

Evaluation of Home Health Care Intervention for Cerebral Stroke Patients and Their Caregivers in Benha City

Mona Abdalla Abdelmordy, Howyida Sadek Abd El-Hameed, Hanaa Abd El-Gawad Abd El-Megeed, Ebtisam Mohamed Abdelaal

Community Health Nursing Department, Faculty of Nursing, Benha University

ABSTRACT

Cerebrovascular stroke has become an increasingly important health problem worldwide. It is ranked as the third leading cause of death, behind heart disease and cancer. Stroke is a leading cause of serious long-term disability. **The aim** of this study was to evaluate home health care intervention for cerebral stroke patients and their caregivers in Benha city. **Design:** Quasi-experimental design was utilized in carrying out this study. **Setting:** the study was conducted at the neurologic outpatients' clinics of Benha University Hospital, Health Insurance Hospital and Teaching Hospital in Benha City. **The sample** of this study included 100 stroke disease patients chosen randomly from total (1000). **Tools** utilized in this study comprised a structured interviewing questionnaire for the assessment of the stroke patients and their caregivers' socio-demographic characteristics, knowledge about disease, daily living activities and caregivers burden scale; and observational checklist for home environment assessment, caregivers practices to their patients as feeding, communication skills, giving medications and oral hygiene and degree of self-dependency of cerebral stroke patients through daily living activities. **Results** of this study showed that 64% of the stroke patients were males and aged 48 years or more with mean age was 54.3 ± 18.2 , the majority of caregivers were females, 30% of them aged 18- < 28 years with mean age was 36.6 ± 12.4 . There was a significant positive effect of home health care intervention on knowledge and practices of cerebral stroke patients and their caregivers after the implementation of the intervention. **This study concluded that**, there was highly statistically significant relation in the total knowledge score of the stroke patients and their caregivers' pre and post program implementation and there was a positive significant correlation between stroke patient caregivers' total knowledge score and total practices pre and post program implementation. **Recommendations:** Health educational program should provide stroke patients and their caregivers' with the needed knowledge and practices before hospital discharge.

Key words: Cerebral stroke, caregivers, home health care intervention, daily living activities.

Introduction

Stroke is the primary neurologic problem in the world and the third leading cause of death worldwide. A stroke is a sudden loss of brain function resulting from disruption of the blood supply to a part of the brain. It causes a wide variety of neurologic deficits, depending on the location of the

lesion (which vessels are obstructed), the size of the areas of inadequate perfusion, and the amount of collateral blood flow. The risk of stroke increases with advancing age. In the over 75-age group, approximately 10% will experience a stroke (WHO, 2015a).

Stroke is a major health problem. It occurs when the blood flow to the brain is

obstructed, by a blood clot moving to the brain, or by narrowing or bursting of blood vessels; the blood loses its energy supply, causing damage to tissues leading to stroke. Annually, 15 million people worldwide suffer a stroke. Out of these, 5 million die and another 5 million are left permanently disabled, placing a burden on family and community. Stroke is uncommon in people under 40 years; when it occurs, the main cause is high blood pressure (*WHO, 2014*).

Stroke affects people in different ways. Some people experience a few mild effects, and get improved after a short time (sometimes, only minutes or hours). Others suffer numerous severe effects, which last for months or even years. The effects of stroke will depend on the part of the brain, that has been injured, or damaged and how the general health at the time of stroke. Recovery can take place after several years of stroke. It may also be enhanced by learning ways of adapting to disability (*The Stroke Association, 2014*).

Patients suffering from stroke are at risk for many complications related to impaired neuromuscular functions. The patient with severe motor impairment is at risk for constipation, dehydration, contractures, urinary tract infections, pressure ulcers, and pneumonia. Sensory losses put the patients at risk for traumatic injuries. The long-term recovery of the stroke patient may well depend on the care received after the stroke. Therefore, the care provided at home to stroke patients is a vital one. Hence, the risk can be reduced and the patient is challenged to return to the highest level of activities of daily living functions (*Adams, 2013*).

Caregivers play a prominent role throughout the post stroke recovery process. They are essential to successful home care and too often are ignored. Caring for stroke survivors at home can cause high levels of emotional, mental and physical stress. In addition family caregivers can promote

positive post stroke recovery outcomes; however, they need to care for themselves as well. Post stroke recovery varies for each person; even if the stroke survivor returns to work and maintains a large amount of autonomy, family members may play a bigger role in the stroke survivor's life than before the stroke (*National Stroke Association, 2013*).

The home health care is the component of comprehensive health care, whereby care is provided to individuals and families in their places of residence for the purpose of promoting, maintaining or restoring health or minimizing the effects of illness and disability (*Dennis, 2014*).

The community health nurse (CHN) has the opportunity to assist the stroke patients and their caregivers, not only through acute hospitalization but also through long term rehabilitation care at home. The needs of patients and their caregivers require ongoing nursing assessment and adaptation of interventions in response to changing needs to optimize quality of life for both the patient and caregiver. The CHN also develops partnerships with patients to achieve behavior changes that promote, maintain or restore health. This partnership focuses on self-care, the ability to effectively advocate and manage a person's own health (*Lewis et al., 2014, Allender & Spradely, 2015*).

Significance of the study:

Stroke is the third leading cause of death and disability in the United States, Europe and many developing countries. Moreover, stroke is a leading cause of functional impairments, 20% of survivors require institutional care after 3 months, and 15% to 30% become permanently disabled. Stroke is a life-changing event that affects not only the person who may be disabled, but the entire family and the other caregivers as well (*Adams, 2013*). In Egypt, there are 14.8% of people are suffering from stroke, and 1600 cases die annually from it. About

47% of patients had at least two or more modifiable risk factors (smoking, physical inactivity, hypertension, diabetes and hypercholesterolemia). The large majority of stroke mortality was higher in hemorrhagic strokes 42.3% vs. 19.2% in ischemic strokes (*WHO & Helmiy, 2013*). So it is important to conduct this study to assess health care for stroke patients and their caregivers.

Aim of the study:

The aim of this study is to evaluate home health care intervention for cerebral stroke patients and their caregivers in Benha city through: Assessing farmers' knowledge regarding brucellosis.

- Assessing the patients and their caregivers' knowledge about cerebral stroke.
- Assessing the patients and their caregivers' practices about cerebral stroke.
- Assessing the effects of cerebral stroke on patient's daily living activities
- Designing and implementing home health care intervention for the cerebral stroke patients and their caregivers according to their needs.
- Evaluating the degree of improvement in the caregiver's knowledge and practice.
- Evaluating the degree of satisfaction in the patient's level of independence as an impact of the exposure to the intervention

Research hypothesis:-

The main scores of cerebral stroke patients and their caregivers' knowledge, practices and patients' satisfaction will be

improved after the implementation of the intervention than the main scores before the intervention implementation.

Subjects and method:

Research design:

Quasi experimental design was utilized to carry out this study.

Setting:

The present study was conducted at Neurologic Outpatients' Clinics of Benha University Hospital, Health Insurance Hospital and Teaching Hospital to collect information about the patients followed by home visit to conduct the intervention. The researcher choosed these hospitals because they are all Governmental Hospitals in Benha City which receive large number of cerebral stroke patients.

Sampling:

Simple random sample was used; as 10% of all patients attended to previous mentioned settings. The total numbers of patients diagnosed with cerebral stroke in the last year (2014) attended to Neurologic Outpatients' Clinics of Benha University Hospital, Health Insurance Hospital and Teaching Hospital were 300, 500 and 200 respectively that equal 10% were chosen randomly as 30, 50 and 20 respectively. The total number of sample was (100 patient) were chosen according to the following criteria:

-Age from 18 years and above

-Diagnosed with cerebral stroke with mild and moderate complications.

Tools for Data Collection: Three tools were used to collect the data:

Tool I: An interviewing questionnaire was developed by investigator, based on reviewing related literatures, and written in Arabic language: It comprised of three parts to assess the following:

First part: Was to assess socio - demographic characteristics of the cerebral stroke patients and their caregivers. It included questions about age, sex, marital status, educational level, occupation, residence, type of family, income, kinship to patients, place of living, past and current health history.

Second part: Included questionnaire to assess patients and their caregivers' knowledge about cerebral stroke, which included eleven questions about meaning, causes, risk factors, signs & symptoms, complications, types of drugs, precautions during drug taking, drugs side effects, suitable foods for stroke patients, foods that should be avoided for stroke patients and preventive measures of stroke. This tool measured pre/post home health care intervention.

- Scoring system:

Knowledge score for each answer was given as follows:

2 = **correct answer**

1 = **correct and incomplete answer**

0 = **incomplete answer**

Total scores of knowledge = 22

The total knowledge scores were considered good if the score of the total knowledge > 75 % (> 17), considered average if it is equals 50-75% (11-17), and considered poor if it is less than 50% (<11).

Third part: Included a questionnaire that assessed cerebral stroke patients'

knowledge about daily living activities to assess their level of independence which included nine questions about importance of skin care, bathing precautions, importance of mouth care, suitable cloths, healthy balanced diet, precautions during feeding, assistive devices for patient, importance of exercise and importance of sleep.

- Scoring system:

Knowledge score for each answer was given as follows:

2 = **correct answer**

1 = **correct and incomplete answer**

0 = **incomplete answer**

Total scores of knowledge about daily living activities = 18

The total knowledge scores were considered good if the score of the total knowledge > 75 % (> 14), considered average if it is equals 50-75% (9-14), and considered poor if it is less than 50% (<9).

Tool II: Included a questionnaire that assessed caregivers burden scale for cerebral stroke patients adopted from *Abdel Ghany, (2006)* and modified by the researcher which included five main components which included twenty two items divided as following: general strain which consisted of eight items, isolation composed of three items, disappointment composed of five items, emotional involvement composed of three items and environment composed of three items, using 3 points scale (always, sometimes and rare).

- Scoring system:

A score for each answer on questions of burden scale feeling was given as follow:

2 = **Always**

1 = **Sometimes**

0 = **Rarely**

Total score of burden scale feeling = 44

The total scores of burden scale feeling were considered good if the score of the total burden feeling > 75 % (> 33), considered average if it is equals 50-75% (22-33), and considered poor if it is less than 50% (<22).

Tool III: Observational checklist: was concerned on three parts:

First part: was observing and assessing the cerebral stroke patient's home environmental facilities and safety measures such as (environment, stairs and corridors, the house as a general, the patients' bed room and the bathroom) .

Second part: was observing the practices done by caregivers to care for their cerebral stroke patients such as (communication with stroke patient, giving medications, feeding and oral hygiene).

Third part: was observing the degree of self-dependency of cerebral stroke patients through daily living activities which included seventeen questions as (general appearance, bathing, wearing clothes, cleaning clothes, feeding, food preparation, getting the drugs, movement, home care, using of bath rooms, transferring, transferring with transport, shopping, exercise as walking, defecation, climbing stairs and using a telephone).

Content validity:

Content validity was done by 5 experts of Faculties Nursing Staff from the Community Nursing Specialties reviewed the tools and gave their opinion.

Operational Design

Preparatory phase

Preparation of the study design and data collection tools based on reviewing current, past, local, and international related literature about various aspects of cerebral stroke disease and its prevention by using journals, periodicals books and internet search to construct the tools and prepare the home health care intervention

Ethical consideration:

Permission was obtained orally from each patient and their caregivers before conducting the interview and after giving a brief orientation to the purpose of the study. The patients and their caregivers were also reassured that all information gathered would be confidential and used only for the purpose of the study. No names were required on the forms to ensure anonymity and confidentiality. They were also informed about their right to withdraw at any time from the study without giving any reason.

Pilot study:

It was conducted on 10% of the studied sample (10 patients and their caregivers) to test the clarity, simplicity, and applicability of the tools using the interviewing questionnaire and the observational checklist as a pre-test sheet. Those who shared in the pilot study were excluded from the main studied sample. Based on the pilot results, the tools were modified. Modification of the tool included rephrasing of some questions, rearrangement of the questions sequences and omission of some questions such as (marital state as divorce and retirement in caregivers' occupation) excluded from the sheet because non cases found during the sample collection. After refinement and modifications, the final form of the tool was developed. This pilot study was carried out two weeks before starting the study

Field work:

Data were collected over 8 months throughout the period from the beginning of December 2014 to the end of July 2015. It was carried out by the researcher for the cerebral stroke patients and their caregivers in the selected settings at the Neurologic Outpatients' Clinics and their homes through home visits.

Administrative design:

Official permission was taken from the Dean of Faculty of Nursing to the Directors of the selected hospitals followed by other official letters to the chairmen of neurological outpatient clinics and the oral consent from the patients with cerebral stroke and their caregivers. The title, objectives, study techniques and tools were illustrated

for cooperation, as well as to allow the researcher to prepare regular arrangement with patients and their caregivers'.

Statistical design:

Statistical presentation and analysis of the present study data were carried out, using mean and standard deviation and Chi-square by using the Statistical Package for Social Sciences (SPSS) version 20

Significant levels were considered as follows:

$P < 0.05$ Not significant

$P > 0.05$ Significant

$P > 0.001$ Highly significant

Results:

Table (1): Percentage distribution of the stroke patients according to their socio-demographic characteristics (n= 100).

Socio-demographic characteristics	%
Sex:	
Male	64.00
Female	36.00
Age:	
18-	10.00
28-	14.00
38-	12.00
48+	64.00
Mean \pm SD	54.3 \pm 18.2
Marital status:	
Single	11.00
Married	65.00
Widow	24.00
Educational level:	
Illiterate	33.00
Read & write	15.00
Primary education	13.00
Secondary education	18.00
University education	21.00
Occupation:	
Student	1.00
Employed	32.00
Retirement	12.00
Free worker	10.00
Un employed	45.00
Residence:	
Rural	85.00
Urban	15.00
Type of the family	
Nuclear family	42.00
Extended family	58.00
Income	
Enough and Saving	5.00
Enough	81.00
Not enough	14.00

Table (1): Shows the socio- demographic characteristics of the stroke patients. It was clear that 64% of the patients were males, 64% of them aged 48 years or more with mean age was 54.3 \pm 18.2, while 65% of them were married and 33% were illiterate. Regarding the occupation 45% of stroke patients were unemployed, 85% lived in rural areas, 58% lived in an extended family and 81% of them had enough income.

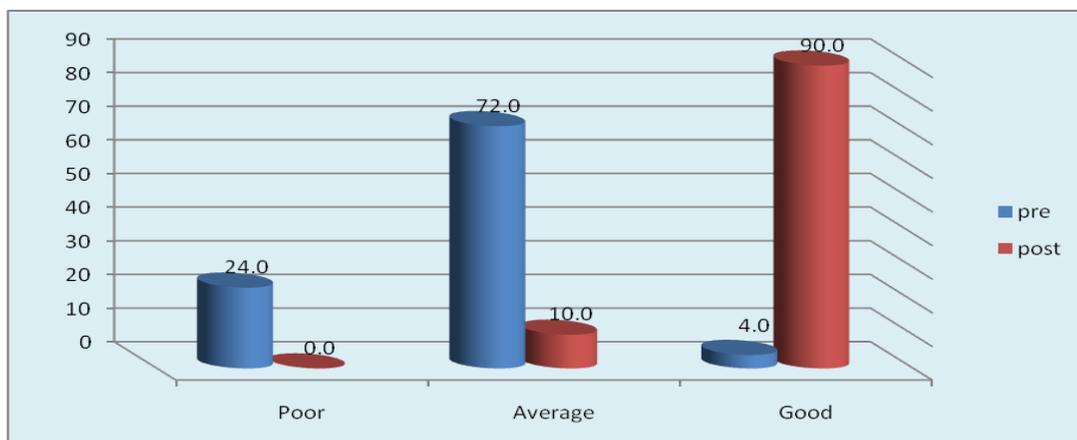
Evaluation of Home Health Care Intervention for Cerebral Stroke Patients and their Caregivers in Benha City

Table (2): Percentage distribution of stroke patient caregivers according to their socio-demographic characteristics (n=100).

Socio- demographic characteristics	%
Sex	
Male	16.00
Female	84.00
Age	
18-	30.00
28-	25.00
38-	25.00
48+	20.00
Mean \pm SD	36.6 \pm 12.4
Marital status	
Single	22.00
Married	74.00
Widow	4.00
Educational level	
Illiterate	7.00
Read & Write	11.00
Primary education	14.00
Secondary education	38.00
University education	30.00
Type of the family	
Nuclear family	54.00
Extended family	46.00

Table (2): Shows the socio- demographic characteristics of stroke patient caregivers. It was clear that 84% of the caregivers were females, 30% of them aged 18-< 28 years with mean age was 36.6 \pm 12.4, 74% of the caregivers were married, while 38% of them had secondary education. Otherwise, 54% of stroke patient caregivers lived in a nuclear family.

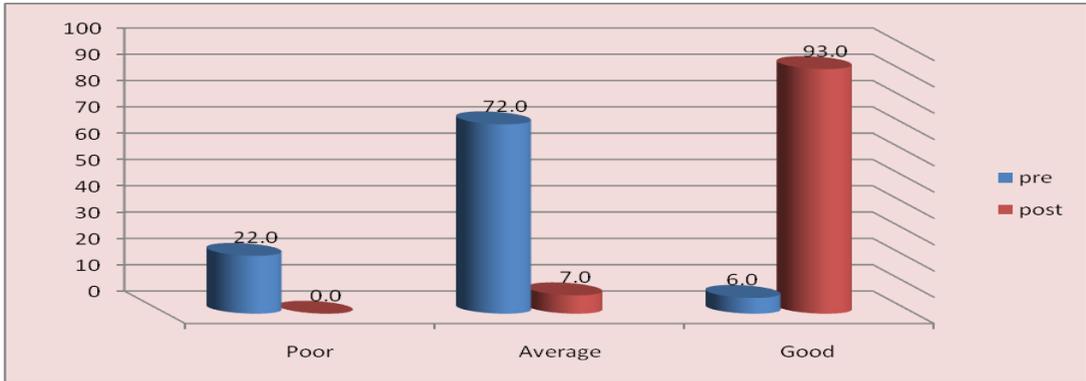
Figure (1):Percentage distribution of the stroke patients according to their total knowledge score regarding stroke pre and post intervention implementation (n=100).



This figure shows that only 4% of the stroke patients had good knowledge pre intervention, but post intervention increased to 90% meanwhile, 72% of them had average knowledge pre

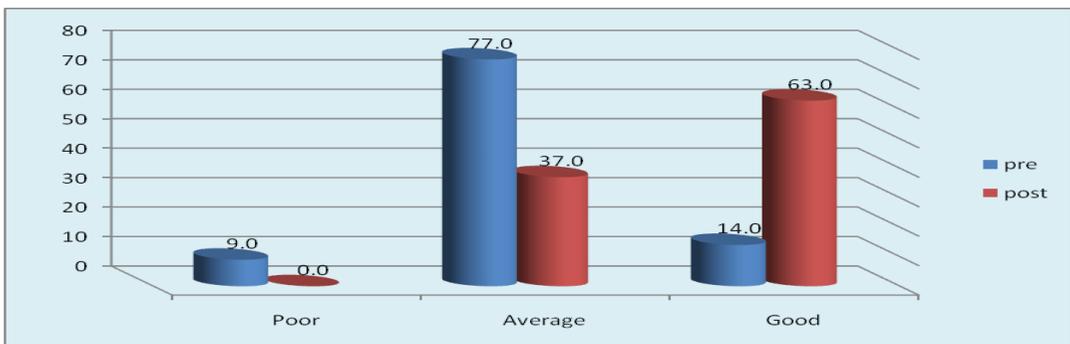
intervention, but post intervention reached to 10% and 24% of them had poor knowledge pre intervention, but post intervention no one of them had poor knowledge.

Figure (2): Percentage distribution of stroke patient caregivers according to their total knowledge score regarding stroke pre and post intervention implementation (n=100).



This figure shows that only 6% of the stroke patient caregivers had good knowledge pre intervention, but post intervention increased to 93% meanwhile, 72% of them had average knowledge pre intervention, but post intervention decreased to 7% and 22% of them had poor knowledge pre intervention, but post intervention no one of them had poor knowledge.

Figure (3): Percentage distribution of stroke patient caregivers according to their total practices score pre and post intervention implementation (n=100).



This figure shows that only 14% of the stroke patient caregivers had good practice pre intervention, but post intervention increased to 63% meanwhile, 77% of them had average practice pre intervention, but post intervention reached to 37% and 9% of them had poor practice pre intervention, but post intervention no one of them had poor practice.

Evaluation of Home Health Care Intervention for Cerebral Stroke Patients and their Caregivers in Benha City

Table (3): Relation between stroke patients' socio-demographic characteristics and their total knowledge score (n=100).

Socio-demographic characteristics	Total knowledge						X2	P-value
	Pre intervention			Post intervention				
	Good	Average	Poor	Good	Average	Poor		
Age								
18-	0.00	5.00	5.00	9.00	1.00	0.00	7.27	0.18
28-	0.00	10.00	4.00	14.00	0.00	0.00		
38-	1.00	11.00	0.00	12.00	0.00	0.00		
48+	3.00	46.00	15.00	55.00	9.00	0.00		
Marital status								
Single	0.00	5.00	6.00	10.00	1.00	0.00	6.42	0.16
Married	3.00	50.00	12.00	58.00	7.00	0.00		
Widow	1.00	17.00	6.00	22.00	2.00	0.00		
Educational level								
Illiterate	1.00	18.00	14.00	28.00	5.00	0.00	10.6	0.22
Read & write	1.00	10.00	4.00	12.00	3.00	0.00		
Primary education	0.00	10.00	3.00	12.00	1.00	0.00		
Secondary education	0.00	17.00	1.00	18.00	0.00	0.00		
University education	2.00	17.00	2.00	20.00	1.00	0.00		
Residence								
Rural	4.00	60.00	21.00	77.00	8.00	0.00	0.49	0.78
Urban	0.00	12.00	3.00	13.00	2.00	0.00		
Type of the family								
Nuclear family	1.00	35.00	6.00	40.00	2.00	0.00	3.27	0.19
Extended family	3.00	37.00	18.00	50.00	8.00	0.00		
Income								
Enough and Saving	1.00	4.00	0.00	5.00	0.00	0.00	2.62	0.62
Enough	2.00	60.00	19.00	73.00	8.00	0.00		
Not enough	1.00	8.00	5.00	12.00	2.00	0.00		

Statistically significant difference ($P \leq 0.05$)

Highly statistically significant difference ($P \leq 0.001$)

Table (3): Shows that there was no statistically significant relation between socio-demographic characteristics of the stroke patients and their total knowledge score ($p > 0.05$).

Table (4): Relation between socio-demographic characteristics of stroke patient caregivers and their total knowledge score (n=100).

Socio-demographic characteristics	Total knowledge						X2	P-value
	Pre intervention			Post intervention				
	Good	Average	Poor	Good	Average	Poor		
Age								
18-	3.00	21.00	6.00	30.00	0.00	0.00	4.44	0.23
28-	0.00	19.00	6.00	23.00	2.00	0.00		
38-	1.00	21.00	3.00	23.00	2.00	0.00		
48+	2.00	11.00	7.00	17.00	3.00	0.00		
Marital status								
Single	3.00	18.00	1.00	22.00	0.00	0.00	3.87	0.95
Married	3.00	52.00	19.00	67.00	7.00	0.00		
Widow	0.00	2.00	2.00	4.00	0.00	0.00		
Educational level								
Illiterate	0.00	5.00	2.00	5.00	2.00	0.00	6.0	0.26
Read & write	0.00	6.00	5.00	9.00	2.00	0.00		
Primary education	0.00	8.00	6.00	13.00	1.00	0.00		
Secondary education	2.00	28.00	8.00	37.00	1.00	0.00		
University education	4.00	25.00	1.00	29.00	1.00	0.00		
Occupation								
Student	0.00	5.00	0.00	5.00	0.00	0.00	9.72	0.28
Employed	0.00	15.00	1.00	15.00	1.00	0.00		
House wife	4.00	39.00	20.00	57.00	6.00	0.00		
Free worker	0.00	3.00	0.00	3.00	0.00	0.00		
Un employed	2.00	10.00	1.00	13.00	0.00	0.00		
Type of family								
Nuclear family	2.00	42.00	10.00	52.00	2.00	0.00	0.75	0.68
Extended family	4.00	30.00	12.00	41.00	5.00	0.00		
Place of living								
With patient	6.00	68.00	18.00	86.00	6.00	0.00	5.39	0.71
Far away from the patient	0.00	0.00	1.00	1.00	0.00	0.00		
Near from the patient	0.00	4.00	3.00	6.00	1.00	0.00		

Statistically significant difference ($P \leq 0.05$) Highly statistically significant difference ($P \leq 0.001$)

Evaluation of Home Health Care Intervention for Cerebral Stroke Patients and their Caregivers in Benha City

Table (4): Shows that there was no statistically significant relation between socio-demographic characteristics of stroke patient caregivers and their total knowledge score ($p > 0.05$).

Table (5): Relation between socio-demographic characteristics of stroke patient caregivers and their total practices score (n=100).

Socio-demographic characteristics	Total practices						X2	P-value
	Pre intervention			Post intervention				
	Good	Average	Poor	Good	Average	Poor		
Age								
18-	8.00	18.00	4.00	22.00	8.00	0.00	7.9	0.24
28-	1.00	22.00	2.00	18.00	7.00	0.00		
38-	1.00	22.00	2.00	13.00	12.00	0.00		
48+	4.00	15.00	1.00	10.00	10.00	0.00		
Marital status								
Single	6.00	16.00	0.00	16.00	6.00	0.00	7.32	0.12
Married	8.00	58.00	8.00	46.00	28.00	0.00		
Widow	0.00	3.00	1.00	1.00	3.00	0.00		
Educational level								
Illiterate	0.00	5.00	2.00	4.00	3.00	0.00	19.2	0.014
Read & write	1.00	10.00	0.00	7.00	4.00	0.00		
Primary education	0.00	10.00	4.00	6.00	8.00	0.00		
Secondary education	5.00	30.00	3.00	23.00	15.00	0.00		
University education	8.00	22.00	0.00	23.00	7.00	0.00		
Occupation								
Student	2.00	1.00	0.00	3.00	0.00	0.00	10.4	0.23
Employed	11.00	67.00	5.00	51.00	32.00	0.00		
House wife	1.00	4.00	4.00	4.00	5.00	0.00		
Free worker	0.00	0.00	0.00	0.00	0.00	0.00		
Un employed	2.00	3.00	0.00	5.00	0.00	0.00		
Type of family								
Nuclear family	10.00	40.00	4.00	34.00	20.00	0.00	0.72	0.69
Extended family	4.00	37.00	5.00	29.00	17.00	0.00		
Place of living								
With patient	14.00	71.00	7.00	57.00	35.00	0.00	10.6	0.031
Far away from the patient	0.00	0.00	1.00	0.00	1.00	0.00		
Near from the patient	0.00	6.00	1.00	6.00	1.00	0.00		

Statistically significant difference ($P \leq 0.05$) Highly statistically significant difference ($P \leq 0.001$)

Table (5): Shows that there was statistically significant relation between stroke patient caregivers' educational level, place of living and their total practices ($p < 0.05$). While there were no statistically significant relation between stroke patient caregivers' age, marital status, occupation and type of family and their total practices ($p > 0.05$).

Table (6): Relation between total knowledge score of stroke patients / their caregivers pre and post intervention implementation (n=100).

Total knowledge	Pre intervention		Post Intervention		X2	p-value
	No	%	No	%		
Caregivers' knowledge					151.9	0.000
Poor	22	22.00	0	0.00		
Average	72	72.00	7	7.00		
Good	6	6.00	93	93.00		
Patients' knowledge					149.5	0.000
Poor	24	24.00	0	0.00		
Average	72	72.00	10	10.00		
Good	4	4.00	90	90.00		

Statistically significant difference ($P \leq 0.05$)

Highly statistically significant difference ($P \leq 0.001$)

Table (6): Indicates that there was highly statistically significant relation in the total knowledge score of the stroke patients and their caregivers pre and post intervention implementation.

Total practices	Total knowledge			
	Pre intervention		Post intervention	
	r	P-value	r	P-value
Total practices pre intervention	0.47	0.000	-	-
Total practices post intervention	-	-	0.59	0.000

Statistically significant difference ($P \leq 0.05$)

Highly statistically significant difference ($P \leq 0.001$)

Table (7): Shows that there was a positive significant correlation between stroke patient caregivers' total knowledge score and their total practices pre and post intervention implementation.

Discussion:

Stroke has become an increasingly important health problem worldwide. There are about 5.5 million yearly deaths and an estimated loss of 49 million disability-adjusted life years worldwide. Stroke occurs when the brain is deprived of the oxygen. It needs to function properly. Immediate medical attention may minimize damage to the brain. Stroke can cause physical and behavioral changes. The symptoms experienced depend on the area of the brain

affected and the severity of the stroke. It is important for family members and friends to understand that a stroke may affect a person's social behavior (*Newell, 2013*).

Regarding to the socio-demographic characteristics of the patients with cerebral stroke, this study showed that around two thirds of the cerebral stroke patients were males (table 1). This might be due to males are more prone to hypertension which was the first cause of stroke. This finding was in the same line with *Melika (2008)*, who studied home health care: educational

package for caregivers of stroke disability patients, who found that approximately two thirds of stroke patients were males. Also, this finding was congruent with the studies done by *Meseguer et al., (2009)*, they studied the outcomes of intravenous recombinant tissue plasminogen activator therapy according to gender, *Appelros et al., (2009)*, they studied sex differences in stroke epidemiology, *Tiana et al., (2012)*, they studied the effects of gender on gene expression in the blood of ischemic stroke patients, and the *National Institute of Neurological Disorders and stroke, (2012)*, who reported that, gender also plays a role in risk for stroke. Men have a higher risk for stroke, but more women die from stroke. The stroke risk for men is 1.25 times than for women. But this finding disagreed with *Helmiy (2013)*, who studied the needs and concerns for stroked patient who found that the majority of the stroke patients were females and less than half were males. Also, incongruent with *Qureshi et al., (2014)*, they studied the stroke frequencies of intracerebral bleed, cerebral infarction and subarachnoid hemorrhage and showed that, from 100 cases there were 44 cases of the studied sample were males and 56 cases were females.

As regards age, the present study findings showed that around two thirds of the stroke patients aged 48 years or more with mean age 54.3 ± 18.2 (table 1). This might be due to the fact that older adults' physiological and health life changes which may be a risk for .This finding was similar to the study done by *Felgin (2009)*, who studied stroke epidemiology in the developing world and reported that; stroke is the disease of older adults approximately 60% to 75% of all strokes occur in person of 50 years and above. Also, this finding was incongruent with the study done by *Helmiy (2013)*, who reported that the majority of studied sample were within the age of 35 years and above.

Regarding to the marital status, the level of education and occupation, the results of the present study revealed that around two

thirds of the stroke patients were married, one third of them were illiterate and less than half of them were unemployed (table 1). This might be due to their post stroke disability or due to their age of retirement, also this means that the patients had low income and also, because of having no suitable job they might not have any health insurance to follow up their long term care especially after the disability which occurred due to the stroke disease. These findings were disagreed with the study done by *El-shamaa et al., (2010)* they studied the assessment of biopsychosocial needs for patients with chronic cerebrovascular stroke and *Helmiy (2013)*, who found that the majority of the studied sample were married, illiterate and still working. Regarding the residence, the type of family and the income, the results of the present study revealed that the majority of the stroke patients lived in rural areas, more than half of them lived in an extended family and more than three quarters of them had enough income (table 1). These findings were congruent with the study done by *Wachters et al., (2011)*, who found that the majority of the studied sample lived in rural areas, less than three quarters of them lived with their caregivers and had enough income. Also, these findings disagreed with the study done by *Jane Nakibuuka et al., (2014)*, who studied knowledge and perception of stroke: a population- based survey in Uganda and stated that more than half of the studied sample live in the urban areas.

According to the socio-demographic characteristics of stroke patient caregivers, the present study showed that, approximately the majority of stroke patient caregivers were females, less than one third of them their age ranged between 18-28 years, while around three quarters of them were married, more than one third of them had secondary education and more than half of them lived in a nuclear family (table 2). These findings were agreement with the study done by *Hamed (2013)*, who studied self- care rehabilitation model for cerebro functional disabilities, *Melika (2008)*, they found that

the majority of the caregivers were females and married, less than one third of them ages ranged between 20-30 years. Also more than one third of the caregivers' had secondary education but half of them live with their patients at homes.

Regarding to total knowledge score of stroke patients about stroke, the present study revealed that the majority of the stroke patients had good total knowledge after the intervention implementation (figure 1). This finding was congruent with *Mohamed (2015)*, who studied strategies of daily living rehabilitative activities for post stroke patients who reported that the patient's knowledge score level were significantly improved after implementation of the strategy. Regarding to total knowledge score of stroke patient caregivers about stroke, the present study revealed that the majority of the stroke patient caregivers had good total knowledge after the intervention implementation (figure 2). This finding was congruent with *Abdel-Hameed & Shebl (2014)*, they studied the impact of informal caregivers training program on geriatric patients' functional status and post stroke depression who reported that the total knowledge of stroke patient caregivers' post the training was increased (improved) significantly. Also this finding was congruent with *Abdelaziz et al., (2013)*, they reported that the differences in total knowledge of caregivers about stroke disease were highly statistically significant between pre, and post program.

Regarding to total practices score of stroke patient caregivers, the present study revealed that around two thirds of the stroke patient caregivers had good total practices after the intervention implementation (figure 3). This finding incongruent with *Abdel-Hameed et al., (2010)*, they reported that more than two-thirds of the stroke patient caregivers had poor skills about practices after the training program.

In the current study there was no statistically significant relation between socio-demographic characteristics of the stroke patients and their total knowledge score (table 3). This finding contradicted with *Helmiey (2013)*, who reported that there were highly statistically significant relations between socio-demographic and total knowledge and needs of the study patients. Also this finding contradicted with *Ali & Masta (2015)*, they reported that level of educational attainment had significant associations with knowledge of stroke risk factors. Also this finding contraindicated with *Ramírez-Moreno et al., (2015)*, they reported that there were significant sex differences regarding response to stroke or to its warning signs.

In the current study there was no statistically significant relation between socio-demographic characteristics of stroke patient caregivers and their total knowledge score (table 4). This finding was congruent with *Abdel-Hameed et al., (2010)*, they reported that the total knowledge score of the caregivers were not significantly relations with their age, sex, marital status, level of education and occupation. Also this finding was supported by *Gholamzadeh et al., (2013)*, who reported that there was no statistically significant relation between socio-demographic characteristics of stroke patient caregivers and their total knowledge score.

In the current study there was statistically significant relation between stroke patient caregivers' total practices and their educational level, and their place of living, however there was insignificant relations between stroke patient caregivers' total practices and age, marital status, occupation and type of family (table 5). In relation to the educational level, the highly educated caregivers had high level of knowledge about caring to their patients, this might be explained by the fact that educated person like to know what things benefit them

and what may cause harm. These findings were incongruent with the study done by *Abdel-Hameed et al., (2010)*, they reported that there was no statistically significant relation between stroke patient caregivers' educational level and their total practices, but congruent with him in there were no statistically significant relation between stroke patient caregivers' age, marital status, occupation and their total practice.

In this study, results showed that, there was highly statistically significant relation in the total knowledge score of the stroke patients and their caregivers' pre and post intervention implementation (table 6). This finding was congruent with *Perry (2011)*, who reported that there was highly statistically significant relation in the total knowledge score of the stroke patients and their carers pre and post intervention implementation.

In the current study there was a positive significant correlation between stroke patient caregivers' total knowledge score and total practices pre and post intervention implementation (table 7). This finding was congruent with *Abdelaziz et al., (2013)*, they reported that there was a positive significant correlation between stroke patient caregivers' total knowledge score and total practices pre and post intervention implementation. This is evidence to show that patients recover better and caregivers cope properly when they have been well informed and have good knowledge on stroke and how to deal with patients and their health problem. Also this finding was congruent with *Abdel-Hameed &Shebl (2014)*, they reported that there was a positive significant correlation between stroke patient caregivers' total knowledge score and total practices pre and post intervention implementation due to the effectiveness of the training intervention sessions which gives the caregivers the information needed for care of the patients with stroke and also helped them to be competent in providing care for them and consequently save effort and time needed for

nursing care as well as increase of self - confidence of the caregivers.

Conclusion

The home health care intervention succeeded to increase knowledge and improving practices regarding stroke patient and their caregivers as; there was highly statistically significant relation in the total knowledge score of the stroke patients and their caregivers pre and post intervention implementation and there was a positive significant correlation between stroke patient caregivers' total knowledge score and their total practices pre and post intervention implementation.

Recommendations:

According to results of the current study, the following suggestions are recommended:

- 1)Health educational program should provide to the stroke patients and their caregivers with the needed knowledge and practices before hospital discharge.
- 2)Emphasize the importance of providing support and appropriate follow-up care in outpatient's clinics by a specialized team in order to prevent recurrence of stroke.
- 3)Further research is proposed to explore the effect of home health care intervention on the prevention of cerebral stroke among high risk group.

References

- Abdelaziz, N., Mohamed, S., &Bayomi, H. (2013): Impact of counseling intervention to promote adaptability and self- efficacy among stroke patients and their family caregivers during rehabilitation stage at Asser General Hospital, *Journal of American Science*, (9), (6), pp: 8-10. Available at:

- www.jofamericanscience.org/journals/am-sci/am0906/035_19554am0. Accessed on 9/1/2016.
- Abdel Ghany, F. (2006): Post stroke home care: Impact on patient's condition and family caregiver's burden, Doctorate Thesis, Faculty of Nursing, Cairo University, P.20.
- Abdel-Hameed, S., &Shebl, A. (2014): Impact of informal caregivers training program on geriatric patients' functional status and post stroke depression, *Journal of Nursing and Health Science*, (3), (4), pp: 11-15. Available at: <http://iosrjournals.org/iosr-jnhs/papers/vol3-issue4/>. Accessed on 10/1/2016.
- Abdel-Hameed, S., El-Shazly, S., Ali, M., &Ebrahim, H. (2010): Caregiver training and health status outcomes in cerebral stroke elder patients, Doctorate Thesis, Faculty of Nursing, Mansoura University. P.80.
- Adams, R. (2013): Guidelines for the early management of patients with ischemic stroke: 11th ed; guidelines update: A scientific statement from the stroke. Council of the AHA / ASA, *Guidelines Advances in Nursing Science.Home Care*, Lippincott com Stroke, December 17 (2), 66- 76.
- Ali, M., &Masta, M. (2015):Knowledge of stroke risk factors among individuals diagnosed with hypertension and diabetes: A Hospital-based Survey, *British Journal of Medicine and Medical Research*, (10), (6), pp: 15-20: Available at <http://webcache.googleusercontent.com/search?q=cache>. Accessed on 12/11/2015.
- Allender, J. &Spradely, B. (2015): *Community health nursing "Promoting and protecting the public's health"*, 6th ed; Lippincott. Williams &Wilking Com, Philadelphia, PP: 290- 303, 885- 890.
- Appelros, P., Stegmayr, B., &Terent, A. (2009): Sex differences in stroke epidemiology: A systematic review. *Stroke* 40: 1082- 1090/ Article / PubMed/ ISI.
- Dennis, V. (2014): APIC - HICPAC surveillance definitions for home health care and home hospice infections. Available at: <http://www.cdc.gov/nchs/about/major/nhhcsd/nhhcsdefhomehealth.htm>. Accessed on 5/6/2014.
- El-shamaa, E., El- Banouby, M., & Mustafa, N. (2010): Assessment of biopsychosocial needs for patients with chronic cerebrovascular stroke. Thesis for Master Degree in Nursing Science, Medical Surgical Nursing, Faculty of Nursing, Ain Shams University Egypt. *Journal of Pharmaceutical and Biomedical Sciences*, (1), (3), pp: 69-78.
- Felgin, V. (2009): Stroke epidemiology in the Developing World. *Lancet* 2009; 365(9478): 2160- 1.
- Gholamzadeh, S., Hamid, T., Basri, H., Ibrahim, R., & Sharif, F. (2013): Mediators of the effect of the psycho-educational intervention on the psychological well-being of caregiving daughters and daughter in-laws of stroke survivors, *Journal of Nursing Education and Practice*, (3), (10), pp: 204-208.
- Hamed, N. (2013): Self- care rehabilitation model for cerebro functional disabilities, Doctorate Thesis, Faculty of Nursing, Ain Shams University. P. 12.
- Helmiey, E. (2013): Needs and concerns for stroked patient at Benha University Hospital, Master Thesis, Faculty of Nursing, Benha University. P. 15.
-

Evaluation of Home Health Care Intervention for Cerebral Stroke Patients and their Caregivers in Benha City

- Jane Nakibuuka, L., Sajetovic, M., Katabira, E., Ddumba, E., & Anthony, J. (2014): Knowledge and perception of stroke: A population-based survey in Uganda. *Journal of Nursing Science*, (3), (7), P.P: 302. Available at: [http:// www. Hindawi.Com/ Journals/ isrn/ 2014/ 309106](http://www.Hindawi.Com/Journals/isrn/2014/309106).
- Lewis, S., & Heit Kemper, M., and Dirksen, R. (2014): *Medical Surgical Nursing Assessment*, 2nd ed; United States, and PP. 1525- 1547.
- Melika, F. (2008): Home health care: Educational package for caregivers of stroke disability patients, Doctorate Thesis, Faculty of Nursing, Ain Shams University, pp: 113-120.
- Meseguer, E., Mazighi, M., Labreuche, J., Arnaiz, C., & Raphaeli, G. (2009): Outcomes of intravenous recombinant tissue plasminogen activator therapy according to gender: A clinical registry study and systematic review. *Stroke* 40: 2014- 2110/ Article/ PubMed/ ISI.
- Mohamed, Z. (2015): Strategies of daily living rehabilitative activities for post stroke patients at Minia University Hospital, *Journal of Education and Practice*, (6), (5), pp: 105-120. Available at: www.iiste.org/Journals/index.php/JEP/article/download/20024/20. Accessed on 5/8/2015.
- National Institute of Neurological Disorders and stroke, (2012): *Stroke*. Available at: [http:// www. Ninds.Nih. Gov/ jobs and training / index.Htm](http://www.Ninds.Nih.Gov/jobs_and_training/index.Htm), reviewed on Sept 12- 2012.
- National Stroke Association, (2013): Role of caregivers related stroke patient. Available at [http://stroke.org/site/page_server? Page name= care](http://stroke.org/site/page_server?Page_name=care). Accessed on 20/3/2013.
- Newell, L. (2013): Social effects of a stroke. Available at: [http:// www. live strong. COM](http://www.live strong.COM). Retrieved on Sept 9, 2012.
- Perry, L. (2011): An investigation of family carers' needs following stroke survivors' discharge from acute hospital care in Australia. Available at: <http://webcache.googleusercontent.com/search?q=cache>. Accessed on 6/9/2011.
- Qureshi, F., Bilal, A., Khan, R., & Khalid, G. (2014): Stroke frequencies of intracerebral bleed, cerebral infarction and subarachnoid hemorrhage, 14 (4) 580- 585 in Faisalabad hospital (Asia).
- Ramírez-Moreno, M., Alonso-González, R., Peral-Pacheco, D., Millán-Núñez, M., & Aguirre-Sánchez, J. (2015): Knowledge of stroke a study from a sex perspective. Available at <http://www.ncbi.nlm.nih.gov/pubmed/26499113>. Accessed on 20/3/2015.
- The Stroke Association, (2014): Care after stroke and transient ischemic attack, information for patients and their carers, Royal College of Physicians Com, pp. 356- 366.
- Tiana, Y., Stamova, B., Jickling, G., Dawson, D., & Sharp, F. (2012): Effect of gender on gene expression in blood of ischemic stroke patients, *Journal of Cerebral Blood Flow and Metabolism*, (32), (2), pp: 780- 791.
- Wachters, C., Schuling, J., & Theh, N. (2011): Actual and desired information Provision after a stroke patient education and counseling, 56: 211-217.
- WHO, (2013): Bulletin of the World Health Organization, November 83, (11): 801-880. Accessed on 4/4/2013.
- WHO, (2014): New WHO pocket- charts will save lives by predicting Heart Attack and Stroke, Chronic Diseases and Health Promotion WHO. Geneva. Accessed on 14/9/2014.
- WHO, (2015a): Stroke, cerebrovascular accident Available at: [http:// www web cache. Google user content. Com. Search?q](http://www.web cache. Google user content. Com. Search?q). Accessed on 2/7/2015.
-