REVIEW ARTICLE

COPING STRATEGIES, SELF-EFFICACY, AND PERCEPTION AMONG FAMILY CAREGIVERS FOR POST-STROKE SURVIVORS IN INDONESIA

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ABSTRACT

Family caregivers experience stress and burden while caring for post-stroke survivors. Coping strategies are needed to deal with the stress, especially problem emotional-focused coping. The stress adaptation model states that coping was influenced by self-efficacy. Meanwhile, ABC Hill model explained that perception also had effects on coping. The purpose of this study was to analyze factors that affected coping among family caregivers for post-stroke survivors, especially self-efficacy and caregiver perception. This study used cross-sectional design and also used self-report questionnaire. It was conducted from October 2020 – April 2021. Sample of this study was family members who take care the family member with post-stroke, and the post-stroke survivors already post hospitalized between 6 months to 3 years. Total sample was 200 family caregivers in 7 health care centers, Tomohon City, Indonesia. We used PLS to estimate the hypothesized fit with the data. T statistic was used to include or exclude the hypotheses (t-statistic >1.96). All path coefficients were significant. Self-efficacy had a positive effect on problem emotional-focused coping (β= 0.177; t-value= 0.030, R^2=0.078). In addition, the caregiver perception had a positive effect on problem emotional-focused coping (β= 0.188, t-value = 2.248, R^2=0.175). Managing self-efficacy and perception among caregivers are needed to improve problem emotional-focused coping.

Keywords: *coping strategies, self-efficacy, perception, family caregivers, stroke.*

INTRODUCTION

The global prevalence of stroke remains high. There were people who died from stroke every 3 minutes 33 seconds. Also, a total of 3.3 million people died from ischemic stroke, 2.9 million died from intracerebral hemorrhage, and 0.4 million died from subarachnoid hemorrhage[1]. Each year, 60% of all strokes occur in people under the age of 70 years, 8% occur in people under the age of 44 years. In addition, 52% of all strokes occur in men, 48% of all strokes occur in women [2].

Basic Health Research (RISKESDAS) in Indonesia showed that the highest prevalence of stroke was recorded in Yogyakarta (14.6%), followed by North Sulawesi (14.0%), the highest prevalence by age was 75 years old (50.2%); based on gender was 11.0% male and 10.9% female, In addition, the residence in the city 12.6% was higher than in the village [3]. In North Sulawesi, the highest prevalence of age group suffering from stroke was at the age of 65-74 years [4].

Stroke is the fourth leading cause of death and disability. Nearly 50% of post-stroke patients experienced moderate to severe disorders, paralysis and were unable to care for themselves [5]. Stroke survivors need a caregiver after being discharged from the hospital, such as a spouse or family member. Family caregiver assists their daily living, health care, finance, as well as social interaction [6-8]. Furthermore, family caregivers are the key to caring for post-stroke survivor[9]. The important aspect of caring for post-stroke survivors are to promote early recovery and to prevent complications. If the patient receives the appropriate rehabilitation within the golden period, the stroke recovery will improve significantly[10-13]. However, caring for post-stroke survivors was complicated and different from other chronic diseases. Family caregivers must have knowledge and skills regarding prevention of complications, activities of daily living (ADL), mobility, rehabilitation, and management of stress [14-16].

Family caregivers experience stress and burden while caring for post-stroke survivors[17-19]. The prevalence of mental health problems among care giver was 3% to 62% for post traumatic stress

disorder, 4% to 94% for depression, and 2% to 80% for anxiety[20]. Coping is needed to face these situations. Coping refers to problem-emotion focused coping. Problem focused coping is an active caregiver's effort to deal with stressful conditions and eliminate sources of stress through individual behavior. While emotion focused coping was passive effort to reduce stressful condition through emotional[21].

Based on this background, the purpose of this study was to analyze factors that affected coping among family caregivers for post-stroke survivors. This research is needed as a theory to improve the family caregiver's quality of life as well as to reduce stress.

The stress adaptation model states that coping was influenced by self-efficacy. Self-efficacy is our ability to cope with the demands of life[22]. Meanwhile, ABC Hill model developed by McCubbin and Patterson (1983) explained that perception also had effects on coping [23]. Perception is a positive or negative interpretation regarding stress when caring for family members with post-stroke [24]. In addition, the ability to cope with the demands of life had effect on negative or positive perception. More self efficacy influences the effort to achieve the goals and had effect on positive perception [25]. We combined these two theories for developing new theory.
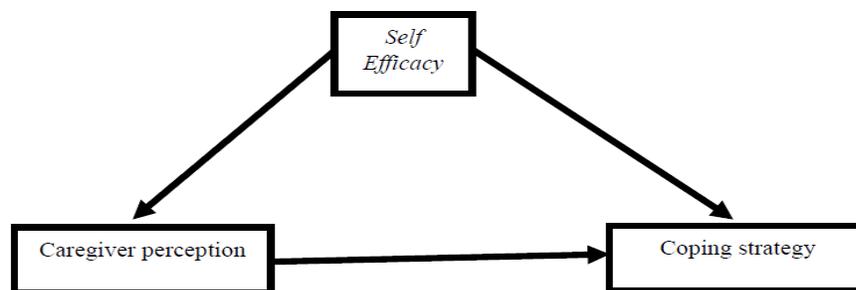

Figure 1. Study framework

METHODS

All of procedure in this study was granted by ethical clearance commission from Faculty of Dental Medicine, Universitas Airlangga, number: 463/HRECC.FODM/X/2020. This study used cross-sectional design with explanatory research and also used self-report questionnaire. It was conducted from October 2020 – April 2021. Sample of this study was family members who take care for family member post-stroke, and the family members were already post hospitalized between 6 months to 3 years. Inclusion criteria were family caregiver who is living together in the same house with post-stroke survivor and only caring for 1 family member with post-stroke. Total sample was 200 family caregiver respondents in 7 health care centers in Tomohon City, Indonesia: Puskesmas Pangolombian, Puskesmas Lansot, Puskesmas Matani, Puskesmas Rurukan, Puskesmas Tara Tara, Puskesmas Tinoor, Puskesmas Kakaskasen. We distributed the offline questionnaires door to door based on data from these primary health cares. The family members who agreed to join this study must signed the informed consent and the allowed to withdraw after reading the questionnaire. The family members who finished and completed to fill the questionnaire got

reward. Only researcher who can access the result of these questionnaires.

Measures
The questionnaires consisted of demographic data, age, level of education, economic status, level of knowledge, status caregiver in the family, number of family members. We used a self-made questionnaire. We had 23 parameters, so we recruited 115 caregivers. Five cases per free parameter in the model [26-28]. We also used caregiver perception questionnaire. This questionnaire was used to measure the caregiver's interpretation of the situations while taking care the family members post-stroke. Perception had 6 items. The Cronbach's alpha of this questionnaire was 0.91. We also used self-efficacy which was used to measure the caregiver's ability to achieve the goals. Self-efficacy had 3 domains: belief, consistency and capability. Belief had 6 items, consistency had 1 item, and capability had 3 items. The Cronbach's alpha of this questionnaire was 0.92. We used 7 items for assessing problem emotional-focused coping. This questionnaire was used to ask how the care giver solves problems, adaptation, and responds to threatening situations. The Cronbach's alpha of this questionnaire was 0.95. The cronbach

alpha of this questionnaire was 0.95. Previous studies suggested that cronbach's alpha > 0.5 is considered accepted reliability[29-31].

All the data were analyzed using SPSS computer software. Descriptive statistics were used for the variables. We used PLS to estimate the hypothesized fit with the data. T statistic was used to include or exclude the hypotheses (t-statistic >1.96).

RESULTS

Table 1 presents the characteristic of all participants. Regarding participant's age was predominant by participant's age more than 40 age years old (43.5%). Most of the participants had senior high school degree (47.5%). Regarding economic status, most of the participants had region minimum wage (55.5%). In addition, 26% of respondents had three members in their family.

Table 1. Distribution of participant characteristics (N= 200)

Characteristic	n	%
Age (years)		
< 19	30	15.0 %
20-30	37	18.5 %
31-40	46	23.0 %
>40	87	43.5 %
Total	200	100.0 %
Education degree		
Elementary school	41	20.5 %
Junior high school	43	21.5 %
Senior high school	95	47.5 %
High school degree	21	10.5 %
Total	200	100.0 %
Economic status		
< region minimum wage	111	55.5 %
> region minimum wage	89	44.5 %
Total	200	100.0 %
Level of knowledge		
Low	31	15.5 %
Moderate	78	39.0 %
Good	91	45.5 %
Total	200	100.0 %
Caregiver		
Husband	59	29.5 %
Wife	69	34.5 %
Children	48	24.0 %
Sibling	13	6.5 %
Others	11	5.5 %
Total	200	100.0 %
Number of family members		
2	30	15.0 %
3	52	26.0 %
4	51	25.5 %
5	29	14.5 %
6	26	13.0 %
7	12	6.0 %
Total	**200**	**100.0 %**

Table 2 provides information on the self-efficacy, caregiver perception and coping strategies. Most of the respondents experienced positive self-efficacy (81.5%), positive experience (positive perception) (86%), and used problem-based coping strategies (95%).

Table 2. Description of the observed variables among family caregivers who take care their family post-stroke

Variables	n	%
Self-efficacy		
Negative	37	18.5 %
Positive	163	81.5 %
Total	200	100.0 %
Perception		
Negative	28	14.0 %
Positive	172	86.0 %
Total	200	100.0 %
Problem Emotional -Focused Coping		
Emotional-based coping	10	5.0 %
Problem-based coping	190	95.0 %
Total	200	100.0 %

Table 3 lists path coefficient, and t-statistic value coefficient. All path coefficients were significant, except self-efficacy →caregiver perception. Figure 1 shows the final model, with the statistical goodness of fit was 0.380.

Table 3. Summary of model graph result

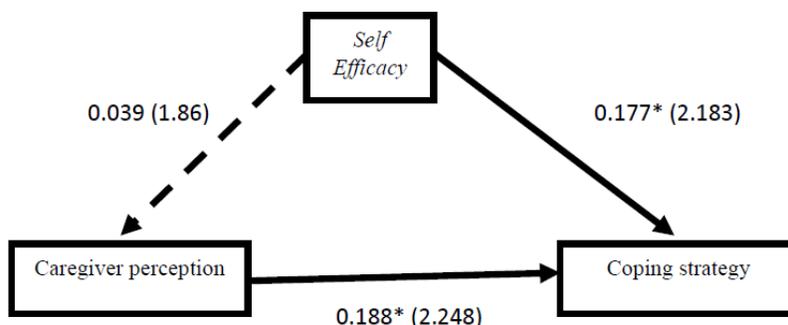| Hypotheses test	Coefficient	t-value	p-value	Remark
Self-efficacy →caregiver perception	0.039	1.86	> 0.05	Not significant
Self-Efficacy → coping strategy	0.177	2.183	0.030	Significant
Caregiver perception→ coping strategy	0.188	2.248	0.025	Significant

Figure 1. Final model of investigated self-efficacy and caregiver perception that affect coping strategamong caregiver

DISCUSSION

The aim of this study was to analyze factors that affecting coping strategies among family caregiver. This study involved 200 family caregivers who take care the family members with post-stroke in Tomohon City, Indonesia. The results of this study indicated that most of family caregivers were 40

age years old. This data was similar with the data in the United States, the average caregiver was over 40 years old [32]. In addition, family caregivers who take care of family members with post-stroke were generally spouses and children. Data in the United States shows that most family caregivers are spouses, parents, or children [32]. The majority of family caregivers had income less than the minimum wage. This situation had effect on financial burden among caregivers and also affected their ability to obtain adequate access to health care facilities [33]. This study showed that the level of knowledge of family caregiver to take care the family member with post stroke was good. Knowledge, abilities and skills are needed to take care the family members with post-stroke [34]. So that it can reduce caregiver stress [35].

The Effect of Self Efficacy on Problem-Emotion Coping Strategies

Self-efficacy had a positive effect on problem-emotion coping strategies (ß= 0.177; t-value= 2.183, R^2= 0.078). The results also showed that most caregivers who have positive self-efficacy had problem-based coping strategies (77%). Problem-based coping strategies were strongly influenced by self-efficacy. This study is in line with previous research which describes a significant positive relationship between self-efficacy and problem-based coping [36]. The higher the self-efficacy, the higher the problem-based coping. Individuals who have positive self-efficacy will tend to perceive the problem as a challenge, being tolerant, and able to overcome the obstacles. Individuals with positive self-efficacy and problem-based coping tend to improve the situation, while individuals who have negative self-efficacy tend to choose emotional-based coping strategies [37].

The Effect of Caregiver Perception on Problem-Emotion Coping Strategies

The caregiver perception had a positive effect on problem-emotion coping strategy (ß= 0.188, t-value = 2.248, R^2= 0.175). The results showed that the caregiver's perception was positive when caring for family members who stroke survivors for 11-20 months and had a mild level of dependence. Perception is the way we understand or interpret the stressor. Negative perceptions can influence behavior[38]. When the caregiver had a positive perception, it increases the motivation for caring the family members with post-stroke. The caregiver will make good efforts so the family can recover. Limitation of this study was our study used a cross-sectional design, therefore, the causal direction implied by the path analysis must be interpreted carefully. Longitudinal studies are needed to examine these factors and interventions are needed to manage self-efficacy and family caregiver

perception. In addition, these caregivers only take care 1 family member with post stroke, so it cannot be generalized.

CONCLUSION

Coping strategies among family caregivers were influenced by perception and self-efficacy. Increasing perception and self-efficacy among caregivers are needed to improve problem-emotion coping strategies. Through these coping strategies, caregivers tend to tolerate with life stressors.

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