

## **Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy and Coping Strategies among Post Stroke Elderly Patients**

**Nabila El-sayed Sabola<sup>1</sup>, Sally S. Hassan<sup>2</sup>, Salwa Abd-ElGawad Sallam<sup>3</sup>,  
Nagwa Ibrahim Doma<sup>4</sup>, Gehan Elmadbouh<sup>5</sup>, Esmat Elsayed Ibrahim<sup>6</sup>**

<sup>1</sup>*Professor of Family and Community Health Nursing, Faculty of Nursing,  
Menoufia University, Egypt*

<sup>2</sup>*Lecturer of Geriatric Nursing, Faculty of Nursing, Menoufia University, Egypt*

<sup>3</sup>*Assist. Prof. of Medical Surgical Nursing, Faculty of Nursing,  
Menoufia University, Egypt*

<sup>4</sup>*Lecturer of Family and Community Health Nursing, Faculty of Nursing,  
Menoufia University, Egypt*

<sup>5</sup>*Lecturer of Medical Surgical Nursing, Faculty of Nursing,  
Menoufia University, Egypt*

<sup>6</sup>*Assist. Prof of Geriatric Nursing, Faculty of Nursing, Menoufia University, Egypt*

**Abstract: Background:** Post stroke patients have to use coping strategies to regain pre stroke state and enhance their self-efficacy. The Mauk model is a paradigm that focuses on stroke patients with appropriate rehabilitation nursing interventions. **Purpose:** to evaluate the effect of Mauk nursing rehabilitation model on knowledge, self- efficacy and coping strategies among post stroke elderly patients **Design:** a quasi-experimental one-group pre-post-test design was used. **Setting:** the study was conducted at neurology and psychology out-patient clinic, Menoufia University Hospital, Egypt. **Sample:** A purposive sample of 60 post stroke elderly patients was chosen. **Instruments:** three instruments were utilized as follow: instrument I: structured interviewing questionnaire, instrument II: ways of coping questionnaire, and instrument III: the stroke self-efficacy questionnaire. **Results:** The mean total score of stroke knowledge was improved post intervention than pre intervention. There was an increase in the mean total score self-efficacy post intervention than pre intervention. Likewise, there was observed increase in mean total score of ways of coping post intervention than pre intervention. Finally, there was statistical significant correlation between stroke knowledge, ways of coping and stroke self-efficacy total scores post intervention. **Conclusion:** Implementation of Mauk nursing rehabilitation model have a beneficial effect on improving knowledge, self- efficacy and coping strategies of post stroke elderly patients. **Recommendations:** Mauk nursing rehabilitation model should become an essential part of the total management plan for post stroke elderly patients.

**Keywords:** *Coping Strategies, Elderly Patients, Mauk Rehabilitation Model, Self- Efficacy, Stroke.*

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients*

**Introduction:**

The aging process is a crucial stage of life, and it is deemed socially necessary to address the issues and illnesses associated with it such as neurological disorders. Stroke is among the conditions that most severely impair neurological function among elderly. Stroke occurs when a portion of the brain's blood supply is disrupted, resulting in sudden loss of brain function (Rajati et al., 2023). Many deficiencies are frequently brought on by stroke, including physical difficulties with walking, transfers, bowel and bladder control, and daily living activities; cognitive disabilities and psychosocial issues, despair, and anxiety (Fekadu et al., 2019).

Knowledge of stroke risk factors could improve primary prevention. Knowing one's own personal risk for stroke allows him to reduce his own risk and promote the intervention of stroke risk factors. Numerous high-risk stroke patients are unaware of their risk, according to previous studies (Sirisha et al., 2021). Public education aimed at raising knowledge of stroke and its risk factors can aid in early detection, shorten the time needed for treatment, and lower the risk of stroke (Soto-Cámara et al., 2020).

Self-efficacy is another element that influences stroke patient's quality of life and their recovery rate. After stroke, patients may experience emotional, social, and physical problems. The degree of patients' self-efficacy and quality of life is significantly impacted by these problems (Topçu & Sıdıka, 2021).

Self-efficacy is a measure of a patient's self-assurance and likelihood of success in conquering potential future challenges. To become self-sufficient and adjust to their condition, the majority of patients with stroke need assistance. In hospitals or at patients' homes, nurses play a multitude of roles in improving the quality of life and self-efficacy of stroke patients (Wang et al., 2021).

Stroke is a significant life event that will definitely prompt the use of coping mechanisms in an effort to restore a reasonable level of equilibrium in one's life. Coping strategies are behavioral and cognitive approaches to handling upsetting situations that make it difficult for the individual to adapt (Dewilde et al., 2019). Problem-focused and emotional-focused coping are the main coping attributes. Attempts to change the problematic circumstances are part of problem-focused coping. Efforts to control emotional reactions to stimuli are referred to as emotional-focused coping (Rahman et al., 2024).

The Mauk model is used for stroke recovery and rehabilitation. According to this model, there are six distinct stages that stroke survivors go through: agonizing, fantasizing, realizing, blending, framing and owning. Mauk model offered tasks and nursing interventions for each stage of recovery (Mauk et al., 2011). Owing to their broad responsibilities, nurses are able to actively engage in the patient's rehabilitation program. When patients don't properly recover in a hospital or rehabilitation center, nurses should

## *Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy and Coping Strategies among Post Stroke Elderly Patients*

advocate for services that let them stay with survivors and their families until they are fully recovered (Pereira et al., 2021).

As a provider of integrative, comforting, interpretative, and preserving care, nurses have a critical role in the rehabilitation process of stroke patients. The goal of preserving functions is to assist patients in avoiding problems and preserving their normal range of motion, both of which are necessary for more efficient rehabilitation instruction (Aadal et al., 2018). By giving patients and their families information on stroke and assisting them in comprehending how the illness progresses, interpretive tasks are carried out. Patients and their families can receive emotional assistance via comforting functions. Lastly, integrative roles mandate that the nurses support and mentor patients in making active use of recently acquired abilities in their daily lives (Camicia et al., 2021).

### **Significance of the study:**

Stroke is the second leading cause of mortality and disability after ischemic heart disease in older people worldwide and it is predicted to continue by 2030 (Avan et al., 2019). Stroke is very common in both genders and its rate increases with age. In older people, the estimated overall prevalence of stroke was 7.4% (Rajati et al., 2023). In Egypt, the incidence of stroke is between 150,000 and 210,000 per year, with a high crude prevalence rate of stroke 963 per 100,000 people. According to official national statistics, circulatory system diseases, including

stroke are the primary causes of death in Egypt, where stroke accounts for 6.4% of all deaths and ranks third after cardiovascular and gastrointestinal diseases (Aref et al., 2021).

Because stroke symptoms and complications can range widely and are complex, many studies highlight the value of using rehabilitation programs. An essential part of the treatment plan for chronic illnesses like stroke is the use of rehabilitation program, which provide stroke patients more coping strategies and boost their sense of self-efficacy (Liu et al., 2024). Therefore, the purpose of the current study was to evaluate the effect of Mauk nursing rehabilitation model on knowledge, self- efficacy and coping strategies among post stroke elderly patients.

### **Methods**

#### **Purpose:**

To evaluate the effect of Mauk nursing rehabilitation model on knowledge, self- efficacy and coping strategies among post stroke elderly patients.

#### **Research hypotheses:**

To fulfill the current study's purpose, the following research hypotheses were generated:

- **H1-** Post stroke elderly patients who receive Mauk nursing rehabilitation intervention; their knowledge will be increased post intervention than pre intervention.
- **H2-** Post stroke elderly patients who receive Mauk nursing rehabilitation intervention; their self–efficacy will be increased post intervention than pre intervention.

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients*

- **H3-** Post stroke elderly patients who receive Mauk nursing rehabilitation intervention; their coping strategies will be increased post intervention than pre intervention.

**Research Design:**

A Quasi-experimental (one group pre-post-test) design was used in the current study.

**Setting:**

The study was conducted at neurology and psychology out-patient clinic, Menoufia University Hospital, Menoufia University, Egypt

**Sample:**

A purposive sample of 60 post stroke elderly patients was selected from the aforementioned setting, according to the following criteria:

- 60 years of age or older
- Diagnosed with ischemic stroke.
- Capable of communicating and agreeing to take part in the study.

**Exclusion criteria included:**

- Clients with psychological disorders, anxiety and depression.
- Clients with cognitive impairment

**Sample size calculation:**

The researchers used the online sample size calculator provided by creative research systems to determine the necessary sample size (Meysamie et al., 2014). The flow rate of the elderly patients at various specialties outpatient clinics was 11520 patients annually, while the target elderly population with the specific inclusion and exclusion criteria was 480. With a 90% level of confidence (error=10%),

the required sample size was equal 60 post stroke elderly patients.

**Instruments:**

Three instruments were used in the current study.

**Instrument one: A structured interviewing questionnaire:**

It was established by the researcher. It comprised of three sections as follow:

- **Section one:** it focused on the demographics of post stroke elderly patients, including their age, sex, marital status, income, education level, and residency, etc.
- **Section two:** it included the medical health history of elderly people such as prior hospitalization, the onset of the stroke, any accompanying illnesses, the use of current medications, the length of the disease, etc.
- **Section three:** it included stroke knowledge questions of post stroke elderly patients: which included 20 questions with Arabic language, including the definition of the word "stroke," its causes, risk factors, symptoms, complications, preventions, treatments, and rehabilitation, as well as the need of follow-up. There were three alternative answers for each question: (2) for complete accurate answers, (1) for partial or incomplete answer, and zero (0) for incorrect answer. The total final result is 40. Greater knowledge is indicated by a higher score. Knowledge was distributed into either: poor knowledge: less than 50%, fair

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients*

knowledge: from 50- 75 %, good knowledge: more than 75%.

**Instrument two: Ways of Coping Questionnaire (WCQ)**

WCQ was developed by Folkman and Lazarus (1988). The questionnaire had 66 items and was scored on a 4-point Likert-type scale (0 = does not apply and/or not used, 1= used some -what, 2= used quite a bit, 3 = used a great deal). It had 8 subscales namely; confrontive coping, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem-solving, and positive reappraisal. Its overall score fell between 0 and 198. A higher score denotes the use of efficient coping strategies.

**Instrument three: The Stroke Self-Efficacy Questionnaire (SSEQ)**

The SSEQ was developed by Jones, Partridge and Reid, (2008). The SSEQ was 13-items self-report scale gauged respondents' perceptions of their own abilities in a number of post-stroke functional categories. On a 10-point scale, with 0 denoting no confidence at all and 10 denoting extreme confidence, respondents rate their belief in their ability to complete each of the 13 items.

**Validity:**

Group of experts (two professors in geriatric health nursing and three professors in community health nursing) received the instruments. The researchers made all the modifications recommended by the expertise.

**Reliability:**

The internal consistency approach was used to assess the instruments' reliability. The reliability proved to be high with Cronbach alpha coefficient = 0.893 for knowledge and 0.949 for the stroke self- efficacy questionnaire and 0.887 for ways of coping questionnaire.

**Ethical considerations:**

An ethical approval was obtained from the Research Ethics Committees of Faculty of Nursing, Menoufia University (Research No: 898, Date: 21.09.2022). Consequently, in order to conduct the study, the researchers received an official approval from the study setting administrators. Post stroke elderly patients were told that their data was private, anonymous, and would only be used as statistical data without any identifying characteristics. Before taking part in the study, participants were told about its goals, the researchers' identity, and each patient donated his/her written informed consent and they were informed of their right to withdraw from the study at any time without any penalty.

**Pilot study:**

In order to assess the instrument's content and determine whether any ambiguities should be clarified, a pilot study was implemented on 10% (n=6) of the studied sample, which included both male and female patients. The study also helped determine how long it would take to complete the instruments and develop the Mauk rehabilitation model intervention. The

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients*

pilot study patients were incorporated into the entire study population because the instruments were not changed.

**Data collection procedure**

**1) Preparatory phase:**

With the use of existing text books, papers, magazines, and internet resources, a review of pertinent literature from the past and present covering many aspects of elderly people suffering from a stroke was conducted.

The researchers tailored the content of the Mauk nursing rehabilitation sessions to meet the need(s) of post stroke elderly patients which addressed in the form of a booklet. The booklet was divided into two sections: the first was a theoretical section where information regarding stroke was covered. The second section provided comprehensive information on the Mauk nursing rehabilitation model, which emphasizes the process of stroke recovery and offers a framework to direct all rehabilitation activities. Six phases make up Mauk model namely; agonizing, fantasizing, realizing, blending, framing, and owning.

**2) Implementation phase:**

Data was collected from the beginning of January, (2023) to the end of June, (2023).

First, the researchers presented themselves and gave a fleeting description of the study's aim to the post stroke elderly patients.

Study instruments were applied pre intervention with each post stroke

elderly patient, which took between 30 and 40 minutes to complete.

The Mauk nursing rehabilitation model intervention with post stroke elderly patients was started and they were divided into four groups (6-8) patients. The Mauk nursing rehabilitation model intervention was distributed over 4 sessions; every session took about 30-45 minutes and was applied each Saturday /week for 8 weeks

Each session began with a recap of what had been covered in the previous one and an explanation of the goals of the new one, taking into account the participants' educational background and using simple language to suit them. During the session, motivational and reinforcement strategies like praise and acknowledgment were utilized to improve motivation and learning.

**The sessions were offered according to the following schedule:**

- 1st session :(Time: 30-45 min) during this session, the researchers passed a pre-assessment test and established the meeting time as fixed date and time each week. Also; this session included an explanation of the study's purpose, knowing the definition, types, causes, signs, and symptoms of strokes as well as information on high-risk groups such as the elderly, those with high blood pressure, obese people, smokers, diabetics, and so on.
- 2nd session :( Time: 30-45 min) this session focused on stroke diagnostic tests and complications. Moreover, stroke treatment and prevention strategies related stroke.

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients*

- 3rd & 4th sessions :( Time: 30-45 min) the focus of these sessions was to explain Mauk nursing rehabilitation model with its six phases including agonizing, fantasizing, realizing, blending, framing, and owning.
- During the agonizing phase, Patients were only concerned with surviving the stroke's initial assault. To help the new stroke patient endure the impacts, nurses provided physical care and protection. In the fantasizing phase, Patients made an effort to shield themselves from the reality of stroke's effects. Realizing may be a challenging stage when the stroke survivor confronts the truth of their condition since survivors may feel as though they are not in reality and may have a different understanding of time. As survivors deal with the different impacts of the stroke, whether physical, mental, spiritual, or other; nurses must offer them emotional and psychosocial support.
- Rehabilitation nurses may have the longest-lasting effects on a stroke survivor's capacity to adjust to life after a stroke during the final three phases. The blending phase is when adaptation starts, and this is the period when nurses should be doing the most teaching. The stroke survivor is most eager to learn new things and seeks to blend the past and current.
- Stroke patients try to put their experience in perspective while thinking back on it during framing. A precise medical explanation for the stroke is one of the most crucial

responsibilities the nurse can help with during this stage. Therapeutic listening is also crucial. It's also critical to recognize that each person's experience with this phase will be different and could last for a while.

- Stroke survivors start to resume their normal activities in the final phase, owning. During this period, the nurses should help the patient develop his or her inner resources and connect the stroke survivors and their families to the proper community services.

**3) Evaluation phase:**

A post-test was done to the post stroke elderly patients to collect knowledge post intervention at the end of the 4th session. While after three months (12 weeks) each elderly patient was evaluated to estimate the effect of Mauk nursing rehabilitation model using the same study instruments including self-efficacy and ways of coping. During the period of intervention the elderly patients were followed up either through outpatient clinic or via telephone calling or whatsapp to ensure their adherence to rehabilitation instructions.

**Statistical Analysis:**

Data analyses were performed using Statistical Package for the Social Sciences (SPSS) version 16. Quantitative variables were described as mean  $\pm$  standard deviation (SD). Qualitative variables were presented as frequency and percentage (%). Non-parametric statistics were generally applied, namely Spearman's rho to examine the correlation between the

***Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients***

stroke knowledge, post stroke self-efficacy and ways of coping, the Mann-Whitney U test to assess differences between groups, and Wilcoxon Signed Ranks test to assess the level of significance of changes. Results were considered statistically significant at the 5% significance level ( $p < 0.05$ ).

### **Results**

**Table 1:** it represents that, the mean age of post stroke elderly patients was  $68.20 \pm 5.59$  and they were divided into two equal halves (50%) regarding their sex. More than half of them were married and had not enough income (61.7%, 53.3% respectively).

**Table 2:** reveals that, the mean score knowledge about stroke was  $15.23 \pm 9.40$  in pre intervention, which significantly increased to  $28.03 \pm 9.73$  in post intervention. There were high statistically significant differences between the pre and posttest in relation to stroke knowledge categories ( $p < 0.001^{**}$ ).

**Fig.1** displays that, there was a statistically significance difference in the level of knowledge between pre and post intervention. As represented, in the pre intervention, 68.3% of the patients showed poor knowledge, 26.7% showed fair knowledge and 5% of them showed good knowledge. While in the post intervention, more than half of them (58.4%) had good knowledge, 23.3% had fair knowledge

and only 18.3% of the patients had poor knowledge.

**Table 3:** represents that, the mean total stroke self-efficacy score was  $58.88 \pm 27.62$  in pre-intervention, which significantly increased  $95.41 \pm 16.70$  in post intervention. With high statistical significant differences between the pre and post intervention in relation to stroke self-efficacy questions ( $p < 0.001^{**}$ ).

**Fig.2:** displays that there was increase in the mean score of total stroke self - efficacy in post- intervention ( $95.41 \pm 16.70$ ) than in pre-intervention ( $58.88 \pm 27.62$ ) with statistically significant difference.

**Table 4:** shows that, there was an observable increase in the mean total score of ways of coping questionnaire in post intervention ( $149.36 \pm 30.63$ ) than in pre intervention ( $84.53 \pm 25.40$ ) with a statistically significant difference between pre and post intervention in relation to subscales of the questionnaire ( $P < 0.000^*$ )

**Table 5:** illustrates that, there was a significant correlation between stroke knowledge and ways of coping total scores post intervention ( $r=0.297$ ,  $p < 0.05^*$ ). Also there was a significant correlation between stroke knowledge and stroke self-efficacy total scores post intervention ( $r=0.304$ ,  $p < 0.05^*$ ). While there was no significant correlation between ways of coping and stroke self-efficacy total scores post intervention.



***Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy and Coping Strategies among Post Stroke Elderly Patients***

**Table 1: Distribution of Elderly Patients Post Stroke according to Their Socio-Demographic Data (n= 60).**

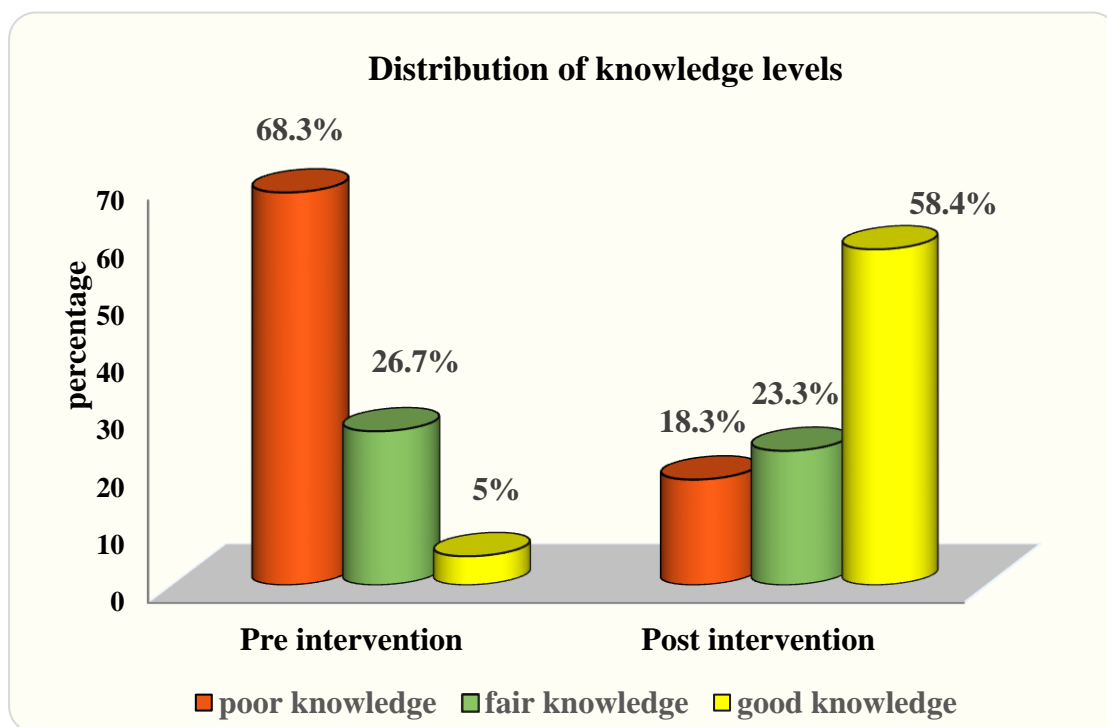
Socio-demographic data	No.	%
<b>Age (years)</b>		
60 > 65	15	25.0
65 > 70	24	40.0
70> 75	14	23.3
75≥ 100	7	11.7
<b>Mean ± SD</b>	68.20 ± 5.59	
<b>Sex:</b>		
Male	30	50
Female	30	50
<b>Marital status:</b>		
Married	37	61.7
Divorced	1	1.6
Widowed	22	36.7
<b>Level of education:</b>		
Do not read or write	17	28.3
Basic education	11	18.4
Secondary education	17	28.3
University education	15	25.0
<b>Working condition:</b>		
not work	44	73.3
work	16	26.7
<b>Income:</b>		
Enough	28	46.7
Not enough	32	53.3
<b>Total</b>	60	100

**Table 2: Mean Level of Knowledge of Elderly Patients about Stroke on Pre and Post Intervention (n=60)**

Stroke Knowledge Categories	Pre intervention	Post intervention	Z	P
	Mean ± SD	Mean ± SD		
1)Definition of stroke	0.85 ± 0.73	1.53±0.62	5.82	P < 0.001**
2)Types of stroke	0.45±0.62	1.15±0.71	6.189	P < 0.001**
3)Risk factors of stroke	2.63±1.60	4.28±1.60	6.03	P < 0.001**
4)Warning signs of stroke	1.75±1.57	3.60±1.63	6.54	P < 0.001**
5) Management of stroke	3.33±1.99	6.15±2.02	6.48	P < 0.001**
6)Prevention of stroke	2.53±1.64	4.60±1.58	6.45	P < 0.001**
7)Complication of stroke	0.80±0.57	1.33±0.70	5.04	P < 0.001**
8)Rehabilitation of stroke	2.88±2.07	5.35±2.24	6.38	P < 0.001**
9)Total score of stroke knowledge	15.23± 9.40	28.03± 9.73	6.68	P < 0.001**

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy and Coping Strategies among Post Stroke Elderly Patients*

**Figure 1: Levels of Knowledge of Elderly Patients Post Stroke on Pre and Post Intervention (n=60)**

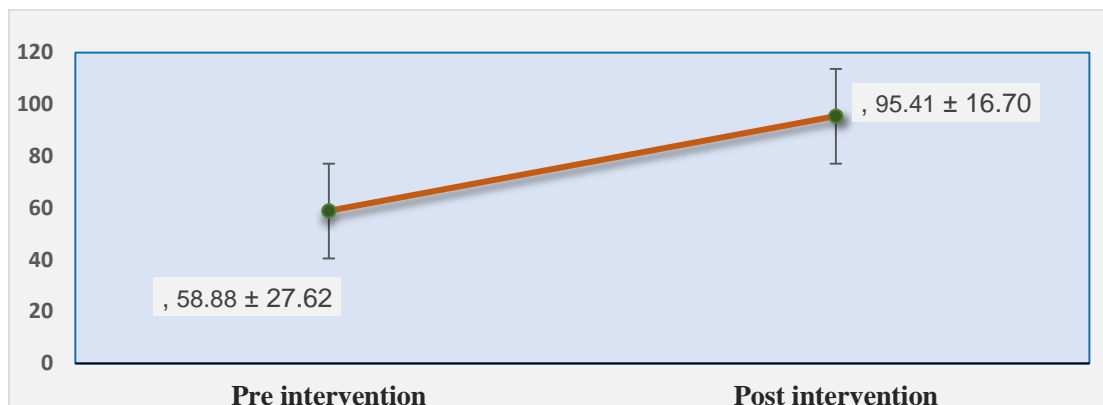


**Table 3: Mean Score of Stroke Self-Efficacy Questionnaire (SSEQ) of Elderly Patients on Pre and Post intervention (n=60)**

Stroke Self efficacy questionnaire	Pre intervention	Post-intervention	Z	P
	Mean ± SD	Mean ± SD		
1) Get comfortable in bed every night	4.76 ±2.42	6.98±1.82	5.94	P < 0.001 **
2)Get out of bed when feel tired	4.48 ±2.63	7.61±4.27	6.13	P < 0.001 **
3)Walk a few steps on any surface inside house	4.70 ±2.32	7.36±1.57	6.06	P < 0.001 **
4)Walk in house to do most things want.	4.71±2.40	7.51±1.67	6.24	P < 0.001 **
5)Walk safely outside alone	4.38 ±2.50	7.41±1.41	6.15	P < 0.001 **
6)Use both hands for eating food.	4.57 ±2.23	7.31±1.46	6.304	P < 0.001 **
7)Dress and undress even when feel tired.	4.57±2.27	7.68 ±1.70	6.42	P < 0.001 **
8)Prepare a meal.	4.23±2.35	6.83±1.63	6.12	P < 0.001 **
9)Persevere to make progress after discharge from therapy.	4.57 ±2.56	7.30 ±1.66	5.79	P < 0.001 **
10)Do own exercise program every day.	4.33±2.53	7.28 ±1.66	6.00	P < 0.001 **
11)Cope with the frustration because of stroke.	4.60±2.53	7.30 ±1.54	5.93	P < 0.001 **
12) Continue to do most of the things as pre stroke.	4.65±2.29	7.53±1.48	6.12	P < 0.001 **
13)Keep getting faster at the tasks that have been slow since stroke.	4.32 ±2.33	7.26 ±1.58	6.13	P < 0.001 **
<b>Total Score of Self efficacy</b>	<b>58.88± 27.62</b>	<b>95.41±16.70</b>	<b>6.68</b>	<b>P &lt; 0.001 **</b>

***Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy and Coping Strategies among Post Stroke Elderly Patients***

**Figure 2: Mean Score of Self-Efficacy among Post Stroke Elderly Patients on Pre and Post Intervention (n=60)**



**Table 4: Mean Score of Ways of Coping Subscales among Elderly Patients Post Stroke on Pre and Post Intervention (n= 60)**

Ways of coping Subscales	Pre	Post	Z	P
	Mean ± SD	Mean ± SD		
Confrontive coping	9.90± 4.90	16.11± 4.14	6.46	0.000*
Distancing	10.16± 4.93	17.45± 4.40	6.52	0.000*
Self –controlling	11.60± 4.95	21.56± 5.57	6.59	0.000*
Seeking social support	7.91±2.96	14.33±3.41	6.69	0.000*
Accepting responsibility	7.43±3.24	13.91±3.10	6.59	0.000*
Escape Avoidance	15.15±6.62	27.30±7.14	6.69	0.000*
Planful problem solving	9.20±4.56	16.30±4.18	6.52	0.000*
Positive reappraisal	13.16±4.75	22.38±5.76	6.63	0.000*
<b>Total Score of Ways of coping</b>	<b>84.53±25.40</b>	<b>149.36±30.63</b>	<b>6.74</b>	<b>0.000*</b>

**Table 5: Correlation between Total Score of Stroke Knowledge, Stroke Self-Efficacy, and Ways of Coping Post Intervention among Post Stroke Elderly Patients (n=60)**

Correlations	Total score of ways of coping post intervention	Total score of stroke self -efficacy post intervention	Total score of stroke knowledge post intervention
Total score of ways of coping post intervention	.	r = 0.174 p > 0.05	r = <b>0.297</b> p < <b>0.05*</b>
Total score of stroke self - efficacy post intervention	r = 0.174 p > 0.05	.	r = <b>0.304</b> p < <b>0.05*</b>
Total score of stroke knowledge post intervention	r = 0.297 p < 0.05*	r = 0.304 p < 0.05*	.

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients*

## **Discussion**

Stroke is a disease affecting older persons and is linked with increased disability and mortality that result in higher rates of readmission, longer hospital stays, lower quality of life, higher expenses, caregiver burden, and senior deaths (El Awady & Abd-Elraziq, 2019). Rehabilitation is crucial for post stroke survivors to reach their maximum functional capacity and to postpone any functional loss (Wang et al., 2021). When dealing with a chronic illness like a stroke, it's critical to establish effective coping strategies and promote self -efficacy of post stroke survivors to lessen the effects of stroke and its complications. Thus, the purpose of this study was to evaluate the effect of Mauk nursing rehabilitation model on knowledge, self- efficacy and coping strategies among post stroke elderly patients.

Regarding post-stroke elderly patients' knowledge, the current study found that over half of the patients had good knowledge, and the total mean score of post-stroke elderly patients' stroke knowledge increased significantly compared to before the Mauk nursing rehabilitation intervention. This result was harmonized with the study of El Awady and Abd-Elraziq ,( 2019) ,Hamad, (2011) and also with Abd El Ghany, (2006) who revealed that the total mean score of post-stroke elderly patients' stroke knowledge increased significantly compared to before the Mauk nursing rehabilitation intervention. Furthermore, this finding was matched with AbdElaziz, Mohamed,& Bayomi, (2013); they

discovered a noteworthy enhancement in knowledge and practices following health education sessions in both post-tests one and two, compared to the pre-test. Moreover, previous study from India that conducted by Das et al., (2016), they demonstrated that families afflicted by stroke have much greater levels of awareness and knowledge than unaffected families. Similarly, a study conducted by Farpour et al., (2023) who showed that the participants' scores comparatively higher in the knowledge, attitude, and practice questionnaires. Finally, without enough public awareness, the appropriate mindset, and appropriate stroke behaviors, the incidence of stroke cannot be reduced.

Regarding the stroke patients' self-efficacy, the current study demonstrated that there were significant differences between the pre and post Mauk nursing rehabilitation intervention in terms of self-efficacy categories, and that the mean total self-efficacy score was higher after intervention than before. These outcomes were equivalent with Weheida et al., (2019) who stated that about two thirds of the patients in the study felt confident about their daily activities. And also similar to Topçu & Oğuz, (2018) who discovered that, following a stroke, a person's self-efficacy had good effects on everyday activities and physical functions. This finding can also reflect the desire and preparedness of stroke patients to recover and their need to regain as much of their usual physical state as feasible and their enhanced optimism

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients*

and hope. Also a study carried out by El Awady and Abd-Elraziq, (2019) made it clear that less than two thirds of stroke patients have normal to high level of motivation. This could be due to a variety of factors, including the patients' strong desire to overcome their obstacles, their condition having significantly improved, their prior independence, the psychological support of their families and the health team, and their unwavering belief in God.

As regards the coping strategies of the studied elderly patients, this study demonstrated an increase in total score of coping strategy following the Mauk nursing rehabilitation intervention as compared to the pre-intervention. Several studies were aligned with our results like Shoja et al., (2015); the results of their study showed that following the rehabilitation intervention, the coping strategy ratings of stroke patients fell. Reduced ratings were indicative of a more successful rehabilitation program, which may be related to how well Mauk rehabilitation programs influence stroke patients' coping strategies. Also, Rochette & Desrosiers, (2002) noticed a noteworthy rise in the mean score of coping strategy following the intervention. Moreover, Noorian et al., (2005) demonstrated that the domains of coping strategies, which significantly improved after rehabilitation measures, were aligned with the quality of life domains' mean scores. It can be inferred that the influence of the Mauk nursing

rehabilitation intervention is what caused the outcomes to improve.

With reference to the correlation between stroke knowledge, the ways of coping, and the stroke self-efficacy : A significant correlation was found between stroke knowledge, ways of coping and stroke self-efficacy total scores in post Mauk nursing rehabilitation intervention. This finding was like the study of Farpour et al., (2023); they found a significant correlation between participants' knowledge and practice. Furthermore, Do et al., (2015) found that patient activation has been linked to heart failure knowledge, self-efficacy, and self-management practices. Higher activation levels were associated with greater knowledge about managing heart failure, a greater confidence in managing heart failure, and increased propensity to participate in self-management behaviors.

Additionally, comparable to the current study results, Liu et al., (2014) revealed that, awareness of illnesses is linked to self-care practices and life satisfaction. Low literacy rates in elderly patients make them especially vulnerable and disadvantaged when it comes to learning about symptoms management and disease treatment. Therefore, preserving the physical capacity of older patients with heart failure to self-perform daily activities and raising their level of illness awareness are essential to successful heart failure management. Also, Muschalla et al., (2011) found that patients' confidence to perform daily tasks is increased and their worry and dread are reduced when they are aware

***Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy  
and Coping Strategies among Post Stroke Elderly Patients***

of their condition. According the researchers' point of view these results may signpost that the more a patient knows about his disease or illness, the greater his self -efficacy and the degree of his adaptation to or coping with it because the burden emerges from the ignorance or unawareness.

### **Conclusion**

The present study's findings support the hypotheses that the Mauk nursing rehabilitation intervention improved the stroke knowledge ,self-efficacy, and coping strategies for post stroke elderly patients.

### **Recommendations**

The findings of the current study led to the formulation of the following recommendations:

- Mauk nursing rehabilitation model should become an essential part of the total management plan of post stroke elderly patients.
- Enhancing patient awareness of the stroke might be extremely important for the recovery process through ongoing nursing education programs and proper follow up discharge programs.
- Broadening the scope of post-stroke rehabilitation beyond the realm of physical structure and function to include self-efficiency and coping strategies that encourage more significant results that correspond to engagement in everyday activities of stroke patients.

### **References**

- Aadal, L., Angel, S., Langhorn, L., Pedersen, B. B., & Dreyer, P. (2018). Nursing roles and functions addressing relatives during in-hospital rehabilitation following stroke. *Care needs and involvement. Scandinavian journal of caring sciences*, 32(2), 871-879.
- Abd El Ghany F (2006). *Post-Stroke Home Health Care; Impact on Patients' Condition and Family Caregivers' Burden*. Unpublished Doctorate Dissertation. Faculty of Nursing, Cairo University.
- 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/amsci/am0906/035\\_19554am0](http://www.jofamericanscience.org/journals/amsci/am0906/035_19554am0).
- Aref, H., Zakaria, M., Shokri, H., Roushdy, T., El Basiouny, A., & El Nahas, N. (2021). Changing the landscape of stroke in Egypt. *Cerebrovascular Diseases Extra*, 11(3), 155-159.
- Avan, A., Digaleh, H., Di Napoli, M., Stranges, S., Behrouz, R., Shojaeianbabaei, G., ... & Azarpazhooh, M. R. (2019). Socioeconomic status and stroke incidence, prevalence, mortality, and worldwide burden: an ecological analysis from the Global Burden of Disease Study

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self-Efficacy and Coping Strategies among Post Stroke Elderly Patients*

2017. BMC medicine, 17(1), 1-30.
- Camicia, M., Lutz, B., Summers, D., Klassman, L., & Vaughn, S. (2021). Nursing's role in successful stroke care transitions across the continuum: from acute care into the community. *Stroke*, 52(12), e794-e805.
- Cheng, H. Y., Chair, S. Y., & Chau, J. P. C. (2014). The effectiveness of psychosocial interventions for stroke family caregivers and stroke survivors: a systematic review and meta-analysis. *Patient education and counseling*, 95(1), 30-44.
- Das S, Hazra A, Ray BK, Ghosal M, Chaudhury A, Banerjee TK, et al. Knowledge, attitude, and practice in relation to stroke: A community-based study from Kolkata, West Bengal, India. *Ann Indian Acad Neurol* 2016;19:221-7.
- Dewilde, S., Annemans, L., Lloyd, A., Peeters, A., Hemelsoet, D., Vandermeeren, Y., & Thijs, V. (2019). The combined impact of dependency on caregivers, disability, and coping strategy on quality of life after ischemic stroke. *Health and quality of life outcomes*, 17, 1-11.
- Do V, Young L, Barnason S and Tran H. (2015). Relationships between activation level, knowledge, self-efficacy, and self-management behavior in heart failure patients discharged from rural hospitals [v1; ref status: indexed, <http://f1000r.es/5fl>] [F1000Research](http://F1000Research), 4:150 (doi: [10.12688/f1000research.6557.1](https://doi.org/10.12688/f1000research.6557.1))
- El Awady Sahar Mahmoud Sayed Ahmed & Abd-Elraziq Eman M. Ebrahim. (2019). The Effect of Health Education Intervention for Informal Caregivers of Elderly Persons Post Stroke. *International Journal of Nursing Didactics*. 9 (08). ISSN: 2231-5454.DOI: <https://doi.org/10.15520/ijnd.v9i08.2666>.
- Farpour H, Mashhadiagha A, Edrisi F, Farpour S. (2023). Knowledge, attitude, and practice regarding stroke potential complications among stroke survivors' family members in Shiraz, Iran. *Turk J Phys Med Rehab*;69(1):83-88. doi: 10.5606/tftrd.2022.9512
- Fekadu, G., Chelkeba, L., & Kebede, A. (2019). Risk factors, clinical presentations and predictors of stroke among adult patients admitted to stroke unit of Jimma university medical center, south west Ethiopia: prospective observational study. *BMC neurology*, 19(1), 1-11.
- Folkman, S., & Lazarus, R. S. (1988). Ways of coping questionnaire. American Psychological Association
- Hamad A. (2011): Stroke in Qatar: A one year, Hospital Based Study. *Journal of Stroke and Cerebrovascular Disease*, 10: 236-41.
- Jones, F., Partridge, C., & Reid, F. (2008). The Stroke Self-Efficacy Questionnaire: measuring individual confidence in

*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy and Coping Strategies among Post Stroke Elderly Patients*

- functional performance after stroke. *Journal of clinical nursing*, 17(7b), 244-252
- Liu, Q., Liu, L., Liu, Z., Xu, Y., Wang, F., Cheng, H., & Hu, X. (2024). Reminiscent music therapy combined with robot-assisted rehabilitation for elderly stroke patients: a pilot study. *Journal of NeuroEngineering and Rehabilitation*, 21(1), 16.
- Liu, M. H., Wang, C. H., Huang, Y. Y., Cherng, W. J., & Wang, K. W. K. (2014). A correlational study of illness knowledge, self-care behaviors, and quality of life in elderly patients with heart failure. *The Journal of Nursing Research*, 22(2), 136Y145. doi:10.1097/jnr.0000000000000024.
- Mauk, K. L., Lemley, C., Pierce, J., & Schmidt, N. A. (2011). The Mauk model for poststroke recovery: assessing the phases. *Rehabilitation Nursing*, 36(6), 241-247.
- Meysamie, A., Tae, F., Mohammadi-Vajari, M. A., Yoosefi-Khanghah, S., Emamzadeh-Fard, S., & Abbassi, M. (2014). Sample size calculation on web, can we rely on the results. *Journal of Medical Statistics and Informatics*, 2(1), 3.
- Muschalla, B., Glatz, J., & Karger, G. (2011). Cardiac rehabilitation with a structured education programme for patients with chronic heart failure-illness-related knowledge, mental wellbeing and acceptance in participants. *Die Rehabilitation*, 50(2), 103Y110. doi:10.1055/s-0030-1265182
- Noorian k, kazemian a, aslani y, delaram m. (2005). The effect of rehabilitation intervention on quality of life in stroke patients.;13(50)L7-22.
- Pereira, C. M., Greenwood, N., & Jones, F. (2021). From recovery to regaining control of life—the perspectives of people with stroke, their carers and health professionals. *Disability and rehabilitation*, 43(20), 2897-2908.
- Rahman, M. M., Arif, M. T., bin Said, A., bin Suhaili, M. R., Fadzillah, M., & Kee, L. H. (2024). Identifying Stroke Caregivers' Coping Strategies: The Smile that has Struggled through the Tears- A Mixed-Method Research Approach. *Bangladesh Journal of Medical Science*, 23(1).
- Rajati, F., Rajati, M., Rasulehvandi, R., & Kazemina, M. (2023). Prevalence of Stroke in the Elderly: A Systematic Review and Meta-Analysis. *Interdisciplinary Neurosurgery*, 101746.
- Rajati, F., Rajati, M., Rasulehvandi, R., & Kazemina, M. (2023). Prevalence of Stroke in the Elderly: A Systematic Review and Meta-Analysis. *Interdisciplinary Neurosurgery*, 101746.
- Rochette A, Desrosiers J. (2002). Coping with the consequences of a stroke. *International Journal of Rehabilitation Research*.;25(1):17-24



*Effect of Mauk Nursing Rehabilitation Model on Knowledge, Self- Efficacy and Coping Strategies among Post Stroke Elderly Patients*

- Roger, V. L., Go, A. S., Lloyd-Jones, D. M., Adams, R. J., Berry, J. D., Brown, T. M & Wylie-Rosett, J. (2011). Heart disease and stroke statistics—2011 update: a report from the American Heart Association. *Circulation*, 123(4), e18-e209.
- Shoja Maryam; Asghar Dalvandi ; Hamid Reza Khanke; Zeinab Ebrahimpour Mouziraji; Abbas Tafakhori; Payam Sarraf ;Roozbeh KazemiAkbar Biglarian ;Kristin L. Mauk (2015).Implication of Mauk Nursing Intervention Model on Coping Strategies of Stroke Survivors. *Iranian Rehabilitation Journal*, Vol. 13, Issue 2.
- Sirisha, S., Jala, S., Vooturi, S., Yada, P. K., & Kaul, S. (2021). Awareness, recognition, and response to stroke among the general public—an observational study. *Journal of Neurosciences in Rural Practice*, 12(04), 704-710.
- Soto-Cámara, R., González-Bernal, J. J., González-Santos, J., Aguilar-Parra, J. M., Trigueros, R., & López-Liria, R. (2020). Knowledge on signs and risk factors in stroke patients. *Journal of clinical medicine*, 9(8), 2557.
- Topçu, S.& Oğuz ,S. (2018). Translation and validation study for the stroke self-efficacy questionnaire in stroke survivors. *International Journal of Nursing Practice*. *Int J Nurs Pract.* e12646. 2.
- Topçu, S., & Sıdıka, O. Ğ. U. Z. (2021). Evaluation of self efficacy and quality of life of stroke patients. *Hemşirelik Bilimi Dergisi*, 4(3), 114-121.
- Wang Jianmiao, Zhang Yuping, Chen Yuanyuan, Li Mei, Yang Hongyan, Chen Jinhua, Tang Qiaomin & Jin Jingfen. (2021). Effectiveness of Rehabilitation Nursing versus Usual Therapist-Led Treatment in Patients with Acute Ischemic Stroke: A Randomized NonInferiority Trial, *Clinical Interventions in Aging*, 1173-1184, DOI: 10.2147/CIA.S30625.
- Wang, J., Zhang, Y., Chen, Y., Li, M., Yang, H., Chen, J., ... & Jin, J. (2021). Effectiveness of rehabilitation nursing versus usual therapist-led treatment in patients with acute ischemic stroke: A randomized non-inferiority trial. *Clinical Interventions in Aging*, 1173-1184.
- Weheida S Mohammed, Gomaa A Arafa, Shaheen S Ramadan and Mohamed H Mohamed. (2019).The Self- Efficacy of Patients with Cerebrovascular Stroke during Recovery Period .*Egyptian Journal of Health Care*, EJHC. Vol. 10. No.4.
- Zakaria, M. F., Aref, H., Abd ElNasser, A., Fahmy, N., Tork, M. A., Fouad, M. M., & Moustafa, R. R. (2018). Egyptian experience in increasing utilization of reperfusion therapies in acute ischemic stroke. *International Journal of Stroke*, 13(5), 525-529.