dan masalah pasca strok serta
ah perempuan (58.5%), berusia
mpunyai sejarah tekanan darah
ia (22.0%) dan fibrilasi atrium
gaya hidup kurang sihat seperti
8.3%). Kebanyakan pesakit diperskripsi pelbagai ubatan
erluan pendidikan yang paling ingin diketahui oleh pesakit
ntuan kecemasan (85.4%), komplikasi (85.4%) dan kejadian
ingin diketahui ialah kemungkinan sembuh melalui ubatan
3.0%), pengambilan buah-buahan dan sayur-sayuran selepas
asas jenis keperluan pendidikan dalam kalangan pesakit strok.
ra rutin untuk pencegahan awal dan pencegahan strok berulang

lidikan pesakit; Hospital USM

ABSTRACT

ducational needs among stroke patients admitted to Hospital Universiti
nveniently recruited from Medical and Surgical Ward between September
semi-guided administered questionnaires and from the medical reports.
ete the lifestyle history and educational needs on stroke with researcher's
needs consisted of five themes including general information on stroke,
oke, rehabilitation and post-stroke problems and post-stroke diet management.
atients were female (58.5%), between 56 to 65 years old (39.0%) and diagnosed
ad history of hypertension (85.4%), diabetes (46.3%), hyperlipidemia (29.3%),
l fibrillation (2.4%). Eleven of them (26.9%) were ex-smokers and many practice
ercise (80.5%) and prefer fried foods (68.3%). Most patients were on multiple
eir medical conditions. Educational needs rated highest need to know among stroke
, first aid management (85.4%), complications (85.4%) and recurrence (85.4%) of
were about possibility of cure with drug (92.7%), range of motion exercise (82.9%),
table consumption (78.0%) after stroke. Findings from this study provide a baseline
l needs among stroke patients. More patient educational intervention on primary and
ld be structured in hospital and community settings in the future.

needs; stroke; patient education; Hospital USM

INTRODUCTION

Globally, stroke ranks the third common cause of mortality and disability in healthcare setting. In Malaysia, stroke is the top five causes of mortality with the rate at 8.43/100,000 population (Ministry of Health 2012; Tharakan 2012). Malaysian life expectancy had risen to 71.7 years for men and 76.5 years for women in 2007 (Ministry of Health 2007). It is expected that ageing population among Malaysians of 60 years and above will increase to 9.8% in 2020 from 5.7% in 2000 (Mafauzy 2000). Therefore, there is a need to highlight stroke prevention measures at either primary or secondary prevention via stroke education since it occurs commonly among adults and elderly (Hoffmann & Cochrane 2009; Che Rabiaah 2010; Nazifah et al. 2012).

Educational intervention must be emphasized by each healthcare provider (HCP) to create awareness among the public and specifically the stroke patients and their caregivers. Stroke education is compulsory to be delivered among multi-disciplinary HCP in routine to enhance stroke patients understanding of stroke occurrence and its prevention (Nazifah et al. 2012). Knowledge impart will further facilitates modifying the health risk behaviours which indirectly improve the recovery process of the stroke patients (Holzemer et al. 2011).

Previous findings highlighted that many stroke patients did not understand about sign and symptoms of stroke and risk factors management (Choi-Kwon et al. 2005; Ellis, et al. 2009; Jones et al. 2010; Marx et al. 2010). Common problems were information delivered to the patients in a complicated manner which impacts the message delivered. Therefore, proper educational needs assessment on stroke must be initiated as early as possible once patient is stable.

To date, limited study had been done in Malaysia on the educational needs among stroke patients during hospitalization. Previous study done by Nazifah et al. (2012) did mention stroke education was delivered to stroke patients in their study but thorough educational process was not specified. Meanwhile, a qualitative study done by Che Rabiaah (2010) did focus on the educational needs of the home-based stroke patients and the outcome highlighted that stroke patients and their family members were not satisfied with education received during hospitalization. Therefore, it is important to gather basic information about the educational needs among stroke patients to provide further research initiatives.

MATERIALS AND METHOD

The present study was a cross-sectional survey. Source population was stroke patients admitted to Hospital Universiti Sains Malaysia (HUSM) between September to December 2012. Patients selected were diagnosed as stroke and confirmed by computed tomography scan (CT Scan) results, cognitive status at least more than 22 using Mini Mental Status Examination (MMSE) and living in Kelantan. Patients were excluded from study if diagnosed with bilateral stroke, recurrent stroke, having other neurological disorder, altered consciousness, global aphasia or depressed. Sample size for actual study was calculated using single proportion were 178 stroke patients. However, for the purpose of preliminary findings, this study had recruited more than 30 stroke patients which was an acceptable rate.

There were 47 stroke patients recruited from Medical and Surgical Ward. Respondents were selected conveniently using non-probability method. Data were obtained using semi-guided administered questionnaires and medical reports. The questionnaires were consisted of three parts: Part 1 on socio-demography; Part 2 on medical and lifestyle history information and Part 3 on educational needs on stroke. Instrument in Part 3 consisted of five themes with 48 items about stroke general information, risk factor management, treatments of stroke (medical, surgical, traditional medicine), rehabilitation and post-stroke problems and post-stroke diet management. All five domains were rated using 5-point Likert scale ranges from the highest need to know (5) and to the lowest need to know (1).

The educational needs instrument in Part 3 was adopted from a study done by Choi Kwon et al. (2005) had been translated into Malay language using simple and direct vocabulary. The translations were examined thoroughly for several times to ensure the adequacy of wording and proper meaning. Back to back translation was carried out by the experts from stroke field. Both translated versions and the original English version were compared to each other to detect the presence of distinct differences. Later, translated Malay version of instrument was sent to Pusat Bahasa Universiti Sains Malaysia (USM) to ensure the items were suitable to be used among general public population.

Later, the instrument had undergone few processes of validation and reliability testing. Content validity, face validity and construct validity had been done by 33 multidisciplinary experts in stroke. Meanwhile for reliability testing, internal consistency was carried out and the Cronbach's Alpha obtained was $r^2 = 0.91$ which shows that the instrument has good reliability. The psychometric properties of the tool were explained further in a different publication.

Prior to data collection, detail explanations on the study purpose were given to stroke patients and signed consent form obtained. Questionnaires were administered to stroke patients and adequate time was given to answer it. Throughout the completion of questionnaires, researcher was present along to assist the respondents with unclear questions. Data obtained were analysed using SPSS 20.0 descriptively. Ethical clearance was obtained from HUSM Human Ethical Committee prior to study.

RESULTS

Initially there were 47 stroke patients recruited. However, few questionnaires were incomplete (n = 6) due to more

than five items were unanswered by stroke patients. Thus, only complete data obtained from 41 stroke patients were analysed (Table 1). Mean age of the stroke patients were 58.76 years old with majority falls between 56 to 65 years old (39.0%). Most of stroke patients recruited were female (58.5%), Malays (100%); and were married (82.9%). Equal percentage (29.3%) of stroke patients had not schooling and finished secondary school. They were self-employed (36.6%) with median monthly income salary RM800 range from RM300 to RM4200.

Table 2 explained the medical and lifestyle history of the stroke patients. Majority of the stroke patients were diagnosed ischemic stroke (68.3%). Prior to stroke, patients had history of hypertension (85.4%), diabetes (46.3%), hyperlipidemia (29.3%), ischemic heart disease (22.0%) and atrial fibrillation (2.4%). Mostly were diagnosed with multiple morbidities (51.2%) commonly hypertension (HTN), diabetes followed by hyperlipidemia (HPL). Only one patient had no previous medical history prior to stroke (2.4%).

TABLE 1. Socio-demographic characteristics of the stroke patients (n = 41)

Characteristics	Stroke patients		
	Freq (%)	Mean (SD)	Median (IQR)
Age (years)		58.76 ± 10.89	
Age (categorical)			
< 35	1 (2.4)		
35-45	3 (7.3)		
46-55	11 (26.8)		
56-65	16 (39.0)		
> 65	10 (24.4)		
Gender			
Male	17 (41.5)		
Female	24 (58.5)		
Race			
Malay	41 (100.0)		
Marital status			
Single	2 (4.9)		
Married	34 (82.9)		
Divorce	1 (2.4)		
Widow/Widower	4 (9.8)		
Educational status			
Not schooling	12 (29.3)		
Primary	10 (24.4)		
Secondary	12 (29.3)		
College/University	7 (17.1)		
Working status			
Not working	3 (7.3)		
Self-employed	15 (36.6)		
Government sector	14 (34.1)		
Private sector	3 (7.3)		
Housewife	6 (14.6)		
Monthly income status (RM amount)			800 (1500)
Monthly income status (RM amount)			
< RM 400	3 (7.3)		
RM 400-699	8 (19.5)		
RM 700-999	11 (26.8)		
RM 1000-1999	6 (14.6)		
RM 2000-2999	5 (12.2)		
RM 3000-3999	5 (12.2)		
RM 4000-4999	3 (7.3)		

TABLE 2. Medical and lifestyle history of stroke patients (n=41)

Characteristics	Freq (%)
Types of stroke	
Ischemic	28 (68.3)
Haemorrhagic	13 (31.7)
Medical history	
Hypertension (HTN)	
Yes	35 (85.4)
No	6 (14.6)
Diabetes	
Yes	19 (46.3)
No	22 (53.7)
Hyperlipidemia (HPL)	
Yes	12 (29.3)
No	29 (70.7)
Ischemic heart disease (IHD)	
Yes	9 (22.0)
No	32 (78.0)
Atrial Fibrillation (AF)	
Yes	1 (2.4)
No	40 (97.6)
Medical morbidity	
No morbidity	1 (2.4)
Single morbidity (1 medical history prior to stroke)	19 (46.3)
Multiple morbidity (more than 2 medical history prior to stroke)	21 (51.2)
Medication	
Single therapy (1 group of drug)	3 (7.3)
Multiple therapy (multiple group of drug)	38 (92.7)
Smoking status (for the past 5 years)	
Yes	11 (26.9)
No	30 (73.2)
Alcohol intake/day	
No	41 (100.0)
Exercise/physical activity (at least 3 times/week for 20 minutes)	
Yes	8 (19.5)
No	33 (80.5)
Daily cooking methods choice	
Boil	13 (31.7)
Fry	28 (68.3)
Daily intake of fruits and vegetables (at least 3 servings/day)	
Yes	27 (65.9)
No	14 (34.1)

Stroke patients were prescribed with multiple pharmacology therapy (92.7%) to treat their medical conditions after stroke attack. Common medications prescribed were anti-platelet, anti-coagulant, anti-hypertensive and lipid lowering agent for secondary stroke prevention. Oral hypoglycemic agent (OHA), insulin or anti-coagulant were prescribed if stroke patients having diabetes, atrial fibrillation (AF) or as prophylaxis for deep vein thrombosis (DVT). Regards to lifestyle history, only 11 (26.9%) patients admitted they were smokers past five years prior to stroke. All of the patients did not take alcohol (100.0%). Only few stroke patients perform exercise in routine (19.5%) and majority prefer fried food (68.3%).

Table 3 refers to the educational needs pertaining to stroke from the perspective of stroke patients. The first theme describes the education needs on general information about stroke. Most of the stroke patients rated highest need to know on prevention of stroke (92.7%) and cause of stroke (87.8%). Least attention was rated by stroke patients on the possibility of inheritance (56.1%). The second theme addressed education needs on the risk factor management of stroke. All listed risk factors were rated highest need to know except drinking alcohol (43.9%).

The third theme listed the educational needs on treatment of stroke from medicine, surgery and traditional medicine aspects. Majority of the patients had rated the

TABLE 3. Educational needs pertaining to stroke among stroke patients (n = 41)

Educational needs	Freq (%)				
	The highest need to know (5)	Need to know (4)	Not sure (3)	Somehow need to know (2)	The lowest need to know (1)
A. GENERAL INFORMATION ON STROKE					
1. Structure of the brain	30 (73.2)	8 (19.5)	3 (7.3)	-	-
2. Vascular structure in the brain	30 (73.2)	8 (19.5)	3 (7.3)	-	-
3. Diagnosis of stroke	34 (82.9)	6 (14.6)	-	1 (2.4)	-
4. Cause of stroke	36 (87.8)	4 (9.8)	-	-	1 (2.4)
5. Classification of stroke	32 (78.0)	9 (22.0)	-	-	-
6. Symptoms of stroke	32 (78.0)	7 (17.1)	2 (4.9)	-	-
7. Possibility of inheritance	23 (56.1)	13 (31.7)	4 (9.8)	1 (2.4)	-
8. First aid management of stroke	35 (85.4)	6 (14.6)	-	-	-
9. Sequel of stroke	31 (75.6)	10 (24.4)	-	-	-
10. Complications of stroke	35 (85.4)	5 (12.2)	1 (2.4)	-	-
11. Recurrence of stroke	35 (85.4)	5 (12.2)	1 (2.4)	-	-
12. Prevention of stroke	38 (92.7)	3 (7.3)	-	-	-
B. RISK FACTOR MANAGEMENT					
1. Hypertension	32 (78.0)	8 (19.5)	1 (2.4)	-	-
2. Heart disease	30 (73.2)	8 (19.5)	2 (4.9)	-	1 (2.4)
3. Diabetes	25 (61.0)	13 (31.7)	3 (7.3)	-	-
4. Smoking	25 (61.0)	10 (24.4)	5 (12.2)	-	1 (2.4)
5. Drinking alcohol	18 (43.9)	13 (31.7)	5 (12.2)	-	5 (12.2)
6. Hypercholesterolemia	34 (82.9)	6 (14.6)	1 (2.4)	-	-
7. Obesity	28 (68.3)	7 (17.1)	4 (9.8)	2 (4.9)	-
8. Exercise	28 (68.3)	13 (31.7)	-	-	-
9. Stress	30 (73.2)	10 (24.4)	-	-	1 (2.4)
C. TREATMENT OF STROKE					
i. Treatment with medicine					
1. Drugs used to treat stroke	37 (90.2)	4 (9.8)	-	-	-
2. Side-effects of drugs	34 (82.9)	5 (12.2)	1 (2.4)	-	1 (2.4)
3. Possibility of cure with drug treatment	38 (92.7)	2 (4.9)	-	1 (2.4)	-
4. Dosage of drugs	37 (90.2)	2 (4.9)	1 (2.4)	1 (2.4)	-
5. Reason for regular administration	35 (85.4)	6 (14.6)	-	-	-
6. Duration of drug administration	36 (87.8)	5 (12.2)	-	-	-

continued

Continued

Educational needs	Freq (%)				
	The highest need to know (5)	Need to know (4)	Not sure (3)	Somehow need to know (2)	The lowest need to know (1)
ii. Treatment with surgery					
1. Eligibility for surgery	25 (61.0)	13 (31.7)	3 (7.3)	-	-
2. Diagnostic tests for surgery	28 (68.3)	10 (24.4)	3 (7.3)	-	-
3. Cost of surgery	17 (41.5)	16 (39.0)	6 (14.6)	1 (2.4)	1 (2.4)
4. Possibility of cure	28 (68.3)	7 (17.1)	6 (14.6)	-	-
5. Complication	27 (65.9)	7 (17.1)	7 (17.1)	-	-
iii. Treatment with traditional medicine					
1. Difference between traditional and western medicine	21 (51.2)	15 (36.6)	5 (12.2)	-	-
2. Herbal medicine	13 (31.7)	16 (39.0)	10 (24.4)	-	2 (4.9)
3. Acupuncture	12 (29.3)	16 (39.0)	12 (29.3)	-	1 (2.4)
D. REHABILITATION AND POST-STROKE PROBLEMS					
1. Rehabilitation in general	32 (78.0)	7 (17.1)	1 (2.4)	1 (2.4)	-
2. Management of decubitus ulcer	28 (68.3)	8 (19.5)	4 (9.8)	1 (2.4)	-
3. Range of motion exercise	34 (82.9)	5 (12.2)	2 (4.9)	-	-
4. Management of aphasia	32 (78.0)	7 (17.1)	2 (4.9)	-	-
5. Post-stroke depression	33 (80.5)	6 (14.6)	2 (4.9)	-	-
6. Post-stroke sexual dysfunction	23 (56.1)	11 (26.8)	4 (9.8)	1 (2.4)	2 (4.9)
E. POST-STROKE DIET MANAGEMENT					
1. Meat intake	29 (70.7)	4 (9.8)	2 (4.9)	-	6 (14.6)
2. Consumption of fat containing food	29 (70.7)	3 (7.3)	-	1 (2.4)	8 (19.5)
3. Fish intake	32 (78.0)	7 (17.1)	2 (4.9)	-	-
4. Fruit and vegetable consumption	32 (78.0)	8 (19.5)	1 (2.4)	-	-
5. Consumption of bean products	23 (56.1)	7 (17.1)	4 (9.8)	3 (7.3)	4 (9.8)
6. Consumption of dairy product	29 (70.7)	7 (17.1)	3 (7.3)	1 (2.4)	1 (2.4)
7. Sodium intake	27 (65.9)	3 (7.3)	2 (4.9)	4 (9.8)	5 (12.2)

highest need to know on the possibility of cure with drug treatment (82.9%) on top of other listed treatments. The fourth theme shows results on rehabilitation and post-stroke problems. Most of the stroke patients had rated the highest need to know for all listed post-stroke problems except post-stroke sexual dysfunction (56.1%). The last theme described the post-stroke diet management. Majority of the stroke patients rated the highest need to know on most of listed food items except consumption of bean product (56.1%).

DISCUSSION

In the present study, we would like to determine the types of educational needs pertaining to stroke among stroke patients. Most of the stroke patients in this study were between 55 to 65 years old. Similar study done by Nazifah et al. (2012) also found that the highest incidence of stroke occurs among those between 55 to 64 years old. Stroke patients in this study were largely female and from Malay ethnic during the period of recruitment.

Since this study was a preliminary findings, more response were answered completely by the female patient rather than male. Furthermore, majority population in Kelantan were Malays as to compare with study done by Nazifah et al. (2012) which had involved more Chinese and Indian population from Seberang Jaya and Terengganu.

Findings indicate that stroke patients' income was less than RM1000 per month mostly from salary and self-employed. Equal number of stroke patients had finished secondary school and not schooling. Previous study highlighted awareness and knowledge level were associated with socio-economic status and education level in seeking for health related information (Nur' Asyura Adznam et al. 2009). However, different information may obtain when study is conducted in a larger scale.

Ischemic stroke accounted for most common type of stroke than haemorrhagic stroke in this study. Further results indicated majority stroke patients had multi

morbidities prior to stroke which were congruent with local study done previously (Hamidon & Raymond 2003; Tan et al. 2010; Nazifah et al. 2012). A regression analysis should be carried out in a larger sample to confirm the significant relationship between multi morbidities and types of stroke.

Results for educational needs on stroke in this study highlighted stroke patients were more interested to know about prevention, causes and risk factors of stroke. Besides that, pharmacology treatment, exercise after stroke and post-stroke diet management were also an area of interest need to be known by the stroke patients. A systematic review had supported that stroke patients and caregivers are usually concerned about the knowledge on the clinical aspects of stroke prevention, treatment and functional recovery (Hafsteinsdottir et al. 2010).

In this study, stroke patients relatively had low interest in decubitus ulcer management and post-stroke sexual dysfunction. These findings were similar with study done by Choi Kwon et al. (2005). Stroke patients were more interested to know further on fish intake, fruit and vegetable rather than sodium intake. These results suggested further research on dietary management after stroke is required.

Overall, findings highlighted the importance of stroke education need assessment to be carried out among hospitalized stroke patients. Once information obtained, a proper educational planning and intervention can be carried out to increase the level of knowledge on stroke. Nevertheless, this study has several limitations need to be highlighted. First limitation is this study only involved in a tertiary, teaching hospitals thus it did not reflect the overall stroke patients population in Kelantan.

Further limitation of the study is the difference of medical history background might impact the degree of educational needs. In this study only one stroke patient had no previous medical disease prior to stroke. There is still an ambiguity whether single morbidity or multiple morbidities had impact on the stroke education needs. Thus further study will be carried out to determine this association.

CONCLUSION

This study provides baseline information on the educational needs among stroke patients admitted to Hospital Universiti Sains Malaysia. Although this study did not represent the stroke population in Kelantan, the findings suggest the need for more effective patient education on causes and prevention of stroke, its risk factors, pharmacology treatment, exercise during rehabilitation and dietary intake after stroke. Adequate educational need assessment must be gathered to prepare stroke patient prior to discharge to prevent secondary stroke attack. Further replication of this study in a larger sample should be carried out to confirm the significant relationship between socio-demography, morbidities and educational needs on stroke.

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