

Research Articles

Development and Evaluation of the Nursing Therapeutics for Facilitating Patient Transition Program of Patients with Stroke

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Abstract

A stroke survivor has many problems and family caregivers face difficulties in taking care of stroke patients. This study aimed to develop and evaluate the nursing therapeutics for facilitating patient's transition program (NTFPTP). The program was developed based on transition theory. Purposive sampling was used to recruit 42 stroke patients and their family caregivers in Bandung, Indonesia. All instruments were validated by three experts. Reliability values (Chronbach's alpha) for readiness, role supplementation, and debriefing were .73, .72, and .77 respectively. Reliability values (KR 20) for knowledge of stroke; maintaining adequate hydration and nutrition, and nasogastric tube feeding; catheter care, positioning, mobility and transfers; and the role of caregiver, psychological support, and home preparation were .78, .81, .81, and .70 respectively. Reliability values (KR 20) for skills of nasogastric tube feeding, catheter care, positioning, and mobility were .73, .82, .73, and .88 respectively. Data were analyzed using descriptive statistics, paired *t*-test, and Wilcoxon test. The results from a Wilcoxon signed-rank test showed a significant increase in scores on the readiness and debriefing of stroke patients ($p < .001$). The paired *t*-test revealed that the overall mean scores of the knowledge of stroke, skills of family caregivers, and role supplementation after receiving the NTFPTP were significantly higher than those of before receiving the NTFPTP ($p < .01$). The program is suitable for stroke patients and caregivers and it can increase their knowledge, skill, role supplementation and debriefing.

Keywords: caregivers; nursing therapeutic; role supplementation; stroke patients; transitioned care

Introduction

The majority of family members of the stroke patients provide social support that assists the stroke patient to enhance their recovery process. Thus, family has an important role in participating in the care for the patient because stroke patients have limited abilities to perform their daily activities.¹ However, usually family member participating in the care do not have a structured care program and are not well prepared.² In addition, when they received inadequate support or have less optimal communication with professional staff, patients in transition experienced the feelings of powerlessness, confusion, frustration, and conflict.³ These problems result in the unreadiness of the patients and their family to be discharged from hospital. Consequently, the incidence of being re-admitted to hospital is high in Indonesia.⁴

The patients and their family need preparation and training because caring for stroke patients required technical knowledge and skills.⁵ However, the participation of the family without the supervision and guidance from a nurse can harm the patient. The role of family members as the key communicator and participation in activities would assist the patient in self-care abilities.⁶ Thus, it is necessary to develop a transition preparation program that can accommodate the family member in caring the stroke patient. Transition preparation program is an educational approach to create optimal conditions in preparing transition for the stroke patients where family members receive training to develop their ability to take care of the stroke patient.

There was a study about intervention for families who were involved in caring for the patients with a stroke.⁵ The study is about interdisciplinary family support and an education program held in four sessions. This study involved 27 patients and their families who participated in the program. However, the program focused

on cognitive and interdisciplinary involvement. Another study conducted by Shyu, Kuo, Chen, and Chen aimed to explore the long-term effects of a discharge-preparation program targeting Taiwanese family caregivers of older patients with stroke.⁷ The subjects were 158 older stroke patients. Their study focused on the family caregiver health, education, and consultation. These studies did not involve the training of the family caregiver.

The nursing therapeutics to facilitate patient transition program (NTFPTP) is a program that helps the stroke patient to achieve a healthy transition and to enhance family caregivers' abilities in caring for the stroke patients. This program does not only give benefit for the stroke patients but also give knowledge for the family caregiver to encourage the family to participate in caring effectively. The preparation of the family caregiver as part of the NTFPTP consists of knowledge of stroke, hydration and nutrition, catheter care positioning, mobility, transfer, role of family caregiver, and skill of nasogastric tube, catheter care, positioning, and mobility.

Objectives

The aims of the study were to develop and evaluate the nursing therapeutic for facilitating patient transition program (NTFPTP) of patients with stroke.

Research Design

Conceptual Framework

The conceptual framework of the study is constructed based on the transition theory³ and previous studies.^{8,9} The transition theory is used as a theoretical framework because this theory provides guidance and explanation about the transition of the patients with strokes during the recovery process. Transition refers to a passage from one life phase, condition, or status to another, which is a multiple

concept embracing the elements of the process, time span, and perception.³ A passage from one fairly stable state to another fairly stable state is triggered by a change.³ The transition theory consists of nursing therapeutics, transition conditions, and healthy transition.³

There were three nursing therapeutic models that had been identified in the transition theory, a transitional care model, a role supplementation model, and a debriefing model.³ The transitional model consisted of ten essential elements.⁸ The role supplementation model consisted of role clarification, role taking, role modeling, role rehearsal, and reference group.³ The debriefing consisted of eight phases of debriefing.⁹ These models are created to achieve a healthy transition in subjective well-being, role mastery, and the well-being of relationships.

Nursing therapeutics aimed at promoting and restoring the subjective, behavioral, and interpersonal dimensions of the individual and family. Nursing therapeutics can be delivered directly to the person who is undergoing the transition or through indirect ways by facilitating the transition condition. The nursing intervention aimed at assisting clients to create a conducive condition for a healthy transition. In the transition condition, it is necessary to explore the environmental conditions that facilitate or hinder progress toward achieving a healthy transition. The facilitator included supporting from partners and families, relevant information obtained from a trusted health provider, advice from respected resources, and role models.¹⁰ In the transition theory, in relation to the outcome there are three indicators of a healthy transition. These three indicators included subjective well-being, role mastery and the well-being of relationships.¹¹ It is important to assess these outcomes periodically in order to evaluate the transition process.

Nursing therapeutic for facilitating patients in the transition program can be conducted directly

and indirectly to the patients by encouraging three parties (nurses, patient, and family) to use transitional care, role supplementation, and debriefing to provide a conducive environment that facilitates the stroke patient to achieve a healthy transition. The stroke patient, family caregiver, and nurse can work together to create a conducive condition. The family can act as a facilitator for stroke patients in the transition process. Adequate support from the family is needed during the critical times in the stroke transition. The participation of the family in regards to stroke patients was provided by family social support to facilitate the patients with stroke. A family member who was facilitated in being able to provide support for the stroke patient creates an environment that is conducive for supporting the stroke patient. On the contrary, if the environment does not facilitate the transition process and lacks support and communication, the patients in the transition experience a feeling of powerlessness, confusion, and conflict. An involvement of the stroke patients would increase self-confidence and respect for the patients themselves. If the stroke patients can manage themselves, they will achieve a healthy transition. The nurses as health care provider have a crucial role to facilitate the stroke patients and their family. The nurses can facilitate the stroke patients and their family by preparing them with knowledge and skills regarding stroke transition. If the nurse intervention is effectively delivered to facilitate the patients, a healthy transition will be achieved.

In this study, there were three nursing therapeutic models, consisted of transitional care, role supplementation, and debriefing. Previous models were adopted in this study. The first model was the transitional care model, which was modified from Naylor and Van Cleave⁸ including an assessment of the readiness and preparation of the transition. The second model was the role supplementation that consists of clarification of the

new role of the patient, role modeling, rehearsal, and a reference group. It was modified from Meleis.³ The third model was debriefing that was modified from Selkirk.⁹ In this study, the debriefing delivered to the stroke patients consisted of eight steps of debriefing.

Methods

Design of Study. This is a developmental study that aimed to develop and evaluate a nursing therapeutics for facilitating patient transition program (NTFPTP).

Sample and Setting. The research study was carried out in a general teaching hospital Indonesia. The research setting took place in the neurological ward. The participants of the study were the stroke patients and their family caregivers who accompanied patients admitted to the neurological ward. The stroke patients taken as sample were those who met the following inclusion criteria: 1) adult 18 years old and over¹² 2) severity of the stroke was moderate (The Barthel Index [BI]: 40–60)¹³ 3) could communicate in Bahasa Indonesia, 4) accompanied by the family caregiver, 5) did not have severe expressive or receptive language problems, and 6) did not diagnose with psychosis or depression. The inclusion criteria for the family caregivers were 1) aged 18 years and over, 2) could provide support for the patients, 3) stayed in the same house with the stroke patients, and 4) responsible to provide care for the stroke patients at least for 2 months. The patients and their families were excluded if they had the following criteria: 1) the stroke patients and the family caregivers refused to continue the program, and 2) during the process of the study, the family caregivers had any serious illness or they were unwilling to participate in the study.

Sample Size. Since this study was the one part of the study entitled “Effects of the (NTPFPT) on Subjective Well-Being, Role Mastery, and Well-Being of Relationships of Adult Stroke Patients in Bandung, Indonesia¹⁴. thus, the sample size in this study was 42 stroke patients and 42 caregivers. The sample size in that study¹⁴ was determined based on the previous effect size (ES = 0.68)¹⁵, power of .80, the level of significance ($\alpha = .05$), and attrition rate 20%.

Ethical Considerations. Ethical approval was obtained from the Institutional Review Board of the Faculty of Nursing, Prince of Songkla University, Thailand. The reference number was MOE 0521.1.05/1529 and the issue date was June 9, 2016. The researcher also asked for a permission letter from the hospital, the reference number was LB. 04.01/A05/EC/259/VII/2016 and the issue date was July 26, 2016. The researcher asked for informed consents from the caregivers before starting the study. Voluntary participation of the patients was sought by giving information about informed consent. The caregivers were provided with the information of the study both about the benefit and the risk. They also could withdraw from the research at any time.

Program designing/development. The (NTFPTP) was developed based on the transition theory³ and previous studies.^{9, 10} This consisted of three nursing therapeutic models: 1) Transitional care model, 2) role supplementation model, and 3) debriefing model. The details were as follows:

The first model was transitional care model. In this model, the researcher adopted it from Meleis³ and Naylor and Van Cleave.⁸ There were ten essential elements of the transitional care model.⁸ However, in the NTFPTP there were some modifications because the resources were different with the setting of the study. The intervention of transitional care model consisted of assessing the patient and the family's readiness, visiting the

patient at the hospital and conducting follow-up phone calls to the patient's home, and preparing the transition through education and a training program.

The second was role supplementation. In this model, the researcher developed the models from Meleis.³ Role supplementation was conducted to enhance adaptive capacity during a transitional crisis because the normal coping mechanism of an individual was inadequate.³ The three actions of role supplementation in this study were applied, such as role clarification and role modeling, role rehearsal, and reference group. The role supplementation included a discussion between the researcher, stroke survivor, and the family. In the following discussion, the researcher invited a peer group of stroke survivors and their families.

The third component of nursing therapeutic model was debriefing. The debriefing refers to a process of communicating to others the experiences that a person or group has encountered around a critical event.³ The debriefing model was modified from Selkirk, et al.⁹ There were eight steps in the debriefing such as introduction, fact phase, thoughts phase, feelings phase, symptoms phase, education phase, re-entry phase, and final phase. This intervention was conducted through reflection. This strategy allowed the patients and their family to express their feelings and experiences related to a stroke. The researcher actively listened the reflection of the patients and their families. It was expected that this intervention could decrease and ease any psychological burden of the patients and their families.

Thus, the NTFPTP consisted of seven sessions. The transitional care model included assessing readiness (1st session), preparing for the transition (2nd-5th sessions), and visiting the patients every day until discharge. The role supplementation model was made up of role clarification and role modeling, role rehearsal, and reference group

(6th session). The debriefing model was the only session that provides reflection (7th session). The program was conducted at the hospital for about 7 days and then continued by a 10-minute phone call every two weeks to the patient at home as a follow up.

Instrumentation. The data collection instruments consisted of five questionnaires: 1) demographic data, 2) assessment of readiness, 3) preparation of transition, 4) role supplementations, and 5) debriefing.

1. Demographic data questionnaire. It was developed by the researcher to collect demographic characteristics. It consisted of two sections: Stroke patient characteristics (e.g., age, gender, income, relationship with the caregiver, occupation, education, cause of stroke and length of stay), and family caregiver characteristics (e.g., age, gender, education, and occupation).

2. Assessment of readiness questionnaire. The assessment of readiness was developed by the researcher based on Meleis³ and Naylor and Van Cleave⁸ and used to assess the readiness of the stroke patients in facing the transition process. The scale consisted of 5 items. Answers range from strongly agree (4), agree (3), disagree (2), to strongly disagree (1). For scoring, a high score shows that the stroke patient was ready to face the transition process. At least more than 50% of the total score indicates that the stroke patient was ready.

3. Preparation of transition questionnaire: The preparation of transition questionnaire was developed by the researcher based on the transitional care concept.⁸ The questionnaires consisted of 4 parts of knowledge and 4 parts of skills. The details were as follows.

3.1 Knowledge about stroke

The questionnaire consisted of 11 items. It was used to measure the knowledge about signs and symptoms and prevention of recurrent stroke.

Answers range from correct (1), incorrect (0), to don't know (0). Scoring, a high score shows that the stroke patients have a good level of knowledge. The highest score of 100% indicated that the family caregivers were well-informed.

3.2 Knowledge about maintaining adequate hydration and nutrition, and nasogastric tube feeding

The questionnaire consisted of 10 items. It was used to measure the knowledge about maintaining adequate hydration and nutrition, and nasogastric (NG) tube feeding. The questionnaire consisted of 5 items regarding the maintenance of adequate hydration and nutrition, and 5 items regarding NG tube feeding. Answers ranged from correct answer (1), incorrect (0), to don't know (0). High score showed that the family caregivers have a good level of knowledge. The highest score of 100% indicated that the family caregivers were well-informed.

3.3 Knowledge about catheter care positioning, mobility and transfers

The questionnaire consisted of 10 items and was used to measure knowledge about catheter care, positioning, mobility and transfers. The questionnaire consisted of 4 items of catheter care, 2 items of positioning, 3 items of mobility, and 1 item of transfer. Answers ranged from correct (1), incorrect (0), to don't know (0). High score showed that the family caregivers have a good level of knowledge. The highest score of 100% indicated that the family caregivers were well-informed.

3.4 Knowledge about the role of family caregiver, psychological support, and home preparation

The questionnaire consisted of 10 items and was used to measure knowledge about the role of the family caregiver, psychological support, and home preparation. The questionnaire consisted of 3 items regarding role family caregiver, 5 items of psychological support, and 2 items home preparation. Answers range from correct (1), incorrect (0), to

don't know (0). High score showed that the family caregivers have a good level of knowledge. The highest score of 100% indicated that the family caregivers were well-informed.

3.5 Nasogastric tube feeding skills checklist

The nasogastric tube feeding skills checklist consisted of 10 items and was used to evaluate the family caregivers while performing nasogastric tube feeding. The answer was either correct (1) or incorrect (0). High score showed that the family caregivers were well-skilled. The highest score of 100% indicated that they were well-skilled.

3.6 Catheter care skills checklist

The catheter skills checklist consisted of 8 items and was used to evaluate the family caregivers while performing catheter care. The answer was either correct (1) or incorrect (0). High score showed that the family caregivers were competent. The highest score of 100% indicated that they were well-skilled.

3.7 Positioning skills checklist

The positioning skills checklist consisted of 9 items and was used to evaluate the family caregivers while performing positioning. The answer was either correct (1) or incorrect (0). High score showed that the family caregivers were well skilled. incorrect indicated that the family caregivers were well-skilled.

3.8 Mobility skills checklist

The mobility skills checklist consisted of 14 items and was used to evaluate the family caregivers while performing positioning. The answer was either correct (1) or incorrect (0). High score showed that the family caregivers were well-skilled. incorrect indicated that the family caregivers were well-skilled.

4. Role supplementation questionnaire

The role supplementation was developed by the researcher based on role supplementation in transition theory.³ It included of three parts, which

are role clarification, role rehearsal, and reference group. The role supplementation questionnaire consisted of 10 items and was used to evaluate the anticipated behaviors of the stroke patient role. Answers ranged from strongly agree (4), agree (3), disagree (2), to strongly disagree (1). High score showed that the stroke patients have the anticipated behaviors of the stroke patient role. If the score was at least more than 50% of the total score, it indicated well role supplementation.

5. Debriefing questionnaire

The debriefing questionnaire was developed by the researcher based on the debriefing model in transition theory.³ The debriefing questionnaire consisted of 5 items and was used to evaluate whether the stroke patients were suffering from negative reactions and emotions due to their stroke. Answers ranged from strongly agree (4), agree (3), disagree (2), to strongly disagree (1). High score showed that the stroke patients were not suffering from negative reactions and emotions due to their stroke. The score of at least more than 50% of the total score indicated that the family caregivers were well-debriefed.

Validity and Reliability. In regards to validity, one expert from Faculty of Nursing, Prince of Songkla University, Thailand and two experts from Indonesia evaluated the content validity of the nursing therapeutics program for facilitating patient transition. The experts evaluated and validated the accuracy, language, and cultural appropriateness of the nursing therapeutic program for facilitating patient transition and research instruments. The researcher then revised the nursing therapeutics program for facilitating patient transition based on comments and suggestions from the experts. The CVI value for (1) Assessment of readiness questionnaire was 1.0, (2) Preparation of transition questionnaire consisted of: (knowledge regarding maintaining was 1.0, Knowledge about maintaining adequate hydration

and nutrition, and nasogastric tube feeding was 0.97, Knowledge about catheter care positioning, mobility and transfers was 1.0, Knowledge about the role of family caregiver, psychological support, and home preparation was 1.0, Nasogastric tube feeding skills checklist was 0.97, Catheter care skills checklist was 1.0, Positioning skills checklist was 1.0, Mobility skills checklist was 1.0), (3) Role supplementation questionnaire was 1.0, and (4) Debriefing questionnaire was 1.0. Then, the researcher conducted internal consistency reliability. The reliability (Cronbach's alpha) for assessment of readiness was .73, role supplementation was .72, and debriefing was .77. Meanwhile, the reliability (KR 20) for knowledge and skill were as follows: knowledge of stroke was .78, maintaining adequate hydration and nutrition, and nasogastric (NG) tube feeding was .81, catheter care positioning, mobility and transfers was .81, role of family caregiver, psychological support, and home preparation was .70, nasogastric tube feeding skill was .73, catheter care skill was .82, positioning skill was .73, and mobility skill was .88.

Intervention and Data Collection Procedure.

The data collection procedure consisted of two steps: First, give knowledge and skills the family caregivers and second, evaluate family caregivers' knowledge and skills. The researcher was the trainer for the stroke patients and their family caregivers. For data collector, a nurse trained for collecting the data was recruited. The data collection was conducted twice before the intervention (pre-test) and after the intervention (post-test). The details were as follows.

Within 72 hours after the stroke patients being admitted to the hospital, the stroke patients and their caregivers were visited to assess their profile. In addition, the researcher collected the data using the instruments such as assessment of readiness, preparation of transition, role

supplementation, and debriefing as pre-test. This information from the assessment was used to develop program planning in collaboration with the patients, caregivers, physicians, nurses, and other health care team members. In the stage of preparing for transition, role supplementation, and debriefing, the researcher visited the patients and their caregivers every day until discharge for 45-60 minutes/day (approximately 7 days). The preparation for transition included giving all essential information and training related to stroke care for the patients and their caregivers. These preparations included: 1) stroke, complications and prevention, 2) maintaining adequate hydration and nutrition, identification of swallowing difficulties, nasogastric tube feeding and the care of the tube, 3) catheter care, bladder and bowel training, positioning, mobility and transfers, and the role of the family caregivers, and 4) psychological support, stress management, and home preparation. The role supplementation was divided into three sessions, role clarification and role modeling, role rehearsal, and the reference group. The role supplementation included discussion between the researcher, stroke patients, and caregivers. The debriefing was conducted through a reflection. This strategy allowed the patients and their caregivers to express their feelings and experiences related to a stroke.

The researcher collaborated with the health care team by providing informal and formal meeting, attending a patient round with physicians and or physical therapists, and dieticians. This collaboration maintained a communication among team members regarding the progress of stroke patients and their caregivers. In this intervention, the stroke patients

got the routine care from nurses and health care team, such as preventing bedsores, mobility and transfer, medication, and communication. Before the stroke patients were discharged, the researcher visited them and their caregivers to finalize the discharge preparation. The patients and caregivers were informed and appointment was made for home visit and phone calling. They were given a booklet to read at home. The nurse in the health community center was contacted to gain collaboration. The stroke patients and their family were evaluated for assessment of readiness, preparation of transition, role supplementation, and debriefing as post-test.

The next step was home period. At this period, the researcher conducted two steps. First step, the researcher conducted home visit within 24-48 hours to address their questions, and adjustments for the stroke patients. The second step, the researcher made a phone call to the patients or caregivers every two weeks until one month after discharge. The patients and caregivers were given the telephone number, so they could contact by telephone for any questions or concerns.

After the intervention was completed, the researcher still kept in touch with the family caregivers to make sure that they could provide treatment to the stroke patient or if they have any questions regarding the stroke. In addition, the usual treatment in the setting was the stroke patient got information about stroke and some medicines that the stroke patients should consume at home. However, the usual treatment did not involve the family in the treatment effectively. Data collection procedure of the study was presented in Figure 1.

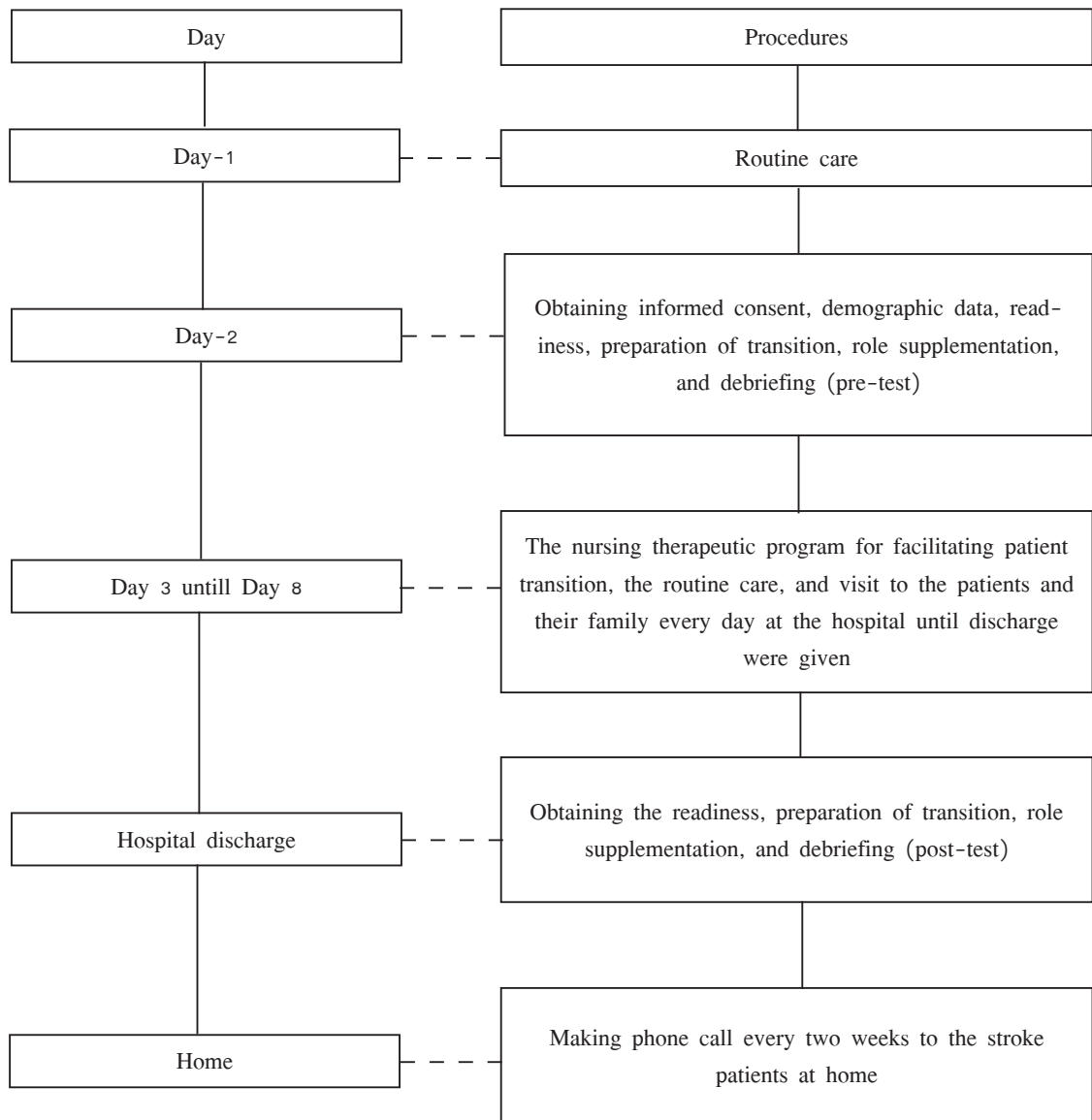


Figure 1 Data collection procedure of the study

Data analysis

The demographic characteristics, knowledge, skills, role supplementation, and debriefing were analyzed by descriptive statistics, paired t-test, and Wilcoxon test. The assumptions of a pair t-test were met except for the readiness, knowledge of hydration, knowledge of catheter care, skill of nasogastric tube, mobility skill, and debriefing, thus Wilcoxon test was used.

Results

1. Participants' characteristics

The stroke patients had an average of 55.05 years old (SD = 11.25). More than half of stroke patients were female (64.3%). A larger percentage of the stroke patient's income was below USD 373 (81.0%). The average of family income was IDR 4,357,142.86 (SD = 1,072,299.30). More than a half of the stroke patient's caregivers were housewives (59.5%). More than half of them were unemployed (59.5%), attended elementary school (69.0%).

The cause of stroke was infarction (100%). The length of stay ranged from 10 to 14 days (M ± SD = 11.21 ± 1.46). The family caregivers had an average age of 44.6 years (SD = 11.52). More than half of family caregivers were female (52.4%) and had an elementary school degree (54.8%). Thirty-eight percent of them were unemployed.

2. Readiness of stroke patients

All samples got score more than 50% of the total score. Most of the stroke patients got score 20 (88.0%). It means that these patients were ready to face or accept to the next step of the program. In addition, the readiness of stroke patients was compared before and after intervention of the NTFPTP. A Wilcoxon signed-ranks test indicated that there was significant increase from pre-test (median = 9) to post-test (median = 20) in the readiness of the stroke patients (Z = -5.76, p < .001) (Table 1).

Table 1 Comparison of the median of readiness of the stroke patients before and after receiving the NTFPTP (N = 42)

Variable	Median	IQR	Mean rank	Sum rank	z	p
Readiness of the stroke patient's pre-test	9.00	1	21.50	903.00	-5.76	.000***
Readiness of the stroke patient's post-test	20.00	0				

Note: ***p < .001

3. Knowledge and skills of family caregivers

Following the first session of teaching, the family caregivers' knowledge and skills ranged from 88.1% to 100%. The ones who had the percentage less than 100% were taught again and all family caregivers reached 100% of knowledge and skills regarding stroke and care (100%). In addition, the knowledge and skills were compared before and after intervention of the NTFPTP. The paired t-test revealed that the overall mean scores of the knowledge of stroke of family caregivers, hydration and nutrition of family caregivers, role of family caregiver,

psychological support and home preparation of family caregivers, skills of catheter care of family caregivers, and positioning skill of family caregivers after receiving the NTFPTP were significantly higher than those of before receiving the NTFPTP (p < .01). Also, a Wilcoxon signed-ranks test indicated that the knowledge of hydration and nutrition of family caregivers, catheter care positioning, mobility, transfer of family caregivers, skill of nasogastric tube of family caregivers, and mobility skill of family caregivers after receiving the NTFPTP showed a significant change (p < .01) (Table 2).

Table 2 Comparison of the mean of knowledge and skills of the family caregivers before and after receiving the NTFPTP (N = 42)

Variable		Mean/ Median	SD/ IQR	Mean rank	Sum rank	t/z	p
Knowledge of stroke of family caregivers	Pre- test	9	1	14.00	378.00	-4.72 ²	.000***
	Post-test	11	2				
Knowledge of hydration and nutrition of family caregivers	Pre-test	9	2	7.00	91.00	-3.61 ²	.000***
	post-test	10	2				
Knowledge of catheter care positioning, mobility, transfer of family caregivers	Pre-test	9	1	4.50	36.00	-2.71 ²	.007**
	Post-test	9	2				
Knowledge of role of family caregiver, psychological support and home preparation of family caregivers	Pre-test	9.10	.76	-	-	-3.11 ¹	.003**
	Post-test	9.29	.84				
Skill of nasogastric tube of family caregivers	Pre-test	9	1	5.50	55.00	-3.16 ²	.002**
	Post-test	9	2				
Skill of catheter care of family caregivers	Pre-test	6.26	1.06	-	-	-4.11 ¹	.000***
	Post-test	6.86	1.28				
Positioning skill of family caregivers	Pre-test	7.69	1.07	-	-	-4.64 ¹	.000***
	Post-test	8.14	1.14				
Mobility skill of family caregivers	Pre-test	12	2	6.50	78.00	-3.17 ²	.002**
	Post-test	12	1				

Note: ¹ = Paired t-test; ² = Wilcoxon Signed-Ranks Test; ** p < .01; *** p < .001

4. Role supplementation

Role supplementation refers to a deliberate process that includes conveying information or providing experience for the stroke patients to be aware of the anticipated role and goals as well as to perform daily activities effectively. The criterion for the role supplementation was that the stroke patients had at least more than 50% of the total score to be indicated to have a good role supplementation.

In this study, all patients (100%) had good perception about their role supplementation. In addition, the role supplementation of stroke patients was compared before and after intervention of the NTFPTP. The paired t-test revealed that the mean score of the role supplementation after receiving the NTFPTP was significantly higher than that of before receiving the NTFPTP ($t = -12.13$, $p = .000$) (Table 3).

Table 3 Comparison of the mean of role supplementation of the stroke patients (N = 42)

Variable		Mean	SD	t	p
Role supplementation of the stroke patients	Pre- test	7.55	1.31	-12.13	.000***
	Post-test	10.00	.00		

Note: *** p < .001

5. Debriefing

Debriefing refers to an activity conducted by researcher to encourage the patients to express their feelings and experiences related to a stroke in order to reduce any psychological burden through reflection by active listening and analyzing the content of the patients' words. The criterion for the debriefing was that the stroke patients had at least more than 50% of the total score to be indicated as

well-debriefed. In this study, most of the patients (96.73%) had a good perception about debriefing. In addition, the debriefing of stroke patients was compared before and after intervention of the NTFPTP. A Wilcoxon Signed-Ranks Test indicated that there was a significant increase from pre-test (median = 5) to post-test (median = 6) in the debriefing of the stroke patients ($Z = -4.92$, $p = .000$) (Table 4).

Table 4 Comparison of the median of debriefing of the stroke patients (N = 42)

Variable	Median	IQR	Mean rank	Sum rank	z	p
Pre-test	5	0	15	435.00	-4.92	.000***
Post-test	6	0				

Note: *** p < .001

Discussion

Stroke patients' characteristics

The results in this study revealed that the age averages were 55.05 years. The incidence of getting stroke tends to become younger of age. The result was in line with a hospital-based survey of 28 hospitals that included 2,065 acute stroke patients and found that the mean age was 58.8 years.¹⁶ The gender percentage of female was higher than male. Women in general live longer than men. Thus, stroke will have a more negative impact on their lives. This result also was supported by the previous study. The prevalence of stroke among women with menopause at early age (≤ 45 years) was higher than those who menopause at ages 45-52 years.¹⁷

In this study, most of the stroke patients had low income and inadequate both in the control and experimental groups. The income was likely to in line with the education level. Most of the stroke patients' education was elementary school. The previous study found that a level of education influenced indirectly the levels of income and health.¹⁸ The results in this study showed that most of the stroke patients were unemployed. Losing job or unemployed was associated with a higher proportion of depressive symptoms and it led to get any diseases. The results of the study were conformable with the study found that losing a job lost in both men and women and reemployed men had increased risks for both hemorrhagic and ischemic stroke incidence and mortality.¹⁹

Family caregivers' characteristics

The results in this study revealed that the age averages were 44.6 years. In Indonesia, the productive age is between 15 and 64 years old.²⁰ This result was conformable with the study of Costa, Gomes, Viana, Martins, and Macêdo-Costa.²¹ They studied about stroke patient characteristics and quality of life of caregivers. They reported that the mean caregivers' age was 34 to 47 years. Thus, the average age was in the productive age. It means that the family caregivers had the ability to care of the stroke patients both in the hospital and at home. The gender percentage of female caregiver was a little higher than male (52.4%). In the Indonesian culture, women have more responsible to care for the family as well as the patients. This result was also conformable with the study of da Costa, et al.²¹, which reported that most characteristics of caregivers were female (84.50%).

The results showed that about one third of the family caregivers were unemployed (38.0%). This result was also conformable with the previous study reported that where most caregivers were unemployed (45.59%).²¹ Most of the stroke patient's wife was housewife. Commonly in Indonesian culture, the wife is responsible for taking care of the children. The husband has a role for financial support for family. Most of the family caregivers has elementary school degree (54.8%). This result was also conformable with the previous study, which reported that the educational level was five to nine years of formal education (51.47%)²¹. In this study, the sample was retrieved from the lower economic status. So, most of the family caregivers had lower education level as well. Meanwhile, most of the family caregivers had no experience to care of stroke patients. In this study, almost all the stroke patients were new cases. Thus, the family caregivers did not have much experience to care for the patients.

Readiness, knowledge, skills, role supplementation, and debriefing

According to the result of the readiness of the stroke patients, the Wilcoxon Signed-Ranks Test indicated that there was significant increased from pre-test (median = 9) to post-test (median = 20) ($p < .001$). The readiness of the patients increased after the researcher provided the NTFPTP. This result was conformable with a previous study that found that the readiness to act of the patient was significant improvement after providing an educational program.²² In addition, the result of the study revealed that all samples got score more than 50% of the total score. Most of the stroke patients got score of 20 (88.0%). It means that these patients were ready to face or accept to the next step of the program. The readiness of the patient is crucial for continuing the program. The participant needs to understand the program and accepts the plan of the program during recovery and rehabilitation of stroke.

The overall mean scores of the knowledge and skills after receiving the NTFPTP were significantly higher than those of before receiving the NTFPTP ($p < .01$). The paired t-test revealed that the overall mean scores of the knowledge of role of family caregiver, psychological support and home preparation of family caregivers; skills of catheter care of family caregivers; and positioning skill of family caregivers after receiving the NTFPTP were significantly higher than those of before receiving the NTFPTP ($p < .01$). Also, the Wilcoxon Signed-Ranks Test indicated that the knowledge of stroke of family caregivers; knowledge of hydration and nutrition of family caregivers; knowledge of catheter care positioning, mobility, transfer of family caregivers; skill of nasogastric tube of family caregivers; and mobility skill of family caregivers after receiving the NTFPTP were statistically significantly changed ($p < .01$). The knowledge

and skill are needed for family to support the stroke patients in a rehabilitation phase. A training program could increase the knowledge and skill. A previous study also reported that knowledge and skill were improved after conducting an in-service training among nurses in a pediatric area.²³ Thus, NTFPTP included training program was beneficial for family caregiver to increase their knowledge and skills of certain procedures that will be given for supporting the stroke patients. In this study, the family caregivers also were prepared by the researcher using the NTFPTP program. After the first time of teaching, the family caregivers had corrected knowledge varied from 88.1 to 100%. After re-teaching, all family caregivers (100%) had correct knowledge about stroke. The results of this study were conformable with the previous study conducted by Kernich and Robb.⁵ It was a study on interdisciplinary family support and an education program consisting of four sessions⁵. A total of 27 patients and their families participated in the program. The outcome showed that there was a positive outcome from the patients and their families such as having a better understanding of how a stroke affects the body, and behavioral, and personality changes.

This study also was conformable with previous study conducted by Shyu, Kuo, Chen, and Chen⁷ who aimed to explore the long-term effects of a discharge-preparation program targeting Taiwanese family caregivers of older patients with strokes. Subjects were 158 older patients with stroke. The intervention program was designed to increase caregiver preparedness, to enhance caregiver perception of the balance between competing needs and to satisfy specific needs during the transition between hospitalization and discharge. The result showed that caregivers in the experimental group provided significantly better quality of care. Another study also conducted by Clark, Rubenach, and

Winsor²⁴ confirmed that education and counseling after a stroke leads to improved family functioning and psychosocial outcomes.

In terms of skills, since the first time of learning, the family caregivers had corrected skills of nasogastric tube varied from 88.1% to 100%. After the second time of learning, all family caregivers (100%) had correct skills, the family caregivers were ready to provide care for the stroke patients. The results of this study were conformable with the previous study that examined about the effectiveness of the Family Caregiver Training Program (FCTP) for caregivers of people with dementia.²⁵ They reported that the FCTP could effectively provide knowledge to family caregivers to assist people with dementia. The results showed that the family caregivers achieve 100% of knowledge and skills. This result was conformable with a study conducted by Sankar, et al.²³ They studied about the impact of a training program in pediatric cardiopulmonary resuscitation (CPR) on the knowledge and skills. It found that the skill was increased after a 2-day course (6 sessions per day, 60 minutes each).

Regarding the role supplementation, the mean score of the role supplementation after receiving the NTFPTP was significantly higher than that of before receiving the NTFPTP ($p < .001$). It means that the NTFPTP was effective for the stroke patients to manage their role. In addition, the result showed that all stroke patients (100%) had good perception about their role supplementation. It showed that after the stroke patients and their family received intervention from NTFPTP, the patients had better understand about what they should do during recovery and rehabilitation. Role supplementation could augment adaptive capacity during a transitional crisis³.

In this study, the median score of the debriefing after receiving the NTFPTP was significantly higher than that of before receiving the NTFPTP. The Wilcoxon Signed-Ranks Test

indicated that there was a significant increase from pre-test (median = 5) to post-test (median = 6) in the debriefing of the stroke patients ($p < .001$). Moreover, the result showed that most of the patients (96.73%) have a good perception about debriefing. It means that the NTFPTP made the stroke patients become better in terms of their perception and their ability to solve their problem. This result was conformable with a study by Selkirk, et al.⁹ on the longitudinal effects of midwife-led postnatal debriefing on the psychological health of mothers, which showed that the majority of the women reported to have a positive debriefing experience.

Conclusions

Transition preparation program is an appropriate program to be applied in the hospital for stroke patients and family caregivers. The transition preparation program can increase the family caregivers' knowledge and skills. Benefits of the program cover all aspect of the patient and family caregiver involved, including readiness, preparation, role supplementation and debriefing.

Recommendations

The weakness of the program is that the caregivers need to pay a close attention to follow all steps of the protocol. Thus, the nurses who are the part of the supporter for the stroke patients and their family caregiver should monitor both patients and family caregivers.

Participation in article writing

All author were involved in the study design. First author collected and of analysed the data. He also drafted the manuscript. All authors revised the manuscript

Conflict of interest

No conflict of interest in this study.

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