QUALITY OF LIFE OF STROKE PATIENT CAREGIVERS AT SRINAGARIND HOSPITAL, KHON KAEN PROVINCE, THAILAND

Lertchai Charerntanyarak [1, 5], Karnchanasri Singhpoo [2, 5], Roongtiwa Chobchuen [3], Chananya Kasinpila[1], Ratchada Ngamroop [4], Nutporn Hadee [2]

[1]Department of Epidemiology, Faculty of Public Health, Khon Kaen University, Thailand.
lertchai@kku.ac.th, chananya@kku.ac.th
[2]Community Medicine Service Section, Srinagarind Hospital, Khon Kaen University, Thailand.
karsin@kku.ac.th, nutpha@kku.ac.th
[3]Nursing Division, Srinagarind Hospital, Khon Kaen University, Thailand.
roocho@kku.ac.th
[4]Amphur Onkharuk Public Health Office, 26120 Thailand.
ae.ratchada@hotmail.com
[5]Northeastern Stroke Research Group, Khon Kaen University, 40002 Thailand.

ABSTRACT

Stroke is a chronic disease requiring patients to be treated for a long period of time. Patients need to been given close and attentive care, and this has an impact on the health and daily lives of caregivers. The aim of this cross-sectional descriptive study was to investigate the quality of life of stroke patient caregivers at Srinagarind Hospital, Khon Kaen Province, Thailand. The subjects were 166 caregivers of all stroke patients who received treatment at Srinagarind Hospital during the period 1 July – 10 September, 2011. The research tool was a questionnaire which was in two parts: Part 1 was designed to collect baseline data about the patients and their caregivers, and Part 2 was the Thai version of the brief WHO quality of life assessment instrument (WHOQOL-BREF-THAI). Data were collected from the patients' medical histories and from interviews conducted by the researchers and were analysed using descriptive statistics. The results showed that the overall quality of life of caregivers was at a moderate level with a mean score of 92.5. In terms of each component domain of the quality of life instrument, the mean scores for physical health, mental health, social relationships, and the environment were 24.1, 21.3, 10.7, and 29.3 points, respectively. Even though the quality of life of caregivers was moderately high, medical professionals who provide care for stroke patients should assist and support caregivers in various ways by, for example, giving advice on sources of information which are useful to the caregivers themselves and for the physical and mental health care of the patients in. They should also provide assistance to families when they require help in continuing to care for the patients in their own homes.

Indexing terms/Keywords

Quality of life; Stroke; Caregiver

Academic Discipline And Sub-Disciplines

Applied Science, Public Health

SUBJECT CLASSIFICATION

Public Health

TYPE (METHOD/APPROACH)

A cross-sectional descriptive research study; Survey/Interview

1. INTRODUCTION

Cerebrovascular disease or stroke (Poungvarin *et al*, 2011), or what Thai people may refer to as paralysis, is a disease which may cause numbness, weakness or loss of function of any organ or all parts of the body. The patient may become unconscious or die suddenly. Stroke occurs in people of all ages and gender, but mostly in adults over 45 years of age (Department of Disease Control, 2007).

Stroke is a chronic disease and patients can suffer over a long period of time at all stages: before developing the disease, as the disease progresses, when there are complications, and during the period of disability which results from the disease. When a patient has a stroke, there is little chance of a full recovery. It usually leads to some disability in movement and the performance of household activities, and results in expenses for hospital charges and long-term care, causing considerable impacts on the present economic and social situation (Department of Disease Control, 2007). At Srinagarind Hospital, there were 3,068 stroke outpatients or average 8.41 per day from 2007-2010 (Medical Record and Statistics Section, 2011).

A study by Singhpoo *et al*. (2012) on the quality of life of stroke outpatients showed that the worst quality of life aspect for patients was the loss of vitality and energy, and the experience of fatigue and feeling dispirited. These patients own perception of their health was one of deterioration and weakness from the illness. This meant that they required 24-hour support by a caregiver; stroke outpatients were unable to take care of themselves. Providing care to these patients over a long period of time has an impact on the health and the pattern of daily life for caregivers. They themselves become tired, fatigued, bad tempered, irritable, and stressed (Wallhagan, 1992). Hence, there has been an interest in the study of caregivers of stroke patients who require continuous care both at the hospital and at home when discharged. Studies have been conducted into the roles and burden of care-giving and the impact on caregivers (Foxall and Gaston-Johansson, 1996), and on caregivers' needs and caregivers' stress and ways of coping with stress (Natechan, 2002; Jullamate and Thanatwanich, 2001, Sansee *et al*, 2008).

A study of the quality of life of stroke patient caregivers was conducted at Chulalongkorn Hospital (Seesuay and Puangsoy, 2008) However, only those taking stroke outpatients to hospital were sampled, and caregivers in the context of Bangkok are different from upcountry caregivers in terms, for example, of ways of life and family relationships. The researchers therefore saw the importance of studying the quality of life of stroke patient caregivers at Srinagarind Hospital in order to obtain information for planning assistance to stroke patients and their families in the region.

2. MATERIALS AND METHODS

This was a cross-sectional descriptive research study of the quality of life of stroke patient caregivers at Srinagarind Hospital, Khon Kaen Province, Thailand.

2.1 Population and Sample Group

The sample group comprised caregivers of the stroke patients who had received medical treatment at Srinagarind Hospital and at present were receiving continuous care both at the hospital and at home. The sample group was selected according to the following inclusion criteria.

1. They were caregivers of stroke patients who had received treatment at Srinagarind Hospital and included both new and former patients. The patients' diagnoses had been confirmed by an MRI or CT scan. Information of all patients from July 1, 2011, until September 30, 2011 was collected from the caregivers on one occasion when they accompanied the stroke patients to see medical staff at the hospital. After being approved by the Committee for Ethics in Human Research, the patients' caregivers were interviewed when the patients were taken to see doctors at Srinagarind Hospital.

It should be noted that the incidence of stroke does not vary with season or special occasions. This means that the patients may visit the hospital at any time or day. Doctors usually arrange for the patients to return for their next visit after three months. The information obtained therefore indicated similar numbers of patients each week, but with different diagnoses. Data collection at the patients' home was not possible.

2. The caregivers were men or women who provided regular care for a stroke patient for at least 8 hours a day, or continuously for 40 hours per week, for at least 4 weeks.

3. The caregivers were at least 20 years old.

4. The caregivers were able to understand and answer questions in Thai.

5. The caregivers were willing to participate in the project and gave their signed consent.

2.2 Ethical approval

This present study was approved by the Khon Kaen University Ethics Committee for Human Research (Reference No. HE541154).

2.3 Research tool

Questionnaire used was in two parts:

Part 1. Personal baseline data about the patient and the caregiver,

Part 2. The Thai version of the brief WHO quality of life assessment instrument (WHOQOL-BREF-THAI).   This part comprised 26 questions, 23 being positive type questions and 3 being negative type (Department of Mental Health, 2011).

Meaning of scores – the answers from the 5-point rating scales can be interpreted as follows:

Not at all – You do not feel so at all. You feel very unhappy. You feel very bad.

A little – You feel so once a while. It affects you only a little. You feel unsatisfied. You feel bad.

Moderately – You feel so at a moderate level. You are happy at a moderate level. You feel bad at a moderate level.

Mostly – You feel so often. You are happy. You feel good.

Completely– You always feel so. You feel it is all good. You are very happy. You feel very good.

For the positively worded questions the points are given as follows: not at all = 1 point, a little = 2 points, moderately = 3 points, mostly = 4 points, completely = 5 points. For the negatively questions (item numbers 2, 9, 11) the points are reversed. The individual total quality of life scores range from 26-130 points and are categorized as follows for the purpose of interpretation: scores in the range 26 to 60 points are defined as indicating a low quality of life, those from 61 to 95 indicate a moderate quality of life , and scores from 96 to 130 points represent a good quality of life. The quality of life domains are physical health (item numbers 2, 3, 4, 10, 11, 12, 24), mental health (items 5, 6, 7, 8, 9, 23), social relationships (13, 14, 25), and the environment (15, 16, 17, 18, 19, 20, 21, 22). Items 1 and 26 are indicators of general health and overall quality of life and are not included in the four domains.

The brief Thai version of WHO's quality of life measurement (WHOQOL-BREF-THAI) (Department of Mental Health, 2010), 2554) was edited and revised by a language expert. Its Cronbach's alpha coefficient was 0.8406, its validity was 0.6515.

In order to adjust the tool for appropriateness it was administered to 10 patients who were not in the sample group.

The data were analyzed using the STATA Version 10.0 program. Descriptive statistics (frequencies, means, percentages, and standard deviations) were used for interpreting the general information and quality of life domains.

3. RESULTS

3.1. General information about stroke patient caregivers

Most of the 166 caregivers (79.5%) were females, and ages ranged from 19-78 years. The largest number (44.6%) was in the 30-49 year age group, the average age was 49.3 years. Almost all (98.2%) were Buddhists, 73.5% were married and lived together with their spouses, and 33.7% had a bachelor degree or higher qualification. The largest occupational group (31.9%) was government/state officials. The household income of 28.9% was 10,000 baht per month or less.

Almost a third (30.1%) had provided care to the patient for less than 6 months. The median duration of caring time was 1 year and 4 months. A large majority of the caregivers (93.8%) were relatives of the patients (for example, their children/daughters-in-law/ nieces or nephews), and 36.1% were married to the patient. Most of the caregivers (77.7%) had no experience in taking care of patients, and 86.1% had never been trained in patient care. While 61.5% had no health problems, 28.1% reported having a chronic disease (hypertension, diabetes, or breast cancer).   Most caregivers (82.5%) lived at the patient's home. The remaining 17.5% lived nearby and came to the patient's home during the day. Some (6.9%) took turns with someone else to take care of the patient. A summary of the information about the caregivers is shown in Table 1.

Table 1 Information about stroke patient caregivers (n=166)

	Number	Percentage
Gender		
Males	34	20.5
Females	132	79.5
Age		
Less than 30 years	13	7.8
30-49 years	74	44.6
50-59 years	39	23.5
Over 60 years	40	24.1
$\overline{X}$ age = 49.3 years(S.D. = 12.8, min = 19, max = 78)		
Religion		
Buddhist	163	98.2

	Number	Percentage
Christian	3	1.8
Marital status		
Single	24	14.5
married (living together)	122	73.5
married (separated)	5	3.0
widowed	9	5.4
divorced	6	3.6
Educational level		
primary	44	26.5
secondary	17	10.2
high school, vocational certificate	28	16.9
high vocational certificate, college diploma	21	12.7
bachelor or higher degree	56	33.7
Present occupation		
no occupation	47	28.3
- student	3	6.4
- house-husband/housewife	25	53.2
- elderly/pensioned/resigned before pension age	19	40.5
Occupation	119	71.7
- hiring labor	19	16.0
- trading	29	24.4
- government/state official	38	31.9
- agriculture	19	16.0
- private business	9	7.6
- official on pension	4	2.4
- TAO member	1	0.6
Household monthly income (baht)		
No information	3	1.8
Lower or equal to 10,000 baht	48	28.9
10,001 - 20,000	35	21.1
20,001 – 30,000	24	14.5
30,001 – 40,000	17	10.2
40,001 – 50,000	19	11.4
Over 50,001	20	12.1
Median = 20, 000 baht (min =1,500 , max =240,000)		
Duration of care of patient		
Less than 6 months	50	30.1
6 months – <1 year	9	5.4
1 - 2 years	32	19.3
>2-3 years	19	11.5
>3-4 years	13	7.8

	Number	Percentage
>4-5 years	12	7.2
Over 5 years	31	18.7
Relationship to patient		
Spouse	60	36.1
Employed as caregiver	9	5.4
Relative	97	58.4
- Father/mother	4	4.1
- Sister	2	2.1
- Child/daughter-in-law/niece/nephew/grandchild	91	93.8
Experience in caregiving		
No previous experience	129	77.7
Yes, some experience	37	22.3
- Has worked in a hospital/a nurse/worked in a care-giving center	6	16.2
- Close relative was ill.	27	73.0
- No information provided	4	10.8
Caregiver's health problem		
None	102	61.5
Yes	64	38.6
- chronic disease (hypertension, diabetes, breast cancer)	18	28.1
- osteopathic disease	16	25.0
- cardiovascular disease	8	12.5
- Thyroid	2	3.1
- Thalassemia	1	1.6
- Hepatitis	1	1.6
- Eye disease	2	3.1
- Alimentary tract disease	5	7.8
- Uterine tumor	5	7.8
- Hernia	1	1.6
- Allergy	4	6.3
- Obesity	1	1.6

3.2. General information about the stroke patients

Our study showed that 91.6% of the stroke patients were diagnosed with a cerebral infarction, which was caused by a cerebral thrombosis in 65.1% of the cases. The majority (66.3%) had hypertension, and 35.5% were found to have a high blood cholesterol level. Many patients (31.9%) had no significant disability despite symptoms. Their condition depended on the disease severity.

Most were able to eat and drink by themselves and breathe normally. They were also able to clean themselves to a certain extent. In most cases, their verbal communication was normal, but a number of patients had difficulty speaking. Some required wheel chairs to move around, and in general they were able to defecate normally. Information about the stroke patients is summarised in Table2.

Table 2 Information about diagnoses and disabilities of stroke patients (n=166)

	Number	Percentage
Diagnosis		
Cerebral infarction	152	91.6
- Cerebral thrombosis	99	65.1
- Cerebral embolism	53	34.9
Intracerebral hemorrhage	14	8.4
Level of disability (modified Rankin Score)		
No symptoms at all	6	3.6
No significant disability despite symptoms	53	31.9
Slight disability	24	14.5
Moderate disability	28	16.9
Moderately severe disability	27	16.3
Severe disability	28	16.9

3.3 Quality of life of stroke patient caregivers

For the first question on satisfaction with their own health (Item Number 1), most stroke patient caregivers (45.2%) were moderately happy. Only 2.4% were mostly unhappy and felt really bad about it. The overall quality of life (Item Number 26) was reported by 53% to be at a good level, while for 39.8% it was at a moderate level. Only one caregiver said her quality of life was very bad.

Looking at responses to individual items, we found that the three questions to which the largest percentages of caregivers reported no problems at all were: Item Number 9 - 21.7% (How often do you feel bad, e.g., lonely, sad, depressed, desperate, worried (mental component)); Item Number 11- 18.1% (How much do you need to go to hospital for treatment so that you can go on working and function in your daily life (physical aspect)); and Item Number 2 – 15.7% (How much does body pain, such as headache, stomachache, other pain, prevent you from doing things you want to do (physical aspect)). The three questions to which the largest percentages of caregivers reported only minor problems were: Item Number 9 - 48.2 % (How often do you feel bad, e.g., lonely, sad, depressed, desperate, worried (mental component)); Item Number 11 - 27.1 % (How much do you need to go to hospital for treatment so that you can go on working and function in your daily life (physical aspect)); and Item Number 2 – 26.5 % (How much does body pain, such as headache, stomachache, other pain, prevent you from doing things you want to do (physical aspect)). The three questions to which the largest percentages of caregivers reported many problems were: Item Number 12 - 63.9% (How happy are you with your ability to do things you used to do (physical aspect)); Item Number 13 - 59.0% (How happy are you with making friends with others like you used to do (social relationship)); and Item Number 7 – 57.2% (How happy are you with yourself (mental component)). The three questions to which the largest percentages of caregivers reported the highest level of problems were: Item Number 23 – 29.5% (To what extent do you think your life is meaningful (mental component)); Item Number 16 – 25.9% (How happy are you with the condition of your house where you live (environment)); and Item Number 24 – 24.7% (How easily can you go places by yourself (physical aspect))

The average score across all quality of life domains was 92.5, indicating that the caregivers' overall perceptions of their quality of life was at a normal level. The majority the caregivers (58.4%) obtained overall scores which placed them the moderate range of quality of life, and the scores of the remainder (41.6%) were all in the good quality of life range. None were in the low quality of life range.

When considering each quality of life domain, the average quality of life scores for physical health, mental health, social relationships and the environment were 24.1, 21.3, 10.7 and 29.3, respectively. All these average scores were in the score ranges which were defined as indicating a moderate level of perceived quality of life, and the percentages reporting a moderate level of quality of life on the 5-point scales were 81.9% (physical health), 69.3% (mental health), 61.5% (social relationships), and 54.2% (environment).

A summary of the caregivers' responses to the quality of life questionnaire is provided in Table 3.

Table 3 Summary of responses to quality of life questionnaire by stroke patient caregivers

No.	Questions	No N (%)	Little N (%)	Medium N (%)	Much N (%)	Most N (%)
1	How happy are you with your present health?	4 (2.4)	7 (4.2)	75 (45.2)	66 (39.8)	14 (8.4)
26	What is the level of your quality of life (ways of living)?	1 (0.6)	2 (1.2)	66 (39.8)	88 (53.0)	9 (5.4)
Physical health						
2	How much does body pain, such as headache, stomachache, other pain, prevent you from doing things you want to do?	26 (15.7)	44 (26.5)	58 (34.9)	35 (21.1)	3 (1.8)
3	Do you have enough energy to carry out every day activities (both at work and in daily life)?	0	4 (2.4)	48 (28.9)	87 (52.4)	27 (16.3)
4	To what extent are you happy with your sleep?	4 (2.4)	18 (10.8)	42 (25.3)	79 (47.6)	23 (13.9)
10	To what extent are you happy with what you have achieved each day?	1 (0.6)	2 (1.2)	49 (29.5)	93 (56.0)	21 (12.7)
11	How much do you need to go to hospital for treatment so that you can go on working and function in your daily life?	30 (18.1)	45 (27.1)	46 (27.7)	40 (24.1)	5 (3.0)
12	To what extent are you happy with your ability to do things you used to do?	1 (0.6)	6 (3.6)	41 (24.7)	106 (63.9)	12 (7.2)
24	How easily can you go places by yourself?	2 (1.2)	11 (6.6)	36 (21.7)	76 (45.8)	41 (24.7)
Medium level of quality of life (lowest-highest scores) Number (%)		**17-26 points** 136 (81.9%)				
Good level of quality of life (lowest-highest scores) Number (%)		**27-35 points** 30 (18.1%)				
Mean score: S.D.: Min, Max		$\bar{x}$ = 24.1: S.D. = 2.9: Min: 18, Max: 35				
Mental health						
5	To what extent are you happy with your life (feeling being happy, peaceful, hopeful)?	2 (1.2)	6 (3.6)	60 (36.1)	71 (42.8)	27 (16.3)
6	How well can you concentrate on doing things?	1 (0.6)	6 (3.6)	57 (34.3)	85 (51.2)	17 (10.2)
7	To what extent are you happy with yourself?	2 (1.2)	3 (1.8)	43 (25.9)	95 (57.2)	23 (13.9)
8	Are you able to accept your bodily appearance?	0	1 (0.6)	47 (28.5)	92 (55.8)	25 (15.2)
9	How often do you feel bad (lonely, sad, depressed, desperate, worried)?	36 (21.7)	80 (48.2)	39 (23.5)	9 (5.4)	2 (1.2)
23	To what extent do you think your life is meaningful?	0	1	28	88	49

No.	Questions	No	Little	Medium	Much	Most
		N (%)	N (%)	N (%)	N (%)	N (%)
			(0.6)	(16.9)	(53.0)	(29.5)

Low level of quality of life (lowest-highest scores) Number (%)	**6-14 points**
	1 (0.6%)

Medium level of quality of life (lowest-highest scores) Number (%)	**15-22 points**
	115 (69.3%)

Good level of quality of life (lowest-highest scores) Number (%)	**23-30 points**
	50 (30.1%)

Mean score: S.D.: Min, Max	$\bar{x}$ = 21.3: S.D. = 2.7: Min: 14, Max: 28

Social relationships

No.	Questions	No	Little	Medium	Much	Most
13	To what extent are you happy with making friends with others like you used to do?	0	8 (4.8)	36 (21.7)	98 (59.0)	24 (14.5)
14	To what extent are you happy with the help from your friends?	3 (1.8)	8 (4.8)	53 (31.9)	81 (48.8)	21 (12.7)
25	To what extent are you happy with your sex life? (Sex life means ability to manage yourself when there is a sexual need, including helping oneself or having intercourse.)	18 (10.8)	18 (10.8)	59 (35.5)	61 (36.8)	10 (6.0)

Low level of quality of life (lowest-highest scores) Number (%)	**3-7 points**
	11 (6.6%)

Medium level of quality of life (lowest-highest scores) Number (%)	**8-11 points**
	102 (61.5%)

Good level of quality of life (lowest-highest scores) Number (%)	**12-15 points**
	53 (31.9%)

Mean score: S.D.: Min, Max	$\bar{x}$ = 10.7: S.D. = 1.9: Min: 5, Max: 15

The environment

No.	Questions	No	Little	Medium	Much	Most
15	Do you think your life is secure and safe each day?	1 (0.6)	6 (3.6)	41 (24.7)	94 (56.6)	24 (14.5)
16	To what extent are you happy with the condition of your house where you live?	0	5 (3.0)	27 (16.3)	91 (54.8)	43 (25.9)
17	How much money do you have for your necessary expenses?	6 (3.6)	13 (7.8)	76 (45.8)	63 (38.0)	8 (4.8)
18	To what extent are you happy with your ability to use the public health services as you need?	2 (1.2)	7 (4.2)	46 (27.7)	88 (53.0)	23 (13.9)
19	How much do you learn about the news and information you need each day?	1 (0.6)	7 (4.2)	54 (32.5)	85 (51.2)	19 (11.5)
20	How much chance do you have to release stress?	3 (1.8)	20 (12.1)	64 (38.6)	70 (42.2)	9 (5.4)
21	How much does your environment support your health?	2 (1.2)	5 (3.0)	54 (32.5)	84 (50.6)	21 (12.7)

No.	Questions	No	Little	Medium	Much	Most
		N (%)	N (%)	N (%)	N (%)	N (%)
22	To what extent are you happy with your transport (going places)?	2 (1.2)	12 (7.2)	50 (30.1)	87 (52.4)	15 (9.0)
Low level of quality of life (lowest-highest scores) Number (%)		**8-18 points** 1 (0.6%)				
Medium level of quality of life (lowest-highest scores) Number (%)		**19-29 points** 75 (45.2%)				
Good level of quality of life (lowest-highest scores) Number (%)		**30-40 points** 90 (54.2%)				
Mean score: S.D.: Min, Max		$\bar{x}$ = 29.3: S.D. = 4.0: Min: 17, Max: 40				
Total quality of life						
Medium level of quality of life (lowest-highest scores) Number (%)		**61-95 points** 97 (58.4%)				
Good level of quality of life (lowest-highest scores) Number (%)		**96-130 points** 69 (41.6%)				
Mean score: S.D.: Min, Max		$\bar{x}$ = 92.5: S.D. = 10.1: Min: 62, Max: 118				

4. DISCUSSION

Stroke patient caregivers reported a medium level of quality of life overall and also in each of the four domains of the quality of life questionnaire. There are a number of factors which could explain this. For example, most caregivers were between 30 and 49 years. People in this age group are mature, mentally strong and, as the result of their past experiences, they are ready to adjust themselves to face and solve problems as they arise. They also have a wide social network and are able to seek help or support from different organizations or individuals. Mothers in this age group are especially good at taking care of themselves and caring for others, such as their elderly parents and young children. McCullagh *et al.* (2005) found that the quality of life of caregivers declines when they become older. Tellier *et al.* (2011) explained that the elderly do not have any formal occupation and can therefore spend time with the patients throughout the day. This reduces their personal life and social relationships with others. In contrast, middle-aged adults can still work and are able to carry out their daily personal activities.

Most caregivers in this study were females. The social and cultural expectations of their role require them to be responsible for household work and family members. This is consistent with the studies by McCullagh *et al.* (2005) and Akosile *et al.* (2011) which showed that in many cultures stroke patient caregivers are women who also take care of their family members and are responsible for household chores. This is different from men whose role is to work so that they can earn money for household members.

Patients who are disabled following a stroke need assistance in their daily routines as well as psychological support from family members, especially from their loved ones or their spouses, children, and close relatives. Most of the time, the caregivers are the daughters who live in the same house. This means that the caregivers provide care with love and are willing to take care of the patients in all aspects. At the same time, these caregivers do not feel any burden taking care of the one they love (Shuaytong, 2005). On the other hand, Lee *et al.* (2010) compared caregiving stress among caregivers who were spouses, children, or daughters-in-law. Spouses were the most mentally affected and stressed, followed by daughters-in-law, sons and then daughters. Since family structure is now changing from extended to single families, the duty to take care of the patient will belong to their spouse. No relatives or other persons remain to provide support, assistance or advice. As caregivers, spouses do not have personal time and lack freedom.

Although most caregivers had no experience in taking care of patients and had not been trained in this respect, when we considered the patients' conditions, we found they were able to help themselves. They were able to eat, speak, breathe normally, and defecate normally. Hence, caregivers were not really affected by having to take care of the stroke patients. This relates to studies by McPherson *et al.* (2011) and Doan *et al.* (2012), which indicated that if stroke patients become disabled and cannot help themselves in their daily life or movement, then caregivers will have a low quality of life especially in terms of mental health. It was also found that elderly caregivers giving care to elderly patients had a bad quality of life, especially in terms of physical conditions.

In terms of caring, if a caregiver has to spend more time to care for the patient each day, the caregiver will feel the burden and hence less quality of life (Morimoto *et al.*, 2003). This is particularly true at the beginning when the disease first develops; this is a time when the caregiver must provide total care involving general care and rehabilitation as well as performing household chores and daily personal chores, and taking care of other family members.

In terms of perception of their own quality of life, it was found that stroke patient caregivers believed that they had moderately good quality of life, especially in terms of their mental and physical health. Most of the caregivers under this study were healthy and had no mental or physical health problems. Khalid and Kausar (2008) found that physical aspect of caregivers does not correlate with the quality of life since sampled caregivers had no serious health problem. Regarding social relationships, we found that these had little association with the quality of life. The caregivers were well supported by friends and families. However, their social life was affected by their caring duties because of the time spent on the patients. Caregivers have to withdraw from their social surroundings, and this can make them sad and dispirited.

5. CONCLUSION

Most of the 166 caregivers of stroke patients under study were females (79.5%) and their average age was 49.3 years. A third (33.7%) had received a bachelor or higher degree, 45.8% received 10,001 baht/month or more, and 30.1% had been caring for the patient for less than 6 months. Most of the caregivers (93.8%) were relatives (children/daughters-in-law/nieces/nephews/ grandchildren), and 26.1% were spouses. The majority (77.7%) had no previous experience in the provision of care to stroke patients. Most of the patients (91.6%) were diagnosed with cerebral infarction, 31.9% were found to have symptoms but no significant disability, and 41.6% were able to clean and help themselves. Stroke patient caregivers rated their own quality of life at an average of 92.5 points on the QOL-BREF-THAI. This indicated that their general perception of quality of life was at a medium level. When considering each aspect of their quality of life, it was found that stroke patient caregivers perceived all domains of quality of life at a medium level.

6.RECOMMENDATIONS

1) Health professionals taking care of stroke patients should evaluate the quality of life of stroke patient caregivers in order to plan appropriate support for them according to their needs. This is to enhance the strength of family and community support for stroke patients, and to help the caregivers not feel that they are alone in confronting problems.

2) Health professionals should take an interest in assisting caregivers in different ways such as providing resource information which will be useful for themselves and the patients in caring for their mental and physical health. For instance, while patients should be taken care of at home, health professionals can assist when the family needs help or is unable to support the patients. This is especially true when a caregiver is alone at home with a stroke patient and cannot take the patient to the hospital.

3) Recommendations for further research:

3.1 Qualitative research studies should be conducted to obtain detailed information about wider dimensions of quality of life. The information can be used to support quantitative research.

3.2 In order to obtain clearer perspectives, the quality of life of caregivers with different family roles should be studied in the context of a changing economy and in the present social and cultural circumstances .

ACKNOWLEDGEMENTS

REFERENCES

Akosile OC, Okoye CE, Nwankwo JM, Akosile OC, Mbada EC, Quality of life and its correlates in caregivers of stroke survivors from a Nigerian population. **Qual Life Res** 2011; 20:1379–1384.

Department of Disease Control, Ministry of Health. Learning Set: Reducing risk and paralysis for risk group and medium-risk group**.** Bangkok, 2007.

Department of Mental Health, Ministry of Public Health, Thailand. WHOQOL-BREF-THAI. Available from: URL: http://www.dmh.go.th/test/whoqol/ [Cited 2011, April 5th].

Doan VQ, Brashear A, Gillard JP, Varon FS, Vandenburgh MA, Turkel CC, *et al.* Relationship Between Disability and Health-Related Quality of Life and Caregiver Burden in Patients with Upper Limb Poststroke Spasticity. **PM & R** 2012; 4: 4-10.

Foxall, Gaston-Johansson F. Burden and health outcome of family caregivers of hospitalized bone marrow transplant patient. **Journal of Advanced Nursing** 1996; **24**(5): 915-923.

Jullamate P, Thanatwanich Y. Stress and coping of caregivers of stroke patients. **Burapha University's Journal** 2001; 9(1): 32-46. [in Thai].

Khalid T, Kausar R. Depression and quality of life among caregivers of people affected by stroke. **Asia Pacific Disability Rehabilitation Journal** [online] 2008 [cited 2012 July 20]. Available from: http://www.dinf.ne.jp/doc/english/asia/resource/apdrj/vol19_2/brief-reports2.html

Lee J, Yoo MS, Jung D, Caregiving appraisal of family caregivers for older stroke patients in Korea. **International Nursing Review** 2010; 57: 107–112.

McCullagh E, Brigstocke G, Donaldson N, Kalra L. Determinants of caregiving burden and quality of life in caregivers of stroke patients. **Stroke** 2005; 36: 2181-2186.

McPherson JC, Wilson GK, Chyurlia L, Leclerc C. The caregiving relationship and quality of life among partners of stroke survivors: A cross-sectional study. **Health and Quality of Life Outcomes** 2011; 9: 29.

Medical Record and Statistics Section, Srinagarind Hospital. **Patients statistics at Srinagarind Hospital, Faculty of Medicine, Khon Kaen University**, Khon Kaen 2011: 13.

Morimoto T, Schreiner SA, Asano H. Caregiver burden and health-related quality of life among Japanese stroke caregivers. **Age and Ageing** 2003; 32: 218 – 223.

Natechan S. **Influencing of caregiver role strain, worry from caring, and caregivers factors on health status of caregivers of stroke patients** [Master Thesis in Adult Nursing]. Bangkok: The Graduate School, Mahidol Univerisity; 2002. [in Thai].

Poungvarin N. Epidemiology of stroke. In : Poungvarin N. Stroke-2nd edition. Bangkok: Ruen Kaew Publisher, 2001:11-36.

Sansee R, Limtragool P, Tamdee D. Caregivers' needs in providing home care for persons with Cerebrovascular Disease. **Nursing journal Chiang Mai University** 2008; 35(1): 79-86. [in Thai].

Seesuay F, Puangsoy W. Quality of life of caregivers for patients with stroke at King Chulalongkorn Memorial Hospital. **Chula Med J** 2008; 52 Suppl (Jul): S15-S28. [in Thai].

Singhpoo K, Charerntanyarak L, Ngamroop R, et al. Factors related to quality of life of stroke survivors. **Journal of Stroke & Cerebrovascular Diseases**, 2012**;** 21 (8): 776-781.

Shuaytong P. **Family with child quality of life.** Bangkok: Department of Family Health, Faculty of Public Health, Mahidol University; 2005. [in Thai].

Tellier M, Rochette A, Lefebvre H. Impact of mild stroke on the quality of life of spouses. **International Journal of Rehabilitation Research** 2011; 34:209–214.

Wallhagan, MI. Caregiving Demands: Their difficulty and effects on the Well-Being of Elderly Caregivers. **Scholarly Inquiry for nursing Practice** 1992; **6**(2): 111-127.

Author' biography with Photo

Dr.Lertchai Charerntanyarak is an associate professor in department of Epidemiology, faculty of Public Health at Khon Kaen University, Thailand. He took B.Sc, M.Sc. in Environmental Science from Khon Kaen and Kasetsart University, Thailand and D.Sc in Environmental Health Science from University of Innsbruck, Austria. He has worked at faculty of Public Health, Khon Kaen Univesity, Thailand since 1982, he interested in environmental health science, environmental epidemiology.