นิพนธ์ต้นฉบับ

Nursing quality care indicators for elderly patients who have suffered stroke

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Abstract:

This study aimed to identify nursing quality care indicators for elderly patients who have suffered from stroke. The study consisted of two phases. In the beginning, focus group and semi-structured interview were used to identify the perception of nursing quality care of the elderly patients suffering from stroke, their families, the physicians, and the nurses. The seventy-five care indicators of six nursing quality care aspects were emerged. Subsequently three-round Delphi study were used to find the 36 experts consensus regarding the important, the feasibility, and the face validity of the care indicators. For the result of the Delphi study, the number of pre-determined care indicators in each round was 75, 45 and 27. After round three, the twenty-five quality care indicators under six quality care aspects emerged. They were managing patient unit (5 indicators), nursing staff qualification (2 indicators), nursing care activity, (5 indicators), encouraging family participation in patient care (3 indicators), planning for discharge and promoting continuing care (4 indicators), and nursing care outcome (6 indicators). Nurses and nurse administrators could incorporate these results to improve the quality of nursing care for elderly patients who have suffered stroke.

Key words: *nursing quality care indicator, stroke*

บทคัดย่อ:

วัตถุประสงค์เพื่อกำหนดตัวชี้วัดคุณภาพการพยาบาลผู้สูงอายุโรคหลอดเลือดสมองพิการที่รับไว้ในโรงพยาบาล การวิจัยประกอบด้วย 2 ขั้นตอน เริ่มจากการสัมภาษณ์แบบกลุ่มและสัมภาษณ์แบบกึ่งมีโครงสร้าง เพื่อศึกษาการรับรู้เกี่ยวกับคุณภาพการพยาบาลของผู้สูงอายุโรคหลอดเลือดสมองและครอบครัว พยาบาลผู้ดูแลผู้ป่วยพยาบาลและแพทย์ผู้เชี่ยวชาญในการดูแลผู้สูงอายุโรคหลอดเลือดสมอง หลังจากนั้นนำผลที่ได้ คือ ตัวชี้วัดคุณภาพการพยาบาล 75 ตัว ภายใต้ 6 มิติคุณภาพ ไปหาข้อสรุปที่เป็นเอกฉันท์จากผู้เชี่ยวชาญ 36 คน โดยวิธีการ Delphi ผลการศึกษารอบที่สามได้ตัวชี้วัดคุณภาพการพยาบาลผู้สูงอายุโรคหลอดเลือดสมอง 25 ตัว ภายใต้ 6 มิติคุณภาพ คือ การจัดการหอผู้ป่วย (5 ตัวชี้วัด), คุณสมบัติพยาบาล (3 ตัวชี้วัด), กิจกรรมการพยาบาล (5 ตัวชี้วัด), การส่งเสริมการมีส่วนร่วมของครอบครัวในการดูแลผู้ป่วย (3 ตัวชี้วัด), การวางแผนจำหน่ายและการดูแลต่อเนื่อง (4 ตัวชี้วัด), และผลลัพธ์การพยาบาล (6 ตัวชี้วัด) ตัวชี้วัดเหล่านี้พยาบาลและผู้บริหารพยาบาลสามารถนำไปใช้ในการพัฒนาคุณภาพการพยาบาลผู้สูงอายุโรคหลอดเลือดสมองพิการ

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Introduction

Stroke is currently a major health problem; it places a massive psycho-social and economic burden on patients, families and healthcare systems. Every year the costs of treatment dramatically increase. In Thailand, the number of elderly people suffering from stroke is going up radically. The incidence rate of stroke has been reported to be 29.2 per 100,000 people and the mortality rate as resulting from strokes tends to increase with cumulative age. The steady growth in the older population means that more people are at risk and that there is an increase in patients who have suffered strokes.[1-2]

In the elderly, the common type of stroke is cerebral infarction. Most patients suffer from hemiparesis, fluctuating consciousness, confusion, and cognitive and neurological impairments. Some endure numerous complications through hospitalization, which may cause death or delay successful

rehabilitation.[3-6] Addtionally, previous studies have suggested that the needs of elderly patients are unique and different from those of other age groups. Caring for elderly patients must therefore shift away from their being merely adults with a medical diagnosis to catering to their unique and special needs.[7]

Nowadays, acute intervention therapies and good nursing care are accepted as the main approaches to improve survival, minimize impairment, encourage participation in the recovery process, and prevent strokes recurring in elderly patients.[2, 8] Therefore, it is necessary to scrutinize the care for this group. Even though the paradigm for measurement of the quality of stroke care and stroke outcomes has been widely investigated,[2, 9-10] the interest in measuring the quality of nursing care in stroke patients is uncommon in every group.[11] Similarly, in Thailand, research review between the years 1984-2000 found that the study of quality of nursing care for stroke patients, especially in the elderly group, is limited.[12]

Nursing is intricately involved in caring for elderly patients who have suffered stroke. Nurses and nurse administrators are in a position to ensure that the care patients receive is of a high quality and appropriate to their needs and meets the hospital requirements.[13-14] To monitor, ensure and quantify the desired and undesired features of nursing care, quality care indicators are essential tools.[13, 15]

Nursing quality care indicators are quantitative measures; they are the necessary tools that nurses and nurse administrators can use to assess, monitor, and evaluate the quality of patient care and support services.[16-18] Using quality care indicators requires nurses and nurse administrators to make out the specific care indicators they need, develop strategies for cost-effectively collecting information, and adopt approaches for using and interpreting the data.[18] However, the quality of care can be viewed differently by different people.[19] Therefore, before identifying quality indicators for elderly patients who have had a stroke, nurses need to know about the aspects of quality care from a stakeholder's perspective. Therefore, this study was intended to establish viewpoints on the quality care aspect, and then identify a set of nursing quality indicators for elderly patients who have suffered a stroke.

Materials and methods

To identify nursing quality care indicators for elderly patients who have suffered stroke, a combination of semi-structured interview, focus group interview and Delphi technique was employed.

Phase 1: Semi-structured and focus group interview was used to identify the nursing quality care aspects. Three groups of participants were chosen by purposive sampling technique. They were 1) six non-surgical elderly patients who had suffered stroke and six family members were interviewed; the potential participants met the inclusion criteria that required them to be able to verbally communicate to provide data and to be available for interview. Six stroke patients who were aged over 60 and six of their family members took part, including four spouses and two daughters, 2) two physicians and two nurses who met the inclusion criteria relating to the experience with hospitalized elderly stroke care for at least five years were interviewed, and 3) twenty-two nurses who met the inclusion criteria relating to the experience in providing care for stroke patients in hospital setting for at least five years participated in four focus group interviews. The main questions that were used to ask the stakeholders' perception were the curent nursing care, the expected care, the significant nursing activity, and the good nurse and good care. Data were collected in the hospital setting and at the Prasart Neurological Institution over four months with audio-tape recording.

After the semi-structured and focus group interviews had taken place, the transcripts were transcribed vernantim. Subsequently, the content analysis method[20] was applied to discover the nursing quality care aspects. In order to ensure credibility and accuracy, three of the researcher's colleagues independently reviewed the codes and the themes. The results of this phase were used to constuct the Delphi questionaire in phase 2.

Phase 2: To obtain the experts' consensus regarding the nursing quality care indicators for elderly patients who have suffered stroke, the Delphi technique was used.

The Delphi technique is a means of extracting and combining the opinions of a group of experts. It has been described as a method for structuring a group for communicative processes. It is an iterative multi-stage process designed to combine the opinions of the experts, with the aim of achieving consensus of opinion, judgment or choice.[21-22] The Delphi technique consists of the systematic collection and combining of informed judgments from a potentially large group of experts on specific questions and issues, and has been used to deal with costs and time limitations.[22-24]

The panel of experts was selected by purposive sampling technique;[25] these included four neurologists, one gerontologist, one pharmacist, seventeen nurse instructors, eight head nurses and five medical nurses from various hospitals. They were divided into three areas of expertise: each twelve had expertise in stroke care, elderly care and quality care management. All met the inclusion criteria that were having experience in their area for at least five years.

Round one: the 36 experts were asked to indicate their level of agreement on two continuous, seven-item scales that rated the importance and the feasibility of the seventy-five pre-determined quality care indicators under six nursing quality care aspects as perceived by the stakeholders within the initial phase. Scores ranged from a score of 1 for the lowest to a score of 7 for the highest.

Round two: the respondents in round one became the experts in round two, so the number of experts in this round was 35 because one expert did not submit the round one questionnaire. The experts were asked to re-rate each care indicator in relation to the importance and feasibility by using the seven-item scale again. The round two questionaire consisted of forty-five care indicators of six quality care aspects, including care indicators suggested by the expert respondents in round one.

Round three: the respondents in round two once again became the experts in round three. The number of experts in this round was 33 because two had not send the previous questionnaire back. In this round the three types of feedback, the experts' own previous scores, the panel of experts' median scores and the interquartile range scores, were identified in each expert's questionnaire. In this round, the experts were asked to confirm their opinion of each indicator. If they persisted in opinions that differed from the other experts, they were asked to explain the reasons for this. However, they had the opportunity to change their opinion. The questionnaire of this round was made up of twenty-seven quality care indicators of six quality care aspects.

For each round questionnaire, the experts were given the chance to add new quality indicators and were encouraged to include comments at the end of every questionnaire. The criterion for adding more indicators in each round was based on the number of suggestions made by the experts. If more than 3 experts suggested the same indicator, it was then added.

The statistics of each quality care indicator, i.e. the mean, median, inter-quartile range and standard deviation were described. The experts' consensus on the rating of each care indicator was considered acceptable when over 50% of the experts scored both importance and feasibility of care indicator more than 5. In addition, any indicators having an interquartile range equal to or less than 1.5 meant the panel of experts agreed on that indicator.

To comply with ethical considerations, this study was approved by the Institutional Review Board of the Nursing Faculty of Prince of Songkla University and of the Prasart Neurological Institue, and the directors of Hat Yai Hospital and of Songkhla Hospital. The ethical issues were also taken into consideration throughout the whole process of the study. Confidentiality was guaranteed with the use of numerical coding for the data collected.

The mean age of the 36 Delphi experts was 48.6 years; 52.8% had working experience more than twenty years; and 86% held a masters' or doctoral degree. The number of experts, the response rate, the number of nursing quality aspects and the number of nursing quality indicators for elderly stroke patients in each round are presented in Table 1.

Results

Through content analysis, six nursing quality care aspects were identified, and thier definitions are shown in Table 2. Afterwards seventy-five care indicators emerged. They were managing patient unit (16 indicators), nursing staff qualification (11 indicators), nursing care activity (15 indi-

cators), encouraging family participation in patient care (6 indicators), planning for discharge and promoting continuing care (12 indicators), and nursing care outcome (14 indicators).

The results form Delphi can be displayed as follow:

Round one: There were 75 pre-determined quality care indicators in round one. After analysis of the round one data, the number of indicators that the experts agreed to by consensus was 45. Thirty of the pre-determined quality care indicators in round one did not achieve experts' consensus. In addition, three new quality care indicators were added, and four of the pre-determined indicators were reworded for use in round two. Thus, 45 quality care indicators were used as components of the six nursing quality care aspects in the round two questionnaires. The number of quality care indicators within each of the respective six nursing quality care aspects were managing patient unit (10 indicators); nursing staff qualification (7 indicators); nursing care activity (6 indicators); encouraging family participation in patient care (3 indicators); planning for discharge and continuing care (7 indicators); and nursing care outcome (9 indicators).

Round two: Twenty-seven nursing quality care indicators for hospitalized elderly stroke patients emerged from the round two of the Delphi study. On the other hand, eighteen nursing quality care indicators were rejected during this round. The care indicators accepted for each respective quality care aspect were managing patient unit (6 indicators); nursing staff qualification (3 indicators); nursing care activity (5 indicators); encouraging family participation in patient care (3 indicators); planning for discharge and continuing care (6 indicators); and nursing care outcome (6 indicators).

Round three: Twenty-five nursing quality care indicators achievd consensus, in terms of their importance, feasibility, and face validity, among the panel of experts. The care indicators accepted for each respective quality care aspect were managing patient unit (5 indicators), nursing staff qualification (2 indicators), nursing care activity, (5 indicators), encouraging family participation in patient care (3 indicators), planning for discharge and promoting continuing care (4 indicators), and nursing care outcome (6 indicators) (Table 3). A summary of the nursing quality care indicators for elderly patients who have suffered stroke in each round of Delphi is presented in Table 4.

Discussion

Most of the quality aspects and indicators that emerged in this study are congruent with several conceptions and frameworks. Most of them reflected the framework of quality care assessment model, which is composed of structure, process and outcome categories proposed by Donabedian.[26-27] For instance, managing patient unit aspect, nursing staff qualification, are similar to the structure category process. In Donabedian's model, the structure category was defined as the attributes of the setting in which care occurs. It includes features such as material resources, facilities, resources, equipment, and number and qualifications of staff.[25] In the issue of nursing staff qualification that composed of the competency and characteristic, are in line with previous studies that mentioned about the nurses' accurate knowledge, competency and role in stroke care.[28-29]

Table 1 Number of expert panelists, response rates, quality aspects, and pre-determined and revised indicators for each Delphi round

Issue	Round 1	Round 2	Round 3
Number of expert panelists	36	35	34
Response rates	97.2% (35)	97.1% (34)	85.3% (29)
Quality aspects	6	6	6
Pre-determined indicators	75	45	27
Revised indicators	45	27	25

Table 2 Quality care aspects and definitions

Quality care aspects	Definitions
Managing patient unit	- Nurses' performance in managing the patient unit in order to increase the quality of care provided by identifying necessary care and safety policies, allocating sufficient staff for each shift, creating quality improvement projects and guidelines for health education, organizing the sharing of knowledge about the environment, managing human resources and maintaining the equipment.
Nursing staff qualification	- Nurses demonstrate character and competency in caring for hospitalized elderly stroke patients, including their interactions with the patients and their families. This takes place by communicating, paying respect, and providing information, and includes the reaction of the patients to them.
Nursing care activity	- Nurses' provide care to hospitalized elderly stroke patients through maintaining life, preventing complications, promoting recovery, and responding to their physical, psychosocial and spiritual needs.
Encouraging family participation in patient care	- Nurses' activities in motivating elderly stroke patients' family's involvement in their care in the hospital, as well as identifying policies for allowing families and caregivers to spend the night with their loved one in an appropriate area.
Planning for discharge and continuing care	- Nurses' activities in planning for the discharge of hospitalized elderly stroke patients to their home/community, as well as planning for continuing care by creating guidelines regarding their needs, evaluating the family's readiness and concerns about caring for their loved one, providing self-care and patient care education, and utilizing a referral system between the hospital and community health care facilities.
Nursing care outcome	- The expected results of the elderly stroke patients' physical, psychosocial and spiritual care provided during hospitalization.

Table 3 Results of Delphi round three

Indicator	Validity level	Importance					Feasibility				
		MD	M	SD	IQR	Level	MD	M	SD	IQR	Level
Managing patient unit aspect											
1. Nursing practice guidelines for caring for elderly stroke patients	Highest	7	6.52	0.68	0.25	Greatest	7	6.84	0.92	1.0	Greatest
2. Health education guidelines for elderly stroke patients, families and caregivers	Highest	7	6.68	0.96	0.50	Greatest	6	6.08	1.02	1.0	Greatest
3. Activity for knowledge sharing among nursing staff in the topic relating to elderly stroke patients' care	High	6	6.32	0.62	0.75	Greatest	6	6.43	0.74	1.0	Greatest
4. Prevention guidelines for accidents/injury in elderly patients	High	6	6.04	0.90	1.0	Greatest	6	5.97	1.04	1.0	Greatest
5. Prevention guidelines for drug alerts in elderly patients	High	7	6.86	0.78	1.0	Greatest	6	6.32	0.92	1.0	Greatest
Nursing staff qualification aspect											
1. Nurses' characteristics and competency in elderly stroke patients' care	Highest	7	6.56	1.14	0	Greatest	7	6.20	1.12	1.0	Greatest

Table 3 (Continued)

Indicator	Validity level	Importance					Feasibility				
		MD	M	SD	IQR	Level	MD	M	SD	IQR	Level
2. Satisfaction of elderly stroke patients, families and caregivers toward personality and nursing interaction	Highest	7	6.34	0.84	0.25	Greatest	7	6.78	0.90	0.50	Greatest
Nursing care activity aspect											
1. Assessment and monitoring of elderly stroke patients in the critical phase	Highest	7	6.67	1.22	1.0	Greatest	6	6.32	1.04	1.0	Greatest
2. Promoting motor power of elderly stroke patients' muscles and joints	Highest	7	6.84	1.05	1.0	Greatest	6	6.21	0.90	1.0	Greatest
3. Nursing care of elderly stroke patients in the issues of hygiene care, nutritional care, fluid-medication care, excretion care, psychosocial care and spiritual care	Highest	7	6.78	0.74	1.0	Greatest	6	6.08	1.18	1.0	Greatest
4. Prevention of complications in the issues of pneumonia, urinary tract infection, pressure sores, and joint stiffness	Highest	7	6.92	0.85	1.0	Greatest	7	6.81	0.72	1.0	Greatest
5. Promoting elderly stroke patients' activity in daily life	High	7	6.66	0.91	0.25	Greatest	7	6.94	0.96	0.25	Greatest
Encouraging family participation in patient care aspect											
1. Guidelines for promoting family participation in caring for elderly stroke patients	Highest	7	6.82	0.63	1.0	Greatest	6	6.16	0.75	1.25	Greatest
2. Policy regarding the staying of families/caregivers at night time	High	6	5.84	1.24	1.25	Greatest	5	5.30	1.18	1.5	Great
3. Area for families/caregivers' stays in hospitals in order participation in care	High	7	6.34	0.87	1.0	Greatest	6	6.04	1.34	1.0	Greatest
Planning for discharge and continuing care aspect											
1. Guidelines for planning the discharge of elderly stroke patients	Highest	7	6.89	1.05	1	Greatest	7	6.75	1.43	1	Greatest
2. Nurses' preparation of families and caregivers before the discharge of elderly stroke patients	Highest	7	6.70	0.86	1	Greatest	6	6.14	1.19	1.25	Greatest
3. Nurse provision of education to elderly stroke patients and families/caregivers for caring for patients at home	Highest	7	6.98	0.78	0.50	Greatest	7	6.64	0.81	0.50	Greatest

Table 3 (Continued)

Indicator	Validity level	Importance					Feasibility				
		MD	M	SD	IQR	Level	MD	M	SD	IQR	Level
4. Referral system for elderly patients who have suffered strokes after discharge	Highest	7	6.65	1.23	0.25	Greatest	6	6.42	1.04	0.75	Greatest
Nursing care outcome aspect											
1. Pneumonia rate	Highest	6	6.14	0.68	0	Greatest	7	6.92	0.53	0	Greatest
2. Urinary tract infection rate	Highest	6	5.84	0.58	1.0	Greatest	6	5.89	0.60	1.5	Greatest
3. Pressure ulcer rate	Highest	7	6.76	1.03	0.50	Greatest	6	5.78	0.48	1.25	Greatest
4. Joint stiffness rate	High	5	5.12	0.66	1.25	Great	5	4.96	0.84	1.50	Great
5. Fall/injury rate	Highest	7	6.96	097	1.25	Greatest	7	6.85	0.52	1.0	Greatest
6. Drug adverse rate	High	5	5.28	0.64	1.50	Great	5	5.22	0.68	1.25	Great

(MD=Median, M=Mean, SD=Standard deviation, IQR=Interquatile range)

Table 4 Summary of results of rounds one, two, and three

Pre-determined care indicators	Round 1 results	Round 2 results	Round 3 results
1. Managing patient unit:			
1.1 Proportion between licensed and unlicensed staff	No consensus		
1.2 Nursing care hours per length of stay of elderly stroke patients	No consensus		
1.3 Proportion of registered and unregistered nurses	No consensus		
1.4 Nursing practice guidelines for providing care for elderly stroke patients	Consensus	Consensus	Consensus
1.5 The number of short training courses on providing care for elderly stroke patients	Consensus	No consensus	
1.6 Multidisciplinary care system in caring for elderly stroke patients	Consensus	No consensus	
1.7 Area for rehabilitation of elderly stroke patients	Consensus	No consensus	
1.8 Health education guidelines for elderly stroke patients/ families	Consensus	Consensus	Consensus
1.9 Area for health education activity for elderly stroke patients with their families/caregivers	Consensus	No consensus	
1.10 Activity for knowledge sharing among nursing staff on topics related to care of elderly stroke patients'	Consensus	Consensus	Consensus
1.11 Quality improvement system in providing care for elderly stroke patients	No consensus		
1.12 Prevention guidelines for accidents/injury among elderly stroke patients	Consensus	Consensus	Consensus
	Policy on providing care for elderly stroke patients' (new)	Consensus	No consensus
	Prevention guidelines for drug alerts among elderly patients (new)	Consensus	Consensus

Table 4 (Continued)

Pre-determined care indicators	Round 1 results	Round 2 results	Round 3 results
2. Nursing staff qualification:			
2.1 Nurses' knowledge in stroke care	No consensus		
2.2 Nurses' knowledge in elderly care	No consensus		
2.3 Nurses' characteristics and competency in elderly stroke patients' care	Consensus	Consensus	Consensus
2.4 Nurses' experiences in training courses on nursing care for elderly stroke patients	Consensus	Consensus	No consensus
2.5 Nurses' competencies in dealing with caring families	Consensus	No consensus	
2.6 Nurses' skill in using equipment in elderly stroke patients' care	No consensus		
2.7 Policy to promote relationship between nurses and elderly stroke patients	Consensus	No consensus	
2.8 Satisfaction of elderly stroke patients, their families and caregivers toward nurses' personalities and nursing interactions	Consensus	Consensus	Consensus
2.9 Satisfaction of elderly stroke patients, families and caregivers toward nurses' caring behavior	Consensus	No consensus	
2.10 Satisfaction of nurses' in providing care for elderly stroke patients	Consensus	No consensus	
2.11 Nursing service evaluation system	No consensus		
3. Nursing care activity:			
3.1 Nursing care plan for providing holistic care for elderly stroke patients	No consensus		
3.2 Nursing care plan for providing four aspects of health care to elderly stroke patients	No consensus		
3.3 Assessment of vital sign of elderly stroke patients	No consensus		
3.4 Assessment of neurological signs of elderly stroke patients	No consensus		
3.5 Assessment and monitoring of elderly stroke patients in the critical phase	Consensus	Consensus	Consensus
3.6 Assessment of motor power and motion in elderly stroke patients	Consensus	No consensus	
3.7 Assessment of swallowing ability of elderly stroke patients	No consensus		
3.8 Assessment of nutritional status of elderly stroke patients	Consensus	No consensus	
3.9 Assessment of excretion of elderly stroke patients	No consensus		
3.10 Promoting movement of muscles and joints	Consensus	Consensus	Consensus
3.11 Promoting elderly stroke patients' activity in daily life	Consensus	Consensus	Consensus
3.12 Nursing care of elderly stroke patients in the issues of hygiene care, nutritional care, fluid-medication care, excretion care, psychosocial care, and spiritual care	Consensus	Consensus	Consensus
3.13 Assessment of anxiety and depression of elderly stroke patients	Consensus	No consensus	
3.14 Prevention of complications with respect to pneumonia, urinary tract infection, pressure sores, and joint stiffness	Consensus	Consensus	Consensus
4. Encouraging family participation in patient care:			
4.1 Guidelines for promoting family participation in providing care for elderly stroke patients	Consensus	Consensus	Consensus

Table 4 (Continued)

Pre-determined care indicators	Round 1 results	Round 2 results	Round 3 results
4.2 Percentage of families and caregivers who received encouragement for participation in providing care for elderly stroke patients'	No consensus		
4.3 Percentage of families and caregivers who participated in the care of elderly stroke patients	No consensus		
4.4 Policy regarding families/caregivers spending the night with elderly stroke patients	Consensus	Consensus	Consensus
4.5 Area for families/caregivers to spend the night in the hospital in order participation in providing care for elderly stroke patient	Consensus	Consensus	Consensus
4.6 Satisfaction of family in participating in patient care	No consensus		
5. Planning for discharge and continuing care:			
5.1 Guidelines for planning the discharge of elderly stroke patients	Consensus	Consensus	Consensus
5.2 Discharge planning for elderly stroke patients and their families/ caregivers covering rehabilitation techniques, promoting activity in daily life, feeding, medicine, complication prevention, home situation	Consensus	No consensus	
5.3 Nurse preparation of families and caregivers before the discharge of elderly stroke patients	Consensus	Consensus	Consensus
5.4 Nurse provision of education to elderly stroke patients/families/ caregivers for providing care for elderly stroke patients at home	Consensus	Consensus	Consensus
5.5 Percentage of elderly stroke patients who were satisfied with discharge planning	No consensus		
5.6 Percentage of elderly stroke patients who received advice before discharge	No consensus		
5.7 Percentage of elderly stroke patients who received advice regarding stopping smoking	No consensus		
5.8 Elderly stroke patients' knowledge of self-care after discharge	No consensus		
5.9 Referral system for elderly stroke patients who suffer stroke after discharge	Consensus	Consensus	Consensus
5.10 Consultation channel for elderly stroke patients, their families/ caregivers after discharge	Consensus	No consensus	
5.11 Number of elderly stroke patients with information regarding referral to health care organization in the community	No consensus		
5.12 Number of elderly stroke patients' who return from community to the hospital	No consensus		
6. Nursing care outcome:			
6.1 Aspirate pneumonia rate	Consensus	Consensus	Consensus
6.2 Urinary tract infection rate	Consensus	Consensus	Consensus
6.3 Pressure ulcer rate	Consensus	Consensus	Consensus
6.4 Joint stiffness rate	Consensus	Consensus	Consensus
6.5 Fall/injury rate	Consensus	Consensus	Consensus
6.6 Drug adverse rate	Consensus	Consensus	Consensus
6.7 Deep vein thrombosis rate	Consensus	No consensus	

Table 4 (Continued)

Pre-determined care indicators	Round 1 results	Round 2 results	Round 3 results
6.8 Mortality rate of elderly stroke patients	Consensus	No consensus	
6.9 Medical error in the care of elderly stroke patients	Consensus	No consensus	
6.10 Readmission rate of elderly stroke patients within 28 days	Consensus	No consensus	
6.11 Percentage of elderly stroke patients who received nursing care according to nursing guidelines	No consensus		
6.12 Percentage of elderly stroke patients who had monitored and recorded signs and symptoms of increased intracranial pressure	No consensus		
6.13 Percentage of elderly stroke patients who had rehabilitation planning	No consensus		
6.14 Percentage of elderly stroke patients who had been taught about increasing activity in daily life	No consensus		
6.15 Percentage of elderly stroke patients who had been assessed for activity in daily life before discharge	No consensus		
6.16 Percentage of elderly stroke patients who had been assessed for disability before discharge from hospital	No consensus		
6.17 Percentage of elderly stroke patients who received fluid, nutrition and medicine according to physician's orders	No consensus		
6.18 Percentage of elderly stroke patients who had increased intracranial pressure after admission	No consensus		
6.19 Percentage of elderly stroke patients who had increased daily living activity	No consensus		
6.20 Percentage of elderly stroke patients, families/caregivers complaints	No consensus		
	The number of research studies and publications achieved by nursing staf (new)	No consensus	

In addition, many quality aspects and indicators are in line with the nursing quality indicators proposed by nursing organizations and previous studies both in Thailand and in western countries.[18, 30-32] These include the issues of risk management, teaching patients, patient satisfaction, professional characteristics, and nursing care outcome.

In the area of stroke care, much evidence supports the managing patient units' aspect, and the several related guideline indicators are very significant. The effective stroke unit must have a standardized program such as a treatment program, a health educational program, and a rehabilitation program.[27, 33]

The range of selected quality indicators indicates that nurses have numerous responsibilities and roles including that of manager of the unit, care provider, and health educator. The results of this study concur with the roles nurses occupy in stroke care identified by the Stroke Care Center regarding biological care, psychosocial care, effective communication, and prevention of complications.[34] For instance, the sharing of knowledge among nursing staff about the elderly stroke care indicators is similar to the quality components relating to the service organization in the National Sentinel Audit of Stroke used in Wales, England, and Northern Ireland.[35]

In the nursing care activity aspect, the care indicators that achieved consensus among the panel of experts are congruent with the work of Castillo[36] who mentioned that the twenty-five percent of stroke patients worsen within the first twenty-four hours after a stroke attack. Therefore, successful stroke care begins with the initial identification of the changes in the patient's neurological status, and the prevention of complications, both of which are major concerns of nurses. It has been recognized that providing emotional support for the patients and their families during the critical period after a stroke has occurred is beneficial for stroke victims and families.[37] In addition, once a stroke patient's medical status is stabilized, early mobilization is encouraged to decrease the possibility of the patient developing complications.[27, 37] Good nursing care during both the acute and post-acute phases directly contributes to good outcomes for the patient during the rehabilitation phase.[1]

In the concern of patient safety, falls are the most frequent causes of injury in elderly stroke patients during hospitalization. Therefore, the indicator's name "fall/injury prevention guidelines indicator" is important to indicate how good the nursing care is. The results of fall/ injury prevention activities will be reflected in the nursing care outcome: the fall/injury rate.[1]

Another serious issue that many studies have mentioned when providing care for elderly patients is the outcomes and effects of using drugs. Most elderly patients are susceptible to drug toxicity.[38] Thus; the prevention guideline for drug effects was in accordance with previous studies.

The planning of discharge and continuing care aspect generated four care indicators. This need for planning for discharge is in accord with the review criteria used for stroke rehabilitation outcomes[9] and the Implement Stroke Best Practices Project that identified discharge planning as one of the important components in the continuum of care for stroke patients.[39]

In the perspective of elderly care, most of the quality aspects and indicators that emerged in this study reflected the authentic needs of the older people in Thailand. Sritanyarat & Arunsang's study,[40] proposed "age-friendly protocols", that included nine components of elderly care such as respecting elderly patients; nutrition care; accident prevention; psychosocial care; and encouraging family to participate in elderly care. In Thai society, older people are valued and children are taught to respect elderly people as they would their relatives.[41] Elderly patients usually appear to recover more rapidly when their families are involved in their care. Similarly, family members feel good when they participate in a hospitalized patient's care, because they are thus able to fulfill their sense of filial obligation.[41] Therefore, the espect of the encouraging family participation in patient care aspect that measured the satisfaction of elderly patients with nurse personality and interaction was very considerable.

By contrast fifty indicators did not meet the Delphi experts' consensus and were deleted between the three round Delphi. The several rationales for the deleted indicators could be described as follows:

Many indicators present redundancy, such as the proportion between licensed/non-licensed indicator and the proportion of registered nurse and unregistered nurse indicator; these two indicators are very similar. Some indicators are very important but it are difficult to employ in the financial crisis. For instance, the nursing care hours per patient length stay indicator. This indicator cannot reflect the real situation, because of the nursing shortage problems.

In addition, some indicators were rated at the high importance level but low level of feasibility, such as the assessment of swallowing ability. Because this procedure needs advanced skill, the false result may create patient problems, such as aspiration pneumonia.

In order to establish types of quality indicators, all indicators that came out from the study were grouped into nursing quality care indicators that emerged from medical diagnosis. The twenty-five indicators in this study consist of two types: eighteen indicators are the sentinel event type, and six indicators of nursing care outcomes and the satisfaction of elderly stroke patients, families and caregivers toward personality and nursing interaction indicator of the nursing staff qualification aspect are the rate based type.

Another important point is the methodology whereby the indicators were developed. In general, the development of quality indicators may use either a top-down approach or a bottom-up approach.[42] These indicators were developed by using a bottom-up approach because they were based on the perspectives of elderly stroke patients and their families, and included those of nurses and physicians.

In brief, the findings from this study strongly revealed that quality aspects and indicators are in line and harmonious with other studies in all three areas. Firstly, most quality aspects are congruent with the quality assessment model and quality of nursing care in Thailand. Secondly, some quality aspects and some indicators reflect the main aspect of elderly care both universally and in the Thai context. Finally, the findings indicate that excellent care for stroke patient should cover the holistic needs in all three phases; acute, post-acute and rehabilitation. One limitation was that this set of indicators was created in the context of regional and provincial hospitals that might limit their use in university and private hospitals.

Recommendations

In line with the findings, further studies should be undertaken to increase the strength of the care indicators. In addition, field-testing, predictive validity, and construct validity of each care indicator should be evaluated. In addition, the model of providing quality nursing care for hospitalized elderly stroke patients should be implemented and evaluated. Moreover, the specific instruments to measure the components of each care indicator should be developed, as well as their psychometric properties examined. For example, an instrument could be developed to measure the degree of elderly stroke patients' satisfaction with nurses' caring behavior.

Conclusion

This study has identified nursing quality indicators for elderly patients who have suffered a stroke. The set of quality indicators developed was based on the stakeholders' perspectives and the experts' consensus. They were categorized into six aspects based on the perception of stakeholders: They were managing patient unit (5 indicators), nursing staff qualification (2 indicators), nursing care activity, (5 indicators), encouraging family participation in patient care (3 indicators), planning for discharge and promoting continuing care (4 indicators), and nursing care outcome (6 indicators). Nurses and nurse administrators could incorporate these results in evaluation, description, monitoring, value judgment, policy relevance, and improving the quality of nursing care for elderly patients who have suffered strokes.

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