

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## Nursing Care Of Post-Stroke Dysphagia in Emergency Department.

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**Abstract:** Dysphagia is commonly known as a swallowing disorder associated with stroke patients.. As healthcare professionals, nurses play an important role in diagnosis and management of dysphagia in stroke patients.

Aimed at assessing nurses' knowledge and practice regarding nursing care of patient with early post-stroke dysphagia.

This descriptive, hospital-based study was conducted in main Emergency Department at King Fahad Hospital in Al Medina, KSA during a period of 10 months Feb. to Dec. 2015. Sample size consisted of 120 nurses who were working in ER. Variables assessed were score of nurses' knowledge, score of nurses' knowledge towards dysphagia management, overall score of knowledge and management and score of clinical performance in addition to associated demographic factors. Data were pretested in pre-designed questionnaire firstly, then collected by direct interview with participants, clinical performance was assessed using checklist. Data was analyzed by using statistical package for social sciences (SPSS, ver. 17).

The overall score of nurses regarding basic knowledge and management was moderate (73.3%). General mean of score (basic knowledge and management) was found to be 8.96 (56%). Clinical performance was moderate; (13.91+6.749; 63.2%). The correlation between overall score of knowledge and clinical performance didn't reveal significant association ( $P = 0.172$ ).

Demographic characteristics found affecting their knowledge but not their practice. The study recommended that training program about nursing care of post stroke dysphagia should be developed and implemented for nurses .

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### I. Introduction

Stroke is the second most common cause of death in the world after heart diseases<sup>[1]</sup>. Every year 15 million people are diagnosed with a stroke worldwide. Of these, 5.7 million die, and 87% of these deaths are in low-income and middle-income countries. Without intervention, the number of global deaths is expected to go up to 6.5 million in 2015 and 7.8 million per annum by 2030<sup>[2]</sup>.

A stroke is a loss of cerebral function and is caused by interruption of blood supply to the brain, either through blockage, by a clot (ischemic stroke) or by rupture of a blood vessel (hemorrhagic stroke), which harms the brain<sup>[3]</sup>. It causes long-term physical and mental disabilities which mostly lead to emotional and socio-economic impact<sup>[4]</sup>.

One of the most common impairments after the onset of stroke is neurogenic oro-pharyngeal dysphagia. Dysphagia is the inability to swallow or difficulty to hold food and fluid in the mouth<sup>[5,6]</sup>, and occurs in approximately 50% of stroke patients in the acute phase<sup>[7]</sup>.

The normal swallowing process consists of three phases. The oral phase, pharyngeal phase and finally the esophageal phase<sup>[8]</sup>. During a stroke each of these phases may be affected as the neurological disease and muscular changes<sup>[9]</sup>.

Dysphagia has been associated with a high incidence of respiratory complication, increased risk of aspiration pneumonia, as well as malnutrition, dehydration, persistent disabilities and mortality<sup>[10-13]</sup>. Dysphagia

also incurs higher financial costs, such prolonged hospital stay, increased nursing time and more physician consultations<sup>[14]</sup>.

Early diagnosis and effective management of dysphagia minimizes aspiration pneumonia, and mortality<sup>[15]</sup>, and improves oral movements as well nutritional status, thus leading to better post stroke outcomes<sup>[16,17]</sup>. effective management will reduce medical and economic costs<sup>[18]</sup>.

According to Head, Weeks, Stroud and Coll (2007) and the National Institute for Health and Clinical Excellence United Kingdom[NICE,2008]<sup>[19,20]</sup>,Dysphagia screening should take place in the first 24 hours after admission of stroke patients to hospital to ensure that nutrition and hydration is well managed. The diagnosis of dysphagia is usually made by a speech and language therapist (SLT)<sup>[21]</sup>.

To screen for dysphagia, Hinchey et al. in 2005 recommended a simple bedside testing protocol for all stroke patients before they given fluid or food<sup>[17]</sup>. This test could be done by trained personnel such as nurse, if speech language therapist is not available.

## **II. Material and Methods**

### **1 Study design:**

This is a descriptive, hospital-based survey study.

### **2 Study area:**

The study conducted in the King Fahad Hospital main Emergency Department. King Fahad Hospital is largest governmental referral hospital in Al Medina Al Monawara Region, KSA. It is a busy hospital offering specialized tertiary health care services including; emergency, medical surgical, internal medicine, critical care services and teaching health care facility in Madina region catering to more than one million population including pilgrims. King Fahad Hospital is equipped with state of the art diagnostic and therapeutic gadgets including life- saving devices. However, the hospital does not provide specialized stroke unit or specially trained staffed with stroke or dysphagia skills. All stroke patients are initially admitted to casualty, where they are examined by physician and then admitted to the internal ward medicine.

### **3 Study population:**

Registered nurses who were graduated as general technical nurses and the B.Sc who were university graduates working in Emergency Department in King Fahad Hospital Medina Almonawara, KSA.

#### **1 Inclusion criteria:**

All nurses working in King Fahad Hospital Medina Al Monawara Emergency Department and were willing to participate included.

#### **2 Exclusion criteria:**

The study excluded nurses who were in their off-days during the time of the study and those who were unwilling to take part in the survey.

#### **4 Sample size and sampling technique:**

Convenient sampling technique was used, total coverage selection included nurses working at study area and were available during the study period (Feb. to Dec. 2015). Out of 150 nurses working in the study area, 30 were either in vacations, out of duty or gently refused to participate, and accordingly the sample size was 120 nurses.

#### **5 Data Collection tools:**

Data collection tool was used by questionnaire and check list.

The questionnaire was composed of three segments containing a total of twenty four items divided in to three section: Section A, Section B and Section D.

**Section A** the first segment (total of eight items) was surveying the socio-demographic characteristics of the study participants this section asked for information pertaining to respondent's age, gender, academic qualifications, marital status and the duration of professional experience, family history of dysphagia and the source of knowledge about stroke-related dysphagia.

**Section B:** focuses on the facts which the participants knowledge about dysphagia. The questions format is a multiple choice with an expected single response.

**Section D** Contain the clinical performance items as check list of the participant regarding how to screen, assess and how to deal with nasogastric tube.

The level of knowledge was classified as follows : a score of 75% and above was classified as "excellent" , from 74% to 50% was classified as " moderate" and a score from 50% and below was classified as " poor"(Modified from classification by Basuayi)<sup>[84]</sup>. This was applied for overall score as well for each section.

#### **6 Validity and Reliability:**

In order to ensure face and content validity, the questionnaire was given to the supervisor, to the committee of Medical Surgical in Ribat National University, then the statistical structure of the questionnaire was evaluated by an expert statistician working in Taibah University, Madina, KSA.

The test -retest method was used to determine reliability of the questionnaire, twenty nurses out of population were invited to fill and to return the questionnaire within one week. The check list was filled by the participant to evaluate themselves and by the supervisor.

The test-retest reliability was assessed using Intra-Class Correlation (ICC) the result of the test showed:

- Reliability for nursing knowledge was 0.90.
- Reliability for nursing check list was 0.75.
- Reliability for observer check list was 0.67.
- Reliability for nursing - observer check list was 0.72 .

The result of the ICC was satisfactory and according to the result some modifications were done. The researcher decided to remove question number four from check list for unsatisfactory correlation result between item and total scoring test, it was (- 0.37) for nursing - observer check list , (- 0.33 ) for nursing check list and (- 0.48) for observer check list. After this change the test was repeated and the statistician advised to proceed.

#### **7 Pilot study:**

A pilot study was carried out prior to actual among fifteen nurses of the hospital (out from the target population) results were not included in the final study.

#### **8 Data Collection technique:**

All nurses of the emergency department were invited to participate in the study. In the presence of department supervisor the aim and purpose of the study was explained by the researcher. The questionnaires were distributed to be filled up and returned back to the researcher. The checklists of the practice were filled up by the researcher while she was observing each nurse performing her daily regular care of the stroke patients, provided that they have completed the questionnaire initially. It took very long period because it's related with the present of stroke patient it was started February 2015 to December 2015. The researcher was keen with the participant to fill the questionnaire and return it after ten fifteen minute maximum.

#### **9 Response rate:**

It was obtained by dividing the number of the questionnaires returned completely filled up with their appropriate checklists (120) by the total number of the initially distributed questionnaires (150) which resulted in response rate of 80%.

#### **10 Data Analysis:**

All questionnaires were numerically coded, captured and analyzed by using the statistical package for social sciences (SPSS, version 17.0), descriptive statistics have been used to describe the dependent variables (knowledge) and independent variables (socio- demographic characteristics of the participant and experience with stroke), and figures were set in Microsoft office excel.

#### **11 Ethical considerations:**

- Approval from National Ribat University, post graduate studies college.
- Ethical clearance and permission was obtained from King Fahad Hospital administration.
- Prior to the study the aim was fully explained and clarified to the participants.

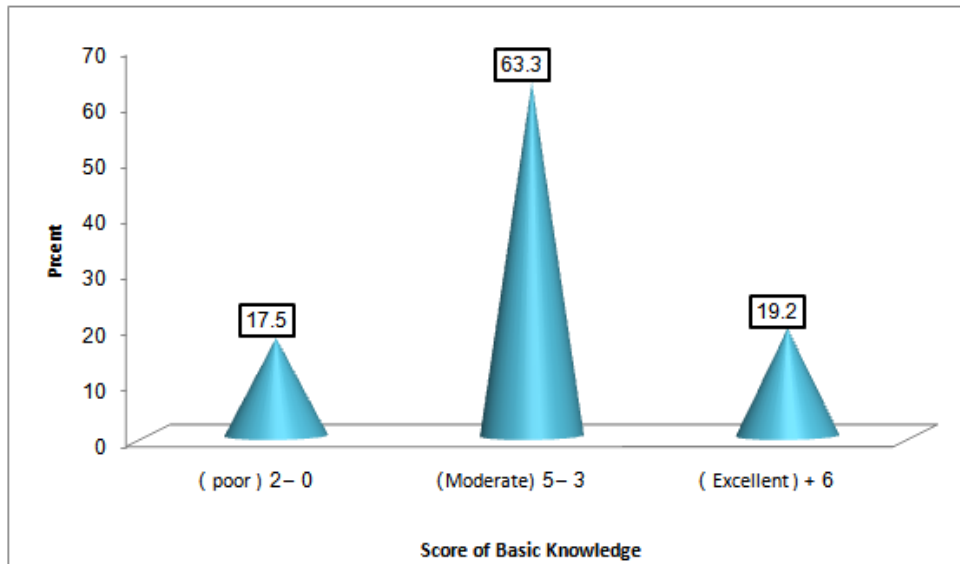
#### **12 Limitation of the study:**

- The sample size in this study (n = 120) the response rate was 80%) and it showed that, there was a considerable number of nurses who didn't participate.

- The current study was only carried out in one hospital in Medina Al Monawra so this result may not exactly reflect the knowledge of all nurses in other departments and other hospitals.

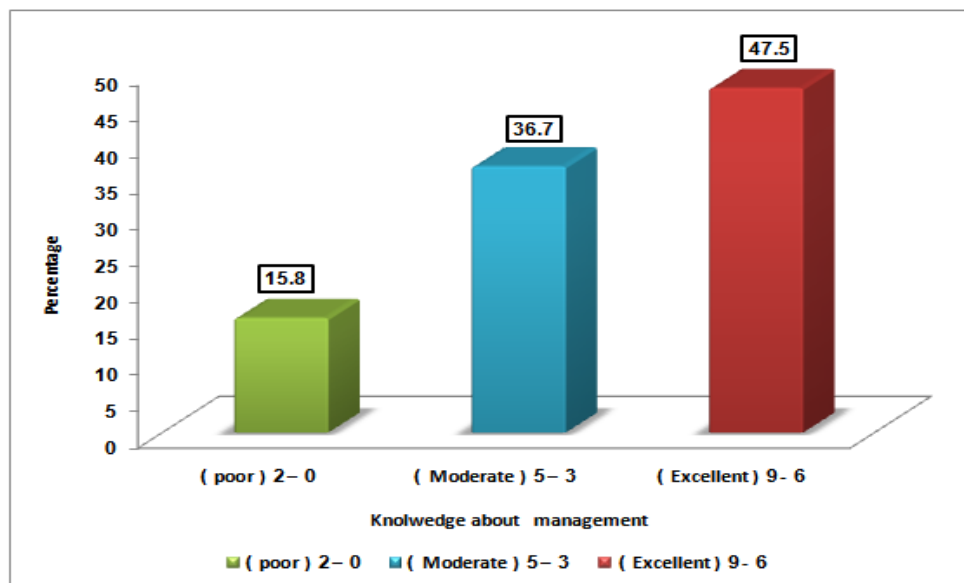
### III. Results

The overall score of nurses regarding basic knowledge and management was moderate (73.3%). General mean of score (basic knowledge and management) was found to be 8.96 (56%). Clinical performance was moderate; (13.91+6.749; 63.2%). The correlation between overall score of knowledge and clinical performance didn't reveal significant association ( $P = 0.172$ ).



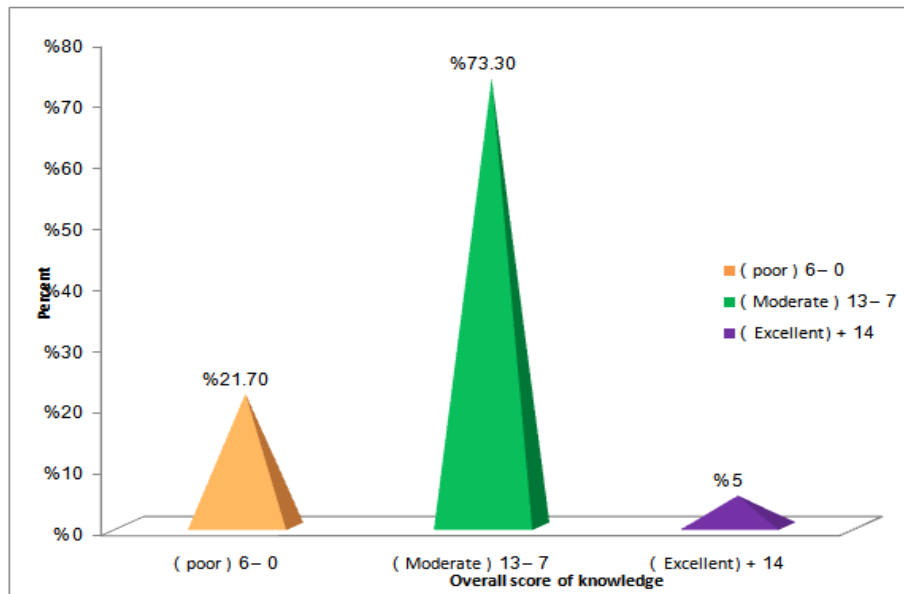
**Figure 1:** Distribution of participants according to answers regarding the basic knowledge of dysphagia, (n=120).

Score of basic knowledge of dysphagia was poor (0-2) in 21 (17.5%) of participants, moderate (3-5) in 76 (63.3%) and excellent ( $> 6$ ) in 23 (19.2%).



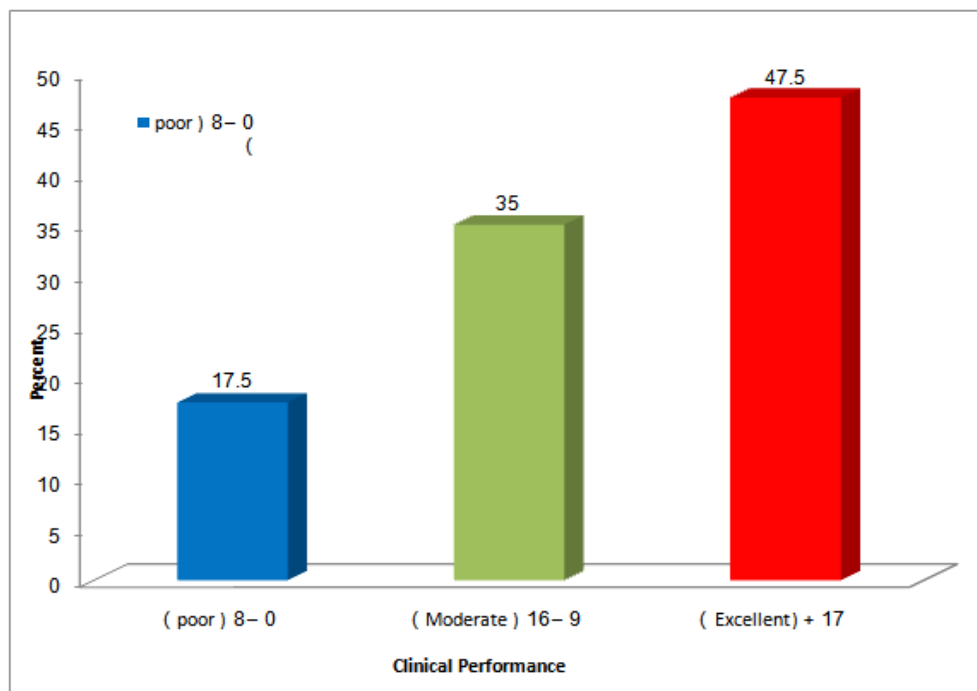
**Figure 2:** Distribution of participants according to answers regarding the basic management information of dysphagia (n=120)

Score of basic knowledge about management of dysphagia was poor (0-2) in 19 (15.8%) of participants, moderate (3-5) in 44 (36.7%) and excellent (6-9) in 57 (47.5%).



**Figure 3:** Distribution of participants according to the overall score of basic knowledge and management information (n=120)

Overall score of basic knowledge and management of dysphagia was poor (0-6) in 26 (21.7%) of participants, moderate (7-13) in 88 (73.3%) and excellent (> 14) in 6(5.0%).



**Figure (4):** Distribution of participants according to their score of clinical performance (n=120).

**Table 1:** Mean clinical performance of participant's

Variable	N	Mean	Std. Deviation	PV
Total clinical performance	120	13.908	6.7487	0.000

Score of clinical performance was poor (0-8) in 21(17.5%) of participants, moderate (9-16) in 42(35%) and excellent (> 17) in 57(47.5%). Mean of clinical practice was 13.908+6.749 (full score = 22).

**Table 2:** Correlation between socio-demographic and clinical performance of participant's(n=120)

Variable	Clinical performance			Total	P value
	0 - 8 ( poor )	9 -16 (Moderate )	17+(Excellent )		
<b>Education</b>					
Diploma	10 (47.6%)	19 (45.2%)	34 (59.6%)	63 (52.5%)	.447
BSc	11 (52.4%)	23(54.8%)	22 (38.6%)	56 (46.7%)	.447
<b>Nurse job status</b>					
Staff Nurse	16 (76.2%)	39 (92.9%)	50 (87.7%)	105 (87.5%)	.296
Charge Nurse	5 (23.8%)	2 (4.8%)	5 (8.8%)	12 (10.0%)	.296
Supervisor/administrator	0 (.0%)	1 (2.4%)	1 (1.8%)	3 (2.1%)	.296
<b>Do you have any history of post stroke dysphagia in your family?</b>					
Yes	4 (19.0%)	5 (11.9%)	8 (14.0%)	17 (14.2%)	.439
No	10 (47.6%)	30 (71.4%)	38 (66.7%)	78(65.5%)	.439
I don't know	7 (33.3%)	7 (16.7%)	11 (19.3%)	25 (20.8%)	.439
<b>Marital status</b>					
Single	10 (47.6%)	27 (64.3%)	39 (68.4%)	76 (63.3%)	.362
Married	11 (52.4%)	15 ( 35.7%)	17 (29.8%)	43 (35.8%)	.362
Divorced	0 (.0%)	0 (.0%)	1(1.8%)	1 (.8%)	.362

Correlation between socio-demographic and clinical performance of participant's showed no significant association (P > 0.05 ).

**Table 2:** Correlation between total knowledge and total clinical performance

Total clinical performance	Overall score of knowledge			Total
	Poor ( 0 - 6 )	Moderate ( 7 - 13 )	Excellence ( 14+ )	
0 – 8 ( Poor )	8 (30.8% )	12 (13.6% )	1 (16.7% )	21 (17.5%)
9 – 16 (Moderate )	10 (38.5% )	29 (33.0% )	3 (50.0% )	42 (35.0%)
17+ (Excellent )	8 (30.8% )	47 (53.4% )	2 (33.3% )	57 (47.5%)
<b>Total</b>	26 (100%)	88 (100%)	6 (100%)	120 (100%)

P value = 0.172

Correlation between total knowledge and total clinical performance showed insignificant association (P = 0.172).

#### IV. Discussion

The respondent's age ranged from 20 to 50 years, and included younger and older nurses. The majority of the participants are in age group 21to 30years, n= 96(80.0%). An explanation for this high number could be that they are newly graduated and not married yet . Few participants are in the age group of 31 to 40 years n= 20 ( 16.7%) . One possible reason for the low number of nurses in this age group, could be that nurses are obliged to stop working as the result of family responsibilities. A study done by Nooney,Unruh and Yore (2010), confirmed that early separation from employment in the age group of 30 to40 years due to marriage, maternity leave, caring for young children and elderly was common<sup>[85]</sup>. There are relatively few participant in the age range of 41 to 50years n= 4(3.3%)due to early retirement losing experienced nurses, deprives newer nurses of the opportunity to learn valuable skills and knowledge from older<sup>[86]</sup>.

Most of the participants did not have family history of post stroke dysphagia n=78(65.0%). Those who had a family history of post stroke dysphagia and who did not know were 17(14.2%) participants and n=25(20.8%) respectively.

The main source of information for the participants was their nursing college n=75(62.5%) and only n=34(28.3%) got their information from the practice in the hospital.

The result reveal that the participants score was excellent regarding knowledge in definition, incidence of post stroke dysphagia. They were moderatein identification of the risk factor n=66(55.0%). Awareness of the participants about signs and symptoms was moderate n=75(62.5%). This result was similar to a study done by Robertson in South Africa among caregivers about awareness in sign and symptoms of patients with post stroke dysphagia and it showed that caregivers are more aware of visible signs than subtle symptom<sup>[87]</sup>. Nurses need to be aware of the possibility of complication pneumonia caused by aspiration, and therefore it is important for them to identify dysphagia and to manage it correctly<sup>[88]</sup>. A moderate result in this question 77(64.2%), indicates

that nurses are aware of the complication of mortality among stroke patients . Katzan, *et al*, found that the mortality rate among stroke patients with pneumonia was six times higher than for those without pneumonia<sup>[89]</sup>.

The result shows that participants had an excellent knowledge about positioning , feeding of the patient and care of the tube. Moderate knowledge about initial assessment of post stroke dysphagia, swallowing assessments, tube selection for feeding, nursing care strategies of post stroke dysphagia patients and rehabilitation.

Mean score of knowledge regarding management of dysphagia also found moderate with score of 64.34%; vast majority of them had an excellent grade in identifying the right positioning for feeding post-stroke dysphagia patients (85%), while they had poor knowledge about clinical assessment of post-stroke dysphagia (49.2%).

Individual evaluation of nurses' grade in response to management criteria questions revealed that, excellent grade was the most frequent score among participants; (47.5%) of nurses had correct answer about criteria of dysphagia management, followed by 36.7% who had moderate grade of answers about management and very few of the participants had poor grade of answers (15.8%). These findings might indicate that, nurses tend to have better knowledge about management of dysphagia when compared to other knowledge criteria, e.g. signs and symptoms, definitions, this is most probably due to the repeated practice which support gaining skills in management.

Knowledge about management is a critical issue in the outcome of care as reported by Martino R, et al who reviewed that, it is known that early and effective treatment can decrease complications and subsequent death of the post stroke dysphagia patients<sup>[21]</sup>.

Observation of nurses practice showed that, they had variation in level of practice according to the type of performance required, their evaluation ranged between good, poor and absence of performance; nurses mostly had good practice (score of 2) regarding patient proper positioning , NG insertion and tube fixation . Assessing oral hygiene, and nursing documentation (50%, 49.2%, 47.5% and 50% respectively had grade 2 practice), while other criteria of practice score were found poor (score 1) in most of our surveyed nurses. This might reflect that, nurses mostly had no homogeneous level of knowledge and performance regarding patients care of post-stroke dysphagia. Nurses might not have been exposed to an In-Service training or experience with a satisfactory method of evaluation.

Overall knowledge of nurses in the current study revealed a significant association with their demographic characteristics except marital status which found to have no effect in overall score of knowledge ( $P = 0.0809$ ); excellent knowledge was found to be significantly higher among nurses with B.Scdegree (4 out of 6 nurses with excellent knowledge were B.Scholder) (66.7%), excellent knowledge was also significantly higher among staff nurses participants (Five out of 6 participants with excellent overall knowledge were staff nurse). Professional experience for 5-10 years was found significantly associated with excellent knowledge; represented by 4 out of 6 participants.

Unexpectedly, participants with history of post-stroke dysphagia in their family not associated with better knowledge, i.e nurses with no history of post-stroke dysphagia had significantly better knowledge (5 nurses out of 6 excellent knowledge found to have no such history).

On the other hand, clinical performance had no significant association with the different demographic characteristics ( $P > 0.05$ ).

The correlation between overall score of knowledge and clinical performance didn't reveal significant association ( $P = 0.172$ ). However, nurses with an excellent overall score of knowledge were mostly of moderate score of clinical performance. This might trigger a question; how far good knowledge can help providing good performance? Some characteristics, factors or circumstance might hinder the nurse from providing a satisfactory clinical performance such as skills, and experiencing same type of clinical practices. Another factor is the predominant number of junior nurse versus senior who are expected to provide an educational for them.

## **V. Conclusion**

The study concluded that, the overall knowledge of participants and their clinical performance was found to be moderate, demographic characteristics was found affecting their knowledge but not their practice.

## **VI. Recommendations**

- Training program about nursing care of post stroke dysphagia should be developed and implemented for nurses
- Recommendation for nursing school to implement a curriculum relating to dysphagia. The curriculum should address three main areas of dysphagia, such as sign and symptoms, complications and management of dysphagia.

- Guidelines for nurses should be developed and implemented at all hospitals. This will encourage the nurses to ensure that each stroke patient receives the correct treatment for dysphagia from the time of admission.

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