

# The efficacy of self-care education on rehabilitation of stroke patients

Mohammad Sahebazzamani, PhD, Leila Aliloo, MS, Ali Shakibi, RN.

## ABSTRACT

**الأهداف:** تحديد فعالية توعية الرعاية الذاتية على إعادة التأهيل الطبي للمرضى المصابين بجلطة دماغية.

**الطريقة:** أُجريت دراسة تجريبية شملت 80 مريضاً تم اختيارهم وتوزيعهم بشكل عشوائي إلى مجموعتين، وقمنا بتسجيل البيانات الجغرافية، السكانية وقدرة الأداء لكلتا المجموعتين. ثم تم تحقيق توعية الرعاية الذاتية لمجموعة التجربة، وأخيراً، تم إعادة فحص المجموعتين بعد 45 يوماً عقب آخر قسم توعية رعاية ذاتية لمجموعة التجربة. أُجريت هذه الدراسة في جامعة أوريا للعلوم الطبية - إيران، خلال عام 2008م.

**النتائج:** أظهرت نتيجة الدراسة فرقاً ملحوظاً بين الفروقات الرئيسية المطلوبة في حقول أداء مختلفة قبل وبعد التوعية لمجموعة الدراسة ( $p=0.0001$ ). بالإضافة إلى أن النتائج أظهرت وجود فرقاً ملحوظاً بين المجموعتين بعد الفحص ( $p=0.0001$ ). نستنتج بأن الإحصائية الاستدلالية لاختبار (T) لمستوى الأداء في مجموعة الدراسة كان أعلى من مجموعة التحكم ( $t=19.83$ ;  $p=0.0001$ ).

**خاتمة:** يمكن لتوعية الرعاية الذاتية للناس من الجلطة الدماغية أن تحسن مستوى أداء المرضى، وتغيرهم من أشخاص غير مستقلين إلى أشخاص مستقلين.

**Objectives:** To determine the efficacy of self-care education on rehabilitation of hemiplegic stroke patients discharged from hospital.

**Methods:** For this experimental study, 80 patients were randomly assigned to 2 groups at Urmia University of Medical Sciences Hospitals, Iran, in 2008. First, we recorded the demographic data, and ability performance of both groups, then self-care education was given for the experiment group. Finally, both groups were retested 45 days following the last self-care education section of the experiment group.

**Results:** The results of the study showed a significant difference between the mean acquired distinctions in

different performance fields before and after education for the study group ( $p=0.0001$ ). In addition, the findings showed a significant difference between the 2 groups post-test ( $p=0.0001$ ). We statistically concluded by independent t test that the level of performance in the experimental group was higher than the controls ( $t=19.83$ ;  $p=0.0001$ ).

**Conclusion:** Self-care education of stroke survivors can improve patient's performance, and change them from a dependent to an independent person.

*Saudi Med J 2009; Vol. 30 (4): 550-554*

*From the Department of Nursing and Midwifery (Sahebazzamani), Tehran Medical Islamic Azad University, Tehran, Department of Nursing and Midwifery (Aliloo), Urmia Islamic Azad University, and the Department of Remedy Assistance (Shakibi), Urmia University of Medical Sciences, Urmia, Iran.*

*Received 15th November 2008. Accepted 4th February 2009.*

*Address correspondence and reprint request to: Dr. Leila Aliloo, Department of Nursing and Midwifery, Islamic Azad University, Urmia, Iran. Tel. +98 9141409403. Fax. +98 (441) 3453371. E-mail: L\_aliloo@yahoo.com*

One of the most common diseases leading to disability is stroke.<sup>1</sup> It is the primary cerebrovascular disorder in the United States, and in the world. Approximately 500,000 people experience a new stroke, 100,000 experience a recurrent stroke, and approximately 160,000 die from stroke each year.<sup>2</sup> There are no adequate statistics regarding the prevalence and mortality rates of cerebral stroke in Iran. Nowadays, given the progress in diagnosing and treatment of disease, we are confronted with an increasing number of patients as compared with previous decades.<sup>3</sup> The cerebral vascular accident, is the most prevalent disability disease of the nervous system, and after cancer and cardiovascular disease, is the major cause of mortality among people over 45 years old.<sup>4</sup> In addition to mortality from these diseases, the remaining physical disorders and disabilities became a great social burden, and the disability of these

patients and their following psychosomatic difficulties appear to generate subsequent problems.<sup>5</sup> The increased rate of stroke and its related disabilities has a destructive and critical impact effect on the general health of the society, and it is an economical burden. The result is at least 50% of nervous disorders in a general hospital.<sup>6</sup> Patients could recover their bodily activities during the rehabilitation periods, especially with appropriate body exercises.<sup>7</sup> Since nurses have expanded roles, they can play an active role in the patients' rehabilitation program, and this cooperation will promote the nurse-client relationship in the recovery process. Among the nurses' responsibilities is their vital role in patients' education, rehabilitation, and changing them from a dependent to an independent person.<sup>8</sup> The most important point in the patient rehabilitation is their participation in their own care program. If chronic patients are educated to be independent, they will quickly recover in comparison to those cared for by others.<sup>9</sup> The patients are willing to undertake the roles given to them, and wish to reach a condition, which makes them able to care for themselves.<sup>10</sup> Education by nurses in self-care improves patients' quality of life and performance in activities of daily living in stroke survivors.<sup>11</sup> There is a significant relationship between stroke severity, patients' age, and the level of their dependence on other family members. The use of a classification system for providing intervention, and educations by nurses is useful.<sup>12</sup> We conducted this study with the aim of investigating the effects of self-care education on rehabilitation of hemiplegics stroke survivors discharged from the Urmia University of Medical Sciences Hospitals in 2008. In the current study, we tested the hypothesis that self-care education has efficacy on hemiplegics stroke patient rehabilitation.

**Methods.** In a randomized trial, we investigated all hemiplegics stroke survivors discharged from Urmia University of Medical Sciences (UUMS) Hospital, between 40 and 70 years of age, that sustained hemiplegic stroke according to the Neurologist diagnosis, and were able to learn self-care. Exclusion criteria includes: present history of chronic diseases such as cancer, multiple sclerosis, Parkinson's disease, migration during the research education program, previously received stroke rehabilitation program instructions, orientation or memory disorders, aphasia at discharge, and hospitalization history resulting from psychiatric disorders. Eighty patients were included in the study population and randomly divided to 2 groups (40 people as case and 40 as controls). The data were gathered through interview, and through a questionnaire that included 3 sections: (1) recording the patients' demographic characteristics, (2) Katz basic activity of daily living (ADL) scales (10 questions)

including; bathing, dressing, toileting, grooming, feeding, hair care, mouth tooth care, mobility at home, mobility outside home, urine-stool control, and (3) Lawton-Broody instrumental activity of daily living (IADL) scales (8 items) including; using telephone, shopping, food preparing, performing house work, laundering, going to and fro, following their own remedial programs and economical affairs management. These scales were standard and had 3 grades: dependent (0), semi dependent (need help and observation [1]), independent (2). For recording the scientific reliability of the scales, we used the consist credit method, and for assessing the scientific validity, correlation analysis with regard to the results obtained for the 2 stages over 7 days was undertaken, which showed 86% correlation. The performance conditions of both groups were measured by questionnaires. At the time of discharge, the case group were given education in the field of individual hygiene, bathing, nutrition, toileting, grooming, dressing, bowel and bladder control, mobility, using wellchair, transferring from chair to bed, and vice versa. They followed the remedial program over a 45-day time period (6-8 sessions) and each session lasted for 2 hours, and they were also given educational booklets. At the second stage of the research carried out 45 days after the last education session, the patients were evaluated by the same questionnaire. Also, the control group was evaluated with the same questionnaire 45 days later at home again. It must be mentioned that to respect the ethical principles, the necessary education and educational booklets were given to the control group. All of the questionnaires were coded. The duration of intervention was 6 months.

To analyze the data, we used SPSS version 11 (SPSS Inc., Chicago, Illinois, USA) computer software, and for information describing the descriptive statistics (tables, distribution of absolute and relative abundance, average and standard deviation, and others were used, and for analyzing the inferential statistical tests such as  $\chi^2$ , independent t test, Wilcoxon, and Fisher exact test were used. A *p*-value of <0.05 was considered significant.

**Results.** Our research findings indicated that most of the samples in the 2 groups were in the 60-70 years age group. Sixty percent of the case subjects and 55% of the control subject were women. The highest percentage of the study samples in both groups were married and illiterate. The highest percentage of patients in both groups had 7-14 days hospitalization history and 72.5% of both groups had no previous hospitalization due to stroke. Also, the independent t test showed there were significant relationships among performance and age, gender, level of education, hospitalization duration, and previous hospitalization instances due to stroke (*p*=0.0001). Approximately 40% of the case and control

groups had mobility and sensory disorders in their left hand and foot. Thirty percent of the case, and 40% of the control patients were previously hypertensive. The  $\chi^2$  statistical test showed that there were no significant differences among the performance of the study samples in the case group before education, compared with the control group after the first test ( $\chi^2=1.25$ ,  $p=0.263$ ). On the contrary, the results in Table 1 indicate that education was effective, and that  $\chi^2$  statistical test showed significant differences in the case group, and the

control group performance in the ADLs and IADLs. In the fields of urine and stool control, the results indicated 57.5% of the samples in case, and 45% in the control group had performance promotion post educationally. The mean distribution, and mean standard deviation of the obtained scores in proportion to gender pre- and post educationally in the case, and control groups are summarized in Table 2. Meanwhile, the mean of education effect was  $-14.90 \pm 1.89$ , whereas the mean effect time was  $-4.40 \pm 1.62$ , showing the effect of

**Table 1** - Distribution of absolute and relative abundance performance in the case group after education, and in the control group after the post test in activity of daily living (ADL) and instrumental activity of daily living (IADL).

Group Performance fields	Case group			Control group			$\chi^2$ test	P-value
	Improved n (%)	Unchanged n (%)	Total n (%)	Improved n (%)	Unchanged n (%)	Total n (%)		
Bathing	34 (85)	6 (15)	40 (100)	21 (52.5)	19 (47.5)	40 (100)	$\chi^2=9.83$	$p=0.002$
Dressing	30 (75)	10 (25)	40 (100)	9 (22.5)	31 (77.5)	40 (100)	$\chi^2=22.06$	$p=0.0001$
Toileting	32 (80)	8 (20)	40 (100)	8 (20)	32 (80)	40 (100)	$\chi^2=28.80$	$p=0.0001$
Grooming	30 (75)	10 (25)	40 (100)	9 (22.5)	31 (77.5)	40 (100)	$\chi^2=22.06$	$p=0.0001$
Feeding	33 (82.5)	7 (17.5)	40 (100)	13 (32.5)	27 (67.5)	40 (100)	$\chi^2=20.46$	$p=0.0001$
Hair care	36 (90)	4 (10)	40 (100)	7 (17.5)	33 (82.5)	40 (100)	$\chi^2=42.28$	$p=0.0001$
Mouth tooth care	35 (87.5)	5 (12.5)	40 (100)	4 (10)	36 (90)	40 (100)	$\chi^2=48.08$	$p=0.0001$
Mobility at home	33 (82.5)	7 (17.5)	40 (100)	6 (15)	34 (85)	40 (100)	$\chi^2=36.47$	$p=0.0001$
Mobility outside home	32 (80)	8 (20)	40 (100)	3 (7.5)	37 (92.5)	40 (100)	$\chi^2=42.71$	$p=0.0001$
Urine stool control	23 (57.5)	17 (42.5)	40 (100)	18 (45)	22 (55)	40 (100)	$\chi^2=1.25$	$p=0.263$
Using telephone	29 (72.5)	11 (27.5)	40 (100)	12 (30)	28 (70)	40 (100)	$\chi^2=14.45$	$p=0.0001$
Shopping	31 (77.5)	9 (22.5)	40 (100)	11 (27.5)	29 (72.5)	40 (100)	$\chi^2=20.05$	$p=0.0001$
Food preparing	29 (72.5)	11 (27.5)	40 (100)	13 (32.5)	27 (67.5)	40 (100)	$\chi^2=12.83$	$p=0.0001$
Doing homework	38 (95)	2 (5)	40 (100)	8 (20)	32 (80)	40 (100)	$\chi^2=46.03$	$p=0.0001$
Laundering	34 (85)	6 (15)	40 (100)	11 (27.5)	29 (72.5)	40 (100)	$\chi^2=26.87$	$p=0.0001$
Going and coming over	31 (77.5)	9 (22.5)	40 (100)	9 (22.5)	31 (77.5)	40 (100)	$\chi^2=24.20$	$p=0.0001$
Following their own remedial programs	35 (87.5)	5 (12.5)	40 (100)	11 (27.5)	29 (72.5)	40 (100)	$\chi^2=29.46$	$p=0.0001$
Economical affairs management	36 (90)	4 (10)	40 (100)	5 (12.5)	35 (87.5)	40 (100)	$\chi^2=48.08$	$p=0.0001$

**Table 2** - Distribution of mean  $\pm$  SD of obtained scores in proportion to gender, pre- and post educational in the case group, and pre and post educational in the control group.

Gender	Case group			Control group			Result		
	Before education Mean $\pm$ SD	After education Mean $\pm$ SD	Education effect Mean $\pm$ SD	Pre test Mean $\pm$ SD	Post test Mean $\pm$ SD	Time effect Mean $\pm$ SD	Independent t-test	df	P-value
Women	10.95 $\pm$ 3.92	25.83 $\pm$ 3.72	-14.87 $\pm$ 2.38	7.72 $\pm$ 1.57	12.09 $\pm$ 1.54	4.36 $\pm$ 1.29	t=16.58	df=44	p=0.0001
Men	10.3 $\pm$ 3.44	25.31 $\pm$ 3.68	-14.93 $\pm$ 0.77	8.38 $\pm$ 1.94	12.83 $\pm$ 2.54	-4.44 $\pm$ 2	t=11.59	df=32	p=0.0001
Total	10.72 $\pm$ 3.70	25.62 $\pm$ 3.67	-14.90 $\pm$ 1.89	8.02 $\pm$ 1.76	12.42 $\pm$ 2.06	-4.40 $\pm$ 1.629	t=19.83	df=61.3	p=0.0001

df - degrees of freedom

education was significantly more than the effect of time. In addition to self-care efficacy in all fields in the case group, we concluded, by independent t test, that after education level of performance in the case group was higher than in the control group in the post test ( $p=0.0001$ ,  $t=19.83$ ), meaning that there is a significant difference between the 2 groups in post test, and this indicates the positive effect of education, and the study hypothesis becomes acceptable.

**Discussion.** The study results showed that the education program was effective in the performance of the case group. Nurses' had an important role in minimizing the physical disabilities of stroke survivors. Thorsen et al<sup>13</sup> in their study with the main objective of investigating the effects of primary support after discharge, and pursuing rehabilitation programs at home for stroke patients in Sudan, reported that in both groups after 12 weeks, most of the patients became independent in the case group ( $p=0.003$ ), and in the control group ( $p=0.008$ ). The study results suggested that a considerable number of patients became independent and active in the fields of performing ADL and management of home affairs after 5 years. Also, the results of Hopman and Verner's<sup>7</sup> study indicated that the patients were able to promote their physical performance during the rehabilitation periods, especially physical exercises. Other findings of the study revealed that stroke survivors had a low performance level at the time of discharge.<sup>7</sup>

Since nurses spend the most time beside their stroke patients, they have an important role in the prevention of stroke incidence and reducing disability complications. Informing the patients and their family on the progress of the disease, and the process of remedying and rehabilitation during hospitalization and at discharge time are the nurses' responsibilities. The attendance of family members with the patient during education will promote their knowledge and practice in patient care. The findings of another similar study revealed that after education of the patients and their care givers on the disease, their performance became

more desirable than uneducated patients.<sup>14</sup> Since the patients stay at home after discharge, families' direct supervision, therefore, one of the most important needs of stroke patient families is acquiring information on the disease condition, revolution, prognosis, needs, and the method of patient care. Therefore, patient education should be considered as one of the basic principles prior to discharge, and they must be involved in the treatment process. However, the hospitalization period will be reduced if patient care is carried out at home. In a study by Kalra et al,<sup>15</sup> it showed that if the patients and their families receive education on rehabilitation programs, not only the costs and expenses will reduce, but also it will have effects on psychological aspects. So first, the nurses must perform and teach some of the self-care procedures such as walking, eating, bathing, favoring individual health, and others, in the presence of the patients and their families and educating the family members on observing important signs, reaction to treatments, promotion of patient comfort, and even contribution in advanced cares, and inspire them to obtain an active role and consulting with them on the confronting problems.

As a limitation of the study, in some sessions patients were not physically and spiritually ready to receive provided education and some patients did not attend the remaining sessions. Therefore, the additional workload and cost of nurses involved in the education process should be taken into account.

As a whole, this study indicated that self-care education will cause performance improvement in stroke survivors in the fields of ADL and instrumental ADL. Likewise, it reduces the probability of complications in the future. Based on changing attitudes and increasing patient capabilities to act as an essential part of the treatment process, nurses can help to maximize the physical and mental health of patients and minimize the time and cost of treatment expenses. Also, they can make the patients and their families more familiar with the nature of the disease, complications, and self-care abilities, by giving them educational pamphlets and materials. In addition, to optimize self-care issues,

more investigation in nursing students' education based on theoretical and clinical points applicable to the neurological wards should be carried out. In addition to evaluation of their remedial, caring, and supportive programs, medical centers can correct their programs, and allocate suitable financial sources utilizing this study. Likewise, the managers must make efforts in promoting nurse's knowledge and practice in this field, by employing experienced expert personnel in the neurological wards by securing more facilities, preparing educational pamphlets and conducting in-service education courses.

Future studies on the causes of disabilities and other rehabilitation methods in stroke survivors can be conducted, based on the results of this studies.

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### Related topics

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