

Rumiati, I Made Kariasa, Agung
Waluyo

Universitas Indonesia, Indonesia

Corresponding Author: Rumiati
Email: rumicute83@gmail.com

The Effectiveness of Post-Stroke Patient Care Education Intervention in Stroke Caregivers: A Literature Review

Article Info

Online : <http://journal.umy.ac.id/index.php/ijnp>
ISSN : 2548 4249 (Print)
: 2548 592X (Online)
DOI : 10.18196/ijnp.v5i1.11437

Article History

Received : 05 April 2021
Revised : 20 August 2021
Accepted : 31 August 2021

Abstract

Background: Educational interventions about stroke have been carried out by the health workers, one of which is by the nurse. However, the majority of the interventions focus more on the stroke patients than the stroke caregivers. Meanwhile, post-stroke patient care education interventions are urgently needed by the caregivers. Therefore, the author intends to review current literature about post-stroke patient care education interventions on stroke caregivers.

Objective: This literature review aims to identify the effectiveness, methods, and impacts of daily care educational interventions for post-stroke patients on stroke caregivers.

Methods: The method utilized was by analyzing online databases about the related topics from reputable sources. Seven articles that met the inclusions criteria considering Randomized Controlled Trial (RCT) and Quasi-experimental design, time of publication, and English full text were obtained, and the results were presented.

Result: Educational intervention could be carried out by several methods, including direct education at the patient's bedside, lectures followed by questions and answers, and booklets, home visits or telephone follow-up. Educational interventions could improve caregiver knowledge and skills in providing daily care for post-stroke patients, reduce burdens, reduce anxiety and improve the caregiver's quality of life. Educational interventions also positively impacted post-stroke patients, including improving the quality of life, functional abilities and the ability to do daily activities (ADL), reducing cognitive impairment, anxiety, and depression.

Conclusion: Daily care education interventions for post-stroke patients can reduce the burden on the caregiver, either physical, psychological or social burdens.

Keywords: Education Effect; Intervention Education; Post Stroke Patients; Stroke Caregiver; Stroke Caregiver Education

INTRODUCTION

Stroke is a clinical manifestation from focal and global cerebral dysfunction that lasts very quickly, more than 24 hours (Kuncoro, 2017). According to Junaidi (2011), a stroke is an acute focal or global brain functional problem caused by a stoppage of

blood flow to the brain caused by bleeding or blockage. It has varying symptoms and signs depending on the portion of the brain affected, which can recover entirely, be disabled, or die. In general, stroke is divided into two, namely obstruction stroke (ischemic) with an incidence of

83% and bleeding stroke (hemorrhagic) by 17% (Black & Hawks, 2014). Due to the increasing prevalence of stroke, the number of patients with disabilities is rising. As a result of low brain function, stroke frequently produces disability in the form of limb paralysis, problems in speaking, thinking processes, memory, and other forms of disability (Rahmawati et al., 2019).

Stroke is the leading cause of mortality and the leading cause of disability and dependence in daily life activities around the world (Deyhoul et al., 2020). Stroke is one of the leading causes of chronic disability worldwide. Approximately 5.5 million people die each year from strokes, and 44 million lose their life years adjusted for disabilities (Ali et al., 2020). In the United States, it is estimated that a person has a stroke every 40 seconds on average and that someone dies from a stroke every 4 minutes (Yu et al., 2019). The prevalence of stroke in Indonesia based on the diagnosis of health workers is 7.0 per mile (RISKESDAS, 2013). According to the Basic Health Research (RISKESDAS) (2018), the prevalence of stroke in Indonesia based on a health diagnosis is 10.9 per mile. Thus, there is an increase of 3.9 per mile in the prevalence of stroke in Indonesia.

The impact of ischemic and hemorrhagic strokes is the emergence of disabilities requiring long-term care. In carrying out post-stroke care, stroke patients are very dependent on their families. The family (informal caregiver) has a very important role in providing daily care for post-stroke patients. According to Zainul (2018), one function of the caregiver is to provide care to ill family members and keep and maintain health for the family members who suffer from a disease.

According to Deyhoul et al. (2020), 25-54% of caregivers reported a burden in providing care for post-stroke patients in the first six months. Post-stroke patient care is a burden on the caregiver. The caregiver is not a load-free zone. The burden increases as they have to take full responsibility for the care of the post-stroke patients while they do not have sufficient knowledge and skills to care for the post-stroke patients at home (Dharma et al., 2018; Pesantes et al., 2017). The caregiver's burden can be in the form of physical or psychological burdens. Physical burdens may include the

emergence of fatigue (carrying the patient, moving the patient) due to excessive pressure and demands, while psychological burdens may cover anxiety, stress, emotions, and depression that will have an impact on the post-stroke patient care and decrease the quality of life of the caregiver (Hekmatpou et al., 2019; Pesantes et al., 2017).

Education is very important for the caregivers in providing care for post-stroke patients. The education can provide support to caregivers by providing appropriate and correct understanding, knowledge and skills about the daily care of post-stroke patients (Dharma et al., 2018). With good knowledge and skills, stroke caregivers can play an active role in the recovery process for post-stroke patients with functional disorders related to meeting daily needs (eating, drinking, activities, etc.) (Nurramadany, 2014). Educational interventions can also reduce the burden of stroke caregivers physically, psychologically and socially in caring for post-stroke patients (Pesantes et al., 2017). Caregivers who lack information or knowledge, and skills in providing care to post-stroke patients may not be successful in providing support in the treatment and may even endanger both the patient and the caregiver. It will subsequently affect their quality of life (Dalvandi, 2018).

Health workers have carried out educational interventions about stroke, one of which is the nurse. One of the nurse's roles is as an educator. However, the majority of education focuses more on stroke patients than stroke caregivers. Caregiver stroke is not a safe zone but full of burdens, physically, psychologically and socially. Based on the problems above, the author intends to identify post-stroke patient care education interventions' effectiveness on stroke caregivers.

METHODS

The method in this literature review used a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analysis). The search was conducted by searching for research results published in the online database, namely Proquest, ScienceDirect, Springer Link, Wiley, and Google Scholar, using education effect, intervention education, stroke caregiver, stroke family, and stroke caregiver education, post-stroke patients. "AND" and "OR" were used to combine the keyword searches. The

inclusion criteria included articles published between 2015-2020, full text, open access, while the research design included quasi-experimental and (Randomized Controlled Trial) RCT. The topics included post-stroke care education interventions for stroke caregivers (family), while the exclusion criteria included: article was only an abstract, did not have a complete article structure, cross-sectional design, the article was a literature review and systematic review. PRISMA flow diagram of the literature review process is shown in Figure 1.

(see figure 1)

The analysis of the seven articles selected by the researcher according to table 1.

(see table 1)

Abbreviation: CEP-BAM: Caregiver Empowerment Program Based on Adaptation Model, CHN: Community Health Nursing, FMEP: Family Member Education Program, SHARE: The home-based educational intervention called Nursing Home Care Intervention Post Stroke, FCEP: Family-Centered Empowerment Program, ADL: activities of daily living.

Note: The participants were the stroke caregivers and post-stroke patients, but the educational intervention was only given to the stroke caregivers.

RESULT

A total of seven articles discussed post-stroke care education interventions for stroke caregivers. Research conducted by Hekmatpou et al. (2019) stated that their research focused on the effect of post-stroke patient care education on reducing the burden of care and improving the quality of life of stroke caregivers. Educational interventions could significantly reduce the burden of care and improve the quality of life of stroke patient caregivers. The care burden of stroke patients was significantly related to economic health, marital status, number of children, hours of care, days of care, and the relationship between the caregiver and patients, while the quality of life had a significant relationship with health status. Another study conducted by Azizi et al. (2020) focused more on the effectiveness of informational support on the level of anxiety in caregiver stroke patients. The intervention found that the caregiver anxiety level of stroke patients significantly decreased.

Two other studies, namely Yu et al. (2019) and Dayhoul et al. (2020), about post-stroke patient care educational interventions for stroke caregivers, have the same focus, namely family (caregiver) empowerment. However, the effects investigated were different. Yu et al. (2019) looked at the Family Member Education Program (FMEP) intervention on cognitive impairment, anxiety, and depression in post-stroke patients, while Dayhoulet al. (2020) identified the Family-Centered Empowerment Program (FCEP) Intervention on the increasing ability of post-stroke patients to carry out activities of daily life (ADL) and reducing the burden of the caregivers in providing care for the post-stroke patients. FMEP effectively reduced cognitive impairment, levels of anxiety and depression in post-stroke patients. FCEP was shown to significantly increase the ability of post-stroke patients to carry out daily life activities (ADL) and reduce the burden on caregivers in providing care for post-stroke patients.

Three other studies, namely Ali et al. (2020), evaluated the effectiveness of planned education on caregiver knowledge and skills in caring for post-stroke patients at home and improving the functional ability of post-stroke patients. Implementation was carried out both individually and in groups. The educational interventions significantly increased the knowledge and skills of the caregivers in providing care for the post-stroke patients and improving the functional abilities of the post-stroke patients. Dharma et al. (2018) studied the effect of the CEP-BAM program on the functional capacity and quality of life of post-stroke patients. The CEP-BEM intervention effectively improved post-stroke patients' functional capacity and quality of life at the sixth month after the intervention. It occurred since caregivers who received educational interventions would gain more knowledge and abilities, allowing them to care for post-stroke patients. Furthermore, the caregivers could take an active role in the recovery process in functional issues due to this educational intervention, which would improve the quality of life of the post-stroke patients. This study looked at the effect of educational interventions on reducing the burden on caregivers in providing care for post-stroke patients. The educational interventions given to the stroke caregivers are called Nursing Home Care Intervention Post Stroke (SHARE) interventions. SHARE has been shown to significantly reduce the

burden on caregivers in providing care for post-stroke patients.

DISCUSSION

Stroke is the most common cause of permanent disability worldwide and has various serious negative effects for the patients and caregivers who care for the post-stroke patients. There are four important points from the summary of the results of the literature review, namely:

Education interventions increase the knowledge and skills of the stroke caregiver (the family) in providing care for the post-stroke patients, especially daily care at home

Sufficient knowledge and skills can reduce the burden on caregivers in caring for stroke patients. According to Azizi et al. (2020), one of the effects of stroke for the caregivers is anxiety in providing care for post-stroke patients. Post-stroke patient care frequently causes anxiety to the stroke caregiver as the incident occurs suddenly and unexpectedly. The caregiver lacks knowledge and skills in providing care for post-stroke patients. Apart from anxiety, another impact in providing care for post-stroke patients is that it is quite a burden for the stroke caregiver. Caring for stroke patients at home is a complex and strenuous activity (Deyhoul et al., 2020; Hekmatpou et al., 2019). According to Dharma et al. (2018), the caregiver burden increases as the caregiver does not have sufficient knowledge and skills to provide for post-stroke patients. Therefore, with the education for the caregiver about the care of the stroke patients, the caregiver's knowledge and skills will increase; thus, they can provide proper care. The education can reduce anxiety and, in the end, will be able to reduce the burden on stroke caregivers.

Structured education can improve the caregiver's ability to care for the stroke patients

Educational interventions are also the primary caregiver's need in providing care for post-stroke patients (Zawawi et al., 2020). When a family member experiences a stroke, the caregiver has a big role, namely providing care for the ill family member. The role of the caregiver as part of the patient support system is highly important in improving the quality of life of post-stroke patients.

Caregivers must be empowered to care for and guide patients to adapt to life after stroke. Therefore, the caregiver's knowledge and skills in helping patients adapt to life after stroke must be improved. An increase in the caregiver's knowledge and skills in providing care for post-stroke patients will significantly impact the patient's functional ability and quality of life (Dharma et al., 2018).

Education and training for the caregivers can reduce physical, psychological and social burdens in caring for the stroke patients

The burden on the caregivers is not only physically but also psychologically and socially (Hekmatpou et al., 2019). These burdens can be prevented, reduced, or even limited if the stroke caregivers receive education intervention and training about the post-stroke patients' care (Pesantes et al., 2017). One of the interventions that can be used to overcome this impact is educational intervention on the post-stroke patient care for the stroke caregivers. This education intervention does affect not only the stroke patient caregivers but also the stroke patients. According to Ali et al. (2020), education increases the knowledge and skills of stroke caregivers in providing care for post-stroke patients. Besides that, it can also improve the patient's functional abilities. It is in line with research conducted by Bakri et al. (2020), which stated that health education on stroke patient care at home increased the family knowledge level. In addition, educational interventions also have an effect on reducing the burden on the caregivers in providing care for the post-stroke patients; hence it also has an impact on the quality of life of the caregiver (Hekmatpou et al., 2019). In line with this research, Masriani (2014) denoted that health education directly provided to families increases the family knowledge in caring for stroke sufferers at home to improve the quality of life of the stroke patients and reduce the burden on the family itself. All in all, caregiver plays an active role in the recovery process of the post-stroke patients

The caregiver plays an active role in the recovery process of the post-stroke patients

Neurological recovery occurs after the onset of the stroke, whereas functional recovery continues to some extent in the first three months to 6 months

after the stroke (Yenni, 2011). One of the caregiver's active roles is to assist in functional recovery, especially post-stroke functional disorders. Functional impairment is a decrease in physical capacity to meet basic daily needs such as self-care, eating, drinking and decreased ability to interact with the environment in which the patient lives (Nurramadany, 2014). It will be done correctly and appropriately by the caregiver if the caregiver is provided with education. Education will increase the caregiver's knowledge and skills in providing care; thus, it will also impact the patient. These impacts include increasing the ability to carry out daily activities (ADL), functional capacity, and stroke patients' quality of life. In this case, the caregiver plays an active role in the recovery process of post-stroke patients (Deyhoul et al., 2020; Dharma et al., 2018). Furthermore, according to Yu et al. (2019), educational interventions will reduce cognitive impairment, anxiety, and depression in post-stroke patients.

In terms of limitation of this review, the effectiveness of the educational intervention has not been carried out in in-depth analysis on caregivers who care for post-stroke patients with complex stroke conditions and severe disabilities.

CONCLUSION

Post-stroke patient care is a complex problem that requires collaboration with other health teams such as doctors, nurses, nutritionists, and the rehabilitation team. Care education interventions for stroke patient caregivers positively impacted the caregivers and the post-stroke patients. These impacts, among others, were that the caregiver could increase the caregiver's knowledge and skills in providing care for the post-stroke patients, reduce the burden, reduce anxiety and improve the quality of life of the stroke caregivers. For the post-stroke patients, the impacts included, among others, increasing the ability or functional capacity, increasing the ability to perform daily activities (ADL), reducing cognitive impairment, anxiety and depression and improving the quality of life of the post-stroke patients.

Further research is recommended to provide this educational intervention to stroke caregivers who treat post-stroke patients with complex stroke conditions and severe disabilities. This educational intervention can be used as a permanent Standard

Operating Procedure (SOP) for all hospitals in Indonesia.

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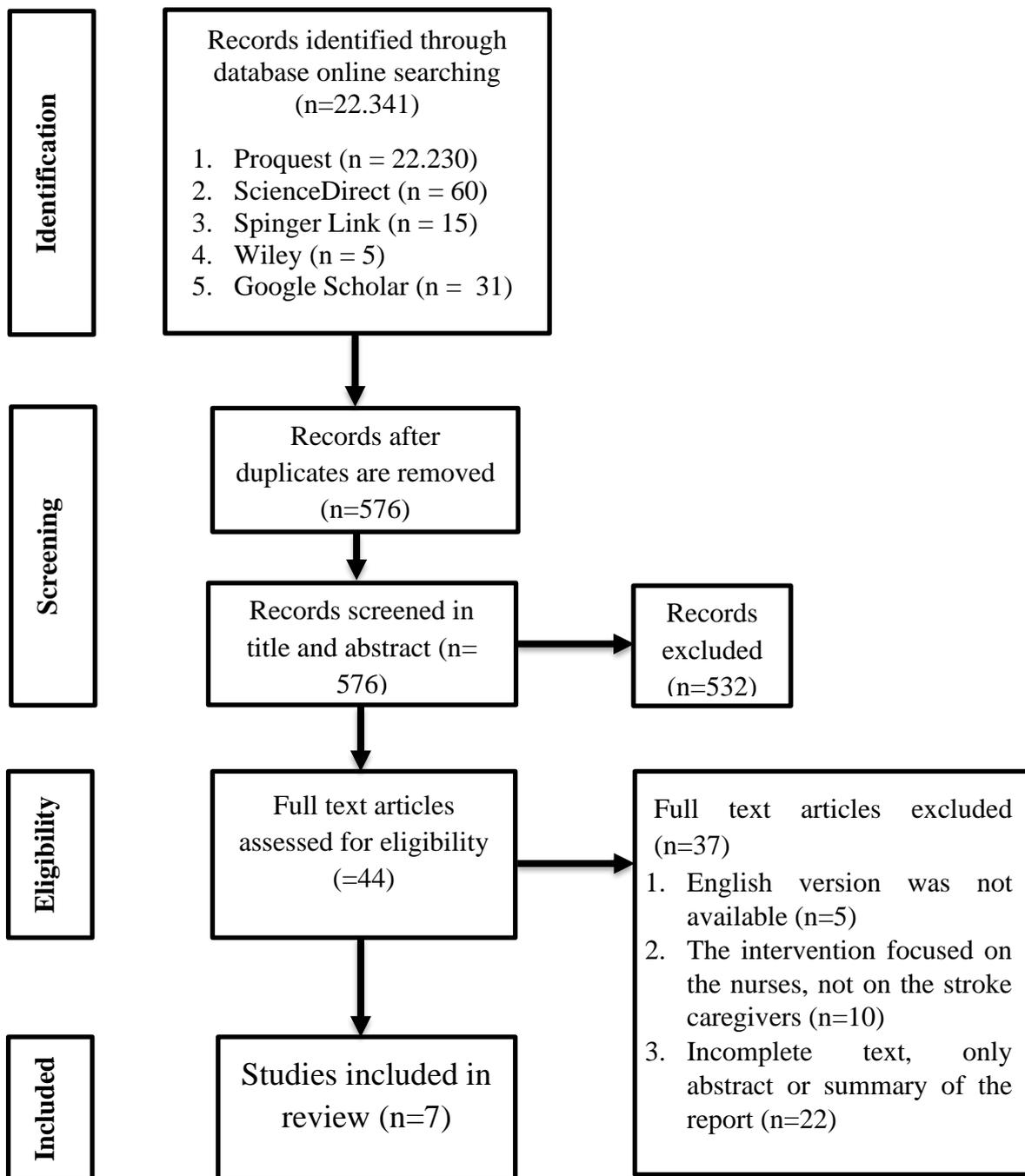


Figure 1. PRISMA Flow Diagram (<http://www.prisma-statement.org>)

Table 1. Article Review

No	Author	Year	Participant	Treatment	Setting Individual/Group	Study Design	Outcome
1.	Dharma et al	2018	CEP-BAM: 42 (Stroke caregivers: 21 and post-stroke patients: 21) CHN: 42 (Stroke caregivers: 21 and post-stroke patients: 21)	CEP-BAM	Group	Quasy-Eksperimental	Significantly improves the functional capacity and quality of life of the post-stroke patients
2.	Yu et al	2019	FMEP+ conventional treatment:72 (Stroke caregivers: 36 and post-stroke patients: 36) Conventional treatment: 72 (Stroke caregivers: 36 and post-stroke patients: 36)	FMEP+ conventional treatment	Group	Randomized Controlled Trial (RCT)	Significantly reduces the cognitive impairment, anxiety and depression of the post-stroke patients
3.	Day et al	2020	SHARE+conventional care: 24 (Stroke caregivers: 12 and post-stroke patients: 12) Conventional care: 24 (Stroke caregivers: 12 and post stroke patients: 12)	SHARE+conventional care	Group	Randomized Controlled Trial (RCT)	Significantly reduces stroke caregiver burden: physical, psychological and social burden
4.	Ali et al	2020	Planned educational program: 32 (Stroke caregivers: 16 and post-stroke patients: 16) Routine treatment: 32 (Stroke caregivers: 16 and	Planned educational program	Group	Quasi-experimental	Significantly increases the knowledge and skills of post-stroke patient care on stroke caregivers and improving the functional ability of the

			post-stroke patients: 16)				post-stroke patients in performing daily activities significantly
5.	Azizi et al	2020	Information support intervention: 40 (Stroke caregivers: 20 and post-stroke patients: 20)	Information support intervention	Group	Quasi-experimental	Significantly decreases the anxiety levels of stroke caregivers
			Routine treatment: 38 (Stroke caregivers: 19 and post-stroke patients: 19)				
6.	Deyhoul et al	2020	FCEP: 58 (Stroke caregivers: 29 and post-stroke patients: 29)	FCEP	Group	Randomized Controlled Trial (RCT)	Significantly reduces the burden of stroke caregivers and improves the ADL ability of the post-stroke patients
			Routine treatment: 60 (Stroke caregivers: 30 and post-stroke patients: 30)				
7.	Hekmat pou et al	2019	Face to face training: 50 (Stroke caregivers: 25 and post-stroke patients: 25)	Face to face training	Group	Randomized Controlled Trial (RCT)	Significantly reduces the burden and improves the quality of life of the stroke caregivers
			Routine treatment: 50 (Stroke caregivers: 25 and post-stroke patients: 25)				