



THE USE OF TASC (TELENURSING AFTER STROKE CARE) TO IMPROVE FAMILY PREPAREDNESS TO CARE FOR STROKE PATIENTS

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ABSTRACT

Stroke is a non-communicable disease with a high incidence in Indonesia and is a major cause of disability and death. Families play an important role in post-stroke patient care at home but often feel unprepared due to limited knowledge, skills, and support. The use of technology through Telenursing After Stroke Care (TASC) is expected to improve family preparedness in caring for stroke patients at home. This study aims to analyze the effect of TASC on family preparedness in caring for stroke patients at home. The study used a pre-experimental design with a one-group pre-test post-test approach. The sample consisted of 35 families of stroke patients at RSUD Kota Mataram, selected using a total sampling technique. The TASC intervention was carried out for 1 month with two weekly sessions, including education on stroke concepts, family roles, basic home care, complication prevention, stress management, and daily care planning. The Preparedness for Caregiving Scale (PCS) was used as the instrument. The results of the validity and reliability test of this instrument, the validity test with Pearson product moment has a value of more than 0.320 and the results of the reliability test with Cronbach's alpha have a value of 0.9333. Data were analyzed using a paired t-test. The average family preparedness score before the intervention was 17.29 (SD = 3.47) and increased to 23.23 (SD = 4.35) after the intervention. The paired t-test showed a p-value of 0.000 ($p < 0.05$), indicating a significant difference in family preparedness after the TASC intervention. The use of TASC is effective in improving family preparedness in caring for stroke patients at home. This intervention can be an appropriate strategy to support discharge planning, prevent complications, and reduce rehospitalization rates.

Keywords: caregiving; family preparedness; stroke; TASC; telenursing

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INTRODUCTION

Stroke is a non-communicable disease with a relatively high incidence rate. The World Health Organization (WHO) reports an annual global incidence of stroke of 15 million cases (Alsubiheen, 2022). According to the 2023 Indonesian Health Survey, the prevalence of stroke in Indonesia reached 8.3 per 1,000 population (Aji, 2023). Stroke requires serious attention due to the complications that can occur after a stroke event. When a stroke occurs, approximately 1.9 million brain cells can die every minute (Aji, 2025). As a result, 30% of stroke patients may die, 60% experience chronic dysfunction, and only 10% achieve complete recovery (Li Q, 2018). In Indonesia, stroke is the leading cause of disability and death and is considered a catastrophic disease, with the third-highest healthcare costs after heart disease and cancer, reaching Rp 5.2 trillion (Aji, 2025). Recovery in stroke patients cannot be fully achieved during hospitalization due to the prolonged treatment duration and high hospital costs (Muhsinin, 2019).

Many stroke patients experience permanent physical, cognitive, and emotional impairments. Untreated strokes can result in various impacts on patients, including self-care deficits and dependence on others, requiring assistance to improve daily living skills (Septianingrum et al,

2024). Therefore, patients need support from their families to carry out activities such as eating, dressing, bathing, toileting, elimination, and mobility when discharged home (Teixeira et al, 2020). Families of stroke patients often report feeling unprepared to provide care after hospital discharge (Muhsinin, 2019). This is due to limited information, lack of support from health workers, and sudden changes in family routines (Ismail, 2022). In addition, family involvement in care planning remains low, resulting in various patient needs being unmet (Kobewka et al, 2020). Consequently, families are unprepared to care for relatives who have experienced a stroke (Norinder, 2024), and they often lack adequate knowledge and skills, which can later affect the quality of life of stroke patients (Muhsinin, 2020). Adequate family knowledge serves as a basis for making appropriate decisions regarding stroke patient care (Muhsinin, 2021).

Based on an initial survey conducted at RSUD Kota Mataram, several patients treated for stroke experienced recurrent strokes. At discharge, these patients were not fully recovered, and almost all required further care at home. Many still had limited mobility, aphasia, and swallowing difficulties, and some returned home with a nasogastric tube (NGT) in place. Interviews with nurses in the stroke center also revealed that patients with recurrent stroke often developed pressure ulcers, pneumonia, and nutritional deficiencies due to ineffective home care, despite nurses' efforts to provide discharge planning to families regarding stroke patient care at home. Technological innovations can help improve family preparedness by providing access to information and consultations regarding post-discharge stroke care. Telenursing has emerged as a viable solution, using information technology to remotely monitor patients' conditions and interact with them via teleconferencing and interactive telephone communication (Dewi, 2021).

Compared with conventional interventions, such as in-hospital education or home visits, telenursing is more flexible, cost-efficient, and capable of reaching families in remote areas (Radhakrishnan et al, 2020; Wang et al, 2022). In addition, telenursing allows for a responsive and personalized approach tailored to the specific needs of each family, thereby increasing their involvement and preparedness in caring for stroke patients at home (Chen et al, 2021; Purnell et al, 2021). After hospital discharge, patients often experience problems such as pain, fatigue, limb swelling, activity intolerance, sleep disturbances, pressure ulcers due to prolonged bed rest, ineffective adaptation to the disease, and anxiety. To help families manage these issues, telenursing can be an effective solution. Furthermore, telenursing can help prevent rehospitalization and reduce treatment costs (Nazari, 2024). This study aims to analyze the effect of TASC on family preparedness in caring for stroke patients at home.

METHOD

This study used a pre-experimental design with a one-group pre-test post-test approach to determine the effect of TASC on family preparedness in caring for stroke patients at home (Hidayat, 2015). The population in this study comprised all families of stroke patients, totaling 35 individuals. The research sample was obtained using a total sampling technique, so the number of samples was the same as the population, namely 35 families of stroke patients, with the following criteria: 1) families of stroke patients admitted to RSUD Kota Mataram in July 2025 who were willing to participate as research respondents; 2) families who would provide care for the patient at home; 3) families of stroke patients who had access to and could use communication tools for the telenursing process.

Before the intervention, the families of stroke patients were given a pre-test to assess their preparedness. The pre-test was conducted at RSUD Kota Mataram. After the patient returned home, the family received the TASC intervention for one month, with two weekly sessions covering several topics: the concept of stroke, the family's role in caring for stroke patients, basic home care that can be provided by the family, recognizing and preventing complications, techniques for managing stress and emotions during home care, and developing a daily home care plan. After

completing the one-month TASC intervention, post-test data were collected to evaluate the family's preparedness to care for stroke patients.

The instrument used to assess the level of family preparedness to care for stroke patients is the Preparedness for Caregiving Scale (PCS), which consists of eight items. The validity and reliability of the Indonesian version of the PCS have been tested using a validity test with a Pearson product moment value of more than 0.320 and a reliability test result with a Cronbach's alpha with a value of 0.9333 (Wuri & Nirmalasari, 2020). This instrument asks families to answer how ready they believe they are to carry out several domains of care. Preparedness refers to domains of the caregiving role, including providing physical care, offering emotional support, establishing internal support services, and managing caregiving-related stress. Responses are scored on a scale of 0–4, with 0 representing “not at all prepared” and 4 representing “very well prepared” (Stewart, 2018). After pre-test and post-test data were collected, quantitative data analysis was performed to examine the effect of TASC (Telenursing After Stroke Care) on family preparedness to care for stroke patients. A paired t-test was used, with a significance level of $p < 0.05$ (Muzawi, 2024).

RESULT

Based on the results of this study, the characteristics of the research respondents were as follows: most respondents were women, with 23 individuals (65.7%); the most common age range was 56–65 years, with 9 individuals (25.7%); the highest level of education was high school, with 12 individuals (34.3%); the duration of caregiving for stroke patients was mostly less than 1 month, with 20 individuals (57.1%); and the relationship to the stroke patient was most often as a child, with 17 individuals (48.6%). Details of the respondents' characteristics in this study are presented in Table 1.

Table 1.
Characteristics of Research Respondents

Characteristics of Research Respondents				
No	Respondent Characteristics		f	%
1	Gender	Man	12	34.3
		Woman	23	65.7
2	Age	17 – 25 Years	3	8.6
		26 – 35 Years	7	20
		36 – 45 Years	8	22.9
		46 – 55 Years	6	17.1
		56 – 65 Years	9	25.7
		> 65 Years	2	5.7
		3	Level of education	No formal education
Elementary School	8			33.9
Junior High School	2			5.7
Senior High School	12			34.3
University/College	10			28.6
4	Duration of caregiving	< 1 Month	20	57.1
		1 – 6 Months	9	25.7
		>6 Months – 1 Year	1	2.9
		>1 Year – 5 Years	3	8.6
		> 5 Years	2	5.7
5	Patient-Respondent Relationship	Child	17	48.6
		Spouse	13	37.1
		Sibling	2	5.7
		Grandchild	3	8.6

This study involved 35 families of stroke patients, whose preparedness levels were measured using the Preparedness for Caregiving Scale (PCS). Based on the analysis, the average family preparedness score before the TASC intervention was 17.29 (SD = 3.47). After one month of intervention through telenursing-based education and consultation, the average score increased to 23.23 (SD = 4.35). The results of the paired t-test showed a p-value of 0.000 ($p < 0.05$), indicating a

significant difference in family preparedness before and after the TASC intervention. The results of the statistical test are presented in Table 2.

Table 2
Statistical Test Results of the Use of TASC (Telenursing After Stroke Care) on Family Preparedness to Care for Stroke Patients

Variables	Before Intervention		After Intervention		p-value
	Std. Dev	Mean	Std. Dev	Mean	
Family Preparedness	3.47	17.29	4.35	23.23	0.000 ^a

^a Paired T-Test

DISCUSSION

This study was conducted on 35 families of stroke patients after hospital discharge. The characteristics of the respondents were assessed based on age, gender, education level, duration of caregiving, and the relationship between the patient and the respondent. The purpose of this study was to analyze the effect of TASC (Telenursing After Stroke Care) on family preparedness. Based on the paired t-test analysis, the p-value was 0.000, indicating that TASC had a significant effect on family preparedness. The relationship between respondent characteristics and the study findings, when linked to theory, is as follows: First, the majority of respondents were women (65.7%), consistent with recent studies showing that women are more likely to assume the role of primary caregiver for family members with chronic illnesses, including stroke. Women are generally considered more patient and have stronger emotional bonds in caregiving, although they are at higher risk of caregiver burden (Riffin et al., 2021).

Second, most respondents were aged 56–65 years (25.7%). This age group is in late adulthood, where physical abilities begin to decline, but they tend to have better psychosocial preparedness to manage caregiving responsibilities. A study by Barbosa et al. (2020) shows that older age is often associated with physical limitations in caregiving, but life experiences enhance the ability to adapt to new roles. Third, the highest level of education of respondents was high school (34.3%), followed by university/college (28.6%). Higher education levels influence a person's ability to understand and apply health information. A study by Zhang et al. (2022) reported that caregivers with secondary or higher education demonstrated higher levels of preparedness because they were more receptive to technology-based education, such as TASC, compared to caregivers with lower education. Fourth, most respondents were children (48.6%) and spouses (37.1%) of stroke patients. Emotional attachment within the immediate family is often a primary motivation for caregiving. A study by Kim (2020) found that strong emotional bonds increase commitment to stroke patient care, although this may raise the risk of physical and emotional exhaustion. In this study, TASC support helped strengthen the confidence of immediate family caregivers, thereby improving their preparedness. Fifth, most respondents had been caring for the patient for less than one month (57.1%). Caregivers who have just begun caregiving often experience anxiety and a lack of confidence. A study by Qiu et al. (2021) confirmed that the initial phase of caregiving is a critical period when educational support is most needed. Early TASC interventions have been shown to improve family knowledge and skills, thereby significantly improving preparedness.

The TASC intervention in families of stroke patients in this study lasted for one month and consisted of education and consultation addressing care-related problems encountered by families while caring for stroke patients at home. In this study, telenursing was delivered using information technology through telephone, WhatsApp, and Zoom meetings. According to the American Nurses Association (ANA), telenursing is a subset of telehealth that focuses on nursing practice, in which nurses meet clients' basic needs using information and communication technology or web-based systems (Fadhila & Afriani, 2020). The technology used in telenursing varies widely, including telephones, personal digital assistants, smartphones, fax machines, tablets, computers, the internet, video and audio conferencing, and computer information systems (Scotia, 2017).

The results of this study confirm that the TASC intervention can improve family preparedness to provide care for stroke patients at home. The significant increase in scores indicates that education and support through digital media positively impact family capabilities. This finding aligns with a study by Li et al. (2021), which showed that telehealth can enhance family competence and confidence in providing care for patients with chronic illnesses. Family preparedness is a crucial factor in the success of stroke patient care after hospital discharge. Without adequate preparedness, patients are at risk of complications or even readmission. Kaddumukasa et al. (2020) reported that less prepared families tend to face greater burdens and difficulties in meeting the patient's daily needs. Technology-based interventions, such as TASC, help reduce these barriers by providing ongoing information and consultation. The use of communication technology also offers additional benefits, namely broader and more flexible access. A study by Sari et al. (2022) showed that telenursing allows nursing services to reach areas with limited healthcare facilities. This context is particularly relevant to the West Nusa Tenggara (NTB) region, where the majority of the population still faces limited access to specialist healthcare services.

The effectiveness of TASC also aligns with self-efficacy theory. According to Bandura (1997), a person's success in carrying out a role is influenced by their belief in their own abilities. Wong et al. (2022) found that telenursing interventions can increase caregiver self-efficacy, making them more confident in performing caregiving tasks. These findings are consistent with the results of this study, which showed that families felt more prepared after participating in the TASC program. From a practical skills perspective, TASC provides families with the opportunity to learn basic stroke care techniques, such as mobilization, pressure ulcer prevention, nutritional support, and emotional management. Xu et al. (2020) confirmed that distance training via telehealth is effective in improving family skills while reducing the risk of patient complications.

In addition to benefiting families, TASC also impacts the overall healthcare system. Education and remote monitoring can reduce rehospitalization rates and treatment costs. A study by Chai et al. (2021) showed that telemonitoring of stroke patients was associated with lower readmission rates. These results reinforce our findings that TASC has the potential to be a sustainable solution for home care of stroke patients. Nurses, as healthcare professionals, play a crucial role in initiating and supporting families through telenursing programs. Indrarini et al. (2023) emphasized the need for nurses to utilize technology to expand the reach of services, particularly in community-based care. This study demonstrates that, with structured guidance, families can become active partners in the care of stroke patients. Thus, TASC has proven to be an effective alternative intervention for improving family preparedness. However, further research with larger samples and more robust experimental designs is needed to evaluate the long-term impact, particularly on the quality of life of patients and caregivers.

CONCLUSION

This study concluded that TASC significantly improved family preparedness in caring for stroke patients at home. Technology-based education and support enabled families to be better prepared in terms of knowledge, skills, and emotional well-being. This program also has the potential to prevent complications, reduce rehospitalization rates, and improve the quality of care for stroke patients at home. It is recommended that TASC be integrated into hospital discharge planning programs and expanded into primary healthcare settings, particularly in areas with limited access. Future research could explore the long-term impact of TASC on the quality of life of both patients and caregivers.

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