop cerebrovascular accident; 80% of these patients will be able to survive for up to one month, and the rest for up to 10 years. Among the patients who survive, 30% - 50% achieve their natural and independent performance, while the rest will suffer physical and mental disabilities. About 15% will require special care in specialist institutions.⁹ Self-efficacy is recognized as an important concept in the management of chronic diseases and is used to examine and manage patients with chronic diseases.¹⁰ A strong sense of self-efficacy improves one's positive attitudes and better participation in activities, setting

goals, and commitment.¹¹ According to Bandura, self-efficacy is characterized by one's confidence and trust in his/her own abilities to perform a particular behavior. Self-efficacy beliefs can determine one's feeling, attitude, motivation, and behavior.¹² The caregiver's self-efficacy is a degree of his/her sense of confidence regarding his/her abilities to perform activities required by the patients. It is a tool for health improvement and training for the patients.¹³ One of the ways to increase self-efficacy is to provide training programs. Bandura believes that it is possible to increase the level of ability and self-efficacy in individuals by adopting suitable educational strategies and interventions to acquire necessary skills and knowledge.¹⁴ Self-efficacy can be promoted in caregivers through implementing programs designed based on the needs of patients.¹² About 80% of the patients with stroke return home and at least half of them need permanent or temporary help from people living with them. Considering social values, one of the important sources of care for these patients is their family.¹⁵ A caregiver is the one who carries out most of the cares and support of the stroke patient after returning home.¹⁶ Caring for a person suffering from a chronic illness creates a lot of stress for the caregiver and patient's family.¹⁷ Although the main caregivers of patients with stroke in Iran are their families, they encounter various problems in providing appropriate care programs. According to a study by Dalvandi et al. in Iran, regarding the experiences of stroke patients and their family members, most of relatives stated that they have encountered various problems in caring for their patients due to inadequate social and financial support, lack of educational programs and rehabilitation services, also physical and psychological problems of their patients.⁶ Lack of appropriate support and education to encounter illness, financial problems, and blaming of an illness in the family are regarded as the caregivers' problems in our society. However, the active role of nursing in patient and family education relating to the management and caring for a chronic disease is commonly referred to as the missing part of comprehensive and general responses. Participating family members in caring for their patients is an important part of the nursing plan.^{18,19} Nurses are in a special position to interact with individuals and family members; they can provide the necessary knowledge, skills, and support to maintain the caring quality at home.¹⁷ Follow-up treatment is possible through in-person visits to the clinic or home visit program at certain intervals. In the case of stroke, due to the significance of long-term follow-up, the follow-up approach should be inexpensive and feasible for a large number of

patients. Nowadays, follow-up phone calls enable nurses to carry out activities such as patient monitoring, training, collecting information, nursing interventions, pain control, and supporting the patient's families.²⁰ Although the value of telephone counseling seems to be lower than face-to-face examination, by using this technology, effective care interventions can be conducted in a short period of time; patient care could change from hospital-oriented to community-oriented and from care-oriented to patient-oriented.²¹ Gholizadeh et al. demonstrated that empowering stroke patients' caregivers, through providing required training programs, led to improved quality of life.¹⁵ Additionally, Khatibian et al. and Kheirollahi et al. indicated that training caregivers of patients with stroke based on the family-centered empowerment model led to increased knowledge and self-esteem, and as a result, their role and assistance in effective care improved.^{22,23} Previous studies revealed that the quality of life of these caregivers decreased after discharge, and this indicated that caregivers needed help and support for adapting to lifestyle changes. Unfortunately, for the time being, patients with stroke are not under the social support of any organizations or associations in Iran. Many of these patients require essential services for nutritional needs, urinary excretion, speech, prevention of bedsores, and so on; however, the burden of caring is on the shoulders of the caregivers. Considering the serious complications of stroke, empowering caregivers can be effective in helping to empower the whole family to reach the health purposes. Few studies have been conducted on the issues of stroke patients' caregivers, and that little has been paid for them in the country. Therefore, the present study was conducted with the purpose of determining the efficacy of implementing nurse follow-up phone call approach on self-efficacy of caregivers of stroke patients.

METHODOLOGY

The research was a clinical trial study which used a pre-test and post-test, during 2016-2017, which was performed on 70 subjects using simple random sampling method. The subjects were assigned to two groups (35 subjects in the intervention group, 35 subjects in control group). The research areas were Shahid Mostafa Khomeini Hospital in Ilam and Ganjavian Hospital in Dezful. Patients included in the study had a definite diagnosis of stroke, and caregivers included in the study no physical complications and no clear perception of the study, literacy, satisfaction to participate in the research, no problem in attending educational classes, and

a mobile phone. The exclusion criteria for caregiver were not attending training courses, physical impairment and perception problems, telephone call discontinuation for two weeks, caregiver's development of a particular disease, reluctance to continue cooperation and patient death.

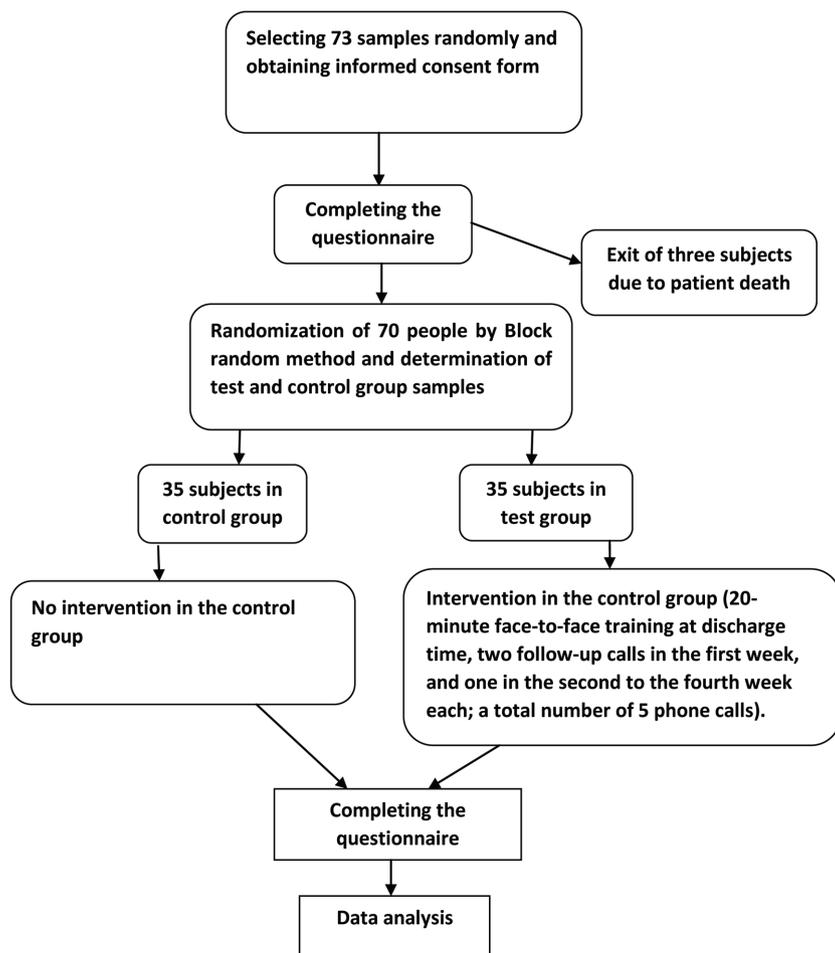
The intervention group was provided with face-to-face training for 20 minutes along with a training pamphlet for stroke; follow-up phone calls were carried out twice in the first week and once a week from the second to the fourth week (five times in total). The telephone conversations took 20 minutes on average, which varied according to the patient's needs. The subjects were allowed to have phone calls and 24-hour access in case of unexpected occasions.

Telephone conversations were determined regarding the complications of stroke and the patient's needs (stroke, prevention of and bedsores, appropriate diet, and improvement in speech and movement disorders). The content of nurse phone call training included: Session 1: Stroke, complications, and symptoms. Session 2: Appropriate nutrition in patients with stroke. Session 3:

Prevention of urinary tract infection and maintaining the function of Foley catheter. Session 4: Bedsores and its prevention. Session 5: Necessary training to improve speech and movement disorders. The questionnaires were provided to the patients' caregivers in the intervention group in two stages: before intervention and four weeks after the intervention. The questionnaires were completed for the control group at the time of patient admission and four weeks after discharge; the results of the two stages were compared with each other. The data of the present study were completed by a two-part questionnaire; the first part included the demographic information of the subjects such as age, gender, marital status, education level and occupation, duration of illness and caring. The second part included the Sherer self-efficacy questionnaire, which was completed through in-person interviews. This questionnaire was translated and validated by Bakhtiari Barati (1996) in Iran and updated through a researcher-made method. The questionnaire was given to 10 members of the Faculty of Nursing of University of Medical Sciences in Ilam, and their corrective comments were applied. Test and retest method was used to evaluate the reliability of the self-efficacy questionnaire; the questionnaire was distributed among 10 subjects, and after two weeks, it was redistributed among the same subjects in similar measuring tools conditions. The correlation coefficient of the obtained scores was equal to $r = 0.932$, which was statistically significant ($p=0.0001$), indicating the reliability of the self-efficacy questionnaire in this group. Chi-square and t-test were used to analyze the data; all statistical calculations were performed using SPSS software version 21

RESULTS

A total of 70 subjects (35 in the control group, and 35 in the intervention group) were included in the study. The average age of the patients in the study was 66.11 ± 12.93 , the average age of the caregivers was 37.90 ± 10.60 , the average patients' period (days) of care was 125.01 ± 450.06 , and the average duration of the disease was 125.03 ± 450.05 (Table 1). Most subjects were housekeepers (45.71%), patients were mostly male (57.1%), and female was the most frequent gender among the caregivers (54.28%). Regarding the marital status, the majority of caregivers were patients' children (60%) (Table 2). There was no significant difference between the two groups regarding patients' and caregivers' ages, and duration of the disease and care (Table 1). The difference between the



Graph 2 Sampling process algorithm

Table 1 Status of statistical indicators of quantitative variables in subjects under study

Variable	Control	Intervention	All subjects	P-Value
	M±SD	M±SD	M±SD	
Patient's age	13.34±64.77	12.55±67.46	12.93±66.11	38.
Caregiver's age	11.97±36.51	8.97±39.29	10.60±37.90	27.
Period of the disease (day)	475.90±142.20	428.91±107.86	450.05±125.03	752.
Period of patient care (day)	475.90±142.20	428.90±107.86	450.06±125.01	75.

Table 2 Comparison of frequency of studied variables in the two groups

Variable	Intervention	Control	Degree of freedom	Test Statistic	P-Value	
Patient's gender	Female	14	16	1	233.	62.
	male	21	19			
Caregiver's gender	Female	17	21	1	33.	92.
	Male	18	14			
Caregiver's job	Housewife	14	18	2	5.28	071.
	Employed	12	15			
	Unemployed	9	2			
Caregiver's education	Diploma and under	27	25	1	29.	58.
	University student	8	10			
Caregiver's marital status	Single	12	5	1	3.80	051.
	Married	23	30			
Caregiver's relation with the patient	Children	23	19	3	1	80.
	Sister	2	3			
	Spouse	2	3			
	Others	8	10			

Table 3 Intra-group comparison of mean and standard deviation of self-efficacy among caregivers of patients with stroke in the study groups during the study

Variable	Control	Intervention	Mean difference	P-Value
	M±SD	M±SD	M±SD	
Before the intervention	7.88±60.40	8.79±63.77	1.99±3.37	096.
After the intervention	8.82±59.63	7.17±68.43	1.92±8.80	0001.≥

Table 4 Intra-group comparison of mean score of self-efficacy among caregivers of patients with stroke in control and intervention groups

Variable	Before the intervention	After the intervention	Mean difference	P-Value
	M±SD	M±SD	M±SD	
Control	7.88±60.40	8.82±59.63	6.61±771.	49.
Intervention	8.79±63.77	7.17±68.43	7.92±4.65	001.

two groups in terms of patient's and caregivers' genders, caregivers' relation to the patients, as well as caregivers' education level and occupation were examined through Chi-square test. However, no significant difference was observed between the two groups ($P > 0.05$) (Table 2). All the variables were normally distributed; therefore, independent t-test was used to conduct a comparison between groups, and intra-group comparison was carried out through paired t-test. The results of table 3 demonstrated no significant difference in the mean self-efficacy of caregivers of patients in studied groups before the implementation of the program. In contrary, a significant difference was observed in the mean self-efficacy of caregivers of patients in studied groups after the implementation of the program ($P = 0.0001$). The results of Table 4 indicated that there was a significant difference observed in the mean self-efficacy of caregivers of patients with stroke in the pre- and post-intervention stages in the follow-up phone call group ($P = 0.001$), but there was no significant statistical difference demonstrated in the control group ($P = 0.495$).

DISCUSSION

The findings of the present study demonstrated that the test and control groups were homogeneous regarding demographic information. There was no significant difference in the mean self-efficacy of caregivers of patients with stroke in the follow-up phone call group and the control group before intervention. However, there was a significant difference observed after intervention. The result of the current study was consistent with past studies. Khatibian et al., indicated that training caregivers of patients with stroke based on the family-centered empowerment model increased their knowledge and self-esteem, thus resulting in effective care and improvement in caregivers to play their roles.²² Behzad et al., demonstrated that the empowerment program regarding nurse follow-up phone call (telenursing) was effective in promoting self-efficacy in self-care behaviors of elderly people with hypertension.²⁴ Shojaei et al. revealed that patient training and follow-up phone calls by nurses reduced repeated referrals of heart failure patients to the hospital.²⁵ Najafi et al. argued that follow-up phone calls of patients with myocardial infarction resulted in more medicinal and dietary stability of patients.²⁶ Mohammadi et al. indicated that nurse follow-up calls led to the promotion of self-efficacy in women with Diabetes type 2.²⁷ Additionally, the results of the present study alongside with Mok et al. demonstrated that

follow-up phone calls resulted in self-care and diet modification of patients with myocardial infarction.²⁸ Yan et al. indicated that follow-up phone calls improved the understanding of illness and lifestyle in patients with myocardial infarction.²⁹ In another study by Record et al., it was argued that post-discharge follow-up phone calls reduced repeated patient referrals.³⁰ The result of a study by Teunissen et al. indicated that nurse follow-up phone calls had been discovered to improve the impacts of various illnesses such as asthma, myocardial infarction, cancer, diabetes, and Alzheimer's.³¹ Additionally, Lo et al. demonstrated that nurse follow-up phone call improved the self-efficacy of patients with stroke and increased the quality of their lives while reducing depression symptoms (32 This finding was in harmony with the results of the present study. In their study, Scott et al. argued that follow-up phone call could be considered as a unique and particular factor in reducing the costs due to referrals of patients with stroke to the hospital.³³

Anna Laura Trimbur demonstrated that the rehospitalization rate of patients with myocardial infarction decreased due to their phone call training,³⁴ and this was consistent with the results of the current study.

In general, it can be concluded that the nurse follow-up phone call program improved the self-efficacy of caregivers of patients with stroke. As a result, a follow-up phone call can be considered as an appropriate tool for information exchange, providing health education and knowledge, managing signs and symptoms of illness, immediate diagnosis of complications, and guaranteeing post-discharge care services. The use of telephone as an available and public means of communication is popular, and it has become more cost-effective as a result of its increasing acceptance in developed countries. Nurse follow-up phone calls help patients and their families to carry out necessary cares at home with more knowledge and self-confidence and follow prescriptive medical programs. Nowadays, providing cares using communication devices such as telephones can reduce costs, improve the relationships between patients and nurses, facilitate access to effective care at home, reduce frequent doctor visits, and remove time and place limitations. Nurse follow-up phone calls result in the self-efficacy of patients and their caregivers due to no time and place limitations, no need for commuting, and reduction of excessive costs. The nurse follow-up phone call program is considered as one of the most cost-effective ways to improve self-efficacy of patients and their families.

CONCLUSION

The implementation of nurse follow-up phone call program in caregivers of patients with stroke can improve their self-efficacy, thus helping them to provide efficient care and play their roles effectively. Because of the increasing number of patients with chronic diseases, complications, and referral to hospitals; subsequently, the quality of life of these patients and their caregivers decreases. This creates a huge economic burden for patients, their families and care provider systems. Regular follow-up calls help patients and their families to have active participation in the treatment process and succeed in controlling diseases, which will improve the quality of life of patients and their caregivers and reduce social health costs. Therefore, implementing required policies and programs are recommended regarding the establishment of follow-up phone calls.

RESEARCH LIMITATIONS

The authenticity and accuracy of information provided by the caregivers of patients are regarded as the limitations of the study. Hence, the researcher, through explaining the significance of the subject and the objectives of intervention to the patients' caregivers, attempted to draw their attention to participate in providing correct and accurate information. The official language of some of the caregivers was Kurdish, which could have generated problems for the caregivers in understanding the information provided. Thus, the researcher used an interpreter familiar with Kurdish language.

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