THE RELATIONSHIP BETWEEN DEPRESSION, SOCIAL SUPPORT AND QUALITY OF LIFE OF STROKE SURVIVORS IN BUKITTINGGI, INDONESIA

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ABSTRACT:

Background: Stroke is a leading cause of depression that has a significant impact on quality of life in survivors. The purpose of this cross-sectional study was to examine the relationship between depression, social support and quality of life of stroke survivors in Bukittinggi, Indonesia.

Methods: The participants were composed of 138 Indonesian stroke survivors and they were selected by simple random sampling from the National Stroke Center Hospital Bukittinggi, Indonesia. Each participant was interviewed according to structured questionnaires consisting of the demographic information, stroke specific quality of life (SS-QOL), depression (center for epidemiology depression survey), and medical outcomes social support survey instrument (MOSSSI). Pearson correlation was used to identify relationships between depression, social support, and quality of life.

Results: The study found that the majority of the subjects were male (86%) with the average age was 64.22 years (SD = 8.65). The mean score of overall stroke specific quality of life was 3.55 (SD=0.64). The self-care domain was the highest mean score (4.58) and the lowest mean score was energy domain (2.10). The median score of depression was 20.50 and 38.4% of the subject were moderately depressed symptoms. The median score of social support was 77.00. Depression was negatively and significantly associated with stroke specific quality of life (r=-0.435, $p< 0.001$). Social support was positively and significantly associated with stroke specific quality of life (r=0.337, $p < 0.001$). The stroke survivors reported a good quality of life, moderate depressive symptom and high perceived social support, specifically positive social interaction support.

Conclusion: The study suggested that health care providers should help maintain a good quality of life, especially in the self-care domain and health care providers should assess the stroke survivor's energy by dividing their activities as tolerated. Also, health care providers should assess and prevent the stroke survivor's depressive symptom in early stage and continuously by screening sadness and negative feeling may potentially improve their quality of life. Moreover, health care providers should help maintain social support; monitoring positive social interaction support might reduce depressive symptoms and enhance the quality of life of stroke survivors.

Keywords: Depression, Social support, Quality of life, Stroke survivors, Indonesia

DOI: *Received: May 2015; Accepted: July 2015*

INTRODUCTION

Quality of life in the context of health and disease was known as Health Related Quality of Life (HRQOL) and is subjective well-being related to how happy or satisfied someone is with life as a whole [1]. People who survived a stroke had significantly lower quality of life as reported in some previous study [2, 3].

Stroke has been the leading cause of mortality, disability, psychological, and socioeconomic issues in the world. Mortality of stroke occurs in people above the age of 60 years and is the second leading cause of death and also in people aged 15 to 59 years,

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Cite this article as: Purba WS, Amatayakul A, Wattanakul B. The relationship between depression, social support and quality of life of stroke survivors in Bukittinggi, Indonesia. J Health Res. 2015; 29(Suppl.1): S109-16. DOI:

it is the fifth leading cause of death [4]. Hence, growing population of the aged is at a high risk of stroke attack and even the death.

Stroke leads to a loss of million disability-adjusted life years (DALYs) worldwide each year [5]. Around 60% of stroke survivors are expected to recover independence with self-care, and 75% are expected to walk independently and there are estimates that 20% would require institutional care [5]. Furthermore, the most common psychological effect was a depression in around half of those who survived a stroke within the first year [6]. Socioeconomic status was another important factor in regards to stroke mortality, which has been shown increase with improvement from low to middle income countries [7]. Therefore, stroke not only affects physical, but psychological and socioeconomic conditions as well.

Stroke has also been the leading cause of mortality and psychological problem in Indonesia. Stroke hemorrhage mortality was recorded 20.3% death after 48 hours, and 18.3% less than 48 hours compared with stroke ischemic was shown that 8.3% death after 48 hours, and 3.5% less than 48 hours [8]. Approximately 6.7% stroke was increased with increasing of age and it was higher for people aged 75 years above [9]. Furthermore, the most common psychological effect was a depression in around half of those who survived a stroke within the first year [6]. Based on Research and Development Bureau of Health [9] in West Sumatera, stroke was the third leading number of non-communicable disease (12.2%). In Bukittinggi, especially at the National Stroke Center Hospital, the numbers of people who suffer a stroke are fluctuated. The number was recorded 2852 people in 2011, 1816 people in 2012 and, 1939 people in 2013. Moreover, Minangkabau ethnic is the majority of the population in this area. This tribe has a habit of consuming fatty foods that the high risk of stroke and recurrence [10]. Thus, stroke was the highest number of non-communicable disease that causes the psychological problem and the top killer diseases in Indonesia. As a consequence, if the stroke is left untreated and not managed properly, the post-stroke can lead to delay in recovery and will decrease the quality of life of stroke survivors [6].

The result of the quality of life the stroke survivor was difficult to analyze because the multidimensional quality of life and heterogeneity of measurement that include generic or specific were adequate to use in stroke patients [11, 12]. Also, research has not shown the consistency correlation between social support and the quality of life, but depression has been found to have a correlation with the quality of life. Thus, it is would be essential for the health care providers to consider early screening in order to receive early treatment, improve recovery post-stroke and better quality of life. Furthermore, the lack of studies about the quality of life of stroke survivors, especially in Bukittinggi made it difficult to apply to the wide Indonesia population that needed further investigation. The findings of this study would provide a better understanding for the health care providers regarding factors that are associated with quality of life. Therefore, this study aimed to examine the relationship between depression, social support and quality of life of stroke survivors in Bukittinggi, Indonesia.

MATERIAL AND METHODS

A cross-sectional study was used in this study. The hypothesis were set that depression has a significant negative relationship with the quality of life of stroke survivors. Moreover, social support has a positive significant relationship with the quality of life of stroke survivors.

The sample size was calculated by using G Power software, version 3.1.0 by Faul et al. The researcher were set an alpha .05 as a significant level, the power of .80, and the medium effect size (.3), a sample size of 115 was needed. Of these, the participants were added 10% and the sample was rounded up to 138. Simple random sampling was used to select the participants and randomly by using the number of the name list of accessibility patients. The inclusion criteria were stroke survivors who are discharged from the hospital, stroke ischemic or hemorrhagic, age 45 years old or above, live in Bukittinggi, and able to be interviewed. Stroke survivors that have severe aphasia and illiteracy were excluded from this study.

The data were collected using instruments that consisting four questionnaires.

1. Demographic Characteristic was used to measure the characteristics of participants. It consists of age, gender, occupation, education, and duration of stroke.

2. The Stroke-specific Quality of Life Scale (SS-QOL) was used to measure the quality of life of stroke survivors. It consists of twelve domains that contain 49 items: energy (3 items), family roles (3 items), language (5 items), mobility (6 items), mood (5 items), personality (3 items), self-care (5 items), social roles (5 items), thinking (3 items), upper extremity function (5 items), vision (3 items), and work/productivity (3 items). Item scores were rated on a 5-point Likert scale: amount of help required to do specific tasks, ranging from no help to total help, the amount of trouble experienced when attempting

tasks, ranging from unable to do it to no trouble at all, the degree of agreement with statements regarding their functioning, ranging from strongly agree to strongly disagree. Higher scores indicated better functioning. The SS-QOL yields both domain scores and an overall SS-QOL summary score. The domain scores are unweighted averages of the associated items while the summary score is an unweighted average of all twelve domain scores. The score was categorized into five levels, including very poor (1.00-1.50), poor (1.51-2.50), moderate (2.51-3.50), good (3.51-4.50), and excellence (4.51-5.00). The alpha coefficient for the domains was reported to range from 0.73 to 0.89 by Williams et al. [13]. The reliability was 0.94 in this study.

3. Center for Epidemiologic Studies Depression (CES-D) was used to measure the depressive symptom of stroke survivors. It includes 20 items, assesses perception of mood and level of functioning within the past seven days. Response categories indicate the frequency of occurrence of each item and are scored on a 4-point scale ranging from 0 (rarely or none of the time) to 3 (most or all the time). The possible score range from 0-60. A Score of 16 or higher is considered to indicate depression. The higher score indicated increasing severity of depression [14]. Depression in this study was classified into four types. No depress range from 0 to 15, mild depress range from 16 to 20, moderate depress range from 21 to 30, and severely depress range from 31-60 [14]. This instrument has been tested in the stroke population by Secrest & Zeller [15] with the Cronbach's alpha of 0.884. The reliability was 0.82 in this study.

4. The Medical Outcomes Social Support Survey Instrument (MOS-SSSI) was used to measure perceived social support of stroke survivors. It consists of four separate social support subscales that contains 19 items including: emotional/ informational (8 items), tangible (4 items), positive social interaction (3 items), and affectionate supports (3 items) with an additional term. Item scores were rated on a 5- point Likert scale: 1 (none of the time), 2 (a little of the time), 3 (some of the time), 4 (most of the time), and 5 (all of the time). Total scores were calculated from the summation of 19 items with the minimum scores of 19 and the maximum scores of 95 [16]. The higher scores indicated more perceived support available. Shelbourne and Stewart [16] examined the psychometric of the scale and subscales and it was adequate reliable (all Cronbach's alpha >= .91). The reliability was 0.82 in this study.

Data were collected from July 2014 until August 2014 at the outpatient Stroke National Centre Hospital in Bukittinggi. The principal investigator had face to face interviewed with questionnaires was used to complete the questionnaires and required approximately 45-60 minutes. The questionnaires were checked and saved in a sealed envelope, after finishing the interview.

All questionnaires were analyzed by using the computer-based Statistical Package for the Social Science (SPSS) version 16.0 from Kasetsart University, Thailand. The level of significance was set .05. The Cronbach's alpha coefficient was used to examine the reliability of the measurement tools. Descriptive data were generated to identify the demographic data, types of depression, social support, and quality of life. Age and quality of life were presented as mean and standard deviation, while education and duration of stroke were presented as the median and range. Gender and occupation were calculated in terms of frequencies, and percentages. Depression and social support were analyzed using the frequencies, percentages, median, and range. To find the relationships between depression, social support, and quality of life was used Pearson Product-Moment Correlation.

Ethical consideration

The study was approved by the Ethical Review Board (ERB) from the Borromarajonani Collage of Nursing Nopparat Vajira (No.40/2014). The researcher collected the data after obtaining permission from the director of Stroke National Centre Hospital, Bukittinggi. Further, the researcher provided an explanation of the study to the participants who are volunteering based on the information sheet. Also, the researcher asked the participants to sign the informed consent if they willing to participate and could withdraw any time without consequences.

RESULTS

Most of the participants were men (62%) and 38% were women. The average age of stroke survivors was 64.22 years (SD = 8.65), ranging from 47 to 85 years old. It indicated that stroke survivors in this study were elderly. The median of duration of stroke was 21 months. The median educational level of stroke survivors was 15 years. It indicated that the stroke survivors had experienced in junior high school. Based on the ministry of education and culture Indonesia [17], the average of age junior high school is 15 years old. The number of stroke survivors who is retired and employee were equal (29.0%) (Table 1).

The finding of this study showed the mean score of overall stroke specific quality of life was 3.55

Table 1 Demographic characteristics of stroke survivors (n = 138)

Demographic characteristics	Number	%
Age		
Mean = 64. 22 SD= 8.56		
Gender		
Men	86	62.3
Women	52	37.7
Education (in years)		
Median = 15. 00	Range=8-21	
Duration of Stroke (in month)		
Median 21. 00	Range=1-96	
Occupation		
Employee	40	29.0
Seller	18	13.0
Farmer	15	10.9
Housewife	25	18.1
Retired	40	29.0

Table 2 Mean and standard deviation quality of life of stroke survivors

Variables	Mean	SD
SS-QOL		
Overall QoL	3.55	.64
Self-care	4.58	1.59
Vision	4.34	.77
Language	4.30	.82
Mobility	4.05	.76
Work/Productivity	3.30	.74
Upper extremity function	4.29	.97
Social roles	3.08	.97
Thinking	2.84	1.03
Personality	2.22	.98
Mood	3.14	.94
Family roles	2.98	1.01
Energy	2.10	.90

Table 3 Percentage, median, range, and standard deviation of depression, and social support of stroke survivors (n = 138)

Variables	Number	Percentage (%)
Depression		
No depressed	27	19.6
Mildly Depressed	42	30.4
Moderately depressed	53	38.4
Severely depressed	16	11.6
Median=20.50	Range=0-49	
Social support		
Median=77.00	Range=48-95	
Emotional Support		
Median=4	Range=1-5	
Tangible Support		
Median=5	Range=1-5	
Affectionate Support		
Median=4	Range=1-5	
Positive Social Interaction Support		
Median=4	Range=1-5	

Table 4 The relationship between depression, social support and quality of life of stroke survivors

Variables	SSQOL	
	Coefficient	***P*-value**
Depression	-0.435	<0.001
Social support	0.337	<0.001

Table 5 The relationship between domain social support and quality of life of stroke survivors

Variables	SSQOL	
	Coefficient	***P*-value**
Social Support		
Emotional/ Informational support	0.138	0.108
Tangible support	0.169	0.047
Affectionate support	0.366	0.001
Positive social interaction support	0.403	0.001

(SD=0.64), it indicated that stroke survivors in this study had a high quality of life. In terms of domain SSQOL, self-care was the highest mean score (4.58). However, the lowest mean score was energy domain (2.10) (Table 2).

Table 3 showed the median score of depression was 20.50. It indicated that most of the subjects had symptoms of depression. Of these, the percentage of moderately depressed symptoms were 38.4%. Moreover, the stroke survivors had high perceived social support with the median score of 77.00. In terms of domain social support, the highest median score (5) was tangible support.

Depression was statistically negative associated with stroke specific quality of life (r=-0.435, p<0.001) that was statistically significant at the $p \leq .05$ level. Social support was statistically positive significant associated with stroke specific quality of life (r=0.337, p<0.001) that was statistically significant at the $p \leq .05$ level (Table 4).

According to dimension of social support, positive social interaction support was stronger positively statistical associated with the quality of life than other dimensions (r=0.403, p<0.001). However, emotional/ informational support did not have a significant relationship with the quality of life (Table 5).

DISCUSSION

The aim of the study was to examine the relationship between depression, social support and quality of life of stroke survivors. This study found that the average of quality of life was 3.55. It indicated that most of the stroke survivors reported a good quality of life. This finding was similar with study by Smith [18] that examined the quality of life in the stroke population. There are several explanations why the stroke survivors in this study had a good quality of life. One possible explanation is that most of the subjects suffered a stroke more than a year that would have adapted the coping strategy to deal with their condition. As documented in a previous study that better quality of life associated with better coping skills, secure financial and social status [19]. In addition, most of the stroke survivors in this study had high mean age (64.22) as reported by De Weerd et al. [20] that high mean age of the stroke survivors tend to have high the quality of life. Moreover, Muslim people are the majority population in this area who believes that all their life event comes from God and God will give healing them. As noted by Norris [21] that conducted the research on stroke Muslim population in Aceh, Indonesia, religion and religious frameworks are meaningful to the client and their caregivers in the process of recovery.

According to domain SSQOL, this study found that the highest mean score was self-care domain (4.58) similar with the previous study (4.08) [22]. Moreover, upper extremity function, mobility, work productivity and social role domains showed the high mean score as well which is related to the physical function. This could be explained that people who are unable to perform their basic daily activities or being dependent on others might feel embarrassed, low self-esteem, being guilty and they perceived burden to their families as reported by Tariah et al. [23]. Language domain showed the high mean score (4.30) because of patients with severe aphasia was excluded from this study. High mean scores of vision (4.31), mood (3.14), and thinking (2.84) domains might have fairly recovered from some of these co-morbid conditions also because they had long suffered from the stroke impact as reported by Olusanjo et al. [24]. However, this study found that the lowest mean score in energy domain (2.10). It means that the stroke survivors had limited to perform their daily activities. The reason for this

is that the stroke survivors feel tired in performing their activities in most of the time. In addition, most of the subjects (62.3%) were male, that feeling worthless because their perception of masculinity was their role as provider and protector of the family. Thus, less in energy domain as a consequence reduced their quality of life.

It is not surprising that depression was negatively associated with quality of life and consistent with the previous research [25]. This finding indicated that the highest score of depression tend to have lower quality of life as supported by de Weerd et al. [20]. Depression and anxiety were the strongest and most consistent correlated to all domains of quality of life [26]. The possible reason is that most of the stroke survivors have moderated (38.4%) depressive symptom which is the low prevalence rate comparable to previously reported studies 45% of stroke survivors have moderated depressive symptoms [25]. Others argued that most of the stroke survivors felt negative thinking, sad and difficult to sleep. Broomfield et al. [27] noted that negative thinking may risk of developing depressive symptom. Another explanation is that most of the stroke survivors reported they could not get going in this study. It seems like they were less interaction or social isolation as reported by Mavaddat et al. [28] that social isolation was limited at one to two years after stroke, they were less contacts and less frequent with friends, neighbors and their relatives. Also, previous study reported that social activities or participation in social life was related to high health related quality of life [29]. Therefore; could not get going may risk of developing depressive symptom and have a negative effect on the HRQOL.

The present study found that social support was positively related to quality of life also. It indicated that high score perceived social support tend to have a high quality of life. This finding was similar with study by Huang et al. [30] who found social support was positively associated with the quality of life. One could be possible explained that the majority of the Indonesian especially in Bukittinggi is Muslim that children have an obligation to take care of their parent and support of them, especially when they are ill. Mpembi et al. [31] found that patient post stroke episode who received social support from the family was satisfied and decrease the psychological consequences of stroke. Higher perceived social support from family members, friends and health personnel was the better perceived quality of life [3]. Moreover, Gbiri&Akinpelu [2] reported spousal support was a significant influence on the quality of life. However, another study found social support was not correlated with the quality of life [32].

According to domain social support, this study found that tangible support, affectionate support, and positive social interaction support were positively associated with the quality of life respectively ($r=0.169$, $p<0.047$; $r=0.366$, $p<0.001$; $r=0.403$, $p<0.001$). This finding was similar to previous studies by White et al. [33]. The possible reason is that most of the stroke survivors were received tangible support (Median=5), affectionate support (Median=4), and positive social interaction support (Median=4). It indicated that the stroke survivors were unable to prepare their meals and had someone to do that for them and to take them to the doctor if needed as well as someone to help them if they were confined to bed. Moreover, most of the stroke survivors feel someone showed their love, affection, and make them feel wanted. Furthermore, most of the stroke survivors feel someone provide a good time for them. Also, the stroke survivors feel that someone to do things together to help them get their mind off things. The help or assistance with tangible needs or assistance in the form of time and services provides valuable social support and help to improve quality of life and post stroke depression in Taiwanese stroke patients [30].Thus, tangible support, affectionate support, and positive social interaction support were the most important can be given to the Indonesian stroke survivor.

In contrast, this study showed that emotional support/ informational support was not associated with the quality of life. This finding is not consistent with the findings of the previous studies which showed a relationship between emotional support/ informational support and quality of life. This could be explained that stroke survivors with severe aphasia was excluded from this study. As reported by Hilari&Northcott [34] that stroke survivors who suffered aphasia may difficult to read and find out the information from leaflets. Also, they may difficult to write, make phone calls or understand verbal information that is given rapidly in a complex language. Therefore, it may be explained why this study did not find the relationship between emotional support/ informational support and quality of life.

There are several limitations in this study. This study had been done in a population of Bukittinggi, and may not be able to generalize to other populations. The clinical characteristics, including stroke severity, type of stroke, and co-morbidities that may affect on the quality of life of stroke survivors not included in this study. However, the strength of the study that data collection was based on questionnaire the stroke specific quality of life,

CED-S and MOS-SSSI that are valid and reliable in this study. As well, this study used specific instrument quality of life of stroke survivors, which has high sensitivity towards this stroke condition.

CONCLUSION

The stroke survivors reported a good quality of life. Most of the respondents had a higher perceived social support and moderate depressive symptom.

This study suggested that the health care providers should maintain the good quality of life, especially in self-care domain and assess the stroke survivors energy by dividing their activities as tolerated. As well, the health care providers should assess and prevent the stroke survivors depressive symptom by screening sadness and negative feeling in early stage and continuously may potentially improve their quality of life. Also, the health care providers should maintain the social support by monitor the positive social interaction support might be essential to reduce depressive symptom and enhance the better quality of life of stroke survivors.

ACKNOWLEDGEMENTS

I would like to acknowledge to the Boromarajonani Collage of Nursing Nopparat Vajira affiliated of Kasetsart University and Directorate General of Higher Education of the Republic of Indonesia for their support. I also would like to thank to the staff at the Polyclinic Neurology in National Stroke Center Hospital Bukittinggi, and all of the participants who make a great contribution in this study.

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