Family-Centered Empowerment Model Effect on Stroke Patients and their Caregivers

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Abstract

Background: Most stroke survivors will be cared for by family caregivers with limited training. Families actively involved in care feel more prepared for the new responsibilities of caring for the stroke survivor. Empowerment and self-efficacy are critical, yet they are frequently overlooked. This study **aims** to evaluate the effect of family centered empowerment model on stroke patients and their care givers. **Methods:** In this work, a quasi-experimental design was adopted. This research was carried out in the Nasr City Insurance Hospital's ICU. The study comprised fifty stroke patients and fifty of their caregivers from the previous context. **Tools:** Pre-test data were collected using two socio-demographic data sources for patients and caregiver, as well as three questionnaire instruments for self-efficacy and burden level. The researched subject was given an empowerment intervention, after which post-test data was obtained. **Results**: The findings reveal that there was a substantial change in self-efficacy categories before and after empowerment among the patients and caregivers tested. Pre-empowerment, all caregivers had a severe burden level, but after empowerment, two-thirds of them have a low to moderate burden level**. Conclusions:** According to the findings of this study, caregivers' self-efficacy, self-esteem, perceived threat, and finally burden levels can be increased, facilitating the path to healthy ageing and being healthy during this period, by using a family-based empowerment model on a regular and consistent basis. **Recommendation:** The study advised that empowerment programs be designed to equip people and their caregivers to participate in activities, particularly in the early stages.

Keywords: Family-based empowerment model, quality of life, self-efficacy, self-esteem

Introduction:

Stroke is a cerebrovascular disease in which the brain receives insufficient oxygen, leading to ischemia and then death. Stroke is the second leading cause of death in the world ***(Marshall et al., 2015).*** Every year, fifteen million people worldwide suffer from a stroke. 5 million people die and 5 million become crippled as a result of this ***(Addo et al., 2017)***. The majority of stroke deaths occur in countries with low economic development ***(Marshall et al., 2015).***

Strokes affect over 75% of adults aged 65 and up. In other words, as we get older, it becomes more of an issue. After the age of 55, the chances of getting a stroke are thought to double every decade. Stroke affects around 800,000 people each year, with one American suffering a stroke every 40 seconds ***(WHO, 2019).***

A stroke is a medical disorder in which the brain's blood supply is disrupted, resulting in cell death. Ischemic stroke is caused by a lack of blood flow, while hemorrhagic stroke is caused by bleeding. Both of these conditions lead regions of the brain to stop working properly ***(EL Tallawy et al., 2019).***

Inability to move or feel on one side of the body, trouble understanding or speaking, dizziness, or loss of vision on one side are all signs and symptoms of a stroke ***(Bonita, 2014).***

High blood pressure is the most common cause of stroke. Tobacco use, obesity, high blood cholesterol, diabetes mellitus, a previous TIA, end-stage renal disease, and atrial fibrillation are all risk factors. The most common cause of an ischemic stroke is a blood artery obstruction, although there are other less common causes as well ***(Kim, 2019).***

A physical exam is usually used to make a diagnosis, which is then backed up by medical imaging such as a CT scan or an MRI scan. Other procedures, like as an electrocardiogram (ECG) and blood tests, are performed to identify risk factors and rule out other reasons. Symptoms of low blood sugar can be similar ***(Bierhals, 2017).***

Stroke's impact on people's life is a major concern for society. Stroke has an impact on both the individual and their family, who are often unprepared to deal with the recovery process or the handicap that the condition causes. As a result, many persons who have had a stroke are unable to work and do not receive compensation ***(Panício et al., 2019; Baumann et al., 2014).***

Family caregivers of elderly stroke survivors encounter numerous challenges, including a lack of support as well as the knowledge and skills needed to provide home care. These factors have a negative impact on the burden and quality of life of carers, as well as the usage of health services and hospital readmissions of stroke survivors ***(Fens, et al., 2018).***

By executing successful therapies, healthcare providers can help to lessen the disease's complications. As a result, these patients' quality of life can be improved ***(Haley et al., 2015).***

Nurses have the most regular interaction with patients and their companions of all the personnel of the health-care system. They can employ appropriate ways to improve these patients' QoL ***(Caro et al., 2018).***

One of the most important goals of the empowerment model is for the nurse and the patient's family to work together to solve the patient's problems ***(Addo et al., 2017).***

Alhani et al. (2003) were the first to develop the model for chronic patients. This model has yet to be used to stroke victims. Patients and their families are motivated by the family-centered empowerment approach, which improves their efficiency, self-esteem, and self-control. The model's domains include attitude, knowledge, and perceived threat ***Alhani et al. (2003).***

Empowerment models have been linked to improved and modified quality of life, according to studies ***(Caro et al., 2018; Borhani et al., 2018; Teymori et al., 2019).***

As part of interdisciplinary teams, community health nurses play a significant role in the prevention and management of chronic diseases ***(Liao et al., 2020).*** It should be highlighted that improper care and treatment can lead to serious problems.

Significance of the study:

Considering the significance of the study, ***w***ith an estimated 100 million people, Egypt is the most populous country in the Middle East and the second most populous on the African continent. Furthermore, as the Middle East's most populous country, the overall prevalence rate of stroke is high, with a crude prevalence rate of 963/100,000 inhabitants, according to recent estimates ***(WHO, 2019).*** According to the literature, the stroke burden in Africa is rising and still high. There is a need for more research on stroke and other vascular risk factors to establish effective preventative and management measures and to formulate the appropriate policies ***(Adeloye, 2019).***

Aim of the study:

This study aims to evaluate the effect of family centered empowerment model on stroke patients and their care givers.

Research hypothesis:

H.1) Self-efficacy among stroke patients will be improved after implementing the family center empowerment

H.2) Self-efficacy among caregivers of stroke patients will be improved after implementing the family center empowerment.

H.3) Burden level on caregivers of stroke patients will be minimized after implementing the family center empowerment.

Subjects & methods

Research design:

A quasi experimental research design was used to accomplish this study.

Setting:

This study was conducted in ICU in Nasr city insurance hospital because it was the biggest hospital in health insurance.

Sampling:

A purposive sample was used in this study. The total number was 50 stroke patients and 50 of their caregivers. They represent about 53% of the total (94) attending the previous setting they chose randomly. The inclusion criteria for the patients were diagnosis of stroke, no perceptual- cognitive deficits, with at least one complication of stroke such as motion disorder, speech disorder, swallowing disorder, etc. The exclusion criteria for the patients were lake of participating in more than one session and unwillingness to complete the research tools. The inclusion criteria for active member of the family were being a constant participating member in the study, living with the patient in the family, and having the ability to make decisions, and showing interest in participating in the research.

Tools of the study:

Five tools were used in this study; two tools for patients and three tools for caregivers.

I. Patient tools included:

Tool I: Structured interview questionnaire sheet:

It was divided into two sections: part 1 had socio-demographic information, while part 2 contained clinical information such as the reasons and duration of the stroke, as well as the medicine administered.

Tool II: Chronic stroke disease self-efficacy instrument (CSDSE) (Lin et al., 2012)

- A 25-item self-reported questionnaire was used to assess self-efficacy in this study. The total self-efficacy was calculated by adding the replies to each of the five Likert scale items. The following are the dimensions of the CSDSE instrument:
- Autonomy was made up of eight elements that included patients' confidence in expressing their own concerns or inquiries about the disease process and treatment in a free and comfortable manner; there were eight items with a score range of 0 to 100. (8-40).
- Self-integration 7 items with score range (7-35).
- Problem solving related to CSD 6 items with score range (6-30).
- Seeking social support 4 items with score range (4-20). The possible score for overall self-efficacy were 25-125. Higher scores indicated better results. Low (60 percent of total score), Moderate (60 percent 80% of total score), and High (80 percent of total score) were used to categorize the levels of each category and overall self-efficacy.

II. Care givers tools:

Tool I: Structured interview questionnaire sheet used to evaluate socio-demographic data

Tool II: Revised scale of caregivers' self-efficacy (Steffen et al., 2002)

Self-efficacy for obtaining respite, self-efficacy for controlling distressing thoughts about caregiving, and self-efficacy for responding to disruptive patient behaviors are all measured on this scale established by ***Steffen et al. (2002).*** In this measure, caregivers were asked to rate their level of confidence on a scale of 0 to 100, based on how certain they were that they could execute each thing (10, 20, 30, etc.). Only 10 questions were asked in this study, and they covered the two categories of self-efficacy for seeking respite and self-efficacy for regulating upsetting thoughts about caregiving. Questions about self-efficacy for responding to disruptive patient behaviors were not included in this study since they were not applicable to our patients.

Tool III: Caregiver Burden Interview (Pankin et al., 1994) & (Cummings et al., 2002. This instrument contained 22 items that were completed by caregiving, including feelings of stress, embarrassment, anger, strained, and suffering as a result of his involvement with his relative's care, fear of what the future holds for his relative, worry about the effect on social life, relationships, and economic condition, fear of not being able to take better care of him, and loss of control over his relative's death.

The burden interview was scored by five-point Likert scale. Higher scores greater caregiver distress.

= (0-20) → No burden to little
= (21-40) → Mild to moderate burden
= (41-60) →Moderate to severe burden
= (61-88) →Severe burden

Field work:

Before beginning the study, the dean of the faculty of nursing sent an official letter to the director of the Nasr city hospital's ICU, requesting his permission and cooperation in collecting data from the chosen location .

To assess the impact of a family-centered empowerment model on stroke patients and their caregivers, a study of current and previously available literature and theoretical knowledge was conducted, with data collection techniques developed utilizing books, papers, and magazines .

From the pre-assessment to the end of the implementation and evaluation phase, it took 6 months (from the beginning of June to the end of November 2019).

Patients and their caregivers were interviewed in the ICU and in the waiting area.

The first researcher went through the hospital's medical files and looked at the records of stroke sufferers. A suitable sampling procedure was used to pick a total of 94 patients; 22 patients were excluded (12 patients did not meet the inclusion criteria and 10 patients declined to participate in the study).

Content validity and reliability

The study's instruments were translated into Arabic by researchers and then certified by a jury to ensure that the translated version was as accurate as the original. The jury was made up of seven professionals from the domains of community health and medical surgical nursing. The necessary adjustments and correlations were made as needed .

As a result, the tools were altered. The reliability was determined using the Cronbach Alpha coefficient test (1951). (0.087).

Pilot study:

To test the applicability and practicality of the study tools, a pilot study was conducted on 10% of the subjects (5 patients and 5 caregivers). The obtained results were utilized as a guide to rebuild the changes that were required in the data collection methods, and they were included in the study's complete sample.

Ethical consideration:

After explaining the goal of the study and assuring the subjects of their privacy and confidentiality of the gathered data, informed consent was obtained from the study subjects (patients and careers) to participate in the study. The study participants were informed that they had the opportunity to withdraw from the study at any time

Program construction:

Empowerment intervention was implemented by the researchers. General principles stated in this empowering intervention were educating, ensuring, guidance, empathy, encouragement, and the chance to express emotions to promote social support from others.

The program implementation phases:

1. Assessment phase:

The researcher created the software based on the assessment's findings (pre-test and using the interviewing questionnaire).

2. Planning phase:

The researcher devised the programe objectives and content based on the patient's needs during this phase, which included an examination of the pre-test data .The program's overall goal is to assess the impact of a family-centered empowerment approach on stroke patients and caregivers.

Implementation phase:

The patients were placed into five groups of 10 people each. All groups participated in 8 empowerment sessions (twice a week, for four weeks, each session 40-60 min) based on the family-centered empowerment model. The sessions were held with the presence of the researchers, patients, and their family care givers. The family-centered empowerment model was performed according to the steps in the following order.

Before conducted the sessions, subjects were evaluated by three different assessment forms, self-efficacy instrument for stroke patients and self-efficacy care givers Burden interview to identify self-care problems and identify their educational needs.

The sessions starting by introducing group members followed by familiarization phase aimed at an accurate diagnosis of problems with stroke care, motivating the clients and determining their needs for the care process.

According to the model, the first session was about collecting the threat perception through enriching the knowledge about the stroke. Also, educational booklets about stroke and its care were given to patients and their family care givers.

Sessions were held according to needs assessment. The next part was problem-solving to increase self-confidence, self-efficacy, and adapting to the problem.

In the third part of the previous training were given a CD to the patient and her/his family care giver and they were encouraged to participate in the care. Homework was given from the educational materials of the same session, for example, recording problems and complications of the disease on a daily basis.

At the beginning of the next session, the homework was checked and feedback was given by the first researcher. The first researcher would call the patient once a week to make sure the program was running properly and answer their questions.

If the patient was discharged from the hospital completing the program became possible by phone calls to facilitate their continuous involvement in the intervention, and asking the patients and their family care giver to attend the hospital in a specific time to check the complications of the disease and the effectiveness of the intervention.

Evaluation phase:

The participants were given two tests to determine their self-efficacy and burden level as caregivers .

- For the first time: Before beginning the empowerment intervention (using the five study tools.
- Second time: 4 weeks after implementing the empowerment intervention plan (using tool II for the patient and tools II and III for caregivers).

Statistical analysis

The study information was analyzed in SPSS V. 19 (SPSS). A Chi-squared test was applied for analyzing qualitative variables. In all statistical tests, the significant level was set at 0.05 or less.

Results

Table 1 shows that, the age of the studied sample ranged from 40 years and above. Also, 54% were male, 64% of the subjects were married. Meanwhile, 48% of them had read & write and 26% of them were illiterate. Moreover 62% of them had work and 38% of them not work.

Table 2- Reveals that+ 74% of the subjects reported hemorrhagic stroke. Meanwhile, 56% of them have left side hemiparesis, and 36% suffer from aphasia. All participants in the study took medication for stroke. Only 34% of them had other complaints, 47% had diabetes,

5.9% had peptic ulcers, and 23.5% had liver disease.

According to research hypothesis no.1 self-efficacy among stroke patients will be improved after implementing the family center empowerment

Table 3 represented that there was a statistically significant differences between self- efficacy categories pre and post empowerment among studied patient at p value <.05.

Figure (1) shows that all the patients have low self-efficacy pre empowerment. While, post empowerment 42% and more 58% of them fell in moderate and high level respectively.

Table 4- shows that, there was no statistically significant difference found between patients' total self-efficacy and their age, sex, education, and occupation post empowerment.

Table 5 indicates that the age of the caregivers studied ranged from 30-40 y, with a median of 33.18±5.60 y. Also, 76% of the participant caregivers were female and 94% of them were married. Meanwhile, 46% of the caregivers had secondary education, while 68% did not work.

Moreover, 60% of caregivers reported that their family income was sufficient. As regards the caregivers' relation degree to the patients, 56% of caregivers were their wives and 44% were their father or mother. The table also shows that 71.42% of them had hypertension and 28% of them were diabetic.

According to research hypothesis no.2 Self-efficacy among caregivers of stroke patients will be improved after implementing the family center empowerment.

Table 6 represents that there was a statistically significant difference between total scores of self-efficacy categories pre and post empowerment among studied caregivers at p <.05.

According to research hypothesis no. 3 Burden level on caregivers of stroke patients will be minimized after implementing the family center empowerment.

Table 7 reveals that all caregivers 100% obtained severe burden levels pre empowerment intervention while post empowerment, none of the caregivers fell in the same category, 8% fell in moderate to a severe level, 66% fell in mild to a moderate level and 26% of them fell in little or no burden. There was a statistically significant difference p<.001 was obtained between the total mean score of burden level pre and post empowerment intervention with a mean difference of 46.28±9.05 (figure 3).

Table 8 shows that there was a significant difference found between caregivers' self-efficacy and their marital status, their relation degree to the patient pre-empowerment and their education and occupation post empowerment at p <.05. The table also shows that there were no statistically significant differences found between care- givers' total self-efficacy and their age and sex pre or post empowerment at p >.05.

Table 9 represents that there was a significant difference found between care giver's burden level and their relation degree to the patient, their educational level, and duration of responsibility for patient care and companionship post empowerment at p <.05, while there was no statistically significant difference found between caregivers' total and their age, sex, and their marital status post empowerment at p >.05.

Table1. Socio-Demographic characteristics of the studied stroke patient (n=50)

Socio-Demographic characteristics	No	%
Age		
• 40- y	31	62
• 45- y	19	38
Sex		
• Male	27	54
• female	23	46
Marital status		
• Married	32	64
• Single	9	15
• Widow	9	18
Education		
• Illiterate	13	26
• Read & write	24	48
• Secondary education	6	12
• University education	7	14
Occupation		
• Work	31	62
• Don't work	19	38

Table 2: Distribution of the studied patients by their medical history (*n* = 50).

Medical history	No	%
Stroke type	37	
Non hemorrhagic	13	74
Hemorrhagic		26
Hemipares	22	
Right side	24	44
Left side		56
Aphasia	18	36
Taking medication with stroke	50	100
Presence of other complain		
Yes	17	34
No	33	66
If yes (disease or complain)(n=17)		
DM	8	47
Peptic ulcer	1	5.9
Liver disease	4	23.5

Table 3. The difference between self- efficacy categories pre and post empowerment among studied patient (n=50)

Categories	Pre (n=50)		Post (n=50)			
	No	%	No	%	X2	P
Autonomy						
• Low	49	98	0	0	96.308	.001*
• Moderate	1	2	12	24		
• High	0	0	38	76		
Self-integration						
• Low	50	100	0	0	100	.001*
• Moderate	0	0	38	76		
• High	0	0	12	24		
Problem solving						
• Low	49	98	1	2	92.444	.001*
• Moderate	1	2	10	20		
• High	0	0	39	78		
Seeking social support						
• Low	49	98	0	0	96.667	.001*
• Moderate	1	2	5	10		
• High	0	0	45	90		
Total self-efficacy score						
• Low	50	100	0	0	100	.001*
• Moderate	0	0	21	42		
• High	0	0	29	58		

*Significant at p <.05

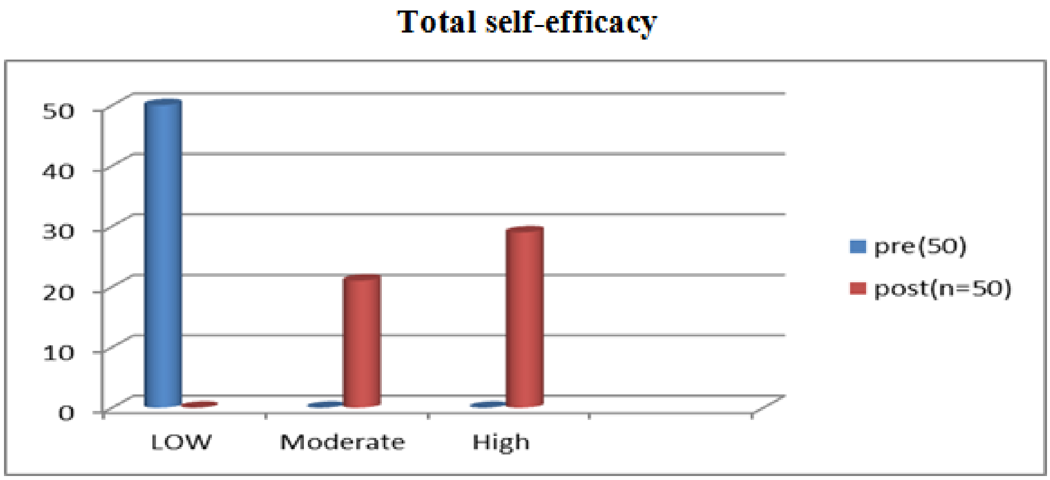

Figure 1: The difference between total self- efficacy score pre and post empowerment among studied patients.

Table (4): Relation between socio-demographic data and total self-efficacy score among studied patients post empowerment

		Pre (n=50)		**Post (n=50)**					
Categories		**Low<75**		**Moderate 75-99**		**High ≥ 100**		**X2**	**P**
		N	**%**	**N**	**%**	**N**	**%**		
Age	40- y (n=31)	31	62	16	32	15	30	8.33	.656
	45-y (n=19)	19	38	13	26	6	12		
sex	Male (n=27)	27	54	9	18	18	36	1.810	.179
	Female(n=23)	23	46	12	24	11	22		
Marital status	Married(n=32)	32	64	10	20	22	44	4.445	.108
	Single(n=9)	9	15	5	10	4	8		
	Widow(n=9)	9	18	6	12	3	6		
Education	Illiterate (n=13)	13	26	9	18	4	8	0.260	.878
	Read &write(n=14)	14	48	10	20	4	8		
	Secondary education(n=6)	6	12	2	4	4	8		
	University education(n=7)	7	14	5	10	2	4		
occupation	Work (n= 31)	31	62	12	24	19	38	3.047	.384
	Don't Work (n=19)	19	38	13	26	6	12		

Table (5): Socio-demographic characteristics of care givers (n=50)

Socio-demographic characteristics		N	%
Age	30-35y	26	52
	36-40y	24	48
Sex	Male	12	24
	Female	38	76
Marital status	Married	47	94
	Widow	3	6
Relation degree to pt.	Wife& husband	28	56
	Father & mother	22	44
Education	Read & write	17	34
	Secondary education	23	46
	University education	10	20
Occupation	Work	16	32
	Not work	34	68
Family income	Sufficient	30	60
	Insufficient	20	40
Presence of complain or disease	Yes	14	28
	No	36	72
	If yes (disease)	N=(14)	71.42
	Hypertension	10	28.58
	DM	4	

Table 6: Difference between score of self-efficacy categories pre and post empowerment among studied care givers (n=50)

Items		Pre(n=50)		Post(n=50)		X^2
		N	%	N	%	P
Self- efficacy for obtaining respite	Low	44	88	0	0	79.429
	Moderate	6	12	36	72	.001*
	High	0	0	14	28	
Self-efficacy for controlling upsetting thoughts about care giving	Low	45	90	0	0	82.439
	Moderate	5	10	36	72	.001*
	High	0	0	14	28	
Total self-efficacy	Low	47	94	0	0	88.682
	Moderate	2	4	35	70	.001*
	High	1	2	15	30	

*significant at p <.05

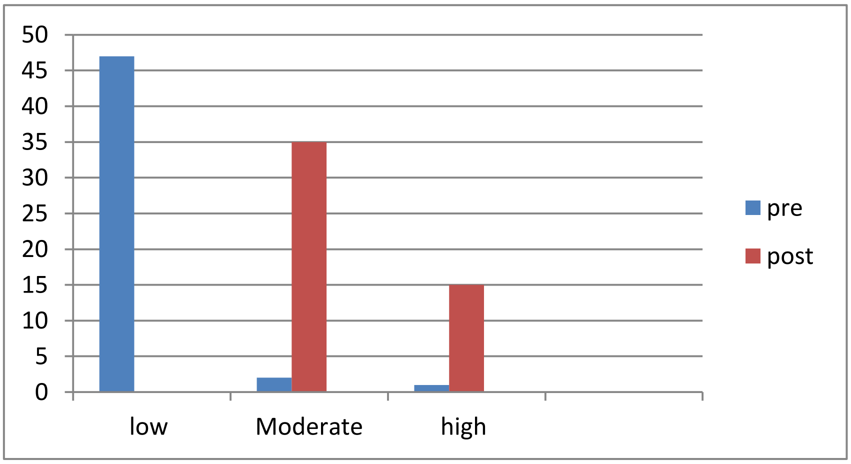

Figure (2): Total self-efficacy score pre and post empowerment among studied care givers.

Table (7): Differences in the care-givers burden level pre and post empowerment intervention and differences in the total burden score

Burden level	Pre empowerment N	Pre empowerment %	Post empowerment N	Post empowerment %	X2 P
• Little or no burden (n=0-20)	0	0	13	26	100 <.001*
• Mild to moderate burden (21-40)	0	0	33	66	
• Moderate to severe burden (41-60)	0	0	4	8	
• Severe burden (61-88)	50	100	0	0	
Range	63-88		18-47		
Mean ±SD	72.34±7.86		27.06±7.26		
Median	71		24		
Mean Difference	46.28±9.05				
t-test	36.12				
p	<.001*				

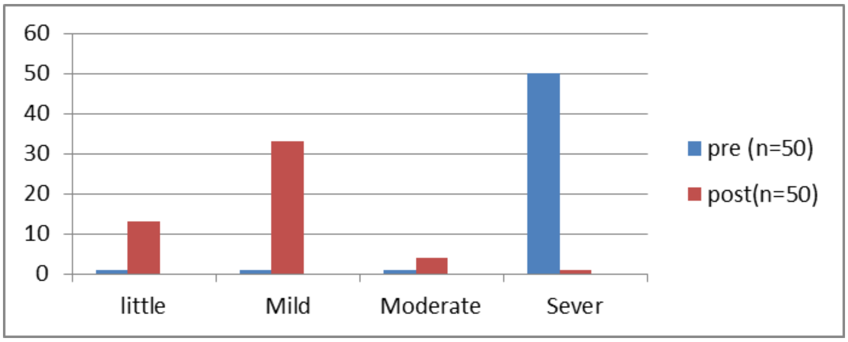

Figure (3): Care givers burden level pre and post empowerment intervention

Table (8): Relation between socio-demographic data and total self-efficacy score among studied care givers.

Categories		Pre(n=50) low≤50 N	%	Moderate 51-74 N	%	High ≥75 N	%	X2 P	Post (n=50) Moderate 51-74 N	%	High ≥75 N	%	X2 P
Age	**30-y**	25	50	0	0	1	2	3.116	16	32	10	20	1.847
	36-40y	22	44	2	4	0	0	.211	19	38	5	10	.174
Sex	**Male**	11	22	0	0	1	2	3.807	7	14	5	10	1.023
	Female	36	72	2	4	0	0	.149	28	56	10	20	.312
Marital status	**Married**	46	92	0	0	1	2	32.647	33	66	14	28	0.017
	Widow	1	2	2	4	0	0	.001*	2	4	1	2	.897
Relation degree to patient	**Wife**	28	56	0	0	0	0	11.489 .02*	21	42	7	14	1.111 .574
	Son/daughter	11	22	0	0	1	2		7	14	5	10	
	Mother/father	8	16	2	4	0	0		7	14	3	6	
Level of education	**Illiterate**	15	30	2	4	0	0	5.161 .271	13	26	4	8	9.699 .008*
	Read & write	22	44	0	0	1	2		19	38	4	8	
	Secondary education	10	20	0	0	0	0		3	6	7	14	
	University education	3	6	0	0	0	0		0	0	0	0	
Occupation	**Work**	15	30	0	0	1	2	3.066	8	16	8	16	4.482
	Not work	32	64	2	4	0	0	.216	27	54	7	14	.034*

*significant at p <.05

Table (9): Relation between socio-demographic data and total burden level score among studied care givers empowerment.

Categories		Pre(n=50) Severe 61-88		Post (n=50) Little 0-20		Mild 21-40		Moderate 4-60		X2 P
		N	%	N	%	N	%	N	%	
Age	**30-40y**	26	52	9	18	17	34	0	0	5.883
	41-65y	24	45	4	8	16	32	4	8	.053
Sex	**Male**	12	24	4	8	8	16	0	0	1.591
	Female	38	76	9	18	25	50	4	8	.451
Marital status	**Married**	47	94	12	24	32	64	3	6	3.142
	Widow	3	6	1	2	1	2	1	2	0.208
Relation degree to patient	**Wife**	28	56	6	12	21	42	1	2	9.600 .048*
	Son/daughter	12	24	4	8	8	16	0	0	
	Mother/father	10	20	3	6	4	8	3	2	
Level of education	**Illiterate**	17	34	4	8	9	18	4	8	16.730 .002*
	Read & write	23	46	3	6	20	40	0	0	
	Secondary education	10	20	6	12	4	8	0	0	
	University education	0	0	0	0	0	0	0	0	
Occupation	**Work**	16	32	7	14	9	18	0	0	5.073
	Not work	36	72	6	12	24	48	4	8	.079
Duration of responsibility for pt. care & combination	**2-5 y**	16	32	6	12	7	14	3	6	19.062
	6-10y	34	68	7	14	26	42	1	2	.039*

*significant at p <.05

Discussion

The need for assistance varies greatly among stroke survivors most of which is provided by family members who are ―nonprofessional‖ caregivers with limited knowledge. Regarding the specific needs of patients, considering empowerment, dignity, and self-efficacy is very critical too, which is frequently neglected ***(Bandura et al., 2020).***

The age of the participants in the study sample was 40y & older. More than half of the participants were male, which agrees with ***Alhani et al. (2018),*** who stated in a study titled "Empowerment of a family-oriented pattern and its effects on prevention of iron deficiency anaemia in adolescent girls" in (Persian), "The incidence of stroke disease increases with age, in both men and women, with approximately 50% of all strokes occurring in people over age 35 and 30% in people over age 45." Stroke is one of the most common causes of disability and poor life quality.

Around two-thirds of the participants were married, according to the study. ***Borhani et al. (2018)*** found that marital status was independently associated with post-stroke outcomes, especially in patients with a middle-school education, in a study entitled "The effect of family-centered empowerment model on quality of life of school-aged children with thalassemia major" in Iranian. Unmarried patients had 1.5–2.0 times the rate of stroke outcomes following AIS compared to married individuals at one year. In patients with acute ischemic stroke, marital status was linked to all negative outcomes, particularly in those with only a middle-school education.

Furthermore, roughly half of the people investigated could read and write, with a quarter being illiterate, and two-thirds being work and not working. ***Cantu-Brito et al. (2019)*** published a study in Mexico called "Hospitalized stroke surveillance in the community of Durango." People in lower socioeconomic positions, such as low-income groups or those with a limited education, have a higher risk of dying from a stroke, according to the study. This also suggests that people in lower socioeconomic levels are less likely to survive a stroke than those in higher positions.

After the selected survival of a first stroke, socioeconomic status, i.e., income and education, predicted stroke-specific death—as well as mortality owing to other causes. When income was included in, education had no effect, but the probability of dying from a stroke in the top income quartile was one-fifth that in the lowest income quartile.

According to the current study, almost three-quarters of the participants had a hemorrhagic stroke, with more than half of them having left side hemiparesis and one-third having aphasia. This was supported by ***Foroughan et al. (2018),*** who conducted a study in Tehran called "Validation of Mini-Mental State Examination in the Elderly Population." According to the author, senior stroke patients require extra attention due to problems such as right and left side hemiparesis and aphasia.

The present study reported that all the studied subjects taking medication with stroke. Meanwhile only one third of them with Presence of other complain, such as DM, peptic ulcer, and liver disease. ***Williams et al. (2019)*** who showed that health promotion programs' should be applicable principles in treatment of stroke patients due to presence of other diseases and medication regimen for patient with stroke.

Increases in self-care efficacy boost a person's self-care practice in a good way ***(Bomar, 2020).*** The majority of the participants in this study showed a significant improvement in self-efficacy categories after the empowerment intervention. Self-efficacy improvement is a type of care that allows people to solve problems as they arise, practice new health practices, and acquire emotional stability. It has been highlighted as one of the important tactics for helping stroke victims better manage their condition. Patients with high self-management behaviour are able to develop better coping behaviour, which may aid in their rehabilitation.

These results disagreed with ***Ganvir et al. (2018)*** in a study "Validation of Marathi-version of stroke-specific quality of life in India, who underlined that, despite the patients' increased self-efficacy in this study, the difference was not significant in terms of self-efficacy. In general, it can be concluded that by employing a family-based empowerment model, we can improve various aspects of a person's quality of life, self-esteem, and perceived threat, as well as aid in the successful ageing process and pave the way for improving the patients' quality of life, allowing the community to benefit from the patients' valuable experiences in various ways.

As regards the caregivers' relation degree to the patients, more than half of caregivers were their wives or husbands and about two quarters were their fathers or mothers. These findings agreed with ***Gholizadeh et al. (2015),*** in a study "An evaluation of the effectiveness of patient care education on the quality of life of stroke caregivers". In (Persian)]. Who reported that caregivers of stroke patients were basically women, married, wives or husbands, and fathers or mothers without remunerated jobs with a mean age of 46 y, and with low socioeconomic level?

After the empowerment intervention, the majority of the care givers in the study reported significant improvements in all self-efficacy areas. This result was emphasized also by ***Khalid et al. (2016)*** Who stated that the family centered empowerment model is very important.

Also, ***Kristinsson and Halldorsdottir (2020),*** in a study "Translation, adaptation and psychometric properties of the Icelandic stroke and aphasia quality of life" in Iceland. Reported that Patients and their families will have greater functional ability if they learn new tasks on a regular basis. Nonadaptive coping mechanisms for dealing with challenges, on the other hand, were the reason of the sluggish recovery of functional capacity after a stroke.

The findings of the study revealed that all caregivers had a severe load level on the pre-empowerment assessment.

These findings were in accordance with ***Masoudi et al. (2010)*** who reported that, the care givers categorize burden as moderate to severe. Other research reported that majority of the unpaid caregiver having extremely high perception level of burden. ***Mazdeh and Yaghobi (2019)*** who found that, Caregivers have been shown to be socially isolated, with their health deteriorating and personal issues such as exhaustion, emotional anguish, limited social life, changes in family life, marital difficulties, balancing obligations, and receiving services as a result of their caregiving. They also mentioned a lack of knowledge and skills, doubt about rehabilitation, a lack of physician support, and financial concerns.

The total mean score of burden level improved significantly after the empowerment intervention, according to the current study. According to the researcher, family-centered empowerment was widely employed internationally for chronic disease rather than stroke disease, which resulted in an increase in patients' functional ability. Patients and their family caregivers were trained to accept their situation honestly and to assume that other patients have more serious issues. Family-centered empowerment will boost a patient's motivation to recover, their ability to adjust and adapt after a stroke, and their ability to not be embarrassed by changes in the appearance and function of their body.

Odetunde et al. (2017) who proved that the ability to accept disability after a stroke, undergo a new role and undertake new activities were key to adjusting after stroke.

In this study, significant disparities were discovered between caregivers, their burden level, and the degree to which they were related to the patient, as well as their educational level and the amount of time they spent caring for the patient. This is in line with ***Pancio et al. (2019),*** who found that caregiver burden is related to the relationship between the patient and the caregiver as well as their gender in their study "The influence of patient's knowledge of stroke" in Brazil.

Teymori et al. (2019), on the other hand, published a study titled "The effect of a family-centered empowerment model on the quality of life of school-age asthma children." Nearly one-third of stroke survivors in Iran choose to stay at home and receive domiciliary care, which puts a strain on the caregiver.

According to the study, the joint family arrangement prevails in eastern nations, including Egypt, where parents, spouses, and children (son and daughter-in-law) live together in a small flat (less than 100m2) and share infrastructural facilities. As a result, any patient suffering from a catastrophic illness such as a stroke should be transferred to a nearby health care institution, although this may not always be practicable due to financial constraints, inadequate infrastructure, and other factors.

Finally, it can illustrate that implementing a family-centered model improved the Self-efficacy in stroke patients and their caregiver. Regarding the high incidence of stroke and its persistent disabilities, and considering that education and using of this model is a useful and financially viable method, this model is recommended for relieving burden level for patients with stroke and their caregiver.

Conclusion and recommendations:

Based on the findings of the study and the research hypothesis, it can be concluded that an empowerment model can help patients and their caregivers manage health-related difficulties, increase their self-efficacy, and reduce their burden. So, it can recommend that:

1- Empowerment programmes should be designed to prepare patients and their caregivers to participate in activities, particularly in the beginning.
2- Caregivers' burdens and depression symptoms should be noted, and if necessary, intervention to provide psychological support should be implemented.
3- Additional researchers for improving the living conditions and doing more researches and interventions on reliving burden level for stroke patients and their caregivers.

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