

# The Effects of Comprehensive Care Model for Stroke Patients at Home on Personal Well-Being, Role Mastery and Well-Being of Family Relationships in Bandung, Indonesia

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## Abstract

**Background:** The comprehensive care model (CCM) is a program that achieves a healthy transition and facilitates the family in caring for the stroke patients at home.

**Aim:** The present study was performed with aim to examine the effects of the comprehensive care model for stroke patients at home on personal well-being, role mastery, and well-being of family relationships.

**Method:** This quasi-experimental study was conducted in 2018 on 89 stroke patients in Bandung, Indonesia. The participants got CCM program including health education, skill and spiritual support since in the hospital until at home, and after a month they were assessed using personal wellbeing inventory, role function mode, and the brief family relationship scale. The Chronbach's alpha coefficients of the personal wellbeing, brief family relationship scale, and role function mode were tested for reliability (0.89, 0.89, and 0.77, respectively). Descriptive statistics and an independent t-test were used to analyze the study's data.  $p < 0.05$  was considered statistically significant.

**Results:** The significant differences were found in the overall mean scores of personal wellbeing and role mastery before and after the intervention ( $p < 0.001$ ). There was no significant difference ( $p = 0.078$ ) for well-being (the CCM can maintain the well-being of relationships in a good category).

**Implications for Practice:** The findings of this study revealed that CCM program can be applied for the stroke patients since at hospital to their home.

**Keywords:** Comprehensive Care Model, Holistic Health, Psychological Well-Being, Stroke

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## Introduction

Stroke as a worldwide problem is the top-ranked cause of disability adjusted life years (DALYs) in the 50-74 years and also 75 years and older (1). In Indonesia, stroke is the third leading cause of death. Statistics show that the rate of strokes in Indonesia is 10,9 per 1000 in 2018 (2). Like a deadly disease, the incidence of strokes increases along with the increased life expectancy of Indonesian people. Life expectancy in Indonesia has continued to rise from about 69.81 years in 2010 to 71.47 years in 2020 (3,4). Increasing age affects the incidence of stroke.

Patients with strokes commonly face some difficulty such as physical, social, emotional, psychological, and spiritual problems which will affect their health and well-being. Stroke is estimated to cause a substantial economic burden on society, higher than other diseases (5). These problems occur because stroke patients have physical limitations, mainly paralysis and impact on hand function or mobility (6). Cognitive impairment was high among stroke patients (7,8). An inflammation about stroke could increase the risk of depression (9). After stroke most of stroke patient suffer from emotional problems (10). The psychological changes after a stroke, such as depression, could lead to a worse condition (11). The patients with strokes had spiritual experiences included fear of relapse, loss of self-confidence, sense of aloneness and isolation, disruptions in the sense of self-confidence and disconnection, dependence, and hopelessness (12,13). The stroke causes hemiplegic, sensory loss, hemispatial neglect, and aphasia. The impact of stroke leads the individual to change his/her life dramatically and suddenly. This sudden physical change after the stroke can be stressful for both the person and the family as their care giver. The stroke leads the survivors to experience a limitation in their ability to function, such as in the daily living, adjustments within the family, and how the role of active Moslem to do prayers (14).

After suffering a stroke, the person cannot perform their action daily living independently. In the culture of Indonesia, when there is a sick in the family member, other family member will help or accompany the patient. They provide social support to help stroke patients enhance their self-confidence and reduce any psychological problems. Thus, the family has an essential role in the care for the patients. The stroke patients get physical problem such as paralysis that makes them experience interference in carrying out daily activities (13). When support or communication with the professional staff was less than optimal, the stroke patients in transition experienced feelings of powerlessness, confusion, frustration, and conflict (17). These problems lead the patients and their families not being ready to go home. Consequently, the incidence of being re-admitted to a hospital is high in Indonesia (2). The patients and their families need to be prepared and trained because caring for stroke patients requires the preparation of technical knowledge and skills in caring for these patients (18). However, the family's participation in care without the supervision and guidance from a nurse can harm the patient. The responsibilities of the family members would be to serve as the key communicator and participate in activities that would assist the patient in self-care (19). Thus, it is necessary to have a program that can accommodate all three parties: the nurses, patients, and their families.

Previous study mention about nursing therapeutics program for facilitating transition for the stroke patients, however it does not include Islamic approach (18). Meanwhile, the comprehensive care model (CCM) is a program that achieves a healthy transition and facilitates the family in caring for the stroke patients at home. The program was derived from the transition theory developed by Meleis (17). This program gave knowledge to stroke patients and their families and encouraged the family to effectively participate in caring. The program consisted of three intervention models such as transitional care, role supplementation, debriefing, and religious practice. These three models were combined so that it was called comprehensive care model. The CCM for stroke patients is an intervention model that seeks to comprehensively address the problems of stroke patients in physical, psychological, social, and spiritual approaches (17). This model consists of physical components in the form of physical actions or assistance for patients and non-physical elements in the form of psychological and spiritual support for stroke patients. Therefore, the present study was conducted with aim to examine the effects of CCM for stroke patients at home on personal wellbeing, role mastery, and the wellbeing of relationships in Bandung, Indonesia.

## Methods

This study with one group pre and posttest design was conducted in 2018 on stroke patients in

Bandung, West Java Province of Indonesia. Duration of the study was one month starting from the hospital until their home. The research setting was the neurological outpatient department of Al Islam hospital. The population of this study was all patients with a stroke who were admitted to the neurological outpatient wards of the Hospital in Bandung and their families. The sample was recruited for 3 months in Al Islam Hospital in Bandung Indonesia.

The inclusion criteria for the stroke patients were: age more than 18 years old (adult), moderate stroke severity by the Barthel index, actively communicate in Bahasa Indonesia, accompanied by the family caregiver, have no severe expressive or receptive language problems, and not diagnosed with psychosis or depression. The inclusion criteria for family caregivers were adults, could perform support for the patients, living in the same house with the patients, and the most responsible for providing care for the stroke patients for at least two months. Exclusion criteria for the patients and their families were: refuse to continue the program and any serious illnesses during the study process such as cardiac, epileptic, or infectious diseases.

The sample size was determined based on the effect size (ES) in the previous study (20). To achieve the effect size index for the t-test of means in a standard unit, it was calculated using G\*Power statistical test that provides the effect size conventions as “small,” “medium” and “large,” based on the study of Cohen (20). In this study, the sample size was calculated to analyze the difference between two dependent means (matched pairs) using the parameter effect size 0.4, alpha 0.05, and power 0.95 resulting in a total sample size of at least 84 participants. This study recruited the number of 89 respondents. The sampling technique in this research was purposive sampling and all participants followed the CCM program and did not refuse it.

Generally, all stroke patients were provided with standard medical and nursing actions according to standard operating procedures applied in hospitals, namely the administration of drugs and rehabilitation by the medical rehabilitation unit, as well as discharge planning. In this CCM program, stroke patients were given medication and rehabilitation, and a comprehensive program was also given to the stroke patients and their families. CCM includes the interventions such as providing individual training for patients and their families in the polyclinic room as much as one session in one day at the hospital, and then other sessions in the patient's home during home visits. The content provided was in the form of knowledge about stroke, fluid and nutritional needs, catheter care, positioning, mobility, caregiver role, psychological support and home preparation; each patient was given a booklet (17). This action was carried out by the registered nurses whom the researcher trained previously.

The tools used in this study consisted of experimental and data collection instruments, including demographic data, personal wellbeing, role mastery, and well-being of relationships. Personal well-being index-adult (PWI-A) was used to assess the well-being of stroke patients (21). The PWI-A included items that asked people how they were satisfied with eight life domains: standard of living, personal health and achievement, personal relationships, personal safety, community connectedness, future security, and religion/spirituality. The role function mode scale was used to assess the role mastery following a stroke (22). The brief Family Relationship Scale (BFRS) was used to evaluate the well-being of the interpersonal relationships among family members and stroke patients, which were painted by family cohesiveness, family expressiveness, and family conflict (23). Validity and reliability of this study were adopted from Kosasih (2020) which was the reliability score 0.77 of Cronbach alpha (24). In this study, the authors performed data management procedures, including identifying coding, data entry, and data cleaning. All variables met the assumption and dependent t-tests were applied. The hypothesis of this study was the mean differences in personal well-being, role mastery and well-being of relationship of the patients after receiving the comprehensive care models (post-intervention) which were higher than those of the patients before receiving the program (pre-intervention).

The researcher obtained permission from the hospital. Then, the researcher provided for informed consents from the participants voluntary. The researcher selected the participants from the outpatient department using purposive sampling methods. The patient's information was kept confidential. The written informed consent was obtained. They also were informed that there was no known risk. After the respondents were obtained then they got the CCM intervention gradually. This CCM action was carried out both at the hospital and at home. The researcher prepared and trained the stroke patient and their family for the CCM program at the hospital. In the hospital, the participants got two session

intervention. They were also given a booklet to maintain their knowledge at home. The nurse also visited the patients and their family at home regularly. One month after the intervention, they gave the instrument to evaluate personal well-being, role mastery, and well-being of relationship.

Data were analyzed by SPSS statistics (version 22) and using t-test.  $p < 0.05$  was considered statistically significant.

### Ethical Consideration

All respondents were given information about the aim of the study, and then they filled out informed consent before data collection was carried out. This study was approved by the Research ethic committee of Universitas Padjadjaran (ethical approval code: 1063/UN6.KEP/EC/2018).

### Results

Ninety-six stroke patients and their families were recruited in this study. Before performing data analysis, the data were tested for assumption in both t-tests. The data were tested of normality distribution, homogeneity, and sphericity. The final sample was 89 samples.

Mean age of the stroke patients was  $70.49 \pm 10.20$  year. More than half of stroke patients were female (60.7%). Most of the stroke patient's relationship with their caregiver was a child (50.9%). Most of the stroke patients were retired (46.1%) and had university education (32.6%). The religion of almost all the stroke patients was Islam (98.9%) (Table 1).

**Table 1. Demographic characteristics of the participants in the study**

Demographic Characteristics	Respondents ( $n=89$ )	
	Frequency	Percentage
Age (years), Mean $\pm$ SD	70.49 $\pm$ 10.20	
<b>Gender</b>		
Male	35	39.3
Female	54	60.7
<b>Relationship with family caregiver</b>		
Spouse	13	14.6
Child	45	50.6
Others	31	34.8
<b>Occupation</b>		
Unemployed	24	27
Agriculturist	2	2.2
Government official	5	5.6
Businessman/self employed	11	12.4
Retired	41	46.1
Others	6	6.7
<b>Education</b>		
Elementary school	11	12.4
Primary school	15	16.6
Secondary school	32	36
College/University	29	32.6
No education	2	2.2
<b>Religion</b>		
Islam	88	98.9
Christianity	1	1.1

As shown in Table 2, most of the stroke patient before the intervention had poor personal well-being (91%), poor role mastery (91%), and good well-being of relationship (100%). After the intervention, most of the stroke patient had good personal well-being, more than half had poor role mastery (51.7%), and good well-being relationship (100%).

According to the results of t-test, there were mean differences between pre- and post-intervention of general personal well-being (mean difference =  $-1.584$ ,  $p=0.001$ ); the mean of post-intervention personal well-being was significantly higher than that of pre-intervention (Table 3).

**Table 2. Level of personal well-being, role mastery, and wellbeing of relationship before and after the intervention**

Variables		Frequency	Percentage
Personal well-being	Pre-intervention		
	Good	8	9
	Poor	81	91
	Post-intervention		
	Good	89	100
	Poor	0	0
Role mastery	Pre-intervention		
	Good	8	9
	Poor	81	91
	Post-intervention		
	Good	43	48.3
	Poor	46	51.7
Well-being of relationship	Pre-intervention	89	100
	Good		
	Poor	0	0
	Post-intervention	89	100
	Good		
	Poor	0	0

As showed in Table 4, there were mean differences in personal wellbeing between pre-and post-intervention (mean difference=  $-12.20$ ,  $p=0.001$ ). This means that the mean of personal well-being measured in post-intervention was significantly higher than pre-intervention. There were also mean differences in role mastery between pre-and post-intervention (mean difference= $4.29$ ,  $p=0.001$ ). The mean of role mastery measured in post-intervention was significantly higher than pre-intervention. In addition, there were no significant differences between pre-and post-intervention in the well-being of the relationship (mean difference= $0.66$ ,  $p=0.078$ ). It means that the mean of well-being measured at post-intervention was not significantly different than that of pre-intervention.

**Table 3. Comparisons of the means and mean differences of general personal well-being before and after the intervention**

Variable	Mean (SD)		Mean Difference	<i>t</i>	<i>p</i>
	Pre-intervention	Post-intervention			
General personal well-being	6.91 (1.212)	8.49 (0.659)	-1.584	-10.07	<0.001

**Table 4. Comparisons of the means and mean differences of personal well-being, role mastery, and well-being of relationship before and after the intervention**

Variable	Mean (SD)		Mean difference	<i>t</i>	<i>p</i>
	Pre-intervention	Post-intervention			
Personal well-being	54.90 (8.913)	67.10 (4.859)	-12.20	-10.59	<0.001
Role mastery	13.4 (3.193)	9.11 (3.224)	4.29	8.65	<0.001
Well-being of relationship	35.89 (3.050)	35.22 (2.077)	0.66	1.78	0.078

## Discussion

Age is an irreversible risk factor for stroke. The findings of the present study revealed that most of the stroke patient was elderly (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 in Indonesia that included 2065 acute stroke patients and found that the mean age of the patients was 58.8 years (25). In the present study, the female patients were higher than males. Generally, women live longer than men (2). Therefore, women tend to get a negative impact from stroke (26). This result also was supported by the previous study. The results of the study found that women with menopause at early age ( $\leq 45$

years) got a higher prevalence of stroke than those with menopause, about 45–52 years (27).

This study showed that most of the stroke patients were unemployed. Losing a job or being unemployed was related with a higher incidence of depressive symptoms, leading to getting any diseases. The results of the other study revealed that people who lost a job, both men and women, and reemployed men, had an increased risk of stroke incidence and mortality (28). In addition, the income level decreased and Health-Related Quality of Life (HRQOL) scores were lower in these people (29). Quality of life and wellbeing were commonly used interchangeably (30). Most of the stroke patients in the present study were Muslim. In Indonesia, most of the people are Muslim, especially in Bandung (80%), but there are other religions, including Catholicism (2%), Christianity (17%), Hinduism (0.4%), and Buddhism (0.6%) (31).

Meleis stated that a successful transition was accompanied by feeling a sense of wellbeing. Subjective well-being refers to effective coping, managing one's emotions, a sense of dignity, personal integrity, quality of life, and satisfaction (17). Previous studies have shown that stroke patients have a reduced sense of well-being (32). In the current research, the CCM was conducted, and it could increase the subjective wellbeing of the stroke patients. On the other hand, another concept that is interchangeable with well-being is quality of life (QoL). A previous concept analysis study has identified well-being as similar to the concept of QoL as a related concept of a reduced sense of well-being (33). QoL was similar to well-being or psychological health; Rogers and King described QoL as identical to life satisfaction (32).

The findings of the present study showed that the mean score of personal well-being was significantly higher after receiving the nursing CCM program. This result confirmed that the personal well-being of stroke patients increased one month after the CCM program. The mean difference of subjective well-being in the experimental group was due to the CCM. In addition, the mean of subjective wellbeing was significantly higher one month after receiving the CCM. These results reported that subjective well-being was better. These results were also supported by the patients' characteristics, revealing that there was no significant difference for the gender, income, education, and health history. These factors influence subjective wellbeing. As the previous studies reported gender influenced subjective wellbeing (34), income was significant in predicting subjective wellbeing in the elderly, and education influenced subjective wellbeing indirectly through levels of income and health (35). The finding of the present study was conformable with the Nursing Therapeutic Program for Facilitating Patient Transition (NTPFPT) that could increase the subjective wellbeing of the stroke patients one day before discharge and one month after discharge.

Role mastery is the achievement of skilled role performance and comfort with the behavior required in the new situation (17). This role mastery can be observed by the role function behavior. The role function focuses on the role of someone in the society and within the group (36). One of the roles of the stroke patient is to perform activities of daily living as soon as possible (37). The previous study reported that approximately half of the patients with mild-to-moderate stroke who were employed pre-stroke had returned to their work (38). If the stroke patients can perform their role function, they can achieve role mastery. The score of role mastery in this study refers to the high score that was evaluated as a high of role function (achieve of role mastery). A lower score of role mastery refers to not achieving role mastery.

The result of the current research reported that the mean scores of role mastery were higher after receiving the CCM than before receiving the program. This result confirmed that the CCM affected the role of mastery in stroke patients. The patients' characteristics revealed that the educational level, age, socioeconomic status, and health history were no significant differences. Educational level positively correlated with role mastery (39). In addition, old age, low socioeconomic status, and poor health were associated with feelings of low mastery. Whereas at one day before discharge and one month after discharge, the mean scores of role mastery were significantly different. Thus, it confirmed that the CCM could make better role mastery among the stroke patients.

The finding of this study showed that the CCM could increase the ability of the stroke patients to do their function in their transition one month after receiving the CCM program. In this study, the stroke patients were well prepared about their role. This knowledge increase a good understanding of the stroke patients' role during the rehabilitation. The family caregivers also could support the patients to meet their needs when they could not do by themselves because mostly the stroke patients had difficulty to do activity even those who suffered a mild stroke had a decreased ability in performing

daily activities (15,16).

In this study, role mastery in stroke patients was better after receiving the CCM program. This finding is conformable with previous study which compared two groups of potential caregivers before and after the intervention of the role supplementation group (40). The study mentioned that the term 'role mastery' was similar to role adaptation. Their results revealed that role adaptation increased after receiving transitional nursing support. This result was also conformable with the previous study conducted by Chalermwannapong (21). They performed a transitional care program in the hospital and added more days to 4 weeks post-discharge through 2 home visits and two telephone visits for stroke survivors. The study reported that the stroke patient can do their role. They revealed that after receiving a transitional care program, the functional ability of stroke patients in the experimental group was significantly better than that of the control group (21).

The well-being of one's relationships indicates a successful transition. The relationships involve the family members. It includes family adaptation, integration, enhanced appreciation and closeness, and meaningful interaction (17). The well-being of relationships can be painted by family cohesiveness, family expressiveness, and family conflict. Significant family dysfunction after stroke and significant conflict have been reported in families (41). The CCM program can enhance the well-being of the relationship of the stroke patients among family members. The result of the current research reported that the mean scores of the relationship's well-being after receiving CCM program were not significant than before receiving the program. It is because the well-being of the relationship before the intervention was at a good level. Meanwhile, after the stroke survivors provided the intervention, the level of wellbeing of the relationship was still at a good level as well. Thus, it confirmed that the CCM could better maintain the well-being of a relationship among stroke patients.

A previous study confirmed that patients receiving intervention showed better psychological recovery and well-being at 4, 8, and 12 weeks after admission to critical care (42). In addition, the previous study revealed that family-led educational interventions were effective in improving the relationships of participants with ill relatives (43). In the current study, the Comprehensive care model had a significant effect on the personal well-being, role mastery, and well-being of the relationship because the program was conducted with good preparation and followed the guidelines. The stroke patients and their families got knowledge and skill and made sure they understood and were skillful. Nurses have an essential role to provide care for the stroke patients. It included integrating all parties involved in the care of stroke patients, providing comprehensive services, clarify the roles and functions in their care, emphasizing the importance of empowerment and collaboration with patients and their families, and improve coordination and monitoring of the stroke patients during rehabilitation at home. This activity will enhance the personal well-being, role mastery and well-being of relationship of stroke patients.

The limitations of this study were that randomized technique and control group were not applied due to the setting of the outpatient ward. However, we collected the sufficient sample to ensure that the result was reliable. This study duration was one month, so it can see the effect of the program for long time.

### **Implications for practice**

As evidenced by the results of the present study, the comprehensive care model for facilitating patient transition had significant effects on the personal wellbeing, role mastery, and wellbeing of the relationship of the stroke patients. The findings suggest that it is appropriate for nurses to provide the comprehensive care model (CCM) to stroke patients and families at home. The recommendation for future research is a simple application program that can be used by the stroke patient.

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### **Conflicts of interest**

The authors declared no conflict of interest.

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## Authors' Contributions

Cecep Eli Kosasih: Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data curation, Writing original draft preparation, Writing review and editing, Visualization, Supervision, Project administration, and Funding acquisition. Tetti Solehati: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Writing original draft preparation, Methodology, Writing review and editing, and Supervision. Mamat Lukman: Methodology, Investigation, and Supervision. All authors have read and agreed to the published version of the manuscript.

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