Effectiveness of self-intervention on self-efficiency and activity daily living among patients with stroke

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Abstract

Background: A stroke is initiated by an disturbance in the blood supply to portions of the brain causing in injury of it that affects people's lives and alterations their capability to live dependently and with quality. It has been proposed that special training, called 'a self-management, teaches people about reasons and controlling of stroke, helps them progress the skills to work with their complications and challenges. **Aim**: This study aimed to examine self-intervention on self-efficiency and activity daily living among patients with stroke. **Design**: Quasi experimental research design was used to reach the purpose of this research. **Setting***:* This research was accompanied in neurological care unit of Menoufia University hospital, Egypt. **Sample**: purposeful sample of 100 patients who were admitted the neurological units at Menoufia, University. **Tools:** The data gathering instruments were Instrument (I) Structure interview questionnaire: that contain two parts Part I: Sociodemographic and clinical data, Part II: - Medical data, Instrument (2) Knowledge questionnaires sheet:- that contains four parts, Instrument (3) (SSQE) Stroke Self- Efficacy Questionnaire and Instrument (4) Barthel Index for Activities of Daily Living (ADL). **Results:** The chief outcomes of the research there was a statistically significant progress of total information score about stroke in the study group compared to the control group post and follow up of intervention (P=.000). There was statistically significant difference between the study group about the total score of evaluation of patients' awareness about secondary stroke prevention pre, post and follow up intervention, There was statistically significant difference between the study group regarding the total score of SSQE Stroke Self- Efficacy pre , post and follow up intervention((P=.000)). Also, the total levels of Barthel Index for activities of everyday living score in the research had improved post and follow up intervention than control group. **Conclusion**: The study concluded that nursing intervention which include educational information, rehabilitation and awareness knowledge that increase self-efficiency, daily living activity that increase self-care abilities, decrease complication as well as improve stroke patients in the rehabilitation phase. **Recommendation:** Nursing intervention and education should be directed toward who are at danger of stroke and instruct about management and uppermost of follow- ups, rehabilitation facilities in agreement with their level of education, in a language that is easily understandable. Apply updated protocol of different methods of nursing intervention that help stroke patients to control stress, hypertension, high risk factors through booklet and different methods of education and rehabilitation service.

Key words: self-intervention, Stroke, activity daily living, self-efficiency.

Introduction

Stroke is a quickly developing disease of unexpected beginning initiated by neurovascular illness. It is appraised that over eight million acute strokes happen all year and is the main reason of death and the third leading cause after heart diseases and cancer. It is assessed that about seven hundreds thousands are

pretentious yearly (**Alrabghi et al., 2018).** Moreover, stroke has an important impression on healthcare costs annually, hence, substantial financial plan of healthcare is required to refuge rehabilitation program. Regaining behind stroke is difficult and has a lot of dimensional, including bio-medical, mental and sociological basics **(Boger, et al., 2015).** Rehabilitation for stroke patients highlighted on self-care activities and can discharge from hospital to home with no exertions for preparation to work rehabilitation or society involvement **(Haloob et al., 2016)**

The perception of self-efficacy highlights that an individual's awareness of self-efficacy is very essential for taking the initiative to progress health care behaviors. So self-efficacy, defined as an individual's acceptance in their capability to complete control and prosper in particular conditions. The health achievement process method and security stimulus theory also highlight the significance of self- efficacy among stroke patient. There are several researches on increasing self-efficacy for stroke patients and its positive effects during recovery. Therefore Self-efficacy visibly shows an essential role in completing well patient results by improving in functional skills mobility, actions of circadian living, quality of life and a decrease in the number of fall accident, (**Topcu&Oguz 2018**).

A self-intervention practice by persons with continuing conditions has been recommended as basic to encouraging regaining and improved health outcomes. Although the increase of stroke center description and better organizations to identify stroke signs and supply care quickly, but some of patients with critical stroke receives thrombolytic treatment, and several of them stay with remaining efficient shortages. Thus, the essential for actual stroke convalescence is expected to continue a necessary part of the variety of stroke care for the predictable future **(Carolee, et al., 2020).** Self-care is extensive -ranging; it indicates person responsibilities for well lifestyle activities required for their improvement and activities such as dealing with health situations. **(Haloob et al.,2016)**

Self-care and intervention, well-defined as those actions (examples contain eating well, exercise, taking drugs, observing and management signs) individuals with a lengthy term health state do to stop well and keep moral bodily and responsive well-being**.** Therefore Stroke patient purpose to adjust attitudes and performances such as objective-setting and routine variations needing the progress or improvement of skills to self-manage efficiently **(Boger et al. 2015).**

Rehabilitation health care providing during the acute hospital visit is concentrated mainly on the acute maintenance of the patient, the delivery of acute stroke managements, and the beginning of prophylactic and protective actions. Although the providing of rehabilitation therapies is commonly not the first urgency, the essential for actual stroke rehabilitation is probable to continue an necessary portion of the field of stroke care for the predictable upcoming **,** statistics powerfully mention that there are aids to beginning rehabilitation quickly that patient is prepared and can allow it **(Carolee et al., 2020)**

Self-management interventions for people after stroke that purpose to rise persons' capabilities to resolve complications, create judgments, and

make action plans for particular useful objectives, could help stroke's patients to prevent some of the difficulties facing to them when discharged from rehabilitative health care **(Arian,et al., 2018).**

Greatest patients perform daily living activities as well as problems with interpersonal relationships. They also face psychosocial complications due to long term stress and strain, which reduce their individual evaluation ability of their quality of life. So effective management can decrease the risk of disability and recurrence in post stroke patient **(Greesea, et al. 2017).**

The nurse play important role in management of patient with stroke especially need discharge plan should begin at the time of admission and continue throughout the hospitalization help to decrease complication, prevent recurrent of stroke condition, increasing self-efficacy, improving in functional skills mobility, actions of circadian active, quality of life and a decrease in the number of fall incident **(Kumar., et al.,2016).**

Significance of the study:

Stroke was well-defined by the World Health Organization extra than forty years ago as "quickly rising clinical marks of essential disorder of intellectual function, lifelong extra than twenty four hours or foremost to death, with no seeming reason other than that of vascular cause **(World Federation of Neurology 2018)**. Cooperating to the American Heart Association Heart Disease and Stroke Information report, the occurrence of stroke will rise 20.5% by the year 2030 **(Mozaffarian et al., 2016).**

In Egypt, conferring to fresh estimations, the total incidence rate of stroke is great with a basic occurrence rate of 963/100 000 populations. The Basic occurrence of stroke was 16 out of 1000 with confidence interval of proportion (12.6% -19.7%). The crude incidence of ischemic stroke was significantly greater than hemorrhagic stroke 11.9 versus 3.9 out of 1000 people **(Shaheen.et al., 2019).**

Stroke is a main cause of long-term infirmity worldwide, according to a 2015 Health Ministry report, cerebrovascular diseases are the third most communal reason of death in every age group **(WHO, 2017).** Moreover stroke reasons mobility, speech and language, swallowing, vision, sensation, and cognitive damages which lower quality of life and patients essential assistance from others and healthy-prepared convalescence programs **.** So the purpose of the study is assessing self-intervention on self-efficiency and activity daily living among patients with stroke.

Therefore Stroke self-care program may progress the patient's healthcare by creating an evidence-based program for which incident directors may application to progress patient self-treatment and the health-related quality of life of stroke stickers. This program created standardized manuals for case managers and stroke stickers that may be used in the field, in the patient medical and nursing care **(Nationa Institutes of Health Clinical Center 2016)**

Aim of study

The current study aimed to examine the effectiveness of self-intervention on self-efficiency and activity daily living among patients with stroke.

Research hypothesis:

- There will be change in patient self-management among study group than control group post intervention.
- There will be improved in self-efficacy and activities of daily living after applying intervention in study group compared to control group post interference.

Operational definition:

Self- intervention means that purpose to prepare patients with abilities to actively share and take accountability in the dealing of their chronic state in order to function optimally through at least information achievement and a mixture of at least two of the next: stimulation of independent sign/symptom observing, medication managing, improving problem-solving and decision-making skills for medical managing, and altering their physical activity, nutritional and smoking behavior.

Methodology:

Research Design:

Quasi experimental research design with (study and control group) was used to reach the purpose of this research.

Research setting:

This research was accompanied in neurological care unit of Menoufia University hospital, Egypt that patients conscious and able to understand teaching and carryout after discharge.

Subjects:

It is purposeful sample of 100 patients who admitted the units at Menoufia University Hospital. The study was started from the first December 2020 to end of mayo, 2021. The sample was separated alternatively into two equivalent groups (50 patients in each group). They were selected centered on the subsequent power analysis. The researchers visited the hospital three days weekly until the sample was completed.

Estimated sample size:

- Centered on previous studies about Patient Self-Intervention on self-efficacy and activities of daily living among Stroke patients, a conventional effect size of 0.40 was evaluated. 29, 20 using the statistical software, the statistical power of 0.81 and statistical imports 0.05, the evaluated sample size important to appliance one sample t tests were 100 patients.

- **Inclusion criteria:**

Patients were appropriate for research sharing when they had the subsequent standard:

• Matured and alert patient
• Both sexes
• Age from 18-60 years
• First time of stroke and alert

Exclusion criteria:

- Unconscious Patients and recurrent stroke.

- Patients had complications and psychological condition.

Tools of data collecting:

Tool I - Structure interview questionnaire: This instrument was

advanced developed by the researchers based on the review of the significant literature **Boger, et al., 2015 and Arian, et al., 2018.**

Part I: Sociodemographic and clinical data: It was contained of elements concerning to patients' age, sex, marital status, educational level, occupation, living condition, and smoking habit.

Part II: - Medical data;- It was consisted of items regarding to patients' disease, Degree of stroke, Type of stroke, Chronic disease and type of disease **.**

Tool II:-Knowledge questionnaires sheet: that recognized by the researchers after reviewing of the related literature **that comprises four parts.**

Part I: - knowledge about primary data about the stroke. It contains six questions, definition of stroke, causes of stroke, signs and symptoms of stroke, warning signs to disease, treatment, and complication and rehabilitation program to stroke patients.

Part II: - Knowledge about treatment plan during rehabilitation, it contains eight questions, what is stroke rehabilitation, why rehabilitation is important, when stroke patient can start rehabilitation, where can stroke patient get rehabilitation, where can stroke patient get information, what the role of nurse in rehabilitation program, plan of stroke prevention and expect from rehabilitation program.

Part III:- evaluation of patient's awareness about secondary stroke prevention , that covered eight items, apply Plan for secondary prevention to stroke patient, monitor stroke survivors regularly in primary care, managing the hypertension if present, knowledge about indication and contraindication of Anticoagulation (e.g. Warfarin) to the patient with stroke, informed Patient about contraindicated medication, smoking cessation, alcohol should be avoided, methods for subordinate stoppage announced as soon as the diagnosis is complete and informed and advice strategies to ensure that clear, consistent, culturally at high risk patient.

Part IV: follow up guide lines about long-term stroke recovery. That covered seven items; Patients with stroke should be partitioned for depressive warning sign. Patients identified with a depressive illness resulting proper evaluation should be reflected for therapeutic interferences , Stroke patients should be separated for alterations in mental status, Patients, families, and informal caregivers should contribute in goal setting, People with stroke living in the community should have consistent and continuing observing and follow-up with healthcare workers, Post-acute stroke patients who experience a change/decline in health status should be re-assessed and Stroke patients should be routinely checked for post-stroke fatigue.

❖ **Scoring system for all parts:**

The response of each question was recorded as subsequent:

(1) Score two mean correct and complete responses
(2) Score one mean correct and incomplete
(3) Score zero mean incorrect response or don't know

The patient's responses were summed up to estimate the total information score analyzed according to

percentage interpretation, if less than 50 % means poor knowledge, 50- 75 % means fair knowledge and more than 75% means good knowledge.

Tool III: - SSQE (Stroke Self-Efficacy Questionnaire):

It was developed by Fang, and Hua (2015) and was used to evaluate the patient stroke self- efficacy. The SSQE contained 13 items : become relaxed in bed every night, become out of bed on own even when he feel exhausted, walk a few steps on his own on any surface inside house, walk about house to do most things when want, walk safely outside on own at any surface, use both hands for intake food, wear and unclothe himself even when feel tired, prepare a meal would like for himself, persist to make progress from stroke after discharge, from therapy, do own exercise program every day, cope with the frustration of not being able to do some things because of Stroke, continue to do most of the things like to do before stroke and keep getting faster at the tasks that have been slow since stroke presented.

❖ **Scoring systems:**

The response of every question was scored as consequent:

The score of one was given if not done and score two if answer done. Total questions were scored on a scale from 0 to 100 and intemperate as follow:

- <50 means not done
- 50 means moderate done
- More than 50 means highly or good done

Reliability of the general Self-Efficacy Scale tool was reported in a study of 236 individuals to identify Self-Efficacy requires investigation. General Self-Efficacy Scale had 'excellent' agreement (κ 0.80) **(Yildirim and Inci ,2010)**. In the present research, test – retest reliability of the General Self-Efficacy Scale tool was 0.85 at twelve patients with a period of two weeks interval

Tool IV:- Barthel Index for Activities of Daily Living (ADL);

It was developed by (Hou, Zhang, & Li, 2012) to measured functional independence, generally in stroke patients and used to measure performance in ADL in the consequent areas: feeding, bathing, grooming, bowel control, bladder control, toilet use, transfers (bed to chair and back), movement and stairs.

❖ **Scoring system:**

The answer of every question was scored as following:

A score of zero was assumed if the response unable, while the score of one was assumed if needs help and score two if answer Independent. Total questions were scored on a scale from 20 to 100 and intemperate as follow.

- <20 means totally dependent.
- 20 to 39 means very dependent.
- 40 to 59 means partially dependent.
- 60 to 79 means minimally dependent.
- 80 to 100 mean Independent.

Reliability of the Barthel Index for Activities of Daily Living Tool was reported in a study of 20 stroke patients in first in-patient rehabilitation to identify actions of circadian living needs investigation. Barthel Index for actions of circadian living had inter-rater reliability was good to excellent for all scores and

subscales (ICC: 0.82-0.99) **(Schlote , Krüger, Topp, Wallesch.,2004)**.

Reliability and correspondence was good to excellent for the items of the Barthel Scale, acceptable to excellent for those of the activity index. In the present study, the test –retest reliability of the general self-efficacy scale tool was 0.95 at twelve patients with a period of two weeks interval.

Methods

- **Written approval:**

Consent to apply the research was taken from responsible authorities after clarification of the aim of the research.

- **Protection of human rights:**

At the first interview each patient was informed about the objectives, benefits of the research and knowledgeable that their participation is voluntary. Also confidentiality and anonymity of the participants were assured. Finally official consent for participants has been obtained.

- **Instrument development**

The first and second tools were progressive by the investigators after reviewing of the related literature and tested for its content validity. Validity exposed the degree to which the instrument measures what it is predictable to measure. The questionnaires validity was evaluated by a board of four experts. Alterations were carried out according to the board's judgment on the clarity of the judgments and appropriateness of the substances. Reliability of the tools was established through test re-test method at a15-day interval with a group. Chronbach's alpha was practical for the reliability of the questionnaire and was creating to be 0.84 for instrument one, 0.90 for tool two, achieved a Cronbach's alpha coefficient of 0.70 for tool 4 and 0.85 for tool three.

Pilot study:

A pilot study approved with 10% of a total number of patients, to evaluate clearness in addition to the applicability of the tool and appraisal the time needed to fill each part. The important modification was done as exposed from the pilot study. The sample of the pilot was excluded from studied sample.

Ethical respects:

An official consent was achieved from the hospital director and the supervisor of intensive care units .It was got after explanation the objective of research. Patients' formal agreement was achieved to participate in the study after clarification the objective of study. Each patient was comforted that confidentiality and privacy will be conserved and patient has a right to draw at any time.

- **Data collection:**

At first time, the researchers started with patient in study and control group who met inclusion criteria, researchers presented themselves, explain the goal of the research. Then took base line data by using tool and assess knowledge of stroke, self-efficacy and activities of daily living for both study and control groups assess knowledge of stroke, self-efficacy and activities of daily living for both training and controller groups. It took about 20- 30 minutes.

- The timetable of (intervention) for the study group divided into 3 sessions.

- The researchers providing intervention concerning stroke through reading the

booklet. The researchers provided every patient of the training group with a brochure which included a clarification of (definition of stroke, causes of stroke, treatment, and complications after stroke, steps of rehabilitation, self-management and time that patients should contact the physician. It took about 20 minutes.

- At first the researchers demonstrated the intervention through discussion and audiovisual presentation at the neurological unit, after discharge the researcher meets the patients at out patient's clinic .ten patients at each meeting.
- After two weeks reinforce the teaching that introduced before by using booklet.
- After one month post stroke assessed knowledge, self-efficacy and activities of daily living of the studied sample at outpatient clinic for follow up.
- The control group was conventional only routine hospital care (measuring vital signs and giving prescribed medication).

Evaluation of the intervention:

Every patient of the studied sample was measured before intervention and two weeks of stroke. Also they were measured one month post intervention to evaluate their knowledge, self-efficacy and activities of daily living using tool I, tool II and tool III and tool IV.

Statistical analysis:

Data were together, presented, and statistically analyzed using statistical package of social science (SPSS) version 22 where the consequent statistics were applied.

1. Descriptive statistics: in which quantitative data were accessible in the form of mean ($\overline{X}$), standard deviation (SD), and qualitative data were presented in the form of numbers and percentages.

2. Analytical statistics: The tests used of significance included chi-square test (χ^2), student t- test, Mann-Whitney test, repeated-Measures (ANOVA) and Pearson's correlation coefficient (r). p-value > 0.05 was considered not statistically significant, a p-value < 0.05 was considered statistically significant, and a p-value < 0.001 was considered highly statistically significant.

Results:

Table (1): shows that, the mean age of the participants in the study group and control group was 55.50 ± 4.43 and 56.00 ± 4.40 years old respectively. Concerning the marital status, more than three fourths of the participants in the study group (78.0%) had married and most of the patients in the control group (90%) had married. Regarding level of education more than one third of the participants in the study and control group (36.0% and 42.0%)) had Secondary school respectively. Regarding the living conditions more than half of the participants in the study and control group (86.0% and 80.0%) was lived with family.

Table (2): indicates that more than one third of the participants in the training group (40.0%) had moderate degree of stroke while more than one third of the participants in the control group (40.0%) had severe degree of

stroke. Regarding type of stroke most of the patients in the study and control group (94.0% and 90.0%) had ischemic respectively. Also the majority of sample in both study and control group (80.0% and 76.0%) had chronic disease respectively. Out of (80.0% & 70.0%) of the total sample, more than one third of them (37.5% &44.7%) had hypertension respectively.

Table (3): demonstrates that there was improvement in level of knowledge about stroke in the study group compared with the control group post and follow up post intervention (p=0.000 &0.000,) respectively that indicate intervention has positive effect on knowledge

Table (4): There was statistically difference between the study group concerning the total score patients' knowledge about rehabilitation stroke pre, post and follow up intervention (P=.000)

Table (5): illustrates that more than half of studied sample had poor knowledge pre intervention (70.0% &64.0%) respectively. While 68.0% had good knowledge in study group compared to control group post intervention to patients' awareness about secondary stroke prevention. There was substantial difference between the study group regarding the total score of patients' awareness about secondary stroke avoidance pre , post and follow up intervention (P=.000)

Table (6): demonstrates that there was a statistically substantial improvement in the mean score of patients' Follow-up guidelines about long term stroke recovery from (10.16 ± 3.04 to 16.06 ±4.04) in study group post intervention ,also there was substantial difference between the study group at different interval of study (P=..000)

Table (7): shows that, the total level of SSQE Stroke Self- Efficacy **score** in the study group pre intervention, (70.0%) of patient in study group were classified as having not done. While 64.0% had good done at follow up from intervention. Additionally there was statistically significant difference in study group post intervention (p =0.000)

Table (8): this table highlighted that 100% of studied sample haven't independent level of Barthel Index for activities of daily living (ADL) pre intervention. There was substantial difference among the study group about the total score of Barthel Index for activities of daily living pre, post and follow up intervention

Table (9): It illustrates that there are positive correlations between score of knowledge about stroke, age, SSQE Stroke Self-Efficacy and Barthel Index for Actions of diurnal living (ADL) for the study and control group, also, there was a statistical significance difference (p=0.00%; 0.002%) respectively.

Table (1): Demographic characteristics of the studied sample (n= 100).

Demographic data	Study group (n=50)		Control group (n=50)		χ^2	P-value
	No.	%	No.	%		
Age						

(Mean ± SD)	55.50 ± 4.43		56.00 ± 4.40		-.566-	.573
Sex						
Male	25	50.0%	27	54.0%	.160	.689
Female	25	50.0%	23	46.0%		
Marital status						
Single	4	8.0%	1	2.0%	3.047	.218
Married	39	78.0%	45	90.0%		
Widowed	7	14.0%	4	8.0%		
Level of education						
Illiterate	5	10.0%	8	16.0%	4.010	.405
Read and write	10	20.0%	12	24.0%		
Primary school	7	14.0%	5	10.0%		
Secondary school	18	36.0%	21	42.0%		
University	10	20.0%	4	8.0%		
Living conditions						
Living alone	2	4.0%	3	6.0%		
Spouses and children	5	10.0%	7	14.0%	.642	.726
Living with family	43	86.0%	40	80.0%		
Occupation						
Work	26	52.0%	27	54.0%	.040	.841
un work	24	48.0%	23	46.0%		
Smoking						
Yes	25	50.0%	27	54.0%	.160	.689
No	25	50.0%	23	46.0%		

Table (2): Distribution of medical data among studied sample (n= 100).

Medical data	Study group (n=50)		Control group (n=50)		χ^2	P-value
	No.	%	No.	%		
Degree of stroke (according to signs and symptoms and patient's condition)						
Mild	12	24.0%	13	26.0%	.389	.823
Moderate	20	40.0%	17	34.0%		
Severe	18	36.0%	20	40.0%		
Type of stroke						
Ischemic	47	94.0%	45	90.0%	.543	.461
Hemorrhage	3	6.0%	5	10.0%		
Chronic disease						
Yes	40	80.0%	38	76.0%	.233	.629
No	10	20.0%	12	24.0%		
If yes type of disease						
Cardiac	9	22.5%	8	21.1%	1.887	.596
Chest	2	5.0%	4	10.5%		
Diabetes	14	35.0%	9	23.7%		
Hypertension	15	37.5%	17	44.7%		

Table (3): Distribution of Level of patients' knowledge about stroke in studied sample at different interval of study.

Items	Level of knowledge about stroke						$\chi^2$1 P1-value	$\chi^2$2 P2-value
	Pre		Post		Follow-up			
	No.	%	No.	%	No.	%		
Study group								
poor knowledge	28	56.0%	5	10.0%	10	20.0%	30.10	4.333
Fair knowledge	12	24.0%	10	20.0%	15	30.0%	.000	.115
good knowledge	10	20.0%	35	70.0%	25	50.0%		
Control group								
poor knowledge	32	64.0%	30	60.0%	27	54.0%	.210	.850
Fair knowledge	14	28.0%	15	30.0%	15	30.0%	.900	.654
Good knowledge	4	8.0%	5	10.0%	8	16.0%		
$\chi^2$3	2.992		41.35		16.56			
P3-value	.224		.000		.000			

Note:$\chi^2$1 & P1: comparison between pre and post intervention for the same group.
$\chi^2$2 & P2: comparison between post intervention and Follow-up for the same group.
$\chi^2$3 & P3: comparison between study and control group.

Table (4): Mean score of patients' knowledge about stroke' rehabilitation post stroke

in the studied sample (n = 100).

Items	Mean score of Primary patients' knowledge about rehabilitation post stroke		Independent t test	P-value
	Study group (Mean ± SD)	Control group (Mean ± SD)		
Pre intervention	10.98 ± 3.33	11.70 ± 4.08	-.683	.496
Post intervention	16.58 ± 4.54	12.62 ± 4.40	4.421	.000
Follow-up	18.18 ± **4.85**	13.16 ±**4.41**	5.576	.000
Anova test	40.554	1.471		
P-value	.000	.233		

Table (5): Distribution of Level of patients' awareness about secondary stroke prevention in the study and control groups on pre, post and follow-up.

Items	patients awareness about secondary stroke prevention						$\chi^2$1 P1-value	$\chi^2$2 P2-value
	Pre		Post		Follow-up			
	No.	%	No.	%	No.	%		
Study group								
Bad knowledge	35	70.0%	6	12.0%	5	10.0%	42.076	1.341
Fair knowledge	10	20.0%	10	20.0%	15	30.0%	.000	.511
good knowledge	5	10.0%	34	68.0%	30	60.0%		
Control group								
Bad knowledge	32	64.0%	30	60.0%	25	50.0%	.218	1.489
Fair knowledge	12	24.0%	14	28.0%	15	30.0%	.897	.475
Good knowledge	6	12.0%	6	12.0%	10	20.0%		
$\chi^2$3	.407		36.26		23.33			
P3-value	.816		.000		.000			

Note:
$\chi^2$1 & P1: comparison between pre and post intervention for the same group.
$\chi^2$2 & P2: comparison between post intervention and Follow-up for the same group.
$\chi^2$3 & P3: comparison between study and control group.

Table (6): Mean score of patients' Follow-up guidelines about long term stroke recovery in the study and control groups on pre, post and follow-up.

Items	Mean score of patients' Follow-up guidelines about long term stroke recovery		Independent t test	P-value
	Study group (Mean ± SD)	Control group (Mean ± SD)		
Pre intervention	10.16 ± 3.04	10.38 ± 2.98	-.076	.940
Post intervention	16.06 ±4.04	10.79 ± 3.15	7.262	.000
Follow-up	15.95 ± **4.03**	12.84 ±**4.49**	3.641	.000
Anova test	40.748	6.681		
P-value	.000	.002		

Table (7): Distribution of Level of SSQE Stroke Self- Efficacy among studied sample at pre, post and follow-up.

Items	SSQE Stroke Self- Efficacy Questionnaire						$\chi^2$1	$\chi^2$2
	Pre		Post		Follow-up		P1-value	P2-value
	No.	%	No.	%	No.	%		
Study group								
not done	35	70.0%	10	20.0%.	5	10.0%	28.781	2.324
Moderately done	10	20.0%	14	28.0%	13	26.0%	.000	.313
good done	5	10.0%	26	52.0%	32	64.0%		
Control group								
not done	37	74.0%	35	70.0%	32	64.0%	.237	1.778
Moderately done	10	20.0%	12	24.0%	11	22.0%	.888	.411
good done	3	6.0%	3	6.0%	7	14.0%		
$\chi^2$3	.556		32.28		35.89			
P3-value	.757		.000		.000			

Note:
$\chi^2$1 & P1: comparison between pre and post intervention for the same group.
$\chi^2$2 & P2: comparison between post intervention and Follow-up for the same group.
$\chi^2$3 & P3: comparison between study and control group.

Table (8): Distribution of Level of Barthel Index for Activities of Daily Living ADL in the study and control groups on pre, post and follow-up.

Items	Barthel Index for Activities of Daily Living ADL						$\chi^2$1	$\chi^2$2
	Pre		Post		Follow-up		P1-value	P2-value
	No.	%	No.	%	No.	%		
Study group								
total dependent	3	6.0%	2	4.0%	1	2.0%		
very dependent	35	70.0%	20	40.0%	8	16.0%	12.560	10.278
partially dependent	9	18.0%	15	30.0%	16	32.0%	.014	.036
minimally dependent	3	6.0%	10	20.0%	15	30.0%		
Independent	0	0.0%	3	6.0%	10	20.0%		
Control group								
total dependent	4	8.0%	5	10.0%	3	6.0%		
very dependent	35	70.0%	33	66.0%	20	40.0%	2.087	10.633
partially dependent	9	18.0%	7	14.0%	17	34.0%	.720	.031
minimally dependent	2	4.0%	4	8.0%	5	10.0%		
Independent	0	0.0%	1	2.0%	5	10.0%		
$\chi^2$2	.343		10.95		12.84			
P2-value	.952		.027		.012			

Note:
$\chi^2$1 & P1: comparison between pre and post intervention for the same group.
$\chi^2$2 & P2: comparison between post intervention and Follow-up for the same group.
$\chi^2$3 & P3: comparison between study and control group.

Table (9): Pearson correlation between Total score of knowledge about stroke, Age (years), SSQE Stroke Self- Efficacy and Barthel Index for Activities of Daily Living ADL.

Variables	Total score of knowledge about stroke			
	Study group		Control group	
	r	P	r	p
Age (years)	-.761**	.000	-.846**	.002
SSQE Stroke Self- Efficacy	.913**	.000	.879**	.000
Barthel Index for Activities of Daily Living ADL	.826**	.000	.842**	.000

Note: r: Pearson coefficient ** Correlation is significant at the 0 01 level (2-tailed)

Discussion

Stroke remains important reason of death and the chief cause of disability and dependency in activity of daily living global everywhere the world so stroke patients immediately want rehabilitation to improve activities of circadian living and decrease disability **(Arian,et al., 2018).**

Concerning to sociodemographic statistics the present study found that mean age of study and control group ranged from fifty five to fifty six years old. Regarding the marital status, more than half of the contributors in the study group and control group had married. About level of education more than one third of the participants in the study group and control group had secondary school. Concerning the living conditions majority of the contributors in the study group and control group had living with family. These results conflicted with **Chen,et al.,(2020)** that study the Efficacy of motivational interviewing in concern to activities of circadian living among stroke Patients. who establish that the mean age in the experimental group and control group was about sixty one years and low level of education, with regard to activities of daily living most of them reaching severe dependency and the majority of them living alone , so these indicating a relatively low ability to live alone. These disagreed to our results related to type of sample during data collection; also most participants in our study were living in the rural areas so they like to live together than living alone.

Moreover the current study presented that the majority of study and control group had severe degree of stroke and its type as ischemic stroke. Regarding chronic disease, more than half of the contributors in the study group and control group had chronic disease as hypertension. These results corresponding **Deyhoul,et al.,(2018)** who study the outcome of informative interference on family caregivers' declared threat of the risk of dependency among Patients with stroke, found that the greatest of stroke patients were male, wedded, illiterate, low income adequacy, and suffered from chronic hypertension, diabetes, and hypercholesterolemia. These results mean most stroke patients had chronic disease that increased occurrence of stroke especially ischemic stroke.

Regarding to patient's knowledge and rehabilitation about stroke, the current study showed that total of level of initial patients' knowledge about stroke in the study and control group pre intervention were poor, however level of knowledge score of the participants in the study group post and follow up intervention were improved than control group. These results agreement with

Hong, et al., (2019) that studied Evaluation of functional status progresses among patients with stroke reception post-acute care in inpatient convalescence and practiced nursing services. who found patients with stroke admitted to post-acute care in inpatient rehabilitation facilities compared with those admitted to skilled nursing facilities had higher mean scores for knowledge on admission, these results related to knowledge and information about stroke. At same line **Faiz,et al., (2019)**. Who study stroke-related information and routine behavior among stroke stickers, they found stroke stickers informed increased stroke knowledge after three and twelve months. So patients made changes in lifestyle behavior, patients would able properly recognized their own cerebrovascular subtype, progress in clinical practice when notifying and interactive with stroke.

Regarding to patient's awareness and guidelines about recovery and treatment among stroke patients, the current study showed that patients' awareness post and follow up guidelines about secondary stroke prevention score in the study group had improved than control group and majority of study group had good knowledge post and follow up higher than pre intervention. **Faiz,et al., (2019)** who emphasized and stressed on these results by any intervention or program looking for to improve the recovery of stroke need to consider these knowledge awareness relating to patient's needs of stroke and long term care. Similarly **Mahak, et al., (2018)** who assessed the application of rehabilitation services among Stroke patients, who found that rehabilitation, is of highest significance, hemiparesis difficulty in performance activity of daily living, difficulty in accomplishment public activities, and difficulty in reasoning were the most common problems met by patients suffering stroke after discharge from the hospital. Also **Lin Xing and Jianhui (2021)** who added that after the intervention and rehabilitation program, the muscle strong of the upper and lower extremities, the self-care ability scores, and the active daily living of the patients in the study group were improved than the control group, with statistically significant differences. The subjective well-being levels of the patients in the study group were also improved better than in the control group. The occurrence of problems in the study group was lower than in the control group. The same results that **Narayanan, (2021)** focused it Patients had poor level of awareness about stroke and majority of stroke patients had the fear of falling during assessed the level of awareness and measured the risk of drops in stroke patient. As like results **Abd El-Hay, et al., (2018)** who revealed that the application of instructive training program within two months were successful for improving nurses' information and training concerning care of stroke patients. Furthermore, there was progress in activities of daily living and self-care among stroke patients.

Concerning to level of Stroke Self-Efficacy in the training and control groups pre, post and follow-up, the current study found that total level of Stroke Self- Efficacy score in the study and control group pre intervention, were classified as having not done. However total level of Stroke Self- Efficacy **score** the participants in the study group post and follow up intervention; had good done than control group. These results like as **Gieracha, et al., (2020).** That study the role of Self-Efficacy in the recapture method of stroke Stickers, they found that a routine self-efficacy assessment through the convalescence

process seems very significant. Patients whose initial self-efficacy is low or residues unaffected despite rehabilitation require distinct attention, self –efficacy were improved after post and follow up intervention among study group than control group. Also found after three weeks of post-stroke rehabilitation, recorded an important progress in virtually all of the factors investigated and progress of the self-efficacy correlated significantly with a decrease of depressive symptoms, an increase in illness acceptance level and an improvement in terms of basic activities of daily life. The uppermost number of cases of progress in the self-efficacy was recorded in participants with advanced education who were wedded; whose families had full care capacity. At the similar line **Katerawala , et al., (2019)** who assessed the effect of task oriented activity training on improving balance and self-efficacy in sub-acute stroke. They found significant progress in both groups managed with expected therapy along with task oriented approach and the mean difference found between the pre and post therapeutic measurements was much more in the experimental group in balance, self- efficacy and functional point. Also **Nair and Augustine, (2021)** who studied effectiveness of task oriented walking intervention on improving balance in stroke patients**,** they found both group showed significant improvement after the rehabilitation and awareness program. The experimental group presented a statistically significant improvement in balance when paralleled to the control group at one percentage level of significant.

Furthermore, the present study showed statistically substantial alteration between the study group regarding the total score of Barthel Index for activities of daily living pre, post and follow up intervention, also Barthel Index for activities of daily living, post and follow up intervention had improved and the patients became more depended among study group than control group during post and follow up intervention. **Chinês ,(2019**) supports these results and found patients with critical ischemic stroke complicated with ,active self-efficacy intervention could progress the Barthel Index for activities of daily living and it was helpful to increase the consequences of patients. At the same line **Han, (2020)** emphasized these results that showed statistically significant changes in the presentation and approval the two scales of the Barthel Index, and the total score of the Barthel Index in the home-based study group. There were no statistically important alterations in Barthel Index for the participants in the control group

Regarding to correlation between total score of knowledge about stroke, age, Stroke Self- Efficacy and barthel Index for Activities of Daily Living among two both studied group. The current research demonstrated that there were positive correlations between score of knowledge about stroke, age, Stroke Self- Efficacy and barthel Index for Activities of daily living for the training and control group. So, there was a statistical significance difference. At the same line **Saengsuwan, et al. (2017)** Who assessed information of stroke risk aspects and threatening signs in Patients with repeated stroke, they found relative between the totality of Information Scores from closed-ended questions and patients with a greater degree of infirmity, characterized by a Barthel index lower than sixty, had a significantly lower score equaled with those with a higher Barthel index. There was statistically significant change in knowledge in terms of age

group, sex, living situation, and education level.

Therefore, look like that increase level of self-efficacy allows for more actual resolutions and approaches to be practical in the recovery method. Also increase activity daily living, increase self-care abilities, decrease complication as well as improve the quality of life in stroke patients in the rehabilitation stage.

Conclusions:

The study established that nursing intervention which include educational information, rehabilitation and awareness knowledge that increase self-efficiency, activity daily living that increase self-care abilities, decrease complication as well as improve stroke patients in the rehabilitation phase.

Recommendations for practice and research

- Nursing intervention and education should be directed toward who are at danger of stroke and instruct about management and uppermost of follow- ups, rehabilitation facilities in agreement with their level of education, in a language that is easily understandable.
- Apply updated protocol of different methods of nursing intervention that help stroke patients to control stress, hypertension, high risk factors through booklet and different methods of education and rehabilitation service
- Repetition of the research with great possibility sample to license more generation of the education outcomes.

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