# Factors Influencing Performance of Stroke Management among Nurses in Bangladesh

Md. Shariful Islam

The Graduate School

Yonsei University

Department of Nursing

# Factors Influencing Performance of Stroke Management among Nurses in Bangladesh

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Md. Shariful Islam

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# ABSTRACT

## Factors Influencing Performance of Stroke Management among Nurses in Bangladesh

Md. Shariful Islam
Department of Nursing
The Graduate School
Yonsei University

Stroke has become the leading cause of disability and death worldwide. Nurses' role is pivotal in preventing secondary complications of stroke. Individual and organizational factors greatly influence towards nurses performance of stroke patient management. This study examined level of performance of stroke management and its influencing factors among nurses in Bangladesh.

This is a cross-sectional descriptive study. After IRB approval, data were collected from May, 25 to August, 25, 2017 using paper and pencil questionnaire. A total of 226 nurses were recruited from three tertiary level hospitals in Bangladesh. Nurses' performances were investigated using Demographic Questionnaire (DQ-11), Practice on Stroke Management Questionnaire (PSMQ-

10), Stroke Knowledge Questionnaire (SKQ-12), Attitudes on Stroke Mangement Questionnaire (ASMQ-14), Leadership Practice Inventory (LPI-17), Organizational Learning Survey (OLS-25) and Organizational Readiness for Change (ORC-11) related questionnaire. Data were analyzed using descriptive statistics, independent t-test, one way ANOVA, Pearson's Product-Moment Correlation-Coefficient and Multiple Regression Analysis.

Results showed that nurses had moderate level of knowledge (Mean = 3.19, SD = 2.24), attitudes (M = 45. 19, SD = 4.46) and performance (M = 30.29, SD = 6.97). A significant positive correlation found between nurses knowledge and attitudes ($r = 0.16$, $p = 0.05$) and between knowledge and performance ($r = 0.44$, $p = 0.000$) respectively. However no significant relationship found between attitudes and performance towards stroke management ($r = 0.030$, $p > 0.05$). Statistical analysis showed that nurses working with ICU ward ($\beta = 7.598$, $p < 0.01$), leadership practice ability ($\beta = 0.031$, $p < 0.05$), and stroke knowledge ($\beta = 0.864$, $p < 0.001$) were major factors affecting nurses' performance towards stroke management which explained 29.4% of the total variance. In-service stroke education program need to be provided for less experienced nurses who have no previous education on stroke patient maangement to enhance their clinical performance. In addition tertiary level hospital management need to provide more opportunities for their nurses to obtain continuing education on stroke or increase

the number of courses available at the institutional level in order to enhance their nurses' performance towards stroke patient management.

Keywords: Stroke, Stroke Management, Knowledge, Attitudes, Nursing Performance, Organizational Learning, Leadership Practice, Organizational Readiness

# Chapter 1. INTRODUCTION

## 1.1 Background

Stroke is a brain, spinal cord, or retinal cell death attributed to ischemia, based on neurological, neuroimaging, and/or clinical evidence of permanent injury and is a major cause of disability and death worldwide (American Heart Association.,2013). In Bangladesh, stroke is a third leading cause of death and morbidity accounting for 25% of deaths (Mateen, Carone, Alam, Streatfield, & Black, 2012) whereas 11.8% stroke deaths occurred globally (American Heart Association., 2016). Stroke causes an increase in use of hospital resources, patient care costs, and length of hospital stays (Islam et al., 2012). Stroke management is clinically important because of secondary complications. Deep Vein Thrombosis, cellulitis, phlebitis, sepsis, and seizure were identified as complications (Bhowmik et al. 2016).

Nurses' role is critical in preventing secondary complications of stroke (Langhorne & Pollock, 2002; Burton, Fisher, & Green, 2009). Performance on stroke management contributes to improve nurses' quality care for acute stroke patient in the hospital. However, substantial gaps between level of nurses' knowledge, attitudes and performance on stroke management were found in the

previous literature (Lindsay, Kelloway, & McConnel, 2005; O'Farrel & Zou, 2008). Prior cross-sectional studies have explored that majority of the registered nurses had a higher knowledge than their stroke management practice. Nurses' attitudes towards adoption of best practice guidelines, detection of stroke complications, and clinical activation of stroke was poorer than those of nurses working in stroke units (O'Farrel & Zou, 2008; Hamrin, 2006). Recently a descriptive study was conducted to investigate influencing factors related to nurses' performance of stroke management. The result demonstrated that organizational factors including stroke educational program, organizational learning, leadership of unit manager, organizational readiness to accept change, hospital characteristics, commitment to workplace, recognition, and social support from supervisors, and trust in management were associated with nurses' performance of stroke management (Hanna, Paraszczuk, Duffy, & DiFioire, 2016; Drury, McInnes, Hardy, Dale, & Middleton, 2016; Rahman, Abdul-Mumin, & Naign, 2016). However individual factors comprise personal information, job satisfaction, professional education, specific education on stroke and clinical experiences (Drury et al., 2016; Curley, 2016).

According to literature review above, few substantial explorations of knowledge, attitudes and influencing factors towards nurses' performance of stroke management have been analyzed. As for research variables, the confirmed

influential factors towards performance of stroke management consist of individual characteristics, professional information, organizational factors, knowledge and attitudes. There is a huge gap between nurses' knowledge, and attitudes towards their performance of stroke management. In addition, some individual and organizational factors were greatly influenced towards nurses' performance of stroke management in Bangladesh (Islam, Oh, Lee, & Kim, 2017; Akter, Banik, & Lima, 2017; Hossain, Mustafi, Islam, & Islam, 2016; Bishwajit, Khumyu, & Boonyanuarak, 2016). According to KAP model, Knowledge, attitude and performance are highly related towards stroke management. Though many studies have looked at nurses' level of performance on stroke management, research on its influencing factors in Bangladesh is almost blank.

In previous studies, relationship between influencing factors and nurses' performance of stroke management has not been identified in Bangladesh. It would be beneficial for nursing services if the level of knowledge, attitudes and its influential factors towards performance of stroke management are explored. It could not only provide evidence for developing stroke education program for nurses to enhance their knowledge, attitudes and clinical performance on stroke management but also promote quality of nursing practice in this arena. Therefore, this study was aimed to identify nurses' knowledge, attitudes, performance and its related factors towards stroke patient management in Bangladesh. The study

findings would help to implement effective strategies to improve nurses' clinical performance in the area of stroke patient management.

## 1.2. Purpose of the Study

The overall objective of the study was to provide basic knowledge in developing in service educational program to facilitate nurses to develop competency on stroke management in Bangladesh. In addition it is necessary to extend scientific knowledge on stroke management and guide/suggest effective management strategy in clinical practice of stroke.

The specific aims of the study are to:

1. Examine the level of knowledge and attitudes and its relationship towards performance of stroke management
2. Identify the factors influencing nurses performance of stroke management

## 1.3 Definitions of the Terms

### 1.3.1 Nurses performance of stroke management

Performance means the way in which adults apply their knowledge and attitude through action (Lbrahim, 1995). Nurses' performance was assessed by

self-reported questionnaire based on SIGN (2002) recommendations guidelines. The higher scores indicate higher level of performance of stroke management.

### 1.3.2 Nurses knowledge of stroke management

Knowledge means the ability of pursuing and using information and by understanding learning experience and identifying the study materials (Lbrahim, 1995). Nurses' knowledge was assessed by previously validated self-administered questionnaire developed by Thomas, Rogers, Langhorn, Smith, and Bond (1999). Higher scores indicate higher levels of knowledge on stroke management.

### 1.3.3 Nurses attitudes of stroke management

Attitudes are related to the person's knowledge, beliefs, emotions, and values about an issue, object or person which predispose one to responses one to respond some preferential manner and they are either positive or negative (Lbrahim, 1995). Nurses' attitudes were assessed by self-reported questionnaire developed by Hamrin (2006). The higher scores indicate nurses' positive attitudes towards stroke management.

### 1.3.4 Leadership practice of unit manager

Leadership practice of unit manager refers to nurse manager's personal credibility, capability, encourages or enables sub-ordinate to act in order for achieving goal of the organization in any given issue (Udod & Care, 2004). Leadership of unit manager capability was measured by nurses self-report of Leadership Practice Inventory (LPI) questionnaire developed by Drury et al. (2016). High scores indicate better leadership skills and more frequent involved in the leadership dimension toward nurses performance of stroke management.

### 1.3.5 Organizational Learning

Organizational learning may be defined as an organization's skilled at creating, obtaining and conveying knowledge and at modifying its behavior to reflect new knowledge (Garvin, 1993). Organizational learning was measured by nurses self-report of Organizational Learning Survey (OLS) questionnaire which was developed by Drury et al. (2016). Higher mean scores indicate nurses perceived to have a higher learning capability of the organization with respect to their performance of stroke management.

### 1.3.6 Organizational readiness for change

Organizational readiness for change refers to the level of commitment of all members of the organization to implement complex organizational changes in healthcare settings (Weiner, 2009). Organizational readiness for change was measured by Organizational Readiness for Change (ORC) questionnaire developed by Drury et al. (2016). High scores indicate positive organizational culture towards nurses' change in stroke management performance.

# Chapter 2. REVIEW OF LITERATURE

The literature search was performed using CINAHL, Google, and MEDLINE. Boolean search terms were used. The words for the search were included as “stroke management”, “influencing factors” AND “stroke management”, “strokes” OR “CVA” AND “knowledge”, “nursing knowledge” OR “understanding” AND “stroke management”, “barriers” AND “stroke management”, and “facilities” AND “stroke care”, “performance” OR “practice” OR “skills” AND “stroke management” published from 2005 to 2017 year. Hand and grey literature were also included in the search terms. The purpose of the literature review covers the 1) importance of stroke management, 2) performance, 3) knowledge, 4) attitudes, and 5) influencing factors of stroke management.

## 2.1 Importance of Stroke Management

### 2.1.1 Prevalence of stroke among acute stroke patient in Bangladesh

The incidence rate of ischemic stroke has been estimated as 60.5% and hemorrhagic stroke as 78.9% in whereas the prevalence rate of ischemic stroke estimated as 83.0% and hemorrhagic stroke as 89.7% globally. Feigin et al. (2015)

conducted a cohort study from 1990 to 2013 among 118 countries with stroke patient registry population survey, it was reported that 38.6% people are living with disability from ischemic stroke and 17% are living with disability from hemorrhagic stroke. On the other hand, 50.0% of deaths were reported from ischemic stroke while 53.3% deaths were estimated from hemorrhagic stroke. Currently American Heart Association (2016) indicated that approximately 11.9% people have been died from stroke. However in Bangladesh, Islam et al. (2012) conducted a descriptive study among 600 hospitalized stroke patients record in three medical college hospitals to estimate the prevalence and incidence of stroke risk factors. According to findings, it was revealed that mortality of stroke was increased from 6.0% in 2006 to 8.5% in 2011 due to aging of the population. The study results also pointed out that stroke creates several adverse effects including an increased risk of infection, morbidity and mortality, use of hospital resources, patient care costs, and length of hospital stays as well as decreased quality of life of people (Islam et al.).

### 2.1.2 Clinical characteristics of stroke

The definition of stroke has currently been modified and updated by American Heart Association in 2013. According to American Heart Association

(2013), “Stroke is classically characterized as a neurological deficit attributed to an acute focal injury of the central nervous system (CNS) by a vascular cause, including cerebral infarction, intracerebral hemorrhage (ICH), and subarachnoid hemorrhage (SAH), and is a major cause of disability and death worldwide. Sacco et al. (2013), a definition writing committee of AHA reported that ischemic stroke is an episode of neurological dysfunction caused by focal cerebral, spinal, or retinal infarction. CNS infarction is brain, spinal cord, or retinal cell death attributable to ischemia, based on pathological, imaging, other objective evidence, and/or clinical evidence. Intracerebral hemorrhagic stroke is defined as rapidly developing clinical signs of neurological dysfunction attributable to a focal collection of blood within the brain parenchyma or ventricular system that is not caused by trauma.

Based on reviews of the literature, two types of stroke are classified namely 1) Ischemic stroke 2) Hemorrhagic stroke (American Stroke Association., 2005; Alpert, 2011). Ischemic stroke is the most common type of stroke and accounts for approximately 70% to 80 % of all CVAs (American Stroke Association., 2005). An ischemic stroke can occur due to a thrombosis or embolism. It occurs when the blood supply impedes part of the brain due to a blockage in a blood vessel locally (thrombosis) or a blood clot somewhere else in the body (embolic event). An individual can also suffer from an ischemic event if

there is generalized decrease in blood flow through the body such as in shock (Alpert, 2011). Hemorrhagic stroke occurs when a blood vessel in the brain ruptures. When blood vessels in the brain do not get blood supply bleeding into the cranial vault causes pressure in the brain. Hemorrhagic stroke can be caused by spontaneous rupture of blood vessels due to uncontrolled hypertension, rupture of aneurysm, abnormal connection of vein and arteries (American Stroke Association., 2005).

There are several factors that influence stroke occurrence. It was reported that aging of the population along with major risk factors including hypertension, diabetes mellitus and obesity leading to predict the incident of stroke will be doubled by the year 2020 (Mateen, et al., 2012). A clinical analysis study of Hossain et al. (2011) found that hypertension, cigarette smoking, ischemic heart disease, and diabetes mellitus were the major risk factors for developing stroke in Bangladesh. However similar study related to identification of risk factors was conducted in 2013 among the stroke patients in Japan. Results identified that gender, age, hypertension, diabetes mellitus, dyslipidemia, smoking, atrial fibrillation, coronary artery disease, and previous history of stroke were the major contributing factors to develop stroke among the patients (Hoshino, Itoh, Yamada, & Suzuki, 2013).

Identification of patient’s sign and symptoms and early assessment in

prevention of secondary complications of stroke are essential aspect of patient care. Stroke patient demonstrate groups of clinical symptoms including slurred speech, functional impairment, headache, loss of vision, pain, respiratory distress and unconsciousness. At admission, hospitalized patients with stroke presented hemiparesis, dysarthria, motor and sensory dysphasia, impaired consciousness, headache, vomiting, and nystagmus (Miah, Hoque, Tarafder, Romel, & Hassan, 2008). Conversely another study reported that dysfunctions like anxiety, depression, sleep and sexual disorders, motor, sensory, cognitive and communication disorders are prevalent alterations in stroke patients. This situation makes them dependent on nursing interventions (Cavelcante et al., 2011). According to Alpert (2011), nurses should be aware of the warning signs/symptoms of a stroke which include: (a) numbness, paralysis, or weakness of an arm, leg and or face, usually on the same side, (b) trouble speaking, loss of speech, or lack of comprehension of spoken language, (c) unilateral loss of vision, (d) sudden headache without cause, (e) dizziness, loss of balance, and/or coordination and (f) a first stroke or TIAs.

### 2.1.3 Clinical complications

Stroke is clinically important because of secondary complications.

Bhowmik et al. (2016) conducted a case study among 679 admitted stroke patient registry in neurology ward of one specialized hospital in Dhaka. The study aims were to identify risk factors and secondary complications among the hospitalized acute stroke patients. Findings revealed that most of the acutely ill stroke patients experienced the following secondary complications: DVT, pneumonia, cellulitis, phlebitis and sepsis, seizure, and stroke severity. Increasing knowledge, and developing expertise in stroke assessment along with positive attitudes, nurse can contribute to compromise or prevent potential complications of stroke in the hospital (Lindsay et al., 2008). In this respect nurses require necessary knowledge, attitudes and performance regarding stroke patient management in term of neurological, hemodynamic, hydration and nutrition, language and speech, continence, mobility, and cognition and communication (Summers et al., 2009; Clayton, 2014).

### 2.1.4 Stroke guidelines

Nurses dealing with stroke patients need more detailed information about early detection of problems using valid and reliable stroke assessment guidelines (Gocan & Fisher, 2008). However nurses working for stroke patient have been facing difficulties to integrate the best available research evidence with

information about patient preferences, clinical perforamnce levels and available resources to make decision in assessing and managing clinical condition of stroke. According to the study of Hafsteinsdottir et al. (2013), nurses demonstrated lack of knowledge and performance and organizational difficulties to perform neurological assessment using gold standard scale, although their attitude was moderate to adopting stroke management guideline.

Nurses in all practice settings should conduct a neurological assessment on admission and when there is a change in client status. Various types of stroke assessment scales are widely used in nursing practice to assess the secondary complications of stroke. The neurological assessment, facilitated with a validated tool should include at minimum: level of consciousness, orientation, motor, pupils, speech/language, vital signs (temperature, pulse, and respiration, blood pressure, pulse oxymetry), and blood glucose. There are Gold standard stroke assessment scales for the assessment and management of stroke complications for nurses. The Glasgow Coma Scale (GCS), National Institutes of Health Stroke Scale (NIHS), Canadian Neurological Scale (CNS), and modified adaptations of the NIHS are currently most commonly used Gold standard stroke assessment scale by the nurses (Gocan & Fisher, 2005). Among them Canadian stroke assessment scale is appropriate for the context of Bangladeshi nurses. Because the merit of the scale include the potential to monitor improvement or deterioration of the stroke

survivors' neurological status, the collection of the relevant information regarding the extent and evolution of stroke and the potential impact to early intervention and patient outcomes (Gocan & Fisher, 2008). Organizational strengths included support by management for human and financial resources involved the educational training, implementation and evaluation of the chosen scale. The CNS is a validated stroke assessment tool, to be the most applicable for frequent bedside nursing assessment and is easier and faster to use than the NIHS (O'Farrel & Zou, 2008).

It is imperative from aforemention discussion that incidence, prevalence and mortality rate are extremely high in Bangladesh. Ischemic and hemorrhagic stroke are classified as types of stroke. Hypertension, smoking, diabetes mellitus, coronary artery disease or atherosclerosis were identified as critial risk factors for developing stroke among the elderly people. Several adverse effects occur due to secondary complications of stroke such as increase in use of hospital resources, treatment cost, length of stay in hospital and decrease in quality of life of patient. Clinical characteristics were identified as hemiparesis, dysarthria, motor and sensory dysphasia, impaired consciousness, headache, vomiting, and nystagmus. In addition, slurred speech, functional impairment, headache, loss of vision, pain, respiratory distress and unconsciousness were demonstrated by the stroke patient as clinical menifastation. DVT, pneumonia, cellulitis, phlebitis, sepsis and seizure

were the secondary complications of stroke. Various types of guidelines such as CNS, NIHS, and GCS are widely used for nurses to assess and manage secondary complications of stroke.

## 2.2 Nurses' Performance of Stroke Management

Inadequate practice on assessment and management of neurological problems for a patient with stroke using standard scale severely affects nurses' quality of nursing care in the hospital. A cross-sectional survey was conducted by Hien and Chae (2011) among 94 nurses in Vietnam. The study examined Vietnamese nurses' knowledge and performance regarding use of GCS scale to assess neurological condition of acute stroke patient. Considering performance level, 42% nurses could accurately assess the neurological conditions using GCS scale. Most of the nurses demonstrated poor level of performancee in assessing and managing neurological conditions for acute stroke patients as measured by accuracy of GCS scoring. Vietnamese nurses knowledge on GCS scale was not reflected into actual performance using GCS scale.

Ahamed and Dutta (2016) carried out an experimental study among the 60 staff nurses in Kolkata. The researchers examined nurses' knowledge and performance level before and after administering of planed teaching program on

GCS scale. The result indicated that staff nurses mean posttest performance score on monitoring GCS scale was higher than their mean pretest performance score ($t= 3.46$, $p<0.001$). However there was no statistically significant relationship found between staff nurses knowledge and performance regarding monitoring of GCS scale. Nurses pretest knowledge and performance level was not so satisfactory due to their inadequate education on GCS scale and clinical experience to the critical care units and its procedure. Based on reviewed research (Goacn & Fisher, 2008), identifying changes in neurological status is vital aspect for nurses to understanding, managing and recognizing alterations in neurological function, and patient outcomes. Ongoing neurological vital signs, head-to-toe assessment, and effective use of the tools to determine the neurological status are important. Nurses should be competent in performing assessment and management of level of consciousness and cognitive status (arousal, alertness and orientation) of the stroke patient by using GCS or by applying the National Institute of Health Stroke Scale.

In a University hospital in London, O'Farrel and Zou (2008) conducted an experimental study among the registered staff nurses. The study aims were to assess nurses' knowledge, attitudes and performance before and after 3 month workshop. The result showed that nurses performance level after 3 month workshop was moderate ($M = 4.14$, $p <0.001$). Nurses require more education and

training on BPGs and Canadian Neurological Scale for developing and enhancing their performance level in order to improve clinical care and patient outcomes. In contrast, Chiu et al. (2009) conducted an experimental study among the 84 Registered nurses from two hospitals in Taiwan. The purpose of this study was to examine the effectiveness of two programs that teach nurses the use of the Chinese version of the National Institute of Health Stroke Scale (C-NIHSS), and to evaluate the level of learner satisfaction with these teaching programs. Experimental group (n = 44) received Interactive Computer Assisted Instruction (ICAI) and control group (n = 40) received Instructor-Led video tape Learning Program (IVLP). Findings showed that, ICAI group score was significantly higher than IVLP group (F=4.81, p = 0.03) in second posttest after four weeks of teaching. There was a positive correlation found between assessment correctness on the second posttest and length of experience in neurological nursing. Nurses with less experience in neurological nursing receiving ICAI performed better assessment than those who received IVLP. Daws, Lloyd and Durham (2007) reviewed a published articles regarding monitoring and recording patient's neurological status. Researchers pointed out that nurses had a lack of knowledge and performance regarding monitoring of consciousness level, observing pupil reactions, assessing motor function and observing vital signs. Nurses require necessary performance to observe and record these conditions using standard

neurological tools in order to achieve better patient outcomes.

However Waterhouse (2008) conducted a mixed method multicenter study among 67 nursing working at neuro-medicine, general intensive care, general medical ward, and accident and emergency department. The study objectives were to assess and evaluate registered nurses' baseline knowledge of the three behavioral responses that make up the assessment tool; to review the recording of GCS in neuroscience areas compared with non-specialist units; and to ascertain when the GCS is taught during nurse training. Results indicated that nurses had a lack of knowledge about pathophysiology of three components. Considering nurses performance in assessing GCS components, 38% nurses could identify eye opening, verbal response and motor response. Majority of the nurses (62%) became confused to assess pupil response and limb movement using three components of GCS tool.

Zagade and Madhale (2014) carried out a pre-posttest experimental design with randomly selected 30 nurses working in neurosurgery intensive care unit, medical intensive care unit & surgical intensive care unit in Belgium. The objectives of the study were to observe the staff nurses performance of assessment and management of neurological conditions of the client with altered sensorium, to prepare and administer learning package on neurological assessment for the client with altered sensorium and to evaluate the efficacy of learning package

among staff nurses. Eight days of displaying CD of learning package on neurological assessment for client with altered sensorium were made. Structured observation check list was used to identify nurses' performance of neurological assessment. The study revealed that nurses' performance on assessment and management of neurological conditions have increased after administering a learning package. The findings also revealed that the post observation performance score was significantly higher than pre observation score ($p<0.05$). Therefore learning package was recommended for nurses to increase their performance level for appropriate management of neurological problems for a stroke patient with altered sensorium.

It is imperative from reviewed literature of other countries in different settings regarding nurses' performance of neurological scales and stroke care guidelines to assess and manage stroke patient that nurses were incompetent in assessing the neurological conditions. Nurses have also lacked in skills and ability to assess and manage stroke related complications due to absence of continuing in-service education in health care settings.

## 2.3 Nurses' Knowledge of Stroke Management

Nurses require necessary knowledge and skills to manage stroke patient

in term of following contents such as neurological assessment, assessment and management of blood pressure, temperature, respiration, as well as hydration and nutrition with blood glucose (Summers et al. 2009). Another study indicated that nurses need adequate knowledge and information on language and speech, continence care, mobility, cardiac monitoring, cognitive assessment, diagnostic imaging tests, and education of patient and family (Summers et al.; Clyton, 2014). Increasing knowledge, and developing expertise in stroke management, the nurse can contribute to compromise or prevent potential complications of stroke in the hospital (Lindsay et al., 2008). A survey by Drury et al. (2016) was conducted in Australia to investigate stroke unit nurse managers' knowledge on evidence-based practice (EBP) on stroke management and its associated factors regarding leadership ability, organizational learning and organizational readiness for change. Findings revealed that nurse managers' knowledge towards EBP on stroke management was higher than their nursing colleague's stroke management knowledge level. The same study pointed out that the nurses having a graduate degree in nursing, attending conferences, in-service education, job satisfaction, current role, and working in a specialty area demonstrated good knowledge on stroke management in the Stroke unit.

A cross-sectional descriptive study was conducted by Hien and Chae in 2011 among 94 Vietnamese nurses. The study examined nurses' knowledge and

skills regarding accuracy of Glasgow Coma Scale (GCS). The results revealed that majority (90%) of the nurses had basic knowledge about GCS scale but, 52.1% nurses incorrectly answered the question related to clinical scenario of application of basic knowledge. However, Ehwarieme and Anardo (2016) carried out a same study among the 218 nurses caring for the unconscious patients with stroke from emergency room, ICU, medical and surgical wards in one teaching hospital in Nigeria. Findings indicated that 41% nurses had good knowledge on purpose, component and behavior of GCS scale but they had poor to moderate level of knowledge on clinical application of the GCS in special situation. Inadequate knowledge in these areas limits their competency in managing the unconscious patients with stroke. Clayton (2014) conducted a systematic review of published literature on the topic of stroke and nursing care for adult stroke patients in an acute care unit. Based on this review, researchers emphasized that nurses need necessary knowledge regarding assessment and management of neurological problems, hemodynamic status, respiratory conditions, swallowing difficulties, DVT, aspiration pneumonia and nutrition and hydration of the acute stroke patient in the hospital.

It is very noticeable from above mention discussion that there is a huge gap between nurses' knowledge regarding stroke patient management. Nurses have lacked in knowledge with respect to secondary complications of stroke,

neurological problems, stroke care guideline, or neurological scales. High level of knowledge and positive attitudes are not always reflected in better performance due to other factors such as hospital policy, leadership, work load, time constraints and organizational barriers.

## 2.4 Nurses' Attitudes of Stroke Management

Attitude is an important aspect of nurses for assessment and management of stroke patients' secondary complications in the hospital. O'Farrel and Zou (2008) evaluated 66 staff nurses' knowledge, attitudes and skills on Best Practice Guidelines (BPGs) and Canadian Neurological Scale in a University Hospital in London. This was an experimental design with pre-posttest to examine the effect of 3 month workshop on BPGs and Canadian neurological Scale. Findings revealed that nurses' attitudes regarding adoption of BPGs and Neurological Scale were moderate both before and after the workshop. Nurses' positive attitudes are essential to translate into their knowledge on BPG and CNS assessment scale to change in practice. Hafsteinsdottir et al. (2013) carried out a four phase cross-sectional study among 105 stroke patients and 30 nurses from healthcare facilities in Netherlands. The aim of the study was to determine the feasibility of the Clinical Nursing Rehabilitation Stroke-guideline (CNRS-guideline) in the care of

stroke patients in terms of the experiences, views and attitudes of nurses towards the guideline and their adoption of the guideline and how often the recommendations were used. The findings stated that nurses' attitudes towards CNRS guideline were positive. Their experiences were challenged due to organizational issues, lack of knowledge and performance, lack of resources and organizational difficulties. However there was a significantly positive correlation found between nurses attitudes towards the guidelines and adoption of the guideline ($r_s = 0.689$, $p < 0.01$). An experimental study was conducted by Hamrin (2006) to test the attitudes toward in-service education on clinical activation of stroke in a University hospital in Sweden. The attitudes and motivation of the nursing staff towards activation of stroke patients were studied. Sixty staff members from two experimental wards received an educational program on stroke and 54 members from two control wards were participated. The attitudes of the nursing staff were evaluated at 3-month intervals. There was a significant change in attitudes among the staff of the experimental wards during a 6-month period.

It can be observed from above discussion that nurses' attitudes were not reflected into their performance towards stroke patient management. Various studies identified issues that prevent nurses to develop positive attitudes towards performance. These include organizational difficuluties, inadequate knowledge and performance about guidelines, neurological scales, work load, limited time,

lack of resources and unfavorable learning environment. In addition, social value and belief may also block nurses to develop considerable attitudes for better performance.

## 2.5 Influencing Factors of Stroke Management

Nurses' performance of stroke management may be impeded by individual and organizational factors within the local setting (Meijers, Hofstede, Beers, & Omta, 2006). Individual factors including basic education, clinical experience, working in a specialty area, stroke education, job satisfaction and hospital characteristics towards nurses' performance of stroke management have associated with an increase in stroke management performance as have organizational factors such as leadership (Sandstrom, Borglin, Nilsson, & Willman, 2011) of unit manager, organizational learning and readiness for change (Goh & Richards, 1997). Influencing factors may affect toward nurses' knowledge on stroke management for better communication with the stroke patients. The presence of family and allocation of resources are also important to address any physical barriers in the stroke care unit. O'Hollaran, Worrall, and Hickson (2011) conducted an ethnographic qualitative study with interview and direct observation in the stroke units of two large tertiary level hospitals in Australia. This research

sought to identify the environmental factors that create barriers or facilitate communication between patients and their healthcare providers in stroke units. Sixty-five patients were observed communicating with their healthcare providers in healthcare events. Seven major themes including healthcare provider's knowledge, communication skills, attitudes, individual characteristics, the presence of family, the physical environment, and hospital systems were identified as barriers for health care providers regarding communications with stroke patients. The leadership is required to develop the hospital policies and procedures that are necessary to ensure that there is adequate staffing to develop nurses knowledge on communication with stroke patients. Simmons-Mackie et al. (2007) identified a lack of leadership as a key barrier to the successful implementation of strategies to enhance nurses' knowledge on stroke patient communications.

Hanna et al. (2016) carried out a survey design to identify the organizational factors among the 429 registered nurses from New York State Nurses Association Database. The study was carried out to examine nurses' working environments in relation to repositioning the patients with stroke. Findings reflected that time-on-task, physical burden, technology or complexity of care as well as patient condition and work resources significantly increase the nursing work of repositioning patient at high risk for developing pressure ulcers following stroke. As patient's weight increases patient mental status decreases and

complexity of care rises. Findings indicated that there is an increase in the need for additional workers, materials resources and time to reposition patients in order to ensure quality of care to prevent complications of stroke. A cross-sectional survey was carried out to describe the nature, frequency and factors associated with care that was rushed or missed by 583 health care aides in western Canadian. Factors associated with missed and rushed residents tasks of the nurses were described as demographic characteristics, job satisfaction, physical and mental health, burnout, unit level characteristics associated with organizational context, facility characteristics and the outcome variables of rushed and missed resident care were explored and measured. Majority of the health care aides (86%) reported being rushed with tasks. Tasks most frequently missed were talking with residents and assisting with mobility. Favorable work life (job satisfaction and burnout) and personal wellbeing (physical and mental health) are associated with fewer instances of rushed and missed resident care.

Psychosocial factors are the good predictors of work related fatigue for the nurses working with stroke patients. Rahman et al. (2016) conducted a cross-sectional study to explore and determine relationship between psychosocial factors and work-related fatigue among emergency and critical care nurses in Brunei. A total of 201 nurses were participated in the study. Psychosocial work stressors and work related fatigue were measured using Copenhagen Psychosocial

Questionnaire (COPSOQ II- 23) and OFER scale. Results showed that skill discretion, commitment to workplace, quality of leadership, social support from supervisors, job satisfaction, work–family conflict, trust in management, justice, self-rated health, burnout, and stress, and physical violence were identified as good predictors for work related fatigue among emergency and critical care nurses in Brunei.

Work overload could be reduced through management of the ratio of nurses to work assigned; employing nurses with range of skills; and increasing nurses' influence for shift scheduling to reduce work pressures, which in turn may reduce stress levels. The specific issues of people with stroke disability and the relationship with nurses in the hospital setting has received very little attention. The hospital environment can be noisy, busy and unfamiliar which may exacerbate the person with secondary complications of stroke which can worsen anxiety and make care more challenging (Marquardt, 2011). People with stroke may have attributes which make connection with other people more difficult because their ability to communicate and understand the needs of others can be impaired (Moreau, Rauzy, Viallet, & Champagne-Lavan, 2015). This may impact on the nurse/patient relationship because of time constraints, lack of understanding about stroke complications and inappropriate ward environment (Turner, Eccles, Elvish, Simpson, & Keady, 2015).

International survey results of European countries and the United States revealed that improved work environments and reduced bed–nurse ratios were associated with increased quality of care and patient satisfaction (Aiken, Sermeus, & Van den Heede, 2012). According to a survey report of You et al. (2013), higher patient-to-nurse ratio was associated with nurses' burnout, job dissatisfaction, and low ratings for patient care in the Chinese hospitals. On the other hand Australian nurse managers identified insufficient resources and time constraints as organizational barriers to implement better evidence into better stroke management practice (Drury et al., 2016). Study also indicated that leadership ability, stroke educational program, organizational environment, attitude and belief towards evidence based practice, and readiness for changes had severely affected to Australian nurses' stroke management competency. However, this study pointed out that having a graduate degree in nursing, attending in a conference and/or in services education, job satisfaction, current role, and working in a specialty area were identified as individual factors related to nurses stroke management in acute care hospital. One previous study in Brunei revealed that quantitative demands, work pace, commitment to workplace, recognition, quality of leadership, social support from supervisors, job satisfaction, work–family conflict, and trust in management are identified as psychosocial work stressors for nurses affecting quality of nursing care in the hospital.

Work environment and nurses' performance of stroke management may account for perceived stress and possibly impact on the nurse's quality of stroke patient management in the stroke unit. A cross-sectional survey of Joice, Jones, and Johnson (2012) was conducted among 44 stroke unit nurses in Scotland to examine the relationship between stress of caring and their perception of work environment and belief about stroke and recovery. Results showed that nurses' stress ratings were positively correlated with identity, consequences and emotion. Stressful events described by nurses were included as high demand and low decisional control over the environment. High demands were patient's inability to walk, decline in condition and communication difficulties, patient frustration and mood as well as relative's continual reassurance and explanation. On the other hand nurses' low decisional control comprises frustration about their advices not followed, lack of resources and patient safety in the care environment. If the nurses believe their patient's stroke to be associated with many symptoms, have greater impact and then they themselves perceived more stress of caring. The nurses believed that their patients have significantly greater levels of pain, sleep difficulties, headaches, dizziness, stiff joints and upset stomach.

A review of literature on the environmental factors that influence nurses stroke management practice in the hospital (O'Halloran, Hickson, & Worrall, 2008) indicated that the health professionals' knowledge, the patient's family, the

physical environment, hospital services, and policies were potential barriers to manage stroke patient appropriately. The study also identified some current gaps in knowledge. Stroke education and training for nurses is important to improve the patient outcomes as well as to bring changes in health care system. Simmons-Mackie et al. (2007) found that educating and training healthcare providers can result in positive changes to the healthcare system. Mixed method approach comprising a cross-sectional survey was undertaken to identify the organization of oral hygiene training, provision and practice and explore stroke nurses perceptions about barriers and facilitators to mouth hygiene practice in 11 stroke unit care in UK. Nurses identified 3 main factors as barriers for providing effective oral care towards stroke patient including lack of awareness of the need for good oral care, lack of protocols and assessment tools and lack of education and training.

Based on above discussion, it is concluded that several factors affects nurses' performance towards stroke patient management. These include individual factors, organizational factors, physical environment, psychosocial factors, hospital characteristics, nurses' knowledge and skills to assess and manage secondary complications, unit manager's leadership role and job satisfaction. Therfore nurses need comprehensive knowledge and information about stroke patient management. In addition, hospital management should create positive organizational learning culture, disseminate stroke care guideline and provide

adequate leadership to enhance nurses' performance of stroke management.

## 2.6 Summary

Three major areas of the literature have been reviewed. These are the importance of stroke, current status of nurses' performance, knowledge, and attitudes and influencing factors towards performance of stroke management. Incidence, prevalence and mortality rate of stroke is considerable high in Bangladesh. These occur due to secondary complications of stroke such as deep vein thrombosis, pneumonia, sepsis, phlebitis and seizures. These complications then increases in use of hospital resources, length of hospital stay, treatment cost and decreases in quality of life of patient. Stroke is characterized as a neurological deficit attributed to an acute focal injury of the central nervous system by a vascular cause including cerebral infarction, intracerebral hemorrhage and subarachnoid hemorrhage. There are basic requirements for the nurses to perform stroke patient management. These include performance, knowledge, and attitudes regarding stroke care guidelines, neurological scales to assess and manage secondary complications, and organizational vision and policies towards stroke patient management. According to KAP model, knowledge is increased by seeking required information which brings changes in attitudes to enhance

performance of an individual. It has shown that there are little link between performance, knowledge, and attitudes towards stroke management. There is a huge gap between performance, knowledge, and attitudes towards stroke management in the previous literature. Neuremous previous studies showed that most of the nurses had a higher level of knowledge than the level of their performance. There may be other factors that prevent nurses to transform their knowledge into performance. These factors include individual and organizational factors. Individual factors are personal information, professional education, clinical experience, specific education on stroke, and job satisfaction. However organizational factors include stroke educational program, organizational learning, leadership of unit manager, and hospital characteristics.

Hospital management needs to create favorable environment and to promote unit manager's leadership quality using KAP model to enhance nurses' performance of stroke management. In Bangladesh, there have been no prior studies to examine the level of nurses' performance, knowledge, and attitudes and to determine the influencing factors towards performance of stroke management. It would be beneficial for the nursing profession if the level of nurses' performance, knowledge, and attitudes and its relationship are explored. In addition influencing factors of nurses' performoance of stroke management are identified. This information would help to guide and suggest effective

management strategies for improving nurses' clinical performance of stroke patient management in Bangladesh.

# Chapter 3. CONCEPTUAL FRAMEWORK

## 3.1 Conceptual Framework of the Study

This study's conceptual framework would be based on the Knowledge-Attitude-Practice (KAP) model. Knowledge, attitudes and performance represent to the KAP model respectively. KAP survey also called the knowledge, attitude, behavior and practice (KABP) survey (Green, 2001; Hausmann-Muela, Muela, & Nyamongo, 2003; Manderson & Aaby, 1992). According to Cleland (1973), the KAP survey was first born in the field of family planning and population studies in the 1950s. Basically KAP surveys were designed to measure the extent to which an obvious hostility to the idea and organization of family planning existed among different populations, and to provide information on the knowledge, attitudes, and practices in family planning that could be used for programme purposes around the world. KAP is an important theoretical model of health education, which asserts that behavior change is affected by knowledge and attitude. One implication is that educators should work to instill positive attitude into people in order to change their choice of action (Schneider & Chesklock, 2003). This theoretical model argues that individuals first learn about a practice, then develop a positive attitude toward it, and after passing through these stages,

engage in the behavior (Valente, Parades, & Poppe, 1998). KAP survey data is often used to plan activities aimed at changing behavior. Several studies showed that knowledge is only one factor influencing treatment-seeking practices, and in order to change behavior, health programs need to address multiple factors ranging from socio-cultural to environmental, economical, and structural factors (Launiala & Honkasalo, 2007).

According to KAP model, knowledge focuses on public health and biomedical information. Knowledge means the ability of pursuing and using information and by understanding, learning experience and identifying the studying material (Lbrahim, 1995). Attitude indicates the result of making reactions via some ways in some situations, and observes and explains based on the result of reaction or combine into one point of view. Term attitude is usually used to refer to a person's general feelings about an issue, object, or person which predisposes one to respond in some preferential manner. Furthermore, attitudes are related to the person's knowledge, beliefs, emotions, and values, and they are either positive or negative (Lbrahim). Performance means the application of rules and knowledge that leads to action. The way of applying knowledge and attitude through action is known as perforamance. KAP model was widely used in several studies to explain performance, knowledge, and attitudes of stroke in China, Iran, Sweden, Ireland, and USA among the general population or stroke patients (Yang

et al., 2013; Borhani-Haghighi, Karimi, Amiri, & Ghaffarpasand, 2010; Sloma, Backlund, Strender, & Skaner, 2009; Hicky et al., 2009; Reeves, Rafferty, Aranha, & Theisen,, 2008). An improvement of knowledge affects the people's attitudes by seeking information about stroke via various medium among the individuals with high risk. These will then help to change practices by adapting healthy life style (Noorkhairina, Sakinah, & Rabiaah, 2013).

Therefore the KAP model is selected to guide the study because the researcher would like to examine the nurses learning outcomes which are needed to enhance their performance, knowledge, and attitudes of stroke management. KAP model tell us what people know about certain things, how they feel and also how they behave (Launiala, 2009). According to KAP model it is hypothesized that there would be a relationship between nurses' knowledge and attitudes about stroke management and the extent to which they will develop necessary performance in this area. Certain conditions such as lack of leadership, inadequate educational program, unfavorable organizational climate, hospital characteristics, specific education, or job satisfaction may block the demonstration of attitudes to performance development (figure 1). Therefore, questions about influencing factors are included in the nurses' performance towards stroke management survey.

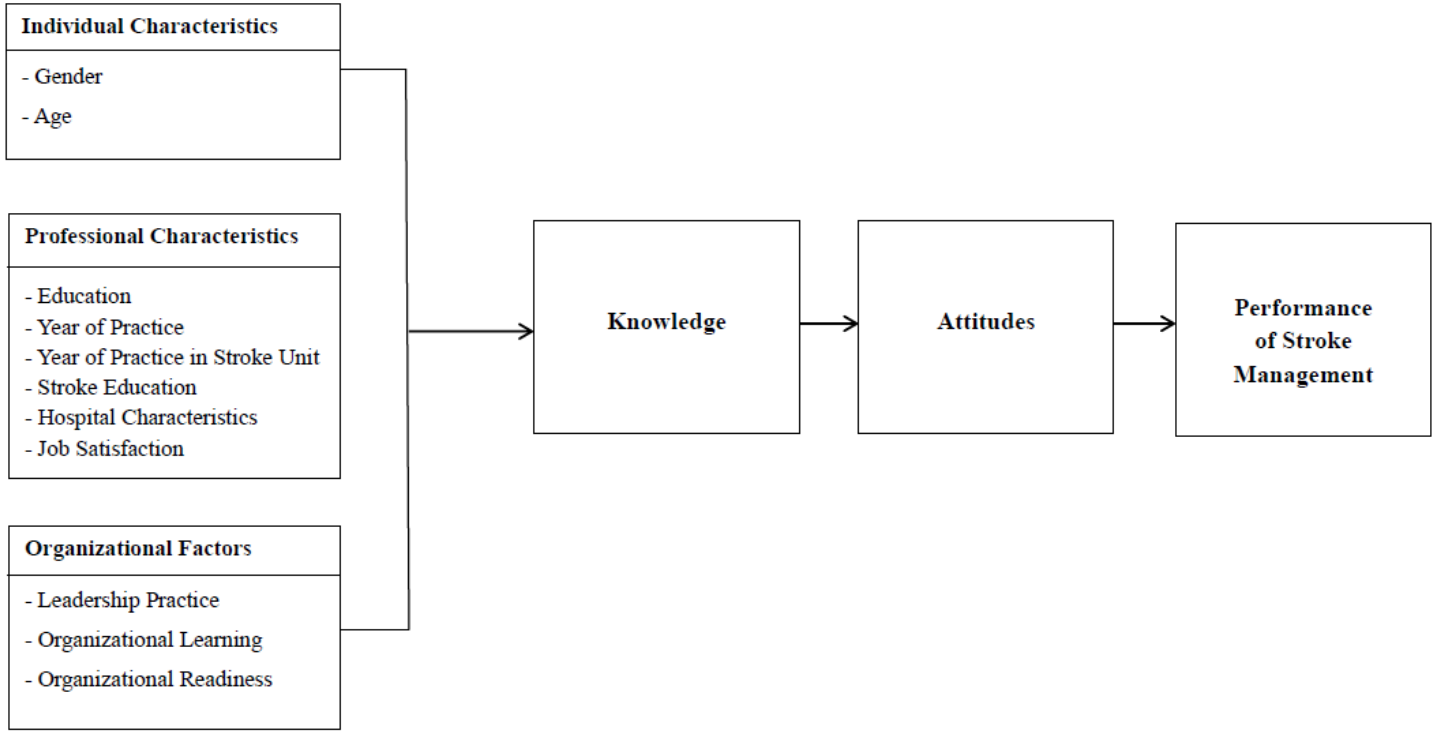


Figure 1 Conceptual framework on factors influencing performance of stroke management among nurses

According to the KAP model, certain knowledge can influence upon individuals ability to perform actions. The attitude affects individual towards performance development. Knowledge and attitude bring changes in human behavior. Therefore, integral components of performance, knowledge, and attitude, represent the quality nursing practice of stroke management.

# Chapter 4. METHODS

## 4.1 Research Design

A cross-sectional descriptive study design was used to identify factors influencing the performance of stroke management among nurses from three tertary level hospitals in Bangladesh.

## 4.2 Study Participants

### 4.2.1 Selection of participants

The participants were 226 nurses recruited from three tertiary level hospitals in the area of two metropolitan cities in Bangladesh. Two of them were public hospitals and one was private hospital. Approximately 8000 patients receive their treatment from these hospital everyday. A total bed for public hospitals was 3100 and around 1500 beds were allocated in the private hospital. These hospitals were selected because it was important to compare the results between public and private hospitals. Data were collected from May to August 2017. Nurses working with the stroke patient at general medicine and neuro-medicine wards were selected. All of the settings had been selected conveniently. Subjects who met the following inclusion and exclusion criteria were

conveniently selected from the targeted hospitals.

### Inclusion criteria:

1. Working as a full time staff nurses in the selected wards
2. Having educational status of at least three years diploma in nursing degree
3. Having at least 1 year working experience on respected units
4. Ability to speak, read, write and understand Bengali language

### Exclusion Criteria:

1. Nurses who were on sick leave, maternity leave or casual leave had been excluded from the study

### 4.2.2 Sample size

The participants were 226 nurses recruited from three tertiary level hospitals in Bangladesh. A total of 3457 nurses were employed in those hospitals and around 720 nurses had been placed under medicine and neuro-medicine wards. The required sample size was calculated by G*Power (Version 3.1.2) using an F test (Linear multiple regression: fixed model $R^2$ deviation from zero). Statistical parameters were set as follows: $\alpha = 0.05$, small effect size (f2) = 0.15, power ($1–\beta$) = 0.95, number of predictors = 16 (Faul, Erdfelder, Lang, & Buchner, 2007). The calculated sample size was 204 at minimum. And the final sample size was 226 in

this research. Results indicate that the predicted power is 0.95 (critical z = 1.69), indicating a sufficient sample size for the multivariate analysis.

## 4.3 Research Instruments

Study variables included nurses' performance of stroke management, nurses' knowledge of stroke management, nurses' attitudes of stroke management, individual characteristics and professional characteristics, and organizational factors. The survey comprises seven sections with previously validated 100 items explained in full below.

### 4.3.1 Nurses performance of stroke management

Nurses' performance of stroke management was measured using a 10-item structured questionnaire based on stroke care guideline recommendations (SIGN, 2002). This questionnaire was used to examine nurses' level of performance of stroke management. Five items were used to assess nurses' neurological assessment of complications and five items were used to assess their management of complications on stroke. The subjects were asked to rate their opinion with 4 point Likert scale ranging from 4 = most frequently performed to 1 = not performed. Respondents were received a total of between 10 to 40 points,

which was then be converted into a percentage. There is no gold standard method to categorize the level of performance. Therefore the level of performance was categorized into three levels: low was ⅓ (<33%), moderate from ⅓ (34%) to ⅔(66%), and high was >⅔ (>66%). Based on this criterion the level of performance was categorized into the following: low (<27), moderate (27 to 33) and high (>33). The higher scores indicated the higher level of performance towards stroke management. The cronbach's alpha reliability of nurses' performance of stroke management questionnaire was yielded at 0.87 in this study.

### 4.3.2 Nurses knowledge of stroke management

Nurses' knowledge on stroke management was measured using previously validated Nurses Stroke Knowledge Questionnaire (NSKQ) developed by Thomas et al. (1999). The questionnaire was composed of 12-item yes, no, or unsure question. Four items were used to measure nurses warning sign related questions, 4 items to measure nurses' neurological assessment questions and 4 items were used to assess nurses management of complications related questions. Score "1" was given for correct answer and "0" for incorrect answer. The total score had been ranged from 0-12 and it was then converted into a percentage. There is no gold standard method to categorize the level of knowledge. Therefore

the level of knowledge was categorized into three levels: low was ⅓ (<33%), moderate from ⅓ (34%) to ⅔ (66%), and high was >⅔ (>66%). Based on this criterion the knowledge score was categorized into the following: low (<2), moderate (2 to 5) and high (>5). The higher scores indicated the higher level of knowledge. Kuder-Richardson 20 was used for the reliability and internal consistency of knowledge questionnaire which was yielded at 0.70 in the previous study. KR 20 for the knowledge questionnaire was yielded at 0.89 in the present study.

### 4.3.3 Nurses attitudes of stroke management

Nurses attitudes on stroke management was evaluated using a 14-item Nurses Attitude on Stroke Management Questionnaire (NASMQ) developed by Hamrin (2006). The subjects were asked to rate the 5 level of agreement ranged from 5 = strongly agree, to 1 = strongly disagree. The possible total score was ranged from 14 to 70 and it was then convert into percentage. The maximum score for the scale was 70 and the minimum score was 14. There is no gold standard method to categorize the level of attitudes. Therefore the level of attitudes was categorized into three levels: low was ⅓ (<33%), moderate from ⅓ (34%) to ⅔ (66%), and high was >⅔ (>66%). Based on this criterion the nurses who scored low (< 42 points) was considered as negative attitudes, score medium (42 to 46

points) as neutral attitudes and high score (46< points) was considered as positive attitudes. Internal consistency of this instrument in previous study was yielded at Cronbach's value of 0.69. The cronbach's alpha reliability coefficient of attitude on stroke questionnaire was yielded at 0.85 in this study.

### 4.3.4 Leadership practice of unit manager

Leadership practice of unit manager was measured by a 17-item Leadership Practice Inventory (LPI) scale developed by Drury et al. (2016) that was separated into five subscales and assessed the presence of features consistent with unit manager leadership style. Each of the five subscales was measured on a 10-point Likert scale ranging from 1 = almost never to 10 = almost always. Five subscales of the LPI includes: unit manager's credibility (4 items), inspired a shared vision (3 items), challenge the process (4 items), enable nurses to act (3 items), and encourage nurses' contribution (3 items). Following questions such as 'my manager confidently check my stroke care abilities', 'my manager shares with me about hospital vision to manage stroke patient', 'may manager asks me the reasons when stroke patient outcome is not achieved', 'my manager enables me to learn new skills to manage stroke patient', and 'my manager praises me when my stroke care performances well done' etc. were asked the respondents to

rate their agreement about their unit manager's leadership features of the subscales respectively. All nurses' scores for each of the subscales were summed and then means and standard deviations were calculated. Total score was ranged from 17 to 165 with higher scores indicating nurses self-report of better unit manager's leadership skills. The potential subscale score for each of the unit manager's credibility and challenge the process was ranged from 4 to 40 with higher scores indicating nurses self-report of better unit manager's leadership skills regarding these subscales.

However potential subscale score for each of the inspired a shared vision, enable nurses to act, and encouraging nurses contribution was ranged from 3 to 30, with higher scores indicating nurses' report of better unit manager's leadership skills regarding these subscales on stroke management. There is no gold standard method to categorize the level of leadership practice of unit manager. Therefore the level of leadership practice was categorized into three levels: low ⅓ (<33%), moderate from ⅓ (34%) to ⅔ (66%) and high >⅔ (>66%). Based on this criterion the nurses who scored low (<88 points) was considered as low level of leadership practice, score medium (88 to 128 points) as moderate level of leadership practice and high score (128< points) was considered as high level of leadership practice. Internal reliabilities for the five subscales of LPI were a Cronbach's alpha coefficient above 0.75 and test-retest reliability was 0.94. The cronbach's alpha

reliability coefficient for the five subscales of LPI was yielded at 0.96 in this study.

### 4.3.5 Organizational learning environment

The organizational learning environment was assessed using 25-item Organizational Learning Survey (OLS) questionnaire developed by Drury et al. (2016). The OLS questions separated into five subscales. Each subscales consists of 5 items which was measured by 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. This measure was used in a study of the relationships between individual and organizational learning in nursing. The five subscales under OLS include as clarity of mission and vision, leadership commitment and empowerment, experimentation and rewards, effective transfer of knowledge and teamwork and group problem solving. The following questions under these subscales had been asked the respondents to rate their agreement with respect to organizational learning environment such as I get widespread support from organization vision of stroke care or I have opportunities to share my stroke knowledge and skills with other staffs etc. Total score was ranged from 50 to 170 with higher scores indicating nurses self-report of positive organizational learning capability. The potential score for each subscale of organizational learning capability had been ranged from 5-35. Higher mean scores indicated nurses' report of positive organizational learning capability. There is no gold standard

method to categorize the level of organizational learning capability. Therefore the level of organizational learning capability was categorized into three levels: low ⅓ (<33%), moderate from ⅓ (34%) to ⅔ (66%) and high >⅔ (>66%). Based on this criterion the nurses who scored low (<111 points) was considered as low level of organizational learning capability, score medium (111 to 126 points) as moderate level of organizational capability and high score (126< points) was considered as high level of organizational learning. The internal consistency for the OLS five subscales were a Cronbach's alpha coefficient of 0.90, and test-retest reliability was 0.77. The cronbach's alpha reliability coefficient for the five subscales of OLS was yielded at 0.81 in this study.

### 4.3.6 Organizational readiness for change

Nurses self-report of organizational readiness for change was measured by an 11-item previously validated organization's readiness to accept change questionnaire which was developed by Waterman et al. (1980). Eleven questions were asked to rate the three important aspects of an organization. These aspects include strategy (5 items), staff (4 items), and skills (2 items). The questions such as 'does your hospital provide multi professional forum or network to facilitate dissemination of stroke care guideline into practice?' or 'in your view, are the

health care professionals in the hospital receptive to using stroke care guideline?' etc. were asked the nurses to response with yes/no/unsure choices. The unsure category was combined with the 'no' category. Nurses' measures of organization readiness to accept change was summarized using frequency. Score ranged from 11 to 33 and high scores indicated nurses' agreement regarding positive culture towards organizational readiness for change about stroke management practice. There is no gold standard method to categorize the level of organizational readiness for change. Therefore the level of organizational readiness for change was categorized into three levels: low ⅓ (<33%), moderate from ⅓ (34%) to ⅔ (66%) and high >⅔ (>66%). Based on this criterion the nurses who scored low (<17 points) was considered as low level of organizational readiness for change, score medium (17 to 25 points) as moderate level of organizational readiness and high score (25< points) was considered as high level of organizational readiness for change. The internal consistency for the organizational readiness for change questionnaire was a Cronbach's alpha coefficient of 0.89. The cronbach's alpha reliability coefficient in this current study was yielded at 0.88.

### 4.3.7 Nurses individual and professional characteristics

Nurses individual and professional characteristics were assessed using a

previously validated 11items Nurses Demographic Questionnaire (NDQ) developed by Drury et al. (2016). The individual characteristics included age, and gender. Nurses' professional characteristics included education, year of practice as staff nurse, year of practice in stroke unit, stroke education, job satisfaction, types of wards or hospital characteristics. Two items were asked about nurses personal characteristics and nine items were asked about nurses' professional characteristics. Under professional characteristics, 1 question asks about nurses' education, 2 questions were asked about year of practice and year of practice in stroke unit, 2 questions to ask about stroke education, 2 questions were related to hospital characteristics and 2 questions were asked about nurses' job satisfaction regarding stroke management performance. Individual question such as what is your age or gender. Professional questions including what is your highest level of education, have you previously completed continuing education course on stroke management, number of years caring for stroke patient or how much you are satisfied with your job related to stroke patient management etc. were asked.

## 4.4 Translation Process of Instruments

The translation-back translation technique was conducted by two bilingual translators. The first translator translated the English version questionnaires into Bengali language. The second translator was then translated

the questionnaire from Bengali version back into English language. Next, the two English versions of the questionnaires were checked for clarity, discrepancy by the advisory committee who is expertise in stroke management area from Yonsei University College of Nursing, Seoul, Korea. The content equivalence of the items was also being checked by means of reconciling and evaluations performed by the translation team and health professionals. Both reconciled versions were pilot tested with a small group of nurses (N = 20) from another same characteristics hospital.

## 4.5 Data Collection

Data were collected from 233 nurses of the three tertiary level hospitals and data collection period was from May to August, 2017. Prior to data collection, the proposal was approved by the Yonsei University Health System Institutional Review Board (Y-2017-0005) in Korea. With the approval and a letter of permission from the Dean of the College of Nursing, Yonsei University, Korea, the researcher asked for permission from the concern Authorities of the respected hospitals through Director General, Directorate General of Nursing and Midwifery in Dhaka, Bangladesh. Researcher communicated with nursing superintendents and charge nurses on the selected wards of the targeted hospitals

to meet with the study participants. Then researcher briefly introduced about the purpose of the study to the nurses. The questionnaire and a covering letter that provided background information, an assurance of confidentiality, and instructions for returning the questionnaire, together with a gift and snacks addressed envelope were kept on the desk near to the nurses' duty station of the respected wards. The nurses who were interested to participate in the study were invited to pick up a set of questionnaire from the desk voluntarily. Participants were needed approximately 30 minutes to complete the questionnaire.

The participants were then asked to complete and return the questionnaire within a two week period from the date of approach. A total of 226 respondents completed and returned questionnaire were considered to be consent to participate. Upon completion of the questionnaire, the respondents were asked to seal the completed questionnaire in a white envelope and place it in a box marked "Research Surveys." At the end of the first week, a reminding notice was served on the notice board addressing all the participants to complete or drop the questionnaire into the research box prior to the deadline. Their participation was completely voluntary and anonymity was guaranteed. Nurses could be stopped or withdrawn their participation from the study at any time without any reason or penalty if they wish to, with no risk to their hospital, personal or professional career, and work environment. All necessary information collected from the

subjects were kept confidential and placed in secure locked cabinet for three years and this would be destroyed after completion of the study. It was the responsibility of the organization to communicate information that might affect the spontaneity of the subject continuing in the plan, the procedure, and the study and that might have been resulted from that study or from other studies with the same subject.

## 4.6 Protection of Human Subjects

Prior to data collection, the study was approved by the Institutional Review Board at Yonsei University Health System (Y-2017-0005), Seoul, Korea and permission obtained from three tertiary level hospitals through written order issued by the Director General, directorate general of nursing and midwifery in Bangladesh. A waiver of consent was granted because this is a survey research; no risks were incurred, and no identifiable information or sensitive question were asked to answer. Respondents were asked not to include any identifiable information on the survey, and the use of sealed envelopes had been provided anonymity and confidentiality. All nurses were ensured that their participation had been completely voluntary. The subjects' confidentiality and anonymity were strictly maintained through the use of code numbers. Subjects could be withdrawn at any time without any reason. Subjects were informed that the findings of the study would be submitted to scientific journal for publication and presented at

conferences. Surveys and code sheets would be secured in a locked file accessible only to the investigator. All necessary information collected from the subjects would be kept confidential and destroyed after completion of the study.

## 4.7 Data Analysis

The data were analyzed using SPSS version 21.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to summarize performance, knowledge, attitudes, individual characteristics and professional characteristics, and organizational factors towards performance of stroke management. Associations between influencing factors and performance towards stroke management were examined using independent sample *t*-tests and one way analyses of variance (ANOVA), with Schéffe post-hoc tests. Pearson correlation analysis was performed to explore the relationship between continuous variables. Multiple regression analysis was carried out to determine the influencing factors of performance of stroke management. Significant bivariate correlates of the dependent variable were entered as potential factors in the regression model using multiple regression techniques. Using this technique, each variable was included in the final model between unique contributions to the performance of stroke management. A stepwise selection method was used to fit the model. A value of P = 0.05 was considered statistically significant.

# Chapter 5. RESULTS

This chapter presents the results of this study. Results are presented under the following headings.

## 5.1 Characteristics of the Participants

Among 233 nurses, 226 participants completed the survey (the response rate was 96.9%). Among 226 participants (see Table 1), the majority (92.5%) of the participants were female. The mean age of nurses' was 31.27 years (SD = 6.98), 78.8% were younger than 31 years. In terms of education, 81.9% nurses were held a diploma degree, 11.1% were a baccalaureate degree and 7.1% were a master degree. The mean year of practice as staff nurse was 7 years and majortiy (72.6%) of their practice year was less than 7 years. The mean year of practice of nurses in stroke unit was 3.57 years and most (79.2%) of their year of practice in stroke unit was less than 4 years. Nurses working in each types of hospital were 50%. More nurses (63.7%) worked in a medicine wards. However, few nurses worked at ICU (15%) and neuro-medicine (17.7%) wards respectively. Very few nurses (8%) had received education on stroke. More than half of the nurses (57.1%) reported no job satisfaction with stroke patient management.

Table 1. Demographic characteristics of nurses

(N = 226)

| Characteristics | Categories | N | % | Mean±SD |
|---|---|---|---|---|
| Gender | Male | 17 | 7.5 | |
| | Female | 209 | 92.5 | |
| Age (years) | ≤31 | 142 | 62.8 | 31.27±6.98 |
| | ≥31 | 84 | 37.2 | |
| Level of education | Diploma | 185 | 81.9 | |
| | BSN | 25 | 11.1 | |
| | Masters | 16 | 7.1 | |
| Year of practice (years) | ≤7 | 164 | 72.6 | 7.00±5.92 |
| | ≥7 | 62 | 27.4 | |
| Year of practice in stroke unit (years) | ≤ 4 | 179 | 79.2 | 3.57±3.30 |
| | ≥4 | 47 | 20.8 | |
| Types of hospital | Public | 113 | 50.0 | |
| | Private | 113 | 50.0 | |
| Types of wards | Medicine | 144 | 63.7 | |
| | ICU | 34 | 15.0 | |
| | Neuro-Medicine | 40 | 17.7 | |
| | NICU | 8 | 3.5 | |
| Education on stroke | Yes | 18 | 8.0 | |
| | No | 208 | 92.0 | |
| Job satisfaction | Totally satisfied | 97 | 42.9 | |
| | Not at all satisfied | 129 | 57.1 | |

## 5.2 Level of Nurses' Performance, Knowledge and Attitudes

### 5.2.1 Nurses' performance of stroke management

Table 2 shows the distribution of mean and SD of nurses' performance of stroke management. The total item mean score of nurses performance was calculated as 30.29 (SD = 6.97) ranging from 10-40 which was considered as moderate level. Above half of the nurses (66.3%) had a low to moderate level of performance. However one third of the nurses (33.7%) obtained high level of performance towards stroke management. Nurses achieved high level of performance in the subcategory of complications management (M = 17.54, SD = 3.25) than in the subcategory of complications assessment (M = 12.75, SD = 4.82).

Table 2. Distribution of mean and SD of nurses performance of stroke management

(N = 226)

| | **Assessment of complications** | **Mean±SD** |
|---|---|---|
| 1 | I measure functional status with Barthel Index | 2.25±1.19 |
| 2 | I often use water swallow screening test and pay attention to predictors | 2.92±0.95 |
| 3 | I assess for the risk of falling by using instrument | 2.84±1.11 |
| 4 | I screen the nutritional status with the MUST | 2.25±1.28 |
| 5 | I observe cognitive status by using standard scale | 2.48±1.25 |
| | Subtotal | 12.74±4.82 |
| **Management of complications** | | |
| 6 | I assist patients with sitting position while eating | 3.60±0.78 |
| 7 | I support patients in improving their self-efficacy | 3.57±0.78 |
| 8 | I always control intake of fluid | 3.24±0.88 |
| 9 | I always support patients concerning compliance to therapy | 3.72±0.68 |
| 10 | I provide patients and partner with education <24 h. of admission | 3.41±0.84 |
| | Subtotal | 17.54±3.25 |
| | Total | 30.29±6.97 |

### 5.2.2 Nurses knowledge and attitudes of stroke management

Table 3.1 shows the distribution mean and SD of Nurses' level of stroke knowledge. The total item mean score for stroke knowledge was calculated as 3.19 (SD = 2.24) ranging from 0-8 which was considered as moderate level. Results showed that majority of the nurses (82.2%) had a low to moderate level of knowledge on stroke management. In contrast very few nurses (18.1%) achieved a high level of knowledge on stroke. Nurses mean knowledge score on management of complication was higher (M = 1.54, SD = 1.26) than in the domain of warning sign (M = 0.65, SD = 0.62).

Considering nurses level of attitudes of stroke management, the total item mean score was calculated as 45.19 (SD = 4.46) ranging from 32-57 which was considered as neutral level. Results showed that majority of the nurses (67.3%) had a negative to neutral level of attitudes on stroke management. In contrast one third nurses (32.7%) had positive attitudes towards stroke management (see Table 3.2).

Table 3.1 Distribution of mean and SD of nurses stroke knowledge

(N=226)

| | **Warning Sign** | **Mean±SD** |
|---|---|---|
| 1 | Perceptual problems only occur if a stroke patient has weakness or sensory loss | 0.01±0.12 |
| 2 | Dyspraxia is due to muscle weakness | 0.02±0.15 |
| 3 | A patient with an ischemic stroke may likely exhibit decreased level of consciousness, left leg weakness and right arm weakness. | 0.11±0.31 |
| 4 | Agnosia is a condition in which the patient loses the ability to recognize objects | 0.51±0.50 |
| | Subtotal | 0.65±0.62 |
| | **Neurological Assessment** | |
| 5 | Silent aspiration can be detected with video fluoroscopy | 0.39±0.49 |
| 6 | An intact gag reflex indicates a safe swallow | 0.11±0.31 |
| 7 | The Barthel Activities of Daily Living Index is a measure of functional dependency | 0.48±0.50 |
| 8 | An ischemic stroke patient's neurologic status and vital signs should be assessed frequently for 48 hours after tPA administration. | 0.02±0.15 |
| | Subtotal | 1.00±0.93 |
| | **Management of Complication** | |
| 9 | It is recommended that treatment with intravenous tPA begin within 3 hours of stroke symptom onset. | 0.55±0.50 |
| 10 | The recommended dosage of tPA for patients who have had an ischemic stroke is 0.9 mg/kg. | 0.44±0.50 |
| 11 | Body temperatures of $103^0$ F should be treated in a patient with ischemic stroke. | 0.07±0.25 |
| 12 | Prior to administering intravenous tPA for ischemic stroke, labetalol is recommended for lowering the blood pressure to less than 185/110. | 0.48±0.50 |
| | Subtotal | 1.54±1.26 |
| | Total | 3.19±2.24 |

Table 3.2 Distribution of mean and SD of nurses attitudes of stroke management

(N=226)

| | **Attitude of stroke management** | **Mean±SD** |
|---|---|---|
| 1. | I feel it meaningful to work with stroke patients | 4.81±0.78 |
| 2. | I like working with old people | 4.54±0.99 |
| 3. | Carrying out an activity on his/her own strengthens the stroke patient's self-confidence | 4.44±1.07 |
| 4. | Stroke patients are often uncooperative | 1.77±1.15 |
| 5. | Stroke patients are uninteresting, e g compared with patients with myocardial infarction | 1.95±1.10 |
| 6. | I would like very much to work in long-term care | 4.19±1.15 |
| 7. | Patients activation is an important part of nursing care all types of nurses should participate | 4.85±0.50 |
| 8. | It is impossible to devote more time to stroke patients unless the staffing level is increased | 1.32±0.91 |
| 9. | Activation is the task of the physiotherapist and occupational therapist and should not be an additional load on the ward staff | 2.19±1.48 |
| 10. | The motivation to participate in patient activation increases the more you learn | 4.64±1.00 |
| 11. | Stroke patients take too much time in nursing work, other patient groups are neglected | 2.39±1.50 |
| 12. | Incontinent stroke patients should have catheters to a greater extent | 1.35±0.87 |
| 13. | Relatives should participate in the activation of the stroke patients while the latter are still on the ward | 4.69±0.88 |
| 14. | It is unrealistic to practice activation and rehabilitation on a general medical care of the elderly ward | 2.06±1.43 |
| | Total | 45.19±4.46 |

## 5.3 Relationship between Performance, Knowledge, and Attitudes

Tables 4 shows the significant positive correlation between performance and knowledge (r = 0.437, p = 0.000), and between knowledge and attitudes (r = 0.155, p = 0.020) towards stoke patient management respectively. However attitudes and performance (r = 0.030, p = 0.649) was statistically non-significant towards stroke patient management.

Table 4. Correlation between nurses' performance, knowledge and attitudes of stroke management

(N = 226)

| Variables | r(p) | | |
|---|---|---|---|
| | Performance | Knowledge | Attitudes |
| Performance | 1 | | |
| Knowledge | 0.437 (0.000) | 1 | |
| Attitudes | 0.030 (0.649) | 0.155 (0.020) | 1 |

## 5.4 Influencing Factors of Stroke Management

### 5.4.1 Organizational factors

Table 5 shows the descriptive statistics of organizational factors including leadership practice of unit manager, organizational learning, and organizational readiness for change and their subcategories. Results showed that the mean score of total leadership practice of unit manager was 100.97 (SD = 39.22) raning from 17-165 which was considered as moderate level. Majority of the nurses (67.3%) had a low to moderate level of leadership practice of unit manager. In contrast one third nurses (32.7%) had high level of unit manager's leadership practive ability. The mean value of all the subcategoies were predominantly in the half of the possible range between 4 and 40 and 3 and 30, indicating that unit manager's leadership practice ability provided a moderate level of leadership on all five scales on the leadership practice inventory. The higherst value was in the 'unit manager's credibility' (M = 23.91, SD = 10.35), and the lowest was in the 'inspired a shared vision' (M = 17.42, SD = 7.95). The mean score of challenge the process was 21.97 (SD = 9.14), enable nurses to act 19.42 (SD = 8.11), and encourage nurses contribution was 18.23 (SD = 7.78).

The mean score of total organizational learning was 116.81 (SD = 21.39) which was considered as moderate level of organizational learning capability.

Majority of the nurses (68%) reported a low to moderate level of organizational learning capability. In contrast one third nurses (32%) reported high level of organizational learning capability. The mean scores across all five learning capabilities were clarity of mssion and vision (M = 21.91, SD = 5.11); leadership commitment and empowerment (M = 22.88, SD = 7.35); experimentation and rewards (M = 22.04, SD = 5.52); team work and group problem solving (M = 23.03, SD = 6.66); effective transfer of knowledge (M = 26.95, SD = 6.14). The possible score could have ranged from 5 to 35. The mean value of all the subcategoies were predominantly in the half of the possible range between 5 and 35, indicating that organizational learning capability provided a moderate level of organizational learning. It indicates inadequate organizational learning capability.

The mean score of organizational readiness for change was 20.84 (SD = 6.13) out of maximum of 33 which was considered as moderate level. Majority of the nurses (74.4%) reported a low to moderate level of organizational readiness for change culture. In contrast one third nurses (25.6%) reported high level of organizational readiness for change. The mean scores across all three domains of organizational readiness for change were strategy (M = 9.35, SD = 3.06); staff (M = 7.67, SD = 2.58); skills (M = 3.82, SD = 1.32). The scores across the domain also indicated moderate level of organizational readiness for change. The mean value of all the subcategoies were predominantly in the half of the possible range

between 5-15, 4-12, and 2-6 indicated nurses report of moderate level of organizational readiness for change culture. It means that organizational readiness is not enough to change nurses' performance towards stroke management.

Table 5. Descriptive statistics of leadership practice, organizational learning and organizational readiness and subcategories

(N=226)

| Variables | Number of item | Mean(SD) | Range | |
|---|---|---|---|---|
| Leadership Practice | 17 | 100.97±39.22 | 17 | 165 |
| Managers credibility | 4 | 23.91±10.35 | 4 | 39 |
| Inspired a shared vision | 3 | 17.42±7.95 | 3 | 30 |
| Challenge the process | 4 | 21.97±9.14 | 4 | 40 |
| Enable nurses to act | 3 | 19.42±8.11 | 3 | 30 |
| Enable nurses contribution | 3 | 18.23±7.78 | 3 | 30 |
| Organizational Learning | 25 | 116.81±21.39 | 50 | 170 |
| Clarity of mission and vision | 5 | 21.91±5.11 | 5 | 35 |
| Leadership commitment | 5 | 22.88±7.35 | 5 | 35 |
| Experimentation and rewards | 5 | 22.04±5.52 | 7 | 35 |
| Teamwork and problem solving | 5 | 23.03±6.66 | 5 | 35 |
| Effective knowledge transfer | 5 | 26.95±6.14 | 5 | 35 |
| Organizational Readiness | 11 | 20.84±6.13 | 11 | 33 |
| Strategy | 5 | 9.35±3.06 | 5 | 15 |
| Staff | 4 | 7.67±2.58 | 4 | 12 |
| Skills | 2 | 3.82±1.32 | 2 | 6 |

### 5.4.2 Differences in nurses characteristics and performance

Table 6 shows the differences in nurses' general characteristics in relation with their performance of stroke management. Indepent t-test was used to identify the differences in gender, stroke education, types of hospital, satisfaction with stroke education and job satisfaction with performance on stroke management. One way ANOVA was performed to identify differences in age, education, year of practice, year of practice in stroke unit and types wards with performance on stroke management. Nurses who had received stroke education showed significantly higher nurses performance of stroke management ($p = 0.004$) than who had no such education. Nurses working in ICU ward showed significantly higher score towards nurses performance of stroke management than nurses working in other wards ($p = 0.002$). However, gender ($p = 0.065$), age ($p = 0.639$), education ($p = 0.977$), year of practice ($p = 0.606$), year of practice in stroke unit ($p = 0.598$), hospital type ($p = 0.614$) and Job satisfaction ($p = 0.070$) were non-significant with nurses performance of stroke management.

Table 6. General characteristics of nurses in relation with performance of stroke management

(N=226)

| Variables | Categories | Performance on stroke management | | | |
|---|---|---|---|---|---|
| | | N (%) | Mean±SD | t/F | p |
| Gender | Male | 17(7.5) | 27.29±8.75 | -1.851 | .065 |
| | Female | 209(92.5) | 30.53±6.77 | | |
| Age(years) | ≤31 | 142(62.8) | 30.12±6.60 | -.470 | .639 |
| | >31 | 84(37.2) | 30.57±7.56 | | |
| Education | Diploma | 185(81.9) | 30.30±7.05 | .023 | .977 |
| | BSN | 25(11.0) | 30.04±5.86 | | |
| | Masters | 16(7.1) | 30.50±8.06 | | |
| Year of practice (years) | <7 | 164(72.6) | 30.14±6.93 | -.516 | .606 |
| | >7 | 62(27.4) | 30.68±7.11 | | |
| Year of practice in stroke unit(years) | <4 | 179(79.2) | 30.16±6.93 | -.528 | .598 |
| | >4 | 47(20.8) | 30.77±7.18 | | |
| Stroke education | Yes | 18(8.0) | 34.56±5.73 | -3.233 | .004 |
| | No | 208(92.0) | 29.92±6.96 | | |
| Hospital Type | Public | 113(50.0) | 30.52±7.57 | .505 | .614 |
| | Private | 113(50.0) | 30.05±6.34 | | |
| Types of Ward | Medicine | 144(63.7) | 30.01±6.72[a] | 4.959 | .002 |
| | ICU | 34(15.1) | 33.82±5.80[b] | | b> a,c,d |
| | Neuro-medicine | 40(17.7) | 29.33±7.80[c] | | |
| | NICU | 8(3.5) | 30.29±6.97[d] | | |
| Job satisfaction | Totally satisfied | 97(42.9) | 31.26±6.65 | -1.823 | .070 |
| | Not at all satisfied | 129(57.1) | 29.56±7.15 | | |

### 5.4.3 Relationship between influencing factors and performance

Table 7 shows significant positive correlation between leadership practice and nurses performance (r = 0.302, p = 0.000), and between organizational learning and nurses performance of stroke management (r = 0.174, p = 0.009) respectively. It means that unit manager had a higher leadership practice capability about nurses' performance of stroke management. It also means that higher the organizational learning environement higher the nurses performance of stroke management. However organizational readiness for change had significantly negatively correlated with nurses performance of stroke management (r = -0.403, p = 0.000), meaning that organization is not ready to accept change regarding nurses performance. Significant positive correlation was found between stroke knowledge and nurses performance of stroke management (r = 0.437, p = 0.000), meaning that higher the nurses stroke knowledge higher the performance of stroke management.

In addition there were significant positive correlatioin found between age and year of practice (r = 0.835, p = 0.000), age and year of practice in stroke unit (r = 0.577, p = 0.000), and between year of practice and year of practice in stroke unit (r = 0.717, p = 0.000) respectively. It concludes that higher the year of

practice, age and year of practice in stroke unit, higher the nurses' performance towards stroke management. There were also significant positive correlation found between organizational learning and leadership practice ($r = 0.559$, $p = 0.000$), stroke knowledge and leadership practice ($r = 0.430$, $p = 0.000$), and between stroke knowledge and organizational learning ($r = 0.186$, $p = 0.005$). It means higher the organizational learning environment, higher the unit manager's leadership practice capbality towards nurses' performance. However stroke knowledge was significantly negatively correlated with year of practice ($r = -0.132$, $p = 0.042$), year of practice in stroke unit ($r = -0.156$, $p = 0.019$) and with organizational readiness for change ($r = -0.563$, $p = 0.000$). It concludes that nurses' less year of practice in stroke unit has a low level of stroke knowledge. It also shows that organization has a low level of readiness for change towards nurses' low level of knowledge.

Attitudes on stroke was significantly positively correlated with stroke knowledge ($r = 0.155$, $p = 0.020$), but significantly negatively correlated with age ($r = -0.133$, $p = 0.045$). It measns lower the nurses age, lower the nurses attitudes of stroke management. However organizational readiness for change was significantly negatively correlated with leadership practice ($r = -0.517$, $p = 0.000$) and with organizational learning ($r = -0.315$, $p = 0.000$) respectively. It means lower the organizational readiness for change, lower the organizational learning

environement and leadership practice. No relationship between age, year of practice, year of practice in stroke unit, and attitudes on stroke in the event of nurses' performance of stroke management were found.

Table 7. Relationship between influencing factors and performance of stroke management

(N=226)

| Variables | r (p) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1. Performance on stroke | 1 | | | | | | | | |
| 2. Age | .070 | 1 | | | | | | | |
| 3. Year of practice | .000 | .835 (.000) | 1 | | | | | | |
| 4. Year of practice in stroke unit | .097 | .577 (.000) | .717 (.000) | 1 | | | | | |
| 5. Leadership practice | .302 (.000) | .082 | -.042 | -.096 | 1 | | | | |
| 6. Organizational learning | .174 (.009) | .054 | -.044 | -.189 | .559 (.000) | 1 | | | |
| 7. Organizational readiness | -.403 (.000) | .061 | .088 | .100 | -.517 (.000) | -.315 (.000) | 1 | | |
| 8. Stroke Knowledge | .437 (.000) | -.090 | -.132 (.042) | -.156 (.019) | .430 (.000) | .186 (.005) | -.563 (.000) | 1 | |
| 9. Attitudes on stroke | .030 | -.133 (.045) | -.073 | -.054 | -.057 | .052 | .067 | .155 (.020) | 1 |

### 5.4.4 Factors affecting nurses' performance of stroke management

Factors including educational level, types of ward, leadership practice, organizational learning, organizational readiness for change, and stroke knowledge that were found significant by bivariate analysis were entered into first regression model. The regression model predicting performance towards stroke management was statistically significant ($F = 12.710$, $p = <0.001$) with 29.4% of explanatory power. The significant factors of performance of stroke management were nurses working in ICU ward ($\beta = 7.598$), leadership practice ($\beta = 0.031$), and stroke knowledge ($\beta = 0.864$) (see Table 8).

Table 8. Regression model for predicting factors of nurses' performance

(N=226)

| Variables | B | SE | β | t | p | Adjusted $R^2$ | F (p) |
|---|---|---|---|---|---|---|---|
| (Constant) | 23.474 | 4. 061 | | 5.781 | <0.001 | 0.294 | 12.710 (<0.001) |
| Stroke education | 2.480 | 1.488 | 0.097 | 1.667 | 0.097 | | |
| Medicine ward | 1.803 | 2.168 | 0.125 | 0.832 | 0.407 | | |
| ICU ward | 7.960 | 2.380 | 0.409 | 3.344 | <0.001 | | |
| Neuro-Medicine | 3.065 | 2.316 | 0.168 | 1.234 | 0.187 | | |
| Leadership practice | 0.031 | 0.015 | 0.175 | 2.112 | <0.05 | | |
| Organizational learning | 0.010 | 0.022 | 0.031 | 0.449 | 0.654 | | |
| Organizational readiness | -0.158 | 0.085 | -0.139 | -1.873 | 0.062 | | |
| Stroke knowledge | 0.864 | 0.218 | 0.278 | 3.961 | <0.001 | | |

When attitude was entered with above variables into the second model, whole model was significant ($F = 11.299$, $p<0.001$) with explanatory power of 29.2%. However attitude was not significant towards performance of stroke management ($\beta = 0.052$, $p = 0.569$) (see Appendix 4).

# Chapter 6. DISCUSSION

With the results of this study, this chapter will discuss the 1) level of performance, knowledge, and attitudes, 2) relationship between performance, knowledge, and attitudes and 3) identifying factors affecting nurses' performance of stroke management.

## 6.1 Level of Performance, Knowledge, and Attitudes

### 6.1.1 Level of performance

It was found that the nurses' performance of stroke patient management was at moderate level. The results of this study is similar with the previous study conducted among nurses performance regarding stroke management (O'Farrel & Zou, 2008; Harper, 2007; Cheu et al., 2009; Malik, Yatim, Lam, Jin, & McGrath, 2017; Drury et al., 2016). In this study, nurses' performance was not reflected by their knowledge. This result is in accord with the concept proposed by the KAP model. Certain factors might be the reasons for explaining this moderate level of performance. Nurses' individual factors including age, educational level, formanl education of stroke, types of ward, clinical experience in stroke care might influence nurses' moderate level of performance towards stroke management.

Majority of the nurses' age was low. Lower age is one of the factors contributing to obtain moderate level of performance. Higher age was related to nurses' high level of performance (Malik et al., 2017). In addition, higher education is associated with nurses' high level of performoance. Considering educational level, most of the nurses were graduated diploma degree in nursing. Previous study stated that nurses who had higher education in nursing demonstrated high level of stroke management performance (Drury et al., 2016). Furthermore nurses' inadequate education and training on stroke might influence towards their moderate level of performance of stroke management (Hicky et al., 2009). In this study majority of the nurses had not received any formal education on stroke patient management. Lack of leadership of unit manager and the limited working time available for direct patient care in managing stroke patient may be an organizational factor contributed to the moderate level of performance. In Bangladesh nurses in government hospital spent only 5.3% of their working time in direct contact with their patient (Hadley & Roques, 2007). A previous study indicated that an inadequate leadership of unit manager and a lack of time were identified as barriers for nurses to manage stroke patient effectively (Drury et al., 2016).

It is likely that nurses working in types of ward have more exposure to stroke patients management is related to acute stroke patient management in their

daily practice which may help them have greater understanding of stroke patient management (Malik et al., 2017). Nurses working in ICU ward reported high level of performance toward stroke management than did nurses working in other wards in the present study. Therefore increased exposure to stroke patient management is related to nurses' high level of performance towards stroke management. Education and training, administrative support and supplies of equipment with study materials are particularly essential for nurses to prevent secondary complications of stroke. In this study no in-service education or training or adequate supplies of equipments are available for managing stroke patient. For example no device is available for preventing deep vein thrombosis (Bhowmik et al., 2016). One study found that nurses in Bangladesh were not trained and equipped for providing quality nursing care to prevent secondary complications of stroke. Same author concluded that this was due to a lack of proper education and training, inadequate resources and an inappropriate supervision and monitoring system (Rahman, Shahidullah, Shahiduzzaman & Rashid, 2002).

The provision of stroke care guidelins for managing stroke patient is an important factor for nurses obtaining moderate level of performance. These were not investigated in this study. The reserachers' experience suggested that nurses in Bangladesh have limited access to up-to-date evidence-based stroke care

guidelines or gold standard neurological scale for assesseing and managing secondary complications of stroke. No organizational policy or guidelines have yet been developed for nurses to manage stroke patient. Other factors might influence toward nurses moderate level of performance. Those were not included in this current study. Those factors include values, beliefs, social norms, effects of workloads and inadequate facilities. In addition, hospital policy and regualtions regarding stroke patient management are the important factors that may contribute to nurses' moderate level of performance. Future studies should explore these factors to determine whether they are related to nurses' performance or not.

An item analysis also supports the moderate level of performance. Results of this study showed that 57% of nurses did not use Barthel Index to measure functional status of stroke patient. Fifty nine percant of nurses did not use MUST tool to screen nutritional status of stroke patient. Approximately 50% of nurses did not observe cognitive status of stroke patient by using standard instrument (see Appendix 7). These results indicate that nurses lacked updated knowledge and information about nursing care activities for stroke patient management. Continuing in-service education and training or evidence-based stroke care clinical practice guideline are required to develop their necessary performance skills and might improve nurses' practices in this field.

### 6.1.2 Level of knowledge

The findings revealed that nurses who participated in this study had moderate level of knowledge. This finding is consistent with the previosu study conducted in Bangladesh regarding stroke management awareness and behavior among nursing students (Islam, Oh, Lee, & Kim, 2017). In Bangladesh study, majority of the nursing students obtained moderate level of knowledge about risk factors and warning signs of stroke. There are three possible reasons to, explain moderate level of knowledge of this group of participants.

First, the formal education background and training experience may be the influencing factors related to the moderate level of knowledge. Most of the nurses (81.9%) graduated with a diploma followed by a bachelor (11.1%) and master degree (7.1%). The content included in both the curriculums was not specifically focused on up-to-date information about stroke management. In addition, majority of nurses were not trained in stroke education program or updated information about stroke patient management may be inadequately included in the curriculums. The lack of opportunity to be trained about updated as stroke education program might preclude the nurses ability of persuing and using information, understanding leaerning experience and identifying the study materials regarding stroke management performance.

Item analysis supported this explanation. This revealed that the items that the lowest percentage of nurses answered correctly were questions under warning sign subscale that related to updated information about stroke management. These included perceptual problem only occur if a stroke patient has weakness or sensory loss, dyspraxia is due to muscle weakness or a patient with an ischemic stroke may likely exhibit decreased level of consciousness, left leg weakness and right arm weakness Items that the lowest percentage of answered correctly were questions under neurological assessment subscale were ‘an intact gag reflex indicates a safe swallow’ and ‘an ischemic stroke patient’s neurological status and vital signs should be assessed frequently for 48 hours after tPA administration’. With respect to management of complication subscales, the items that the lowest percentage of nurses answered correctly were questions include: the recommended dosage of tPA begin with 3 hours of stroke onset and body temperature of $103^0$ F should be treated in a patient with ischemic stroke (see Appendix 5). The findings of this study are similar to a previous study in stroke management in Korean nurses was one barrier to nurses assessing to updated information about stroke patient management.

Second, it has been proposed that greater the clinical experience in stroke care, higher the level of knowledge gained (Drury et al., 2016). However additional analysis did not support this proposition. There were non-significant

differences in nurses' knowledge with different years of practice in stroke unit. It was found that most nurses had less years of practice (1-4 years) than more years of practice in stroke unit (above 4 years). This may be because nurses with year of practice in stroke unit had less chance to gain access to up-to-date information about stroke management. It was found that nurses with few years of practice in stroke unit had lower level of knowledge and its associated care due to not updating their knowledge.

Third, the organizational factors responsible for nurses to update their knowledge would be another reason for the moderate level of knowledge. Previous study supported this argument. Nurses' poor level of knowledge of stroke patient management was influenced by such organizational issues. These issues include organizational learning capability, leadership practice ability and organizational readiness for change (Malik et al., 2017; Drury et al., 2016).

### 6.1.3 Level of attitudes

Findings indicated that the most of the nurses demonstrated a neutral level of attitudes on stroke patient management. Based on this result, nurses neither care nor were indifferent to manage stroke patient. It means that nurses had inadequate updated knowledge and information about stroke patient

management. Same results were found in previous study conducted among unit managers in Australia (Drury et al., 2016). In this present study contributing factors related to neutral level of attitudes may be individual or organizational factors. Nurses may lack of awareness or interest since that showed a moderate level of knowledge on stroke management. Age, year of practice, yaer of practice in stroke unit, graduation degree in nursing, formal education on stroke, types of wards, attending conference or in-service education, and job satisfaction are associated with nurses positive attitudes towards performance of stroke management (Malik et al., 2017; Drury et al., 2016; Park & Yeom, 2014). Lower age, less year of practice in stroke unit, lack of formal training on stroke influenced nurses to develop neutral level of attitudes. In this current study, lower age was associated with nurses' negative attitudes towards performance.

However, nurses' job satisfactions, educational level, year of practice or year of practice in stroke unit were not associated with their neutral level of attitudes in this present study. These findings are inconsistent with the previous studies due to differences in organizational context, clinical experience in stroke care, or educational preparedness of stroke management. Since majority of the nurses had less year of practice in stroke unit may therefore be an important target group for institutional stroke education. In addition, organizational issues including leadership practice ability, organizational learning capability, and

organizational readiness for change or work overload, lack of study materials or resources could affect the neutral level of attitudes (Drury et al., 2016; Malik et al., 2017; Park & yeom, 2014). The findings of Drury et al. and Malik et al. also supported that nurses' leadership practice, positive organizational learning capability, and positive culture regarding organizational readiness to accept change were greatly influenced towards nurses' positve attitudes towards performance of stroke management.

Item analysis showed that nurses still had negative attitudes in some areas of activation of stroke patient management. Most of the nurses still 'strongly disagree' or 'disagree' that stroke patients are often uncooperative and are uninteresting in compared to patients with myocardial infarction. In addition, 94% nurses reported in favor of strongly disagree and disagree that it is impossible to devote more time to stroke patient unless the staffing level is increased. Approximately 73.7% nurses stated that stroke patient take too much time in nursing work, other patients are neglected. Few nurses agreed that it is unrealistic to practice activation and rehabilitation on a general medical care of the elderly ward (see Appendix 6). These findings suggest that nurses still pay less attention and respond less and show less value towards the issue of stroke patient management. These negative attitudes may be due to their moderate level of knowledge. According KAP model, high level of knowledge is the prerequisite

for developing positive attitudes. Therefore promoting knowledge about stoke management is needed not only for increasing nurses knowledge level but also for improving their attitudes.

## 6.2 Relationship among Performance, Knowledge, and Attitudes

Significant relationship was found between knowledge and attitudes and between knowledge and performance. This relationship was in accord with the KAP model. For example increasing knowledge by seeking information develops more positive attitudes. According to the KAP model, one factor that affects attitudes is a knowledge base in a specific area. In this study nurses obtained moderate level of knowledge which influenced them to develop neutral level of attitudes. Previous study showed that nurses' knowledge score was at high level to develop positive attitudes for practicing oral hygienic care for stroke patient (Malik et al., 207).

In this present study nurses attitudes were not significantly associated with their performance of stroke. One previosu study supported this result. In London study, nurses' attitudes regarding adoption of Best Practice Guidelines (BPG) and Neurological scale was moderate both before and after the workshop.

Study showed that there was non-significant relationship found between attitudes and performance of stroke management (O'Farrel & Zou, 2008). Although educational back ground and organizational context or health care policy is different from London study same result was found among nurses in Bangladesh. However findings of this study do not support the KAP model. This may be because nurses attitudes were influenced by their concern, purpose, awareness or traditional values that learned from nursing teacher, other health care professionals or senior nurses. Nurses' less year of working experience contribute to their moderate level of knowledge. Future research should explore the nurses' awareness, purpose or traditional values in relation to stroke patient management. The inadequate organizational learning capability and an absence of positive culture regarding organizational readiness for change could be another factor for the lack of a link between nurses' attitudes and performance.

According to KAP, effective education and update information can bring change in human behavior especially regarding positive attitudes. It has been showed that proper education and training can influence nurses' positive attitudes toward stroke patient management (Malik et al., 207; Drury et al., 2016; Zagade & Madhale, 2014; Hicky et al., 2009). According to KAP model, changes in knowledge and attitudes of individuals can affect performance. In this regard nurses need further continuing education and traning programs on stroke patient

management that could influence positive attitudes; ultimately leading to effective nursing performance of stroke management.

There was a significant relationship between knowledge and performance among the nurses. This finding is consistent with the KAP model in which performance is influenced by knowledge. Previous study in Malaysia demonstrated that nurses' high level of knowledge on oral hygienic care for stroke patient was reflected by their performance (Malik et al., 2017). The result of the current study is different from Malaysian study because contents included in the curriculum of nursing education in Bangladesh might not be the similar or may be differences in organizational learning environement. Other factors may influence nurses' moderate level of performance. Those include lack of time, insufficient equipment, the absence of guideline, the lack of in-service training and nursing leadership and lack of learning resources to access.

It may be concluded that not only do knowledge and attitudes determine performance, other factors are also involved. These factors are purpose, awareness, interest, traditional values, workplace policy, availability of stroke complications prevention equipments, and policy regarding the use of stroke patient management guidelines.

## 6.3 Influencing Factors of Nurses Performance

### 6.3.1 Leadership practice of unit manager

It was found that nurses' self-report of leadership practice ability of unit manager average score was predominantly moderate which indicates poor level of leadership practice. All five subscale scores of leadership practice were also found to be at moderate level. The highest value was in the practice 'unit manager's credibility' and the lowest was in the 'inspired a shared vision'. These findings are inconsisten with the previous study conducted in other countries. In previous studies, unit managers demonstrated a high level of leadership on all five subscales on the leadership practice inventory. The highest value was in the practice 'enabling others to act' and lowest value was in 'inspiring a shared vision' (Drury et al., 2016; George et al. 2002; Duygulu & Kublay, 2011). In the present study inconsistent result was found due to differences in population, study context, educational background, clinical experience in stroke care and formal training on stroke from previous study findings. It may be concluded that in order to achieve certain standard of service, hospital management is required to have greater responsibilities. Management should demonstrate leadership role to involving the nurses into the task, formulating a vision, team cooperation and encouraging others to act as leaders in diverse situations for improving nurses' performance.

### 6.3.2 Organizational learning

The mean score of nurses self-rating of organizational learning capability was reported as moderate level. This finding indicates that organizational learning capability is not in favor of the performance of stroke management among nurses' in the hospital. The mean scores of all five learning capabilities also shows at moderate level which indicates an absence of organizational learning culture in the hospital. The findings of this study are not in accord with the previous studies conducted in other countries. The results of the previous studies showed that the mean score of organizationanl learning was at higher level. The mean scores across all five learning capabilities were above the midpoint of 4 on seven point scales indicating the presence of an organizational learning culture (Drury et al., 2016). Differences in results between two countries were identified as educational background, position of nurses, age, clinical experience, and different study context. For improving the nurses' performance of stroke management organizations need to apply existing knowledge for routine or already known problems and develop new knowledge for uncertain and new problems (Chang & Chuang, 2011). Knowledge and attitudes are the bases for organizational learning process for better performance (Andrews & Delahaye, 2000). Previous study shown that If an organization has better learning processes to acquire new

knowledge, it will ultimately boost overall performance of an individual (Martín-de Castro, et al., 2011).

### 6.3.3 Organizational readiness for change

Finding showed that the mean score of nurses self-report of organizational readiness for change was found to be at moderate level. It indicates that organization is not ready to accept change regarding nurses' performance of stroke management. Finding of this reserach is similar with the previosu study conducted in Australia (Drury et al., 2016). There are some barriers that prevent organizational readiness for change towards nurses' performance of stroke management. Those include a lakc of time, inadequate resources, absence of dissemination of stroke care guidelines, organizal policy, vision and mission about stroke patient management. Study of Drury et al. found that an organization is not ready to accept change towards nurse manager's performance to EBP due to a lack of time and a lack of resources.

Item analysis in this study also supported this result. Approximately 58% nurses agreed that staff were receptive to using evidence based guidelines. Arround 75% of nurses stated that there was an absence of positive culture towards stroke education within the hospital. Sixty one percant of nurses reported

that the process of stroke care guideline has not been built into the hospital structure. Approximately 76% of nurses indicated that hospital did not have staff whose role is specifically designed to implementation of stroke care guideline. However 70.8% of nurses confirmed that there was no organized program of training to develop staff skills to provide stroke care. Fifty four percant nurses reported that managers did not support staff requests for acquiring new skills and knowledge with regard to the stroke care. The result of the item analysis of this study is inconsistent with the previous study (Drury et al., 2016). The inconsistent results might be due to differences in study population, context, sample size, educational background, administrative and management system, organizational learning process, policy, vision and mission and practice pattern of nurses.

## 6.4 Relationship between Influencing Factors and Performance

This study found a statistically significantly positive correlation between leadership practice of unit manager and nurses performance of stroke management ($r = .302$, $p<.01$). This relationship was similar with those found in the Turkey, Australia, Pakistn, Taiwan, Belgium and Spain (Duglu & Kublay, 2011; Drury et al., 2016; Imran, Ilyas, Aslam, & Rahman, 2016; Liang, Tang, Lin, & Yu, 2016;

Lievens & Vlerick, 2013; Salanova, Lorente, Chambel, & Martinez, 2011). In accord with the transformational leadership theory from study of Drury et al. (2016), high level of leadership practice influences high level of performance. The present study findings indicated that moderate level of leadership practice ability of unit manager contributed to nurses' to obtain moderate level of performance of stroke management. The relationship between leadership practice and performance in those of other countries were differed from current study results because of different context, education and training background, study population, and organizational policies, vision, mission and clinical experience.

The present study also found a statistically significantly positive correlation between organizational learning capability and performance. Similarly the results are consistent with the previosu studies conducted in Australia and U. S.A. (Drury et al., 2016; Gowen, Henagan, & McFadden, 2009). In U.S. study the organizational learning capability was statistically significantly associated with organizational performance. In Austrain study significant positive correlation found between organizational learning capability and unit manager's performance towards EBP on stroke management. Although previous study's context, organizational environement, health care system and policy, population and educational background were different, the similar result is found in the current study. There was also a significant positive correlation found between leadership

practice ability of unit manager and organizational learning capability.

However organizational readiness for change was significantly negatively correlated with performance($r = -.403$, $p<.01$), leadership practice of unit manager ($r = -.517$, $p<.01$), and organizational learning capability ($r = -.315$). The findings of the present study were inconsistent with the previous studies conducted in U.S.A., Pakistan, Spain, Turkey and Australia. According to findings of those studies, organizational readiness was significantly positively correlated with performance. Differences in results from this current study might be due to different health care context, leadership quality and organizational learning process with high educational background and clinical performance of the population. Hospital management in Bangladesh may take initiative to educate nursing supervisor and nurses regarding stroke patient management through transformational leadership theory and KAP model so that nurses' performance of stroke patient management would be increased thus improving patient outcome.

## 6.5 Identifying Factors Affecting Nurses Performance

The findings from bivariate analyses showed that moderate level of performance was associated with stroke education, types of ward, leadership practice, organizational learning, organizational readiness for change, and stroke

knowledge. The multiple regressional analyses showed that nurses working with ICU ward, leadership practice ability, and stroke knowledge were major factors affecting nurses' performance towards stroke management which explained 29.4% of the total variance after controlling the non-significant variables in the model. Results are clearly depicting that leadership practice of unit manager has significant positive impact on performance towards stroke management. Other factors including stroke education, organizational learning, organizational readiness for change and attitudes was non-significant in the regression model. Nurses' stroke knowledge was associated with performance towards stroke management.

However attitudes were non-significant. Australian study found that knowledge was associated with unit manager's performance of EBP towards stroke patient management. In contrast attitudes were not associated with unit manager's performance (Drury et al., 2016). Similar results found in the current study using same instrument. However Malyasian study showed that knowledge and attitudes were significantly associated with nurses' performance of oral hygein care towards stroke patient. Abualrub and Alghamdi (2012) investigated the relationships between organizational learning and performance and found a positive correlation between organizational learning and performance. According to Wang et al. (2014), leadership practice and organizational learning

environement were negatively correlated with nurses' attitudes towards performance.

A recent model testing study indicated that organizational learning environment and organizational readiness for change do not directly influence towards nurses performance. Several studies showed that transformational leadership had positive relationship with performance (Weberge, 2010) whearas other studies reported no such impact (AbuAIRub & Alghamdi, 2012). Inadequate supervision and monitoring system might be another factor affecting nurses' performance. Some other important factors that affect nurses' performance may be included as work overload, hospital policy and regulations, lack of time and resources, and job status of nurses (Hossain et al., 2016; Akter et al., 2017). In addition, lack of awareness, intention and skills to adopt and implement stroke care guidelines in assessing and managing clinical conditions of stroke patient might be the critical factor affecting nurses' performance. Nurses' performance may also be affected due to a lack of updated knowledge on evidence-based practice and inadequate facilities for nurses to attend on clinical conference, or workshop on stroke management which were not explored in this study (Drury et al. 2016). Organizational structure, organizational responsibility, hospital policy, psychosocial stress, rewards and recognition, leadership role, motivation and satisfaction may have significant influence towards performance of nurses

(Hossain et al., 2016; Bishwajit et al., 2016).

## 6.6 Limitations

The current study has several limitations:

1. Due to the cross-sectional study design, it is not possible to establish causality among variables.
2. The study was conducted at three tertiary care hospitals located in the two major cities; the results may not be generalized to other medical college hospital or to general hospitals at other levels.
3. The convenience sampling approach may have resulted in a selection bias in gender.
4. In addition, the use of the self-report format of the data collection tools to examine nurses performance. The responses might not reflect actual nursing performances because of ceiling effect.
5. Finally, performance on stroke management was used as the sole dependent variable in the present study. To understand the actual performances of nurses more specifically, future studies need to include other variables conceptually related to performance of stroke management, such as perception and belief on stroke care.

# Chapter 7. CONCLUSION

This chapter presents a conclusion of the study findings, the implications and recommendations for nursing practice, education and administration and suggestions for future research. A cross-sectional descriptive study was carried out to explore the level of performance, knowledge, and attitudes and its relationship and to identify the factors influencing the performance of stroke management among nurses. The data was collected from May 25, 2017 to August 25, 2017 from 226 nurses working at three hospitals in Bangladesh.

## 7.1 Conclusion

The level of nurses' performance, knowledge, and attitudes was at moderate. All subscales of knowledge were also identified at moderate levels. These were: 1) warning sign of stroke, 2) neurological assessment, 3) assessment of complications, and 4) management of complications. All subscales of performance were also identified as being a moderate level. These include: 1) assessment of complications, and 2) management of complications. The level of leadership practice and its subscales were at moderate level. All subscales under

leadership practice ability of unit manager were: 1) unit manager's credibility, 2) inspired a shared vision, 3) challenge the process, 4) enable nurses to act, and 5) encourage nurses contribution. The score of organizational learning capability was also at moderate level. The levels of all five subscales under this variable were found to be at moderate. These subscales were: 1) claritiy of mission and vision, 2) leadership commitment and empowerment, 3) experimentation and reward, 4) teamwork and group problem solving, and 5) effective transfer of knowledge. Result also showed that nurses' self-rated score of organizational readiness for change was at a moderate level. Subcategories of organizational readiness for change also showed at moderate level.

There was a significant positive correlation found between nurses' knowledge and attitudes ($r = 0.155$, $p = 0.045$) and between knowledge and performance ($r = 0.437$, $p = 0.000$) respectively. However no significant relationship found between attitudes and performance towards stroke management ($r = 0.030$, $p > 0.05$). This moderate level of performance was associated with stroke education, types of ward, leadership practice, organizational learning, organizational readiness for change, and stroke knowledge. Multiple regression analysis showed that nurses working with ICU ward, leadership practice ability, and stroke knowledge were major factors affecting nurses' performance towards stroke management which explained 29.4% of the total variance.

This study clearly demonstrates that leadership practice ability of unit manager is an important source of nurses' performance. This result is consistent with previous study conducted by Walumbwa, Bruce, Avolio, and Zhu (2008), who found that a leadership practice of unit manager might enhance nurses' performance through better knowledge and positive attitudes which are two of the major sources of performance. It was also analysed whether KAP model is positively associated with knowledge and attitudes by influencing performance. Although previous research had studied the relationship between transformational leadership and performance (Druskat 1994, Nielsen, Yarker, Randall, & Munir, 2009), current study results confirm that knowledge partially mediate this relationship. Furthermore, this study goes one step further by showing how the unit manager's explains their leadership capability directly towards performance, but also provides an explanation for levels of knowledge and attitudes. Therefore, our results agree with those of Drury et al. (2016), who suggested that transformational leadership through positive organizational learning environment and organizational readiness commitment has the potential to make a considerable contribution to improve nurses' performance, knowledge, and attitudes.

This exploration of the influencing factors towards nurses' performance of stroke management could provide baseline data for the further improvement of nursing practice in this field in Bangladesh.

## 7.2 Implications

The followings are the implications of the present study:

1. Delivery of high quality stroke patient care depends on the nurses' knowledge, attitudes and performance as well as leadership practice ability of unit manager, organizational learning capability and organizational readiness for change that supports performance excellence.
2. Positive stroke patient management practice environments must be established throughout the tertiary level hospitals. They have the power to improve nurses' clinical performance and patient outcomes, and deliver cost-effective services.
3. Results of this study can be applied to strengthen nurses' performance by developing, monitoring and disseminating stroke education programs and policy tools on stroke patient management, research and practice.
4. These results could apply to hospital management to improve nurses' clinical performance of stroke patient management.
5. The finding suggests that training immediate nursing supervisors and nurses to become more transformational will provide hospitals with important competitive advantages. More importantly, such training initiatives may increase nurses motivation, satisfaction and performance

6. Tertiary hospitals need to increase the number of courses available at the institutional level in order to enhance their nurses' performance towards stroke patient management.

## 7.3 Recommendations

1. In-service training and refresher courses about stroke patient management should be designed for Bangladeshi nurses. This should provide them with updated information to understand stroke management procedure which can be translated into performance
2. Hospital policies and stroke care clinical practice guidelines are needed to promote nurses performance on stroke patient management
3. A training program on stroke management should also be conducted for nurse-teachers in order to improve the knowledge they expected to transfer to nurses
4. The results of this study should be shared with stake holders such as nurse, administrators, nurse teachers, nurse researchers, nurse clinicians, hospital administrators and the public. This should make the problem of stroke patient management a public concern.
5. Future research is needed to design and evaluate stroke educational

programs for nurses to improve performance, knowledge, and attitudes through enhancement of transformational leadership in hospital settings. Moreover, future longitudinal studies could also test these relationships with a view to analyzing the causal effects among the study variables.

6. Nurses should attend on scientific seminar or clinical conference on stroke management in order to enhance their performance level
7. Future research is needed on nurses belief and experience regarding assessment and management of secondary complications of stroke
8. Leadership theory and KAP model would be developed, integrated and tested through conducting research on role of nursing supervisor and nurses to promote life functioning of the stroke patient
9. Update knowledge and information related to stroke management would be included in the diploma and BSN curriculum
10. Hospital policy and regulations may be developed regarding stroke patient management in the hospital
11. Hospital management should provide continuing stroke education and training program for nurses to promote their performance.
12. Hospital management should disseminate vision, mission, goal and stroke care guideline among the nursing supervisor and nurses.

# REFERENCES

Akter, K. M., Banik, S., & Lima, R. P. (2017). Quality of working life of nurses in Bangladesh: An empirical study in Dhaka City. *International Journal of Commerce and Management Research, 3*(9), 10-16.

Ahamed, N., & Dutta, S. (2016). Effectiveness of planned teaching program on nurses' knowledge and practice regarding Glasgow Coma Scale for neurological clients of a selected hospital, Kolkata. *Sikkim Manipal University Medical Journal, 3*(1), 712-722.

American Heart Association. (2016). Heart disease and stroke statistics – 2016 update: A report from the American Heart Association. *Circulation, 133*, 38-360. Retrieved from http://circ.ahajournals.org

American Heart Association. (2013). AHA/ASA expert consensus document: an updated definition of stroke for the 21st century: A statement from healthcare professionals from the American Heart Association/American Stroke Association. *Stroke, 44*, 2064-2089.

American Stroke Association. (2005). What causes a stroke. Accessed on September 15, 2014. From www.strokeassociation.org/presenter.jhtml?identifier=4755.

AbuAlRub, R. F., & Alghamdi, M. G. (2012). The impact of leadership styles on nurses' satisfaction and intention to stay among Saudi nurses. *Journal of Nursing Management, 20*(5), 668–678.

Abualrub, R. F., Gharaibeh, H. F. & Bashayreh, A. E. (2012). The relationships between safety climate, teamwork and intent to stay at work among Jordanian hospital nurses. *Nursing Forum, 47*(1), 65–75.

Aiken, L. H., Sermeus, W. and Van den Heede, K. (2012). Patient safety, satisfaction, and quality of hospital care: Cross sectional surveys of nurses and patients in 12 countries in Europe and the United States. *British Medical Journal, 344*, 1717.

Alpert, P. T. (2011). Stroke prevention by recognizing risk factors and warning signs and symptoms. *Home Health Care Management and Practice, 23*, 306–309.

Andrews, K.M., & Delahaye, B.L. (2000). Influences on knowledge processes in organizational learning: the psychosocial filter. *Journal of Management Studies, 37*(6), 797-810.

Bishwajit, M., Khumyu, A., & Boonyanurak, P. (2016). Relationships between organizational commitments, supervisory support and job satisfaction of nurses in a public specialized hospital, Bangladesh. *Bangladesh Journal of Medical Science, 15*(1), 39-43.

Bhowmik, N. B., Abbas, A., Saifuddin, M., Islam, M. R., Habib, R., Rahman, A. et al. (2016). Ischemic strokes: observations from a hospital based stroke registry in Bangladesh. *Stroke Residency Treatment,* 1-13. doi:10.1155/2016/5610797

Borhani Haghighi, A., Karimi, A. A., Amiri, A., & Ghaffarpasand, F. (2010). Knowledge and attitude towards stroke risk factors, warning symptoms and treatment in an Iranian population: Medical principles and practice. *International Journal of the Kuwait University Health Science Centre, 19*(6), 468-472.

Burton, C.R., Fisher, A., & Green, T.L. (2009). The organizational context of nursing care in stroke units: a case study approach. *International Journal of Nursing Studies, 46*, 86–95.

Curley, C. R. (2016). A study of a continuing education program on neurological assessments of the acute stroke patient and the effect on clinical nursing practice. Unpublished Dissertation. ProQuest

Clayton, B. (2014). Clustered stroke patients on a general medical unit: What nursing skills and knowledge contribute to optimal patient outcomes? *Canadian Journal of Neuroscience Nursing, 36*(3), 32-40.

Chang, T. C., & Chuang, S. H. (2011). Performance implications of knowledge management processes: Examining the roles of infrastructure capability

and business strategy. *Expert Systems with Applications*, *38*(5), 6170-6178.

Cavalcante, T. F., Moreira, R. P., Guedes, N. G., Araújo, T. L., Lopes, M. V. O., Damasceno, M. M. C. et al. (2011). Nursing interventions for stroke patients: An integrative literature review. *Revista da Escola de Enferm, USP, 45*(6), 1486-1490.

Chiu, S. C., Cheng, K. Y., Sun, T. K., Chang, K. C., Tan, T. Y., Lin, T. K. et al. (2009). The effectiveness of interactive computer assisted instruction compared to videotaped instruction for teaching nurses to assess neurological function of stroke patients: A randomized controlled trial. *International Journal of Nursing Studies*, *46*(12), 1548-1556. doi:10.1016/j.ijnurstu.2009.05.008

Cleland, J. (1973). A critique of KAP studies and some suggestions for their improvement. *Studies in Family Planning, 4*(2), 42-47.

Drury, P., McInnes, E., Hardy, J., Dale, S., & Middleton, S. (2016). Stroke unit nurse managers' views of individual and organizational factors liable to influence evidence-based practice: A survey. *International Journal of Nursing Practice*, *22*, 169–178.

Duygulu, S., & Kublay, G. (2011). Transformational leadership training programme for charge nurses. *Journal of Advanced Nursing, 67*(3), 633–642. doi 10.1111/j.1365-2648.2010.05507.x

Dawes, E., Lloyd, H., & Durham, L. (2007). Monitoring and recording patients' neurological observations. *Nursing Standard, 22*(10), 40-45.

Druskat, V. U. (1994). Gender and leadership style: Transformational and transactional leadership in the Roman Catholic Church. *Leadership Quarterly, 5*, 99–119.

Ehwarieme, T. A., & Anarado, A. N. (2016). Nurses' knowledge of Glasgow Coma Scale in neurological assessment of patients in a selected tertiary hospital in edo state, Nigeria. *Africa Journal of Nursing and Midwifery, 22*, 74-86.

Feigin, V. L., Norrving, B., George, M. G., Foltz, J. L., Roth, G. A., & Mensah, G. A. (2015). Update on the global burden of ischemic and hemorrhagic stroke in 1990–2013: The GBD 2013 study. *Neuroepidemiology, 45*, 161–176. doi: 10.1159/000441085

Faul, F., Erdfelder, E., Lang, A.G., & Buchner, A. (2007). G*Power 3: A flexible statistical process analysis program for the social, behavioral, and biomedical sciences. *Behavioral Research Methods, 39*(2), 175-191.

Gowen, C. R., Henagan, S. C., & McFadden, K. L. (2009). Knowledge management as a mediator for the efficacy of quality management initiatives in U.S. health care. *Health Care Management Review, 34*(2), 129-140.

Gocan, S., & Fisher, A. (2008). Neurological assessment by nurses using the National Institute of Health Stroke Scale: Implementation of best practice guidelines. *Canadian Journal of Neuroscience Nursing, 30*(2), 31-42.

Gocan, S., & Fisher, A. (2005). Ontario regional stroke centres: Survey of neurological nursing assessment practices with acute stroke patients. *Axon, 26*(4), 8-13.

George, V., Burke, L. J., Rodgers, B., Duthie, N., Hoffmann, M. L., Koceja, V. et al. (2002). Developing staff nurses shared leadership behavior in professional nursing practice. *Nursing Administration Quarterly, 26*(3), 44–59.

Green, C. E. (2001). Can qualitative research produce reliable quantitative findings? *Field Methods, 13*(3), 3-19.

Goh, S. and Richards, G. (1997). Benchmarking the learning capability of organizations. *European Management Journal, 15*(5), 575-583.

Garvin, D. A. (1993). Building a learning organization. *Harvard Business Review*, 71(4), 78-91.

Hanna, D. R., Paraszczuk, A. M., Duffy, M. M., Difiore, L. A. (2016). Learning about Turning: Report o f a Mailed Survey of Nurses' Work to Reposition Patients. *Medical Surgical Nursing, 25*(4), 219-223.

Hossain, M. A., Mustafi, M. A. A., Islam, M. M., & Islam, M. R. (2016), Organizational environement and nurses job satisfaction: A study on private hospital in Bangladesh. *American Journal of Trade and Policy, 3*(2), 79-86. doi: http://dx.doi.org/10.18034/ajtp.v3i2.898

Hossain, A. M., Ahmed, N. U., Rahman, M., Islam, M.R., Sadhya, G., & Fatema, K. (2011). Analysis of sociodemographic and clinical factors associated with hospitalized stroke patients of Bangladesh. *Faridpur Medical College Journal*, *6*(1), 19-23.

Hafsteinsdottir, T. B., Varekamp, R., Rensink, M., van Linge, R., Lindeman, E., & Schuurmans, M. (2013). Feasibility of a nursing rehabilitation guideline for patients with stroke: Evaluating the use by nurses. *Disability Rehabilitation*, *35*(11), 939-949. doi:10.3109/09638288.2012.721049

Hien, N. T., & Chae, S. (2011). The accuracy of Glasgow Coma Scale knowledge and performance among Vietnamese nurses. *Perspectives in Nursing Science*, *8*(1), 54-61.

Hickey, A., O'Hanlon, A., McGee, H., Donnellan, C., Shelley, E., Horgan, F. et al. (2009). Stroke awareness in the general population: Knowledge of stroke risk factors and warning signs in older adults. *Bio-Medical Central Geriatrics, 9*(1), 35-42.

Harper, J. P. (2007). Emergency nurses' knowledge of evidence-based ischemic stroke care: A pilot study. *Journal of Emergency Nursing, 33*(3), 202-207. doi:10.1016/j.jen.2006.11.002

Hadley, M. B., & Roques, A. (2007). Nursing in Bangladesh: Rhetoric and reality. *Social Science and Medicine, 64*, 1153-1165.

Hamrin, E. (2006). Attitudes of nursing staff in general medical wards towards activation of stroke patients. *Journal of Advanced Nursing, 53*(1), 35-45.

Hausmann-Muela, S., Muela, R. J., & Nyamongo, I. (2003). Health-seeking behaviour and the health system's response. *DCPP Working Paper* no. 14.

Hoshino, H., Itoh, Y., Yamada, S., & Suzuki, N. (2013). Prevalence and clinical features of asymptomatic peripheral artery disease in Japanese stroke patients. *Journal of Stroke and Cerebrovascular Diseases, 22*(3), 255-259.

Hossain, A. M., Ahmed, N. U., Rahman, M., Islam, M.R., Sadhya, G., & Fatema, K. (2011). Analysis of socio-demographic and clinical factors associated with hospitalized stroke patients of Bangladesh. *Faridpur Medical College Journal*, *6*(1), 19-23.

Islam, S., Oh, E. G., Lee, T. W., & Kim, S. (2017). Stroke management awareness and behavior among nursing students in Bangladesh. *Open Journal of Nursing, 7*, 1-14. doi: 10.4236/ojn.2017.71001

Imran, M. K., Ilyas, M., Aslam, U., & Rahman, U. (2016). Organizational learning through transformational leadership. *The Learning Organization, 23*(4), 232-248. doi: 10.1108/TLO-09-2015-0053

Islam, M. N., Moniruzzaman, M., Khalil, M. I., Bashir, R., Alam, M. K., Loo, K. et al. (2012). Burden of stroke in Bangladesh. *International Journal of Stroke, 8*, 211-215.

Joice, S., Jones, M., & Johnston, M. (2012). Stress of caring and nurses' beliefs in the stroke rehabilitation environment: A cross-sectional study *International Journal of Therapy and Rehabilitation, 19*(4), 209-216.

Liang, H. Y., Tang, F. I., Wang, T. F., Lin, K. C., & Yu, S. (2 0 1 6). Nurse characteristics, leadership, safety climate, emotional labour and intention to stay for nurses: A structural equation modelling approach. *Journal of Advanced Nursing, 72*(12), 3068–3080. doi: 10.1111/jan.13072

Lievens, I., & Vlerick, P. (2014). Transformational leadership and safety performance among nurses: The mediating role of knowledge-related job characteristics. *Journal of Advanced Nursing, 70*(3), 651–661. doi: 10.1111/jan.12229

Launiala, A. (2009). How much can a KAP survey tell us about people's knowledge, attitudes, and practices? Some observations from medical anthropology research on malaria in pregnancy in Malawi. *Anthropology*

*Matters Journal, 11*, 1-13.

Lindsay, P., Bayley, M., Hellings, C., Hill, M., Woodbury, E., & Phillips, S. (2008). Canadian best practice recommendations for stroke care. *Canadian Medical Association Journal, 2*, 179-191

Launiala, A., & Honkasalo. M. L. (2007). Ethnographic study of factors influencing compliance to intermittent preventive treatment of malaria during pregnancy among Yao women in rural Malawi. *Transactions of the Royal Society of Tropical Medicine and Hygiene, 101*(10), 980-989.

Lindsay, P., Kelloway, L., & McConnell, H. (2005). Research to practice: Nursing stroke assessment guidelines link to clinical performance indicators. *AXON*, *26*(4), 22-27.

Langhorne, P., & Pollock, A. (2002). What are the components of effective stroke unit care? *Age Ageing*, *31*, 365–71. doi:10.1093/ageing/31.5.365

Lbrahim, G. (1995). Knowledge, attitude and practice the three pillars of excellence and wisdom: A place in the medical profession. *Eastern Mediterranean Health Journal*, *1*(1), 8-16.

Malik, N. A., Yatim, S. M., Lam, O. L.T., Jin, L., & McGrath, C. (2017). Factors influencing the provision of oral hygiene care following stroke: An application of the Theory of Planned Behaviour. *Disability and Rehabilitation*. doi 10.1080/09638288.2016.1277397

Moreau, N., Rauzy, S., Viallet, F., & Champagne-Lavau, M. (2015). Theory of mind in Alzheimer disease: Evidence of authentic impairment during social interaction. *Neuropsychology, 30*(3), 312-321.

Mateen, F. J., Carone, M., Alam, N., Streatfield, P. K., & Black, R. E. (2012). A population-based case-control study of 1250 stroke deaths in rural Bangladesh. *European of Jouoroonal of Neurology, 19*(7), 999-1006. doi:10.1111/j.1468-1331.2012.03666.x

Martín-de Castro, G., López-Sáez, P., Delgado-Verde, M., Andreeva, T., & Kianto, A. (2011). Knowledge processes, knowledge-intensity and innovation: A moderated mediation analysis. *Journal of Knowledge Management*, *15*(6), 1016-1034.

Marquardt, G. (2011). Way finding for people with dementia: The role of architectural design. *Health Environments Research & Design Journal*, *4*(2), 22-41.

Miah, M. T., Hoque, A. K. M. A., Tarafder, B. K., Romel, S. M. A., & Hassan, M. K. (2008). Stroke in young age: Study of 50 cases. *Journal of Medicine,* 9, 10–15.

Meijer, S.A, Hofstede, G. J., Beers, G. & Omta, S. W. F. (2006). Trust and Tracing game: Learning about transactions and embeddedness in the trade network. *Journal of Production Planning and Control, 17*(6), 569 – 583.

Manderson, L. P., & Aaby. (1992). An epidemic in the field? Rapid assessment procedures and health research. *Social Science and Medicine, 35*(7), 839-50.

Noorkhairina, S. S., Sakinah, II, & Rabiaah, C. M. (2013). Secondary stroke prevention through patient education intervention on lifestyle risk factors: A review. *Health and the Environment Journal, 4*(2), 127-151.

Nielsen, K., Yarker, J., Randall, F., & Munir, R. (2009). The mediating effects of team and self-efficacy on the relationship between transformational leadership, and job satisfaction and psychological well-being in healthcare professionals: A cross-sectional questionnaire survey. *International Journal of Nursing Studies, 46,* 1236–1244.

O'Farrell, B., & Zou, G. Y. (2008). Implementation of Canadian Neurological Scale on an acute care neuroscience unit: A program evaluation. *Journal of Neuroscience Nursing, 40*(4), 201-211.

O'Halloran, R., Worrall, L., & Hickson, L. (2011). Environmental factors that influence communication between patients and their healthcare providers in acute hospital stroke units: an observational study. *International Journal of Language Community Disorder, 46,* 30-70.

O'Halloran, R., Hickson, L., & Worrall, L. (2008). Environmental factors that influence communication between people with communication disability

and their healthcare providers in hospital: A review of the literature within the International Classification of Functioning, Disability and Health (ICF) framework. *International Journal of Language and Communication Disorders, 43* (6), 601–632.

Park, K.S., & Yeom, H. A. (2014). Factors influencing Korean nurses' attitudes towards hospice care. *International Nursing Review, 61*, 563–569.

Rahman, H. A., Abdul-Mumin, K., & Naing, L. (2016). A study into psychosocial factors as predictors of work-related fatigue. *British Journal of Nursing, 25*, 757-763.

Reeves, M. J., Rafferty, A. P., Aranha, A. A. R., & Theisen, V. (2008). Changes in knowledge of stroke risk factors and warning signs among Michigan adults. *Cerebrovascular Diseases, 25*(5), 385-391.

Rahman, M.M., Shahidullah, M., Shahiduzzaman, M., & Rashid, H. A. (2002). Quality of health perspectives. *Bangladesh Medical Research Council Bulletin, 28*, 87-96.

Sloma, A., Backlund, L. G., Strender, L. E., & Skaner, Y. (2010). Knowledge of stroke risk factors among primary care patients with previous stroke or TIA: A questionnaire study. *Bio-Medical Central Family Practice, 11*. 47.

Sacco, R. L., Kasner, S. E., Broderick, J. P., Caplan, L. R., Connors, J. J., Culebras, A. et al. (2013). An updated definition of stroke for the 21st century: a

statement for healthcare professionals from the American Heart ssociation/American Stroke Association. *Stroke, 44*(7), 2064-2089. doi:10.1161/STR.0b013e318296aeca

Salanova, M., Lorente, M. L., Chambel, M. J., & Martinez, I. M. (2011). Linking transformational leadership to nurses' extra-role performance: The mediating role of self-efficacy and work engagement. *Journal of Advanced Nursing, 67*(10), 2256–2266. doi: 10.1111/j.1365-2648.2011.05652.x

Sandstrome, B., Borglin, G., Nilsson, R., & Willman, A. (2011). Promoting the implementation of evidence-based practice: A literature review focusing on the role of nursing leadership. *WorldViews of Evidence-Based Nursing, 8*(4), 212-223.

Summers, D., Leonard, A., Wentworth, D., Saver, J. L., Simpson, J., Spilker, J. A. et al. (2009). Comprehensive overview of nursing and interdisciplinary care of the acute ischemic stroke patient: A scientific statement from the American Heart Association. *Stroke, 40*(8), 2911-2944. doi:10.1161/STROKEAHA.109.192362

Simmons-Mackie, N., Kagan, A., O'Neill Christie, C., Huijbregts, M., Mcewen, S. & Willems, J. (2007). Communicative access and decision making for people with aphasia: Implementing sustainable healthcare systems change. *Aphasiology, 21* (1), 39–66.

Schneider, B., & Cheslock, N. (2003). *Measuring results: Gaining insight on behavior change strategies and evaluation methods from environmental education, museum, health, and social marketing programs*. Sanfransisco, CA: Coevolution Institute.

Scottish Intercollegiate Guidelines Network (SIGN). (2002). Management of patients with stroke or TIA: Assessment, investigation, immediate management and secondary prevention. Edinburgh
Retrieve from url: http://www.sign.ac.uk

Thomas, L. H., Rogers, H., Langhorn, P., Smith, M., & Bond, S. (1999). Development of a scale to assess nurses knowledge of stroke: A pilot study. *Clinical Rehabilitation, 13,* 518-526.

Turner, A., Eccles, F. J., Elvish, R., Simpson, J., & Keady, J. (2017). The experience of caring for patients with dementia within a general hospital setting: a meta-synthesis of the qualitative literature. *Aging and Mental Health*, 21(1), 66-76. doi: 10.1080/13607863.2015.1109057

Udod, S. A., & Care, W. D. (2004). Setting the climate for evidence-based nursing practice: What is the leaders' role? *Nursing Leadership, 17*(4), 64-75. doi: 1012927/cjnl.2004/7018

Valente, T. W., Paredes, P., & Poppe, P. (1998). Matching the message to the process: The relative ordering of knowledge, attitudes, and practices in

behavior change research. *Human Communication Research, 24*(3), 366-385.

Waterman, R., Peters, T., & Philips, J. (1980). *Structure is not organization.* New York N Y: Elseivier Inc.

Waterhouse, C. (2008). An audit of nurses' conduct and recording of observations using the Glasgow Coma Scale. *British Journal of Neuroscience Nursing, 4*(10), 492-499.

Weiner, B. J. (2009). A theory of organizational readiness for change. *Implementation Science, 4*( 67), 1-9. doi:10.1186/1748-5908-4-67.

Wang, G., Zhang, Z., Ayala, C., Dunet, D. O., Fang, J., & George, M. G. (2014). Costs of hospitalization for stroke patients aged 18-64 years in the United States. *Journal of Stroke Cerebrovasc Disease, 23*(5), 861-868. doi:10.1016/j.jstrokecerebrovasdis.2013.07.017

Webberg, D. (2010). Transformational leadership and staff retention: An evidence review with implications for hearlthcare systems. *Nursing Administration Quarterly, 34*(3), 246-258. doi: 10.1097/NAQ.0b013e3181e70298

Walumbwa, F. O., Bruce, J., Avolio, B., & Zhu, W. (2008). How transformational leadership weaves its influence on individual job performance: The role of identification and efficacy beliefs. *Personnel Psycholog, 61,* 793–825.

Yang, J., Zheng, M., Chen, S., Ou, S., Zhang, J., Wang, N. et al. (2013). A survey of the perceived risk for stroke among community residents in Western Urban China. *Plos One, 8*(9), 73578.

You, L. M., Aiken, L. H., Sloane, D. M., Liu, K., He, G. P., Hu, Y. *et al*. (2013). Hospital nursing, care quality, and patient satisfaction: Cross-sectional surveys of nurses and patients in hospitals in China and Europe. *International Journal of Nursing Studies, 50*(2), 154–161. doi: 10.1016/j.ijnurstu.2012.05.003.

Zagade1, T. B., & Madhale, M. (2014). To evaluate efficacy of learning package among staff nurses regarding neurological assessment on patients with altered sensorium. *International Journal of Science and Research, 3*(9). 328-329.

# APPENDICES

## Appendix 1. IRB Approval Letter

**연세의료원 연구심의위원회**
**Yonsei University Health System, Institutional Review Board**
서울특별시 서대문구 연세로 50-1 (우) 03722
Tel. 02 2228 0454, Fax. 02 2227 7888 Email. irb@yuhs.ac

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|---|---|
| 심 의 일 자 | 2017년 5 월 25 일 |
| 과제승인번호 | Y-2017-0005 |

연세의료원 연구심의위원회의 심의 결과를 다음과 같이 알려 드립니다.

| | |
|---|---|
| Protocol No. | |
| 연 구 제 목 | An explanatory Model for Influencing Factors of Level of Competency on Stroke Management among Nurses in Bangladesh |
| 연 구 책 임 자 | 오의금 / 세브란스병원 임상간호과학과 |
| 의 뢰 자 | 세브란스병원 |
| 연구예정기간 | 2017.05.25 ~ 2018.02.24 |
| 지속심의 빈도 | 12개월마다 |
| 과 제 승 인 일 | 2017.05.25 |
| 위 험 수 준 | Level I 최소위험 |
| 심 의 유 형 | 질의답변 |
| 심 의 내 용 | -Information sheet and instrument set both English and Bengali versions have been submitted as per instruction. Files are attached in the e-IRB system.<br>-Revised version of Participant Advertisement file named as "Revised Participant Advertisement" has been submitted through e-IRB system for your kind reviewing. Changes such as content, time for completion and total items of Questionnaire have been made in 3 . Method section as instructed.<br>-In page 7, no. 11. research method section of the 'Revised Research Plan' file attached in the e-IRB, "Descriptive correlational design to identify influencing factors of level of competency on stroke management and test an explanatory model" has been changed to "AMOS for structural equation modeling would be used to identify influencing factors of level of competency on stroke management and to construct and test an explanatory model" as instructed.<br>-In the file named as 'Revised Research Plan' in page no. 6 under section 7. Subject (population), the aim of selecting 4 large hospitals is as 'The four tertiary care hospitals are selected because the nurses working at medicine and neuro-medicine wards would be recruited. Among 4 hospitals two are public and the rests are private. It is important to compare the results of influencing factors related to nurses' competency on stroke management between public and private hospitals' and highlighted as yellow color.<br>- 'To meet with POTENTIAL study participants' has been moved from page 5 to Page 8 under |



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section 11. Research method of the file named as 'Revised Research Plan' and highlighted as yellow color.

-Redundant sentences such as 'the research proposal would be approved by the Yonsei University Health System Institutional Review Board' and 'the researcher will go to the wards to be used and meet with nurses to briefly introduce about the purpose of the study' has been deleted from pages 7 & 8.

-'a reminding notice will be served to the same nurses who have not yet completed….' Has been changed to 'At the end of the first week, a reminding notice will be served on the notice board addressing all the participants to complete or drop the questionnaire into the research box and mentioned in page number 8 and highlighted as yellow color.

-The term 'study is minimum risk because all the questionnaires are knowledge based' has been revised as 'No risks would be incurred because completing questionnaire set will not cause any discomfort or discrimination or harm to the participants and no identifiable information or sensitive question will be asked to answer' in page no. 12 under section 18. Risk and benefit of the subjects of the research plan. And also 'The risks associated with this study are minimal because completing the questionnaire set will not be cause for discomfort or discrimination or any harm to you' has been mentioned in section 5. Risk and inconvenience expected from participating in the study of English info sheet and highlighted as yellow color.

-'How long it will take to complete Q set' has been described as 'Participants will be needed approximately 30 minutes to complete the questionnaire' in page 8 under section 11. Research method of the file named as Revised Research Plan and highlighted as yellow color. And also mentioned in page no. 2 under section 3. Method of the English Info Sheet and highlighted as yellow color.

-'If the participants decide to drop out at midpoint of the study and whether they keep the incentive in which case their participation will be terminated and collected data would be deleted' and If they want to discard the collected information so that it is not used they must contact the researcher and forward their opinion and they will be ensured that provided incentive need not to be returned' have been added in the research method section of the revised research plan and voluntary participation / withdrawal section of the participant info sheet and highlighted in yellow color

-A set of English version questionnaire along with info sheet, cover letter and consent form had been sent to Md. Azharul Islam (LLB Hons) a professional bilingual translator & Notary Public, Mymensingh Translator Center, Bangladesh for Bengali translation via e-mail. A recommendations letter from Bilingual translator has been attached in e-IRB system for your kind consideration.

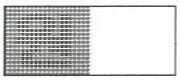
-English info sheet and consent form has been attached in e-IRB system for your kind judgment.

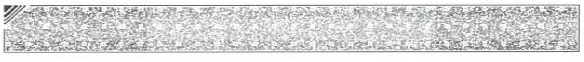
-[변경전]연구 설계 개요 :
[변경후]연구 설계 개요 : 변경사유를 기술하십시오.

-[변경전]대상자 산출 근거 :
[변경후]대상자 산출 근거 : 변경사유를 기술하십시오.

- [변경전]선정 기준 : Subjects who meet the following inclusion and exclusion criteria would be conveniently selected from the targeted hospitals. Nurses who work as a full time staff in the selected wards, having at least three years diploma in nursing degree with at least one year clinical experience on respected wards would be included in the study.
[변경후]선정 기준 : Subjects would be conveniently selected from the targeted hospitals. Nurses who work as a full time staff in Medicine and Neuro-medicine wards, having at least three years diploma in nursing degree with at least one year clinical experience in the







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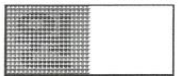
relevant wards would be included in the study whereas nurses who are on sick leave, maternity leave or casual leave would be excluded from the study. A flyers or reminding notice for nurses about participation in the study would be served on the notice board in selected wards.

- [변경전]연구 방법 : A descriptive Correlational design will be employed to identify influencing factors of level of competency on stroke management and to construct and test an explanatory model for competency on stroke management among the nurses in Bangladesh. Data will be collected from 233 nurses of the four tertiary level hospitals and data collection period will be from May to July, 2017. Prior to data collection, the proposal would be approved by the Yonsei University Health System Institutional Review Board (IRB) in Korea. With the approval and a letter of permission from the Dean of the College of Nursing, Yonsei University, Korea, the researcher will ask for permission from the concern Authorities of the respected hospitals through Director General, Directorate General of Nursing and Midwifery in Dhaka, Bangladesh. Then researcher will communicate with the respected nursing superintendents and charge nurses on the selected wards of the targeted hospitals to meet with the study participants. Then researcher will briefly introduce about the purpose of the study to the nurses. The questionnaire and a covering letter that provided background information, an assurance of confidentiality, and instructions for returning the questionnaire, together with a gift and snacks addressed envelope will be kept on the desk near to the nurses' duty station of the respected wards. The nurses who are interested to participate in the study will be invited to pick up a set of questionnaire from the desk voluntarily. Participants will be needed approximately 30 minutes to complete the questionnaire.

The participants will be asked to complete and return the questionnaire within a two week period from the date of approach. The respondents completed and returned questionnaire will be considered to be consent to participate. Upon completion of the questionnaire, the respondents would be asked to seal the completed questionnaire in a white envelope and place it in a box marked "Research Surveys." At the end of the first week, a reminding notice will be served to the same nurses who have not yet completed or dropped the questionnaire into the research box. Based on returning the questionnaire, 233 nurses will be considered as eligible subjects who signed written informed consent form in this study. Nurses can stop or withdraw their participation from the study at any time without any reason or penalty if they wish to, with no risk to their hospital, personal or professional career, and work environment. All necessary information collected from the subjects will be kept confidential and place in secure locked cabinet for three years and this will be destroyed after completion of the study. It is the responsibility of the organization to communicate information (eg, impairment or benefit) that may affect the spontaneity of the subject continuing in the plan, the procedure, and the study and that may result from that study or from other studies with the same subject Technology for people, etc.

[변경후]연구 방법 : AMOS for structural equation modeling will be used to identify influencing factors of level of competency on stroke management and to construct and test an explanatory model for competency on stroke management among the nurses in Bangladesh. Data will be collected from 233 nurses of the four tertiary level hospitals and data collection period will be from May to July, 2017. Prior to data collection, the proposal would be approved by the Yonsei University Health System Institutional Review Board (IRB) in Korea. With the approval and a letter of permission from the Dean of the College of Nursing, Yonsei University, Korea, the researcher will ask for permission from the concern Authorities of the respected hospitals through Director General, Directorate General of





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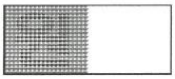
| 심 의 내 용 | Nursing and Midwifery in Dhaka, Bangladesh. Then researcher will communicate with the respected nursing superintendents and charge nurses on the selected wards of the targeted hospitals to meet with the study participants. Then researcher will briefly introduce about the purpose of the study to the nurses. The questionnaire and a covering letter that provided background information, an assurance of confidentiality, and instructions for returning the questionnaire, together with a gift and snacks addressed envelope will be kept on the desk near to the nurses' duty station of the respected wards. The nurses who are interested to participate in the study will be invited to pick up a set of questionnaire from the desk voluntarily. Participants will be needed approximately 30 minutes to complete the questionnaire.<br>The participants will be asked to complete and return the questionnaire within a two week period from the date of approach. The respondents completed and returned questionnaire will be considered to be consent to participate. The nurses who meet the inclusion criteria and return the completed questionnaire and sign the informed consent form would be potential participants in the study. Upon completion of the questionnaire, the respondents would be asked to seal the completed questionnaire in a white envelope and place it in a box marked "Research Surveys." At the end of the first week, a reminding notice will be served on the notice board addressing all the participants to complete or drop the questionnaire into the research box. Nurses can stop or withdraw their participation from the study at any time without any reason or penalty if they wish to, with no risk to their hospital, personal or professional career, and work environment. All necessary information collected from the subjects will be kept confidential and place in secure locked cabinet for three years and this will be destroyed after completion of the study. It is the responsibility of the organization to communicate information (eg, impairment or benefit) that may affect the spontaneity of the subject continuing in the plan, the procedure, and the study and that may result from that study or from other studies with the same subject Technology for people, etc<br>-[변경후]임상 연구계획서(국문) 삭제<br>-[변경후]대상자 모집 문건 삭제<br>-[변경후]임상 연구계획서(국문) 추가<br>-[변경후]대상자 모집 문건 추가<br>-[변경후]대상자 설명문 및 동의서(영문) 추가<br>-[변경전]대상자 설명문 및 동의서(영문)<br>[변경후]대상자 설명문 및 동의서(영문) 변경<br>-[변경전]대상자 설명문 및 동의서(영문)<br>[변경후]대상자 설명문 및 동의서(영문) 변경<br>-[변경전]대상자 설명문 및 동의서(영문)<br>[변경후]대상자 설명문 및 동의서(영문) 변경<br>-[변경후]English information sheet 추가<br>-[변경후]Bangali consent form 추가<br>-[변경후]Bangali information sheet 추가<br>-[변경후]Bangali questionnaire 추가<br>-[변경후]English questionnaire 추가<br>-********** IRB comment: Approved. Good luck with your study. ********** |
| I R B 회 의 | 연세의료원 IRB |
| 참 석 위 원 | 연세의료원 IRB 신속심의자 |





**심 의 결 과** 승인

**심 의 의 견** -

※ 연세의료원 연구심의위원회는 생명윤리 및 안전에 관한 법률을 준수합니다.
연구책임자 및 연구담당자가 IRB 위원인 경우, 해당 위원은 위 연구의 심의과정에 참여하지 않았습니다.

**연세의료원**
**연구심의위원회**
**위원장**

* 유의사항 *

**1. 연세의료원 연구심의위원회 규정을 준수하여 주십시오.**

연구책임자께서는 모든 연구 관련자들이 규정을 이행할 수 있도록 협조하여 주시기 바랍니다.

**2. 질의답변**

승인 통보 받지 않은 과제는 연구 진행할 수 없으며, 관련 질의에 대한 답변서와 질의 사항에 따른 변경 및 수정된 자료가 있다면 첨부하여 심의일로 부터 6개월 이내 제출하여야 합니다.

**3. 연구의 승인 유효 기간**

관련법령에 따라 승인된 연구의 유효기간은 최대 1년을 넘을 수 없습니다.
연구자께서는 승인 만료일 최소 한 달전에 중간보고를 제출하여 승인 유효기간을 갱신하셔야 합니다.
유효기간이 만료된 연구는 새로운 대상자를 등록하실 수 없습니다.

**4. 계획 변경**

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반드시 IRB의 승인을 득한 후에 적용하실 수 있습니다.

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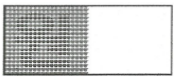

**연세의료원 연구심의위원회**
**Yonsei University Health System, Institutional Review Board**
서울특별시 서대문구 연세로 50-1 (우) 03722
Tel. 02 2228 0454, Fax. 02 2227 7888 Email. irb@yuhs.ac

| | |
|---|---|
| **심 의 일 자** | 2017년 8 월 7 일 |
| **과제승인번호** | Y-2017-0005 |

연세의료원 연구심의위원회의 심의 결과를 다음과 같이 알려 드립니다.

| | |
|---|---|
| **Protocol No.** | |
| **연 구 제 목** | An explanatory Model for Influencing Factors of Level of Competency on Stroke Management among Nurses in Bangladesh |
| **연 구 책 임 자** | 오의금 / 세브란스병원 임상간호과학과 |
| **의 뢰 자** | 세브란스병원 |
| **연구예정기간** | 2017.05.25 ~ 2018.02.24 |
| **지속심의 빈도** | 12개월마다 |
| **과 제 승 인 일** | 2017.05.25 |
| **위 험 수 준** | Level I 최소위험 |
| **심 의 유 형** | 계획변경 |
| **심 의 내 용** | -[변경전]대상자 산출 근거 :<br>[변경후]대상자 산출 근거 : 변경사유를 기술하십시오.<br>-[변경전]임상 연구계획서(국문)<br>[변경후]임상 연구계획서(국문) 변경<br>-[변경후]English information sheet revised 추가<br>-[변경후]Bangail information sheet revised 추가<br>-[변경후]English information sheet 삭제<br>-[변경후]Bangali information sheet 삭제 |
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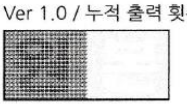
| **참 석 위 원** | 연세의료원 IRB 신속심의자 |
| **심 의 결 과** | 승인 |
| **심 의 의 견** | - |





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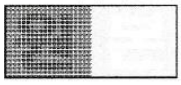

## Explanation

**Research Title :** An Explanatory Model for Influencing Factors of Level of Competency on Stroke Management among Nurses in Bangladesh

**Researcher :** 연세의료원 Md. Shariful Islam 과 교수 Eui Geum Oh

This is a descriptive study of an explanatory model for influencing factors of level of competency on stroke management among the nurses in Bangladesh. The aim of the study is to explore the influencing factors of level of competency on stroke management and to construct and test an explanatory model of competency on stroke management among the nurses. The findings of the study would help in developing in-service stroke education program to facilitate nurses' knowledge and competency on stroke management. You should carefully read the instructions and consent forms before deciding whether or not to participate in this study. It is important that you understand why this study is carried out and what it does. Professor Eui Geum Oh a research director or Md. Shariful Islam a researcher who will conduct this study will tell you about this research. This study will be conducted only for those who have volunteered to participate. Please read the following carefully and let me know what you intend to do, and if necessary, discuss it with your colleague or friends. If you have any questions, the researcher will explain in detail. Your signature means that you have been told about the study and the risk, and your signature on this document means that you want to participate in this study.

**1. Research Background and purpose**

The morbidity and mortality of stroke is estimated high in Bangladesh. Nurses play significant role in reducing secondary complications of stroke. This study aims to identify the influencing factors of level of competency on stroke management. The participants of the study would be nurses working under medicine and neuro-medicine wards in the three tertiary care hospitals in Bangladesh. Those hospitals include Dhaka Medical College Hospital (DMCH), Bangobandhu Sheikh Mujib Medical University (BSMMU) Hospital, and Khulna Medical College Hospital (KMCH). The findings of the study would facilitate nurses' competency on stroke patient management in the hospital and provide necessary information which inspires further intervention. This study is required for PhD degree.

**2. Number of participant, Period and Place**

A total of 233 nurses would be participated in the study. The nurses who have at least three years diploma in Nursing degree with at least one year clinical experience in the relevant wards can be eligible to participate. The nurses who are on sick leave, maternity leave or any other leave will be excluded from the study. The data collection period would be from May to July, 2017 and place would be at general medicine and neuro-medicine wards of the four tertiary care hospitals.

**3. Research Method**

A set of 100-item self-administered questionnaire along with small gifts are kept on a desk near to the nurses' duty station. If you are agree to participate in the study you will then be asked to pick up the questionnaire voluntarily. The questionnaire comprises seven sections including Leadership Practice Inventory, Organizational Learning Survey, Organizational Readiness for Change, Nurses Stroke Knowledge Questionnaire, Nurses Attitudes on Stroke Management Questionnaire, Nurses Practice on Stroke Management Questionnaire and Nurses Demographic Questionnaire. You are asked to put tick mark in an appropriate number whether your answer is yes, no or unsure / strongly disagree /strongly agree / almost never to almost always. After you have completed the questionnaire you are requested to drop them into the research survey box within two weeks. This will take approximately 30 minutes to complete the questionnaire. Your participation in the study will not affect your job or professional dignity or your workplace environment. You have the right to refuse to answer particular questions. Prior to data collection, the proposal was approved by the Yonsei University Health System Institutional Review Board, Korea and permission obtained from the concern authorities of the selected hospitals through Director General, Directorate General of Nursing and Midwifery, Dhaka, Bangladesh.

**4. Benefit**

The benefit which may reasonably be expected to result from this study is to reflect your competency regarding stroke management and develop in-service stroke education program so that nurses would be well prepared for performing stroke management. We cannot and do not guarantee or promise that you would receive any benefits from this study. However, the information you provide will help us improve our understanding of influencing factor of level of your competency on stroke patient management in the hospital.

**5. Risk and inconvenience expected from participating in the study**

The risks associated with this study are minimal because completing the Questionnaire set will not be cause for discomfort or discrimination or any harm to you. The findings of the study will help nurses improving quality of nursing practice regarding stroke patient management in the hospital.

**6. Compensation**

You will receive a $1USD dollar for small gift or snack as a compensation of your participation while you pick up the questionnaire.

**7. Data collection and Provide information**

By signing this agreement, you agree that researchers will collect and use your personal information and if you agree this information may be provided to a third party. (Please join below for details.)

1) Purpose of collection and use of personal information
2) Items of personal (sensitive) information to collect

3) Retention and use period of personal information.
4) If there is a right to refuse consent, and if there is a disadvantage from refusing consent, the content of the disadvantage You are free to decide whether or not to accept the above personal (sensitive) information collection and use, provision. Even if you do not accept the collection, use and provision of personal (sensitive) information, there will be no disadvantages to your care and prescription
5) Whether the subject's personal information collected in the study is provided by others and, if provided, whether it contains personally identifiable information

**8. Privacy and confidentiality of records**

You can be ensured that your confidentiality and anonymity will be maintained. You also can be ensured that the information that you provide will not disclose to others. It will keep in secure locked cabinet for three years and after that it will be discarded permanently.

**9. Voluntary participation / withdrawal**

If you have read or hear this form and have decided to participate in this study, please understand your participation is voluntary. There are no obligations; you can withdraw from the study at any time without any penalty. If you decide to drop out at the midpoint of the study, in which case your participation in the study will be terminated and the researchers will not collect additional information about you in connection with the study. Your provided information will be deleted and $1USD dollar you received as incentive needs not to be returned. If you want to discard the collected information so that it is not used, you must contact the researcher and forward your opinion.

**10. Contact**

If you have any questions, complaints or concerns about this research, its procedures, risks and benefits, or if you have an injury related to the study, please contact the researchers listed below.

**Name: Md. Shariful Islam**
**PhD in Nursing Student**
**Yonsei University College of Nursing, Korea**
**E-mail: ishariful791@gmail.com**
**Address: 03722 서울특별시 서대문구 연세로 50-1**
**☎ +82-02-2228-3236**
**24hours contact Number: 01731253480 (BAN);**

If you have any questions about your rights as a subject, you can speak to the researcher or contact us at:**연세의료원 연구심의위원회 ☎ +82-02-2228-0430~4**

# Appendix 2. Study Questionnaire (English version)

**Factors Influencing Performance of Stroke Management among Nurses in Bangladesh**

Date: ……./……../2017

Dear Sir/Madam

I am Md. Shariful Islam, a demonstrator at Khulna Nursing College, Khulna, Bangladesh. I am also a doctoral student at Yonsei University College of Nursing in Korea. I am conducting a research entitled "Factors Influencing Performance of Stroke Management among nurses in Bangladesh".

The morbidity and mortality rate of stroke is estimated high in Bangladesh. Nurses have a significant role in reducing these complex conditions. This study aims to explore the level of nurses' performance, knowledge, attitudes and its relationship. In addition factors influencing performance of stroke management would be identified. The findings of the study would help in developing in-service stroke education program to facilitate nurses' knowledge and competency on stroke management. Thus improving quality of nursing practice and provide necessary information which inspire further intervention.

If you are agree to participate in the study you will be asked to complete a 100-item self-administered questionnaire. The questionnaire is divided into seven sections. Section 1 is related to leadership practice inventory, Section 2 is relevant with organizational learning survey, Section 3 relates to organizational readiness for change, Section 4 is on nurses' stroke knowledge questions, Section 5 is related to nurses attitudes on stroke management questions, section 6 is for nurses practice on stroke management and Section 7 is of your demographic questions. This will take approximately 30 minutes to complete the questionnaire. You will be provided 1.00 USD dollar gift for your compensation.

Your participation in this study is completely voluntary. You have the right to stop or withdraw from the study at any time without any reason. All the information you provided will be kept in strictly confidential. Your anonymity would be guaranteed and your identity will not be reflected in any part of the document.

Thank you for your kind cooperation and participation.

Advisor : Professor Eui-Geum Oh
Email : euigeum@yuhs.ac
Tel : +82-02-2228-3256 (Korea)

Researcher: Md. Shariful Islam
Email: ishariful791@gmail.com
Tel : +82-2125-8554 (Korea)
01731253480 (BAN)

**Section 1: Nurses Performance on Stroke Management Questionnaire (NPSMQ-10)**

This part asks questions pertaining to your practice related to your stroke management. Choose a number from the following rating scale that best applies to each statement and record it in the box to the right of that statement.

4 = most frequently used, 3 = frequently used, 2 = seldom used, 1 = not used.

| | Rating | | | |
|---|---|---|---|---|
| 1. I measure functional status with Barthel Index | 4 | 3 | 2 | 1 |
| 2. I often use water swallow screening test and pay attention to predictors | 4 | 3 | 2 | 1 |
| 3. I assess for the risk of falling by using instrument | 4 | 3 | 2 | 1 |
| 4. I screen the nutritional status with the MUST | 4 | 3 | 2 | 1 |
| 5. I observe cognitive status by using standard scale | 4 | 3 | 2 | 1 |
| 6. I assist patients with sitting position while eating | 4 | 3 | 2 | 1 |
| 7. I support patients in improving their self-efficacy | 4 | 3 | 2 | 1 |
| 8. I always control intake of fluid | 4 | 3 | 2 | 1 |
| 9. I always support patients concerning compliance to therapy | 4 | 3 | 2 | 1 |
| 10. I provide patients and partner with education <24 hours of admission | 4 | 3 | 2 | 1 |

**Section 2: Nurses Stroke Knowledge Questionnaire (NSKQ – 12)**

Please mark (√) on the appropriate numbers whether your answer is yes, no or unsure.

| | | Yes | No | Unsure |
|---|---|---|---|---|
| 1. | Perceptual problems only occur if a stroke patient has weakness or sensory loss | 1 | 2 | 3 |
| 2. | Dyspraxia is due to muscle weakness | 1 | 2 | 3 |
| 3. | A patient with an ischemic stroke may likely exhibit decreased level of consciousness, left leg weakness and right arm weakness. | 1 | 2 | 3 |
| 4. | Agnosia is a condition in which the patient loses the ability to recognize objects | 1 | 2 | 3 |
| 5. | Silent aspiration can be detected with video fluoroscopy | 1 | 2 | 3 |
| 6. | An intact gag reflex indicates a safe swallow | 1 | 2 | 3 |
| 7. | The Barthel Activities of Daily Living Index is a measure of functional dependency | 1 | 2 | 3 |
| 8. | An ischemic stroke patient's neurologic status and vital signs should be assessed frequently for 48 hours after tPA administration. | 1 | 2 | 3 |
| 9. | It is recommended that treatment with intravenous tPA begin within 3 hours of stroke symptom onset. | 1 | 2 | 3 |
| 10. | The recommended dosage of tPA for patients who have had an ischemic stroke is 0.9 mg/kg. | 1 | 2 | 3 |
| 11. | Body temperatures of $103^0$ F should be treated in a patient with ischemic stroke. | 1 | 2 | 3 |
| 12. | Prior to administering intravenous tPA for ischemic stroke, labetalol is recommended for lowering the blood pressure to less than 185/110. | 1 | 2 | 3 |

**Section 3: Nurses Attitudes on Stroke Management Questionnaire (NASMQ-14)**

This part asks questions pertaining to your attitudes related to your stroke management. Choose a number from the following rating scale that best applies to each statement and record it in the box to the right of that statement.

5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree

| | | Ratings | | | | |
|---|---|---|---|---|---|---|
| 1. | I feel it meaningful to work with stroke patients | 5 | 4 | 3 | 2 | 1 |
| 2. | I like working with old people | 5 | 4 | 3 | 2 | 1 |
| 3. | Carrying out an activity on his/her own strengthens the stroke patient's self-confidence | 5 | 4 | 3 | 2 | 1 |
| 4. | Stroke patients are often uncooperative | 5 | 4 | 3 | 2 | 1 |
| 5. | Stroke patients are uninteresting, e g compared with patients with myocardial infarction | 5 | 4 | 3 | 2 | 1 |
| 6. | I would like very much to work in long-term care | 5 | 4 | 3 | 2 | 1 |
| 7. | Patients activation is an important part of nursing care all types of nurses should participate | 5 | 4 | 3 | 2 | 1 |
| 8. | It is impossible to devote more time to stroke patients unless the staffing level is increased | 5 | 4 | 3 | 2 | 1 |
| 9. | Activation is the task of the physiotherapist and occupational therapist and should not be an additional load on the ward staff | 5 | 4 | 3 | 2 | 1 |
| 10. | The motivation to participate in patient activation increases the more you learn | 5 | 4 | 3 | 2 | 1 |
| 11. | Stroke patients take too much time in nursing work, other patient groups are neglected | 5 | 4 | 3 | 2 | 1 |
| 12. | Incontinent stroke patients should have catheters to a greater extent | 5 | 4 | 3 | 2 | 1 |
| 13. | Relatives should participate in the activation of the stroke patients while the latter are still on the ward | 5 | 4 | 3 | 2 | 1 |
| 14. | It is unrealistic to practice activation and rehab rehabilitation on a general medical care of the elderly ward | 5 | 4 | 3 | 2 | 1 |

**Section 4: Leadership Practices Inventory (LPI- 17)**

Instruction: This first section asks questions pertaining to your unit manager leadership style. Choose a number from the following rating scale that best applies to each statement and record in the box to the right of that statement.

1 = Almost Never, 2 = Rarely, 3 = Seldom, 4 = Once in a While, 5 = Occasionally, 6 = Sometimes, 7 = Fairly Often, 8 = Usually, 9 = Very Frequently, 10 = Almost Always

| | **Rating Scale** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. My manager talks about how my work on stroke management gets done. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 2. My manager can confidently check my stroke care abilities | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 3. My manager acts on her/his commitment through monitoring my stroke care performance | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 4. My manager ask for feedback on how his/her actions affect my stroke care performance | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 5. My manager spends time and energy about principles and standards we have agreed on stroke management | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 6. My manager share with me about hospital vision to manage stroke patient | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 7. My manager publicly recognize me on my shared values about stroke care | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 8. My manager asks me the reasons when stroke patient outcome is not achieved. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| | Rating Scale | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 9. My manager faces challenges to test my skills and abilities about stroke care | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 10. My manager build consensus about a common set of values for stroke care | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11. My manager ask me to try out new and innovative ways to reduce stroke problem | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 12. My manager develop cooperative relationship with me about stroke care | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 13. My manager gives me a freedom of choice in deciding stroke care activities | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 14. My manager enables me to learn new skills to manage stroke patient | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 15. My manager praise for me when my stroke care performance well done | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 16. I receive dignity and respect from my manager while caring for stroke patient | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 17. My manager supports my decision while caring for stroke patient | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**Section 5: Organizational Learning Survey (OLS-25)**

This next section asks you questions about your current workplace environment. Please respond by circling the number that most closely corresponds to how you feel about each statement

| | | **1 Strongly disagree** | | | | | | **7 Strongly agree** |
|---|---|---|---|---|---|---|---|---|
| 1. | I get widespread support from the organization's vision about stroke patient care. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | My failures about stroke patient care are seldom constructively discussed in our organization**.** | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. | Manager and employees in this hospital share a common vision of what our stroke management activities should accomplish. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | I do not understand how the vision of this hospital about stroke management is to be achieved. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | I must conform the organization's vision and values about stroke patient management | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | My senior managers in this hospital are afraid of new ideas of stroke patient management | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. | My manager encourages me to improve my stroke related care process | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. | My manager frequently involves me in important decisions on stroke care. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | I often receive feedback from my manager that helps me to identify potential problems and opportunity about stroke management | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | My hospital management closely monitors my stroke care related activities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. | My innovative ideas about stroke care activities are often rewarded by management | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | 1 Strongly disagree | | | | | | 7 Strongly agree |
|---|---|---|---|---|---|---|---|---|
| 12. | I have opportunities for self-assessment with respect to stroke care goal attainment. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. | I feel isolated at my work on stroke care | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. | I have opportunities to work on challenging assignments about stroke management | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. | My work on stroke care makes full use of my skills and abilities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. | I am satisfied with my work on stroke patient management | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. | We cannot form informal groups to solve hospital problems related to stroke care. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. | Most problem-solving groups in the hospital feature nurses from a variety of functional areas for stroke patient management. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. | My work group is supportive of the stroke care | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. | Current hospital practice encourages nurses to solve stroke related problem | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. | The skill training on stroke care I receive can be applied to improve my work immediately | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. | Learning to increase my stroke knowledge and skills is not encouraged in the hospital. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. | Training in this hospital is not always relevant to my stroke patient management | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. | I have opportunities to share my stroke knowledge and skills with other staffs. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. | Nurses in this hospital require to upgrade and increase their stroke care knowledge | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Section 6: Organizational Readiness for Change Questionnaire (ORCQ-11)**

Please answer the following question from your own perspective and knowledge of your hospital's policy and procedure**.** Please answer the following question by ticking one number only.

| | Yes | No | Unsure |
|---|---|---|---|
| 1. In your view, are the health care professionals in the hospital receptive to using stroke care guideline? | 1 | 2 | 3 |
| 2. In your view, is there a positive culture toward stroke education within the hospital? | 1 | 2 | 3 |
| 3. To what extent has the process of stroke care guideline been built into the hospital structure? | 1 | 2 | 3 |
| 4. Does your hospital provide multi professional forum or network to facilitate dissemination of stroke care guideline into practice? | 1 | 2 | 3 |
| 5. Does your hospital have a system to communicate new stroke care guideline information? | 1 | 2 | 3 |
| 6. Does the hospital have staff whose role is specifically designated to the implementation of stroke care guideline? | 1 | 2 | 3 |
| 7. Does the designated staff member have the expertise to lead on the coordination of stroke care guideline dissemination and implementation? | 1 | 2 | 3 |
| 8. In your experience, is the hospital able to allocate dedicated staff time for policy development and action plan for stroke management | 1 | 2 | 3 |
| 9. Are staffs given an opportunity to present feedback on the stroke care guideline recommendations to their practice? | 1 | 2 | 3 |
| 10. Is there an organized program of training to develop staff skills to provide stroke care? | 1 | 2 | 3 |
| 11. Do managers support staff requests for acquiring new skills and knowledge with regard to the stroke care? | 1 | 2 | 3 |

**Section 7: Nurses' Demographic Questionnaire (11)**

Please fill in the blank space or tick mark on your answer sheet in the box as indicated.

| | | |
|---|---|---|
| General Characteristics | Gender …….. | □ M □ F |
| | Age ……..... | _____Years _____Months |
| | Highest level of educational attained in nursing. (Select one) | ☐ Diploma □ BSN<br>☐ MSN □ MPH |
| Professional Information | Number of years in practice as staff nurse. | _____Month _____Year |
| | Number of years in practice caring for acute stroke patient. | _____Years _____Months |
| | What types of hospital do you work in? | □ Public □ Private |
| | Currently working on what type of ward. (select one) | ☐ Medicine □ ICU<br>☐ Neuro-Medicine □ NICU |
| | Have you previously completed continuing education course on stroke management? | ☐ Yes □ No |
| | If yes, please specify | _____Year _____Duration |
| | How much you are satisfied with stroke education you received. | ☐ Totally satisfied<br>☐ Not at all satisfied |
| | How much you are satisfied with your job related to stroke patient management? | ☐ Totally satisfied<br>☐ Not at all satisfied |

**This is the END**
**Thank You for your kind Participation**

# Appendix 3. Study Questionnaire (Bengali version)

**বাংলাদেশে নার্সদের মধ্যে ষ্ট্রোক রোগী ব্যবস্থাপনা দক্ষতায় প্রভাবিত উপাদানসমূহ চিহ্নিত করণ শীর্ষক একটি বিশ্লেষণমূলক গবেষণা।**

তারিখ...../...../২০১৭ ইং

সম্মানিত জনাব/বেগম
আসসালামুআলাইকুম।

আমি খুলনা নার্সিং কলেজ, খুলনার একজন ডেমোন্সট্রেটর বর্তমানে কোরিয়ার ইওনসে য়্যুনিভার্সিটি কলেজ অব নার্সিংয়ে পিএইচডি ইন নার্সিং কোর্সে অধ্যয়নরত আছি। আমি "বাংলাদেশে নার্সদেও মধ্যে ষ্ট্রোক রোগী ব্যবস্থাপনা দক্ষতায় প্রভাবিত উপাদানসমূহ চিহ্নিত করণ শীর্ষক একটি বিশ্লেষণমূলক গবেষণা" করতে যাচ্ছি। নার্সদের স্ট্রোকরোগী ব্যবস্থাপনা সম্পর্কিত জ্ঞান, দৃষ্টিভঙ্গি ও দক্ষতার স্তর এবং সেগুলির মধে সম্পর্ক উদ্‌ঘাটন করা সহ যে বিষয়গুলো নার্সদের স্ট্রোক ব্যবস্থাপনার দক্ষতাকে প্রভাবিত করে সেগুলো চিহ্নিত করাই মূলতঃ এই গবেষণার মূখ্য উদ্দেশ্য। বাংলাদেশে স্ট্রোকে আক্রান্ত রোগীর সংখ্যা এবং মৃত্যুর হার ক্রমশঃই বৃদ্ধি পাচ্ছে। স্ট্রোক সংক্রান্ত জটিলতা চিহ্নিত করণসহ নিরসনে নার্সগণের একটি গুরুত্বপূর্ণ ভুমিকা রয়েছে। এই গবেষণা হতে প্রাপ্ত ফলাফল স্ট্রোক রোগী ব্যবস্থাপনার বিষয়ে প্রশিক্ষণ প্রদানের মাধ্যমে নার্সদের জ্ঞান ও দক্ষতা বাড়াতে এবং স্ট্রোক রোগী ব্যবস্থাপনা সেবার গুণগত মান বৃদ্ধিতে সহায়তা করবে। গবেষণালব্ধ ফলাফল ভবিষ্যতে পরবর্তী গবেষণার কার্যে বিশেষ অবদান রাখবে। এই গবেষণাটি পিএইচডি ডিগ্রীর জন্য প্রয়োজন।

আপনি যদি এই গবেষণার কাজে অংশগ্রহণে সম্মত হন তবে আপনাকে স্ট্রোক ব্যবস্থাপনা সম্পর্কিত প্রশ্নের উত্তর প্রদানের জন্য একটি প্রশ্নপত্র সরবরাহ করা হবে। প্রশ্নপত্রটি ৭টি পর্বে বিভক্ত। ১ম পর্বটি স্ট্রোক রোগী ব্যবস্থাপনায় আপনার দক্ষতা বিষয়ক প্রশ্ন, ২য় পর্বটি স্ট্রোক ব্যবস্থাপনা বিষয়ে আপনার জ্ঞান সংক্রান্ত প্রশ্নাবলী, ৩য় পর্বটি স্ট্রোক রোগী ব্যবস্থাপনা বিষয়ে আপনার দৃষ্টিভঙ্গি সম্পর্কিত প্রশ্নাবলী, ৪র্থ পর্বটি স্ট্রোক রোগী সেবা কার্য পরিদর্শনে আপনার পরিদর্শকের নেতৃত্বদান সম্পর্কিত প্রশ্ন, ৫ম পর্বটি আপনার কর্মরত প্রতিষ্ঠানের শিক্ষাসুবিধা বিষয়ক প্রশ্ন, ৬ষ্ঠ পর্বটি আপনার স্ট্রোক রোগী ব্যবস্থাপনা সেবা পরিবর্তনে প্রতিষ্ঠানের প্রস্তুতি সংক্রান্ত প্রশ্নাবলী এবং ৭ম পর্বটি আপনার ব্যক্তিগত তথ্য সংশ্লিষ্ট প্রশ্ন। প্রশ্ন পত্রের উত্তর প্রদানে আপনার আনুমানিক ৩০ মিনিট মত সময়ের প্রয়োজন হবে। এই গবেষণার কাজে মূল্যবান সময় প্রদান করায় আপনার

জন্য রয়েছে একটি সৌজন্য মূলক উপহার।

গবেষণার কাজে অংশগ্রহণ করা বা না করা আপনার একান্তই ব্যক্তিগত ব্যপার। কোন প্রকার কারণ দর্শানো ছাড়াই আপনি যে কোন মুহূর্তে নিজেকে প্রত্যাহার করে নিতে পারেন বা গবেষণার কাজে অংশগ্রহণ থেকে বিরত থাকতে পারেন। এক্ষেত্রে আপনার পূর্ণ অধিকার রয়েছে। আপনার দেয়া তথ্যাবলী সম্পূর্ণরুপে গোপন রাখা হবে। আপনার নাম ঠিকানা গোপন থাকবে এবং কোন প্রকার কাগজ পত্রে আপনার পরিচয় প্রকাশ করা হবে না।

আপনার সদয় সহযোগিতা ও অংশগ্রহণের জন্য আপনাকে অসংখ্য ধন্যবাদ।

গবেষণা উপদেষ্টা ঃ প্রফেসর উইগম ওহ্ (পিএইচডি)
ইমেইলঃ euigeum@yuhs.ac
টেলিফোন নং- [৮২-২] ২২২৮-৩২৫৬ (কোরিয়া)

গবেষক ঃ মোঃ শরিফুল ইসলাম
পিএইচডি ইন নার্সিং স্টুডেন্ট
ইমেইল ঃ ishariful791@gmail.com
মোবাইল নং ঃ +৮২-১০২১২৫-৮৫৫৪(কোরিয়া)
মোবাইল নং ঃ ০১৭৩১২৫৩৪৮০ (বাংলাদেশ)

**পর্ব ১ ঃ স্ট্রোক রোগী ব্যবস্থাপনায় নার্সদের দক্ষতা বিষয়ক প্রশ্ন**

**নির্দেশনা** ঃ এই পর্বে আপনাকে স্ট্রোক ব্যবস্থাপনায় নার্সদের দক্ষতা বিষয়ে প্রশ্ন জিজ্ঞাসা করা হবে। অনুগ্রহ পূর্বক আপনার মতামতটি আপনি সবচেয়ে বেশী বার ঘন ঘন সম্পাদন করেন হতে মোটেই সম্পাদন করেন না এর যথাযথ যে কোন ১টি নম্বরে টিক চিহ্ন দিন।

৪ = সবচেয়ে বেশী বার ঘন ঘন সম্পাদন করি, ৩ = মোটামুটি বার ঘন ঘন সম্পাদন করি, ২ = কদাচিৎ সম্পাদন করি, ১ = মোটেও সম্পাদন করি না।

| | | রেটিং | | | |
|---|---|---|---|---|---|
| ১. | আমি স্ট্রোক রোগীর শারিরীক কর্মক্ষমতা গুলি বার্থেল ইনডেক্স নামক পরিমাপকের মাধ্যমে নির্ণয় করি। | ৪ | ৩ | ২ | ১ |
| ২. | আমি প্রায়শঃই স্ট্রোক রোগীকে পানি গেলানোর পরীক্ষাটি সম্পাদন করি এবং জটিলতা গুলি মনোযোগের সাথে পর্যবেক্ষণ করি। | ৪ | ৩ | ২ | ১ |
| ৩. | আমি রোগীর পড়ে যাওয়ার ঝুঁকি গুলি মানসম্মত পরিমাপকের মাধ্যমে পরীক্ষা করি। | ৪ | ৩ | ২ | ১ |
| ৪. | আমি রোগীর পুষ্টি অবস্থা MUST নামক যন্ত্রের মাধ্যমে নিরুপন করে থাকি। | ৪ | ৩ | ২ | ১ |
| ৫. | আমি স্ট্রোক রোগীর জ্ঞান-এর স্তর বিদ্যমান মানসম্মত যন্ত্র দ্বারা নির্ণয় করে থাকি। | ৪ | ৩ | ২ | ১ |
| ৬. | আমি রোগীকে বসানো অবস্থায় খাওয়াতে সহায়তা করি। | ৪ | ৩ | ২ | ১ |
| ৭. | আমি স্ট্রোক রোগীকে নিজের কর্মক্ষমতায় স্বাবলম্বি করে তোলার কাজে সহযোগিতা করি। | ৪ | ৩ | ২ | ১ |
| ৮. | আমি সর্বদা স্ট্রোক রোগীর পানীয় গ্রহণ নিয়ন্ত্রণ করি। | ৪ | ৩ | ২ | ১ |
| ৯. | আমি রোগীকে ঔষধ সেবন করানোর মাধ্যমে তাদের আরোগ্য লাভে সহায়তা করি। | ৪ | ৩ | ২ | ১ |
| ১০. | আমি রোগীর ওয়ার্ডে ভর্তির ২৪ ঘন্টার কম সময়ের মধ্যে রোগী এবং তার সহকারীকে স্বাস্থ্যশিক্ষা প্রদান করে থাকি। | ৪ | ৩ | ২ | ১ |

**পর্ব ২ ঃ স্ট্রোক বিষয়ে নার্সদের জ্ঞান সংক্রান্ত প্রশ্ন**

অনুগ্রহ পূর্বক নিম্নের প্রশ্নের সঠিক উত্তরের জন্য পার্শ্বে উল্লেখিত যে কোন ১টি নম্বরে টিক চিহ্ন দিন।
১ = হ্যাঁ, ২ = না, ৩ = অজানা

| | | হ্যাঁ | না | অজানা |
|---|---|---|---|---|
| ১। | স্ট্রোক রোগীর মাংস পেশীর দূর্বলতা ও অনুভূতিশক্তি হারানোর কারণে উপলব্ধি সংক্রান্ত সমস্যা দেখা দেয়। | ১ | ২ | ৩ |
| ২। | মাংসপেশীর দূর্বলতার কারণে স্নায়ু তন্ত্রেও ডিসপ্রেক্সিয়া লক্ষণটি দেখা দেয় | ১ | ২ | ৩ |
| ৩। | মস্তিষ্কে রক্তচলাচল বন্ধজনিত কারণে স্ট্রোক রোগীর চেতনা শক্তি লোপ পায়, বাম পা ও ডান বাহু দূর্বল হয়। | ১ | ২ | ৩ |
| ৪। | এগনোসিয়া হলো স্ট্রোক রোগীর কোন জিনিষকে সঠিক ভাবে চিহ্নিত করতে না পারার একটি অবস্থা। | ১ | ২ | ৩ |
| ৫। | ভিডিও ফ্লুরোস্কপি পরীক্ষার মাধ্যমে খাদ্য নালী থেকে কণ্ঠনালীর নীচে এসে জমা হওয়া খাদ্যকণা বা পানীয় যা খালি চোখে দেখা যায়না তা নির্ণয় করা সম্ভব। | ১ | ২ | ৩ |
| ৬। | মুখের ভিতরে যন্ত্র প্রবেশ করিয়ে গলার পেছনের অংশে স্পর্শ করার পরীক্ষার মাধ্যমে নির্ণীত অক্ষত অবস্থা রোগীর নিরাপদে খাদ্য গেলাকে নির্দেশ করে। | ১ | ২ | ৩ |
| ৭। | বার্থেল ইনডেক্স নামক পরিমাপক যন্ত্র দিয়ে স্ট্রোক রোগীর দৈনন্দিন শারিরীক কর্মক্ষমতা নির্ণয় করা হয়। | ১ | ২ | ৩ |
| ৮। | স্ট্রোক রোগীকে tPA ইনজেকশান দেয়ার ৪৮ ঘন্টার মধ্যে তার স্নায়ুতন্ত্রের অবস্থা এবং আবশ্যিক চিহ্ন (Vital sign) গুলি ঘন ঘন পরীক্ষা করা উচিত। | ১ | ২ | ৩ |
| ৯। | স্ট্রোকের উপসর্গ দেখা দেওয়ার ৩ ঘন্টার মধ্যে tPA injection I/V route এ দিয়ে চিকিৎসা করা উচিত। | ১ | ২ | ৩ |
| ১০। | মস্তিষ্কে রক্তচলাচল বন্ধজনিত কারনে স্ট্রোক রোগের জন্য tPA ঔষধের নির্ধারিত ডোজ হলো ০.৯ মি.গ্রা./কেজি | ১ | ২ | ৩ |
| ১১। | স্ট্রোক রোগীর দেহের তাপমাত্রা ১০৩ ডিগ্রীর বেশী উঠলে জ্বরের চিকিৎসা দেয়া উচিত। | ১ | ২ | ৩ |
| ১২। | I/V route স্ট্রোকরোগীকে tPA ইনজেকশার দেয়ার পূর্বে রোগীর ব্লাড প্রেসার ১৮৫/১১০ এর নীচে রাখার জন্য Labetolol ঔষধ দেয়া প্রয়োজন। | ১ | ২ | ৩ |

**পর্ব ৩ ঃ স্ট্রোক রোগী ব্যবস্থাপনায় নার্সদের দৃষ্টিভঙ্গি সংক্রান্ত প্রশ্ন**

**নির্দেশনা** ঃ এই পর্বে আপনাকে স্ট্রোক রোগীর ব্যবস্থাপনায় আপনার দৃষ্টিভঙ্গি সম্পর্কিত প্রশ্ন জিজ্ঞাসা করা হবে। অনুগ্রহ পূর্বক আপনার মতামতটি আপনি সম্পূর্ণরুপে সম্মত হতে সম্পূর্ণরুপে অসম্মত এর যথাযথ যে কোন ১টি নম্বরে টিক চিহ্ন দিন।

৫ = সম্পূর্ণরুপে সম্মত, ৪ = মোটামুটি সম্মত, ৩ = সম্মত বা অসম্মত কোনটাই নয়, ২ = অসম্মত, ১ = সম্পূর্ণরুপে অসম্মত

| | রেটিং | | | | |
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| ১. স্ট্রোক রোগীর সেবা করাটা আমার কাছে একটি গুরুত্বপূর্ণ বিষয়। | ৫ | ৪ | ৩ | ২ | ১ |
| ২. আমি বয়স্ক রোগীদের সেবা প্রদান করতে পছন্দ করি। | ৫ | ৪ | ৩ | ২ | ১ |
| ৩. স্ট্রোক রোগীর নিজের কাজ নিজে করার সক্ষমতা তার আত্মবিশ্বাসকে বাড়িয়ে দেয়। | ৫ | ৪ | ৩ | ২ | ১ |
| ৪. স্ট্রোক রোগীরা প্রায়শঃই অসহোযোগিতা মূলক আচরণ করে থাকেন। | ৫ | ৪ | ৩ | ২ | ১ |
| ৫. স্ট্রোক রোগীর কোন কিছুর প্রতি ইচ্ছা বা আগ্রহ থাকে না। | ৫ | ৪ | ৩ | ২ | ১ |
| ৬. আমি দীর্ঘদিন অসুখে ভোগা রোগীদের সেবা প্রদান করতে পছন্দ করি। | ৫ | ৪ | ৩ | ২ | ১ |
| ৭. স্ট্রোক রোগীকে শারিরীকভাবে কার্যক্ষম করে তোলা সেবা যত্নের একটি গুরুত্বপূর্ণ অংশ এবং সব নার্সদেরই এই কাজে অংশ নেয়া উচিত। | ৫ | ৪ | ৩ | ২ | ১ |
| ৮. স্ট্রোক রোগীকে সেবা প্রদানে বেশী সময় দেয়া প্রয়োজন বিধায় নার্সদের সংখ্যা বাড়ানো দরকার। | ৫ | ৪ | ৩ | ২ | ১ |
| ৯. স্ট্রোক রোগীকে শারিরীকভাবে কর্মক্ষম করে তোলার দয়িত্ব ফিজিওথেরাপিস্ট বা অকিউপেশনাল থেরাপিস্টদের কাজ বিধায় ওয়ার্ডে স্টাফদের জন্য এটি একটি বাড়তি কাজের চাপ | ৫ | ৪ | ৩ | ২ | ১ |
| ১০. যত বেশী স্ট্রোক রোগীদের কর্মক্ষম করে তোলার কাজে অংশ নিবেন তত বেশী শিখবেন। | ৫ | ৪ | ৩ | ২ | ১ |
| ১১. স্ট্রোক রোগীকে সেবাপ্রদানের কাজে অধিক সময়ের প্রয়োজন হয় বিধায় অন্যান্য রোগীরা সঠিক সেবা থেকে বঞ্চিত হন। | ৫ | ৪ | ৩ | ২ | ১ |
| ১২. শয্যাশায়ী অনিয়ন্ত্রিত প্রসাব করা রোগীদের দীর্ঘ সময়ের জন্য ক্যাথেটার পরানোর প্রয়োজন হয়। | ৫ | ৪ | ৩ | ২ | ১ |
| ১৩. রোগীর আত্মীয়-স্বজনদের ও স্ট্রোকরোগীকে কর্মক্ষম করে তোলার কাজে অংশ নেওয়া উচিত। | ৫ | ৪ | ৩ | ২ | ১ |
| ১৪. স্ট্রোক রোগীর কর্মক্ষমতা ও পূণর্বাসন সংক্রান্ত সেবাযত্নের কার্যাদি সাধারণ মেডিসিন ওয়ার্ডগুলোতে প্রদান করা বাস্তবসম্মত নয়। | ৫ | ৪ | ৩ | ২ | ১ |

**পর্ব ৪ ঃ সেবা পরিদর্শকের স্ট্রোক ব্যবস্থাপনায় নেতৃত্বদান বিষয়ক প্রশ্ন**

**নির্দেশনাঃ ১ম** পর্বটি স্ট্রোকরোগী ব্যবস্থাপনা সেবায় আপনার সেবা পরিদর্শকের নেতৃত্বদান সংক্রান্ত প্রশ্ন। নিম্নেবর্ণিত প্রশ্নগুলোর উত্তর প্রদানের জন্য আপনার ধারণা ও রেটিং স্কেল মোতাবেক যথাযথ যে কোন **১**টি নম্বরে টিক চিহ্ন দিন।

রেটিং স্কেলঃ ১ = কখনই না, ২ = নাই বললেই চলে, ৩ = কদাচিৎ, ৪ = মাত্র একবার, ৫ = হঠাৎ, ৬ = মাঝে মধ্যে, ৭ = প্রায়ই, ৮ = সচরাচর, ৯ = খুব ঘন ঘন, ১০ = সর্বদাই।

| | | রেটিং স্কেল | | | | | | | | | |
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| ১। | আমি কিভাবে স্ট্রোক রোগী ব্যবস্থাপনায় সেবা প্রদান করি সে বিষয়ে সেবা পরিদর্শক আমার সাথে কথা বলেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ২। | সেবা পরিদর্শক আমার স্ট্রোক রোগী ব্যবস্থাপনায় সেবা প্রদানের দক্ষতা পরীক্ষা করে থাকেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ৩। | সেবা পরিদর্শক তার দায়িত্ব অনুযায়ী আমার স্ট্রোক রোগী ব্যবস্থাপনায় সেবা প্রদানের কাজ গুলো সুচারুভাবে পর্য্যবেক্ষণ করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ৪। | সেবা পরিদর্শকের পরামর্শ স্ট্রোক রোগী ব্যবস্থাপনায় সহায়ক কিনা সে বিষয়ে আমার মতামত নেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ৫। | সেবা পরিদর্শক স্ট্রোক রোগী ব্যবস্থাপনার ক্ষেত্রে নিয়ম-নীতি ও পদ্ধতি সম্পর্কিত আলোচনায় শ্রম ও সময় দেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ৬। | স্ট্রোক রোগী ব্যবস্থাপনায় সেবা পরিদর্শক হাসপাতালের উদ্দেশ্য সম্পর্কে আলোচনা করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ৭। | স্ট্রোক রোগীকে আমি সঠিক সেবাটি দিতে পারি বলে সেবা পরিদর্শক অন্যান্যদের সম্মুখে আমার প্রশংসা করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ৮। | স্ট্রোক রোগীর অবস্থার উন্নতি না হওয়ার কারণ সম্পর্কে সেবা পরিদর্শক আমাকে জিজ্ঞাসাবাদ করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ৯। | আমার স্ট্রোক রোগী ব্যবস্থাপনা সেবা প্রদানের দক্ষতা ও সামর্থ্য পরীক্ষায় সেবা পরিদর্শক কঠিন সমস্যা বোধ করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |
| ১০। | আমি ও সেবা পরিদর্শক স্ট্রোক রোগী সেবা প্রদানের ক্ষেত্রে সাধারণ বিষয়গুলো নিয়ে আলোচনায় সম্মত হই | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ | ৮ | ৯ | ১০ |

| | | রেটিং স্কেল |
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| ১১। | নতুন এবং সৃজনশীল পদ্ধতিতে স্ট্রোক রোগীর সমস্যা নিরসনে সেবা পরিদর্শক আমাকে উৎসাহিত করেন। | ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০ |
| ১২। | স্ট্রোক রোগী ব্যবস্থাপনায় সেবা পরিদর্শক আমার সাথে সহযোগিতা মূলক সম্পর্ক স্থাপন করেন। | ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০ |
| ১৩। | স্ট্রোক রোগীর সেবা প্রদানে সিদ্ধান্ত গ্রহনের ক্ষেত্রে সেবা পরিদর্শক আমাকে স্বাধীনতা দিয়ে থাকেন। | ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০ |
| ১৪। | সেবা পরিদর্শক স্ট্রোক রোগী ব্যবস্থাপনায় নতুন দক্ষতা অর্জনে আমাকে সক্ষম করে তোলেন। | ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০ |
| ১৫ | স্ট্রোক রোগী ব্যবস্থাপনার কাজ গুলো যখন সঠিক ভাবে সম্পাদন করি সেবা পরিদর্শক আমার প্রশংসা করেন। | ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০ |
| ১৬। | স্ট্রোক রোগীকে সেবা প্রদান কালে আমি সেবা পরিদর্শকের কাছ থেকে সম্মান ও স্বীকৃতি পাই। | ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০ |
| ১৭। | সেবা পরিদর্শক স্ট্রোক রোগীকে সেবাদানকালে আমার গৃহীত সিদ্ধান্তকে সমর্থন করেন। | ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯ ১০ |

**পর্ব ৫ঃ প্রতিষ্ঠানের শিক্ষা সুবিধা বিষয়ক প্রশ্ন**

**নির্দেশনাঃ** পরের এই পর্বটি আপনাকে আপনার বর্তমান কর্মস্থলের শিক্ষা সুবিধা বিষয়ে প্রশ্ন করা হবে। অনুগ্রহপূর্বক রেটিং স্কেল মোতাবেক নিম্নে বর্ণিত প্রশ্নের পাশে উল্লেখিত যথাযথ যে কোন **১**টি নম্বরে টিক চিহ্ন দিয়ে আপনার মতামত ব্যক্ত করুন।

**রেটিং স্কেলঃ** ১-৩ = সম্পূর্ণরুপে অসম্মত, ৪ = অসম্মত বা সম্মত কোনটাই নয়, ৫-৭ = সম্পূর্ণরুপে সম্মত

| | | ১ সম্পূর্ণরুপে অসম্মত | | | | | | ৭ সম্পূর্ণরুপে সম্মত |
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| ১. | আমি স্ট্রোক রোগী ব্যবস্থাপনায় সেবা প্রদানের জন্য অত্র হাসপাতাল থেকে সার্বিক সহযোগীতা পেয়ে থাকি। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ২. | স্ট্রোক রোগীকে সেবা প্রদানে আমার ব্যর্থতার বিষয়গুলো নিয়ে অত্র প্রতিষ্ঠান খুব একটা আলোচনা করেন না। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ৩. | এই হাসপাতালের ব্যবস্থাপক এবং কর্মচারীবৃন্দ স্ট্রোক রোগীর সেবা কার্য সম্পাদনের সাধারণ উদ্দেশ্য গুলো নিয়ে পারস্পরিক আলোচনা করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ৪. | স্ট্রোক রোগী ব্যবস্থাপনায় হাসপাতালের উদ্দেশ্য কিভাবে অর্জিত হবে সে বিষয়ে আমি কিছুই জানি না। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ৫. | আমি অবশ্যই স্ট্রোক রোগী ব্যবস্থাপনায় অত্র প্রতিষ্ঠানের উদ্দেশ্য ও গুরুত্বকে সমান প্রাধান্য দিই। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ৬. | এই হাসপাতালে আমার উর্ধ্বতন কর্তৃপক্ষ স্ট্রোক রোগী ব্যবস্থাপনার নতুন ধারণা সম্পর্কে শঙ্কিত। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ৭. | স্ট্রোক রোগীকে সেবা প্রদান পদ্ধতির মান উন্নয়নের জন্য সেবা পরিদর্শক আমাকে উৎসাহিত করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ৮. | স্ট্রোক রোগীকে সেবা প্রদানের গুরুত্বপূর্ণ বিষয়গুলোতে সিদ্ধান্ত গ্রহণে সেবা পরিদর্শক আমাকে অন্তর্ভূক্ত করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ৯. | স্ট্রোকরোগীর সমস্যাবলী চিহ্নিত করে তার সঠিক সেবা প্রদানে পরিদর্শকের কাছ থেকে যথাযত মতামত পাই। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |

| | | ১ সম্পূর্ণরুপে অসম্মত | | | | | | ৭ সম্পূর্ণরুপে সম্মত |
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| ১০. | হাসপাতাল ব্যবস্থাপনা স্ট্রোক রোগীকে আমার প্রদেয় সেবাদান কার্যাদি নিবিড়ভাবে পর্য্যবেক্ষণ করেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১১. | স্ট্রোকরোগীকে সেবাদান সংক্রান্ত আমার সৃজনশীল কাজ গুলিকে হাসপাতাল ব্যবস্থাপনা পুরস্কৃত করে থাকেন। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১২. | স্ট্রোক রোগীর অবস্থার উন্নতির লক্ষমাত্রা অর্জনের বিষয়টি নিজে নিজে অনুধাবন করতে পারি। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১৩. | কর্মস্থলে স্ট্রোকরোগীকে সেবা প্রদানের ক্ষেত্রে নিজেকে বিরত থাকার বিষয়টি অনুভব করত পারি। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১৪. | স্ট্রোক রোগী ব্যবস্থাপনায় সেবা প্রদানের কাজটি আমার কাছে একটি কঠিন সমস্যা বলে মনে হয়। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১৫. | আমি আমার সম্পূর্ণ দক্ষতা ও সামর্থ্য দিয়ে স্ট্রোক রোগী ব্যবস্থাপনায় প্রয়োজনীয় সেবা প্রদান করি। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১৬. | স্ট্রোক রোগী ব্যবস্থাপনায় আমার প্রদেয় সেবা কাজগুলিতে আমি সন্তষ্ট। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১৭. | স্ট্রোক রোগীকে সেবা প্রদানের ক্ষেত্রে হাসপাতাল সংক্রান্ত সমস্যা সমাধানের জন্য আমরা কোন দল গঠন করি না। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১৮. | স্ট্রোক রোগী ব্যবস্থাপনায় সমস্যা নিরসনে হাসপাতালের বিভিন্ন স্তরের নার্সদের নিয়ে দলগুলি গঠিত হয়। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ১৯. | স্ট্রোক রোগীকে সেবা প্রদানে আমার কার্যনির্বাহী দলটি সহায়ক। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ২০. | হাসপাতালে বর্তমানে প্রচলিত স্ট্রোক রোগী সেবাদান পদ্ধতি রোগীর সমস্যা নিরসনে নার্সদের বিশেষভাবে অনুপ্রাণিত করে। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ২১. | স্ট্রোক রোগীর সেবাদান বিষয়ে আমার প্রশিক্ষিত দক্ষতা প্রয়োগের মাধ্যমে তাৎক্ষণিক ভাবে স্ট্রোকরোগীর সেবার মান বৃদ্ধি করা যেতে পারে। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |

| | | ১<br>সম্পূর্ণরুপে অসম্মত | | | | | | ৭<br>সম্পূর্ণরুপে সম্মত |
|---|---|---|---|---|---|---|---|---|
| ২২. | স্ট্রোক বিষয়ে আমার জ্ঞান ও দক্ষতা বৃদ্ধির জন্য অত্র হাসপাতালে স্ট্রোক ব্যবস্থাপনার উপর কোন প্রশিক্ষণ কর্মসূচী নেই। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ২৩. | হাসপাতাল প্রদত্ত সব প্রশিক্ষণই স্ট্রোক সম্পর্কিত নয়। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ২৪. | আমি আমার স্ট্রোক সংক্রান্ত জ্ঞান ও দক্ষতার বিষয়গুলি নিয়ে অন্যান্য ষ্টাফদের সাথে আলোচনা করে থাকি। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |
| ২৫. | এই হাসপাতালের নার্সদের স্ট্রোকরোগীর সেবাদান বিষয়ে জ্ঞান বৃদ্ধির প্রয়োজন আছে বলে মনে করি। | ১ | ২ | ৩ | ৪ | ৫ | ৬ | ৭ |

**পর্ব ৬ ঃ স্ট্রোক রোগী ব্যবস্থাপনায় পরিবর্তনের জন্য প্রতিষ্ঠানের প্রস্তুতি সংক্রান্ত প্রশ্ন**

**নির্দেশনা** ঃ অনুগ্রহপূর্বক আপনার নিজের ধারণা এবং হাসপাতালের স্ট্রোক ব্যবস্থাপনার নীতিমালা ও পদ্ধতির আলোকে নিম্নে বর্ণিত প্রশ্নগুলির উত্তর প্রদানে পাশে উল্লেখিত যথাযথ যে কোন **১**টি নম্বরে টিক চিহ্ন দিন।
১ = হ্যাঁ, ২ = না, ৩ = জানা নেই

| | | হ্যা | না | অজানা |
|---|---|---|---|---|
| ১. | আপনার জানামতে, হাসপাতালের ব্যবস্থাপনা থেকে স্বাস্থ্য সেবা প্রদানকারীগণ স্ট্রোক রোগীর সেবা প্রদানে যথাযথ গাইড লাইন প্রদান করা হয়? | ১ | ২ | ৩ |
| ২. | আপনার মতে অত্র হাসপাতালের ভিতরে স্ট্রোক রোগীকে সেবা প্রদানের জন্য স্বাস্থ্যসেবা প্রদানকারীদের জন্য স্ট্রোকবিষয়ক প্রশিক্ষণ ব্যবস্থা চালু আছে কি? | ১ | ২ | ৩ |
| ৩. | হাসপাতালের অবকাঠামো অনুযায়ী কি স্ট্রোকরোগী ব্যবস্থাপনার গাইড লাইন পদ্ধতি গুলো কি গঠিত? | ১ | ২ | ৩ |
| ৪. | আপনার হাসপাতাল কি আপনাকে বিভিন্ন বিভাগের স্বাস্থ্যসেবা প্রদান কারীদের মাধ্যমে স্ট্রোকরোগীকে সেবাদান গাইড লাইন প্র্যাক্টিসে প্রয়োগ করা সংক্রান্ত তথ্যাদি জানানোর ব্যবস্থা করে? | ১ | ২ | ৩ |
| ৫. | আপনার হাসপাতালে কি স্ট্রোক রোগী সেবাদানের নতুন গাইড লাইন সম্পর্কে আপনাকে অবহিত করণের কোন ব্যবস্থা আছে? | ১ | ২ | ৩ |
| ৬. | স্ট্রোক রোগীকে সেবাদান সংক্রান্ত গাইড লাইন বাস্তবায়নের জন্য হাসপাতাল কর্তৃক পদায়নকৃত কোন স্টাফ নিয়োজিত আছেন কি? | ১ | ২ | ৩ |
| ৭. | আপনার হাসপাতালে দায়িত্বপ্রাপ্ত ষ্টাফ কি স্ট্রোক কেয়ার গাইড লাইনের তথ্যাদি অবহিত করণ কিংবা বাস্তবায়নের ক্ষেত্রে সম্বন্বয়কারী হিসাবে অভিজ্ঞতা সম্পন্ন? | ১ | ২ | ৩ |
| ৮. | আপনার হাসপাতালে কি স্ট্রোক রোগী ব্যবস্থাপনায় নীতি নির্ধারণ ও কার্য্যপরিকল্পনা প্রনয়ণে আন্তরিক ও অভিজ্ঞতা সম্পন্ন স্টাফদের নিয়োজিত করেন? | ১ | ২ | ৩ |
| ৯. | স্ট্রোকরোগীকে সেবা প্রদানের ক্ষেত্রে স্ট্রোক কেয়ার গাইড লাইন এর পরামর্শ বিষয়ে স্টাফদের মতামত জানানোর কোন সুযোগ আছে কি? | ১ | ২ | ৩ |
| ১০. | স্ট্রোকরোগী সেবাদানে স্টাফদের দক্ষতা বৃদ্ধির জন্য হাসপাতালে কোন প্রশিক্ষণ ব্যবস্থা চালু আছে কি? | ১ | ২ | ৩ |
| ১১. | আপনার হাসপাতাল ব্যবস্থাপনা কি স্ট্রোকরোগী সেবাদান সংক্রান্ত নতুন জ্ঞান ও দক্ষতা বিষয়ক স্টাফদের অনুরোধ রক্ষা করেন? | ১ | ২ | ৩ |

**পর্ব ৭ ঃ ব্যক্তিগত তথ্য বিষয়ক প্রশ্ন**

অনুগ্রহ করে ফাঁকা জায়গা পূরণ করুন এবং আপনার সঠিক উত্তরটির নির্দেশিত ঘরে টিক চিহ্ন দিন।

| | | |
|---|---|---|
| ব্যক্তিগত তথ্যাদি | লিঙ্গ ঃ ..... | ☐ মহিলা ☐ পুরুষ |
| | বয়ষ ঃ ..... | _____ বৎসর _____ মাস |
| | নার্সিংয়ে সর্বোচ্চ ডিগ্রী ..... (যে কোন ১টি নির্বাচন করুন) | ☐ ডিপ্লোমা ☐ বিএস সি ☐ এমএস সি ☐ এম পি এইচ |
| পেশাগত তথ্যাদি | ষ্টাফ নার্স হিসাবে চাকুরীর মেয়াদ | _____ বৎসর _____ মাস |
| | স্ট্রোক রোগীকে সেবাদানের অভিজ্ঞতা | _____ বৎসর _____ মাস |
| | কি ধরণের হাসপাতালে চাকুরী করেন? | ☐ সরকারী ☐ বেসরকারী |
| | বর্তমানে কোন ওয়ার্ডে কর্মরত আছেন? (১টি নির্বাচন করুন) | ☐ মেডিসিন ☐ আই সি ইউ ☐ নিউরোমেডিসিন ☐ নিউরো আই সি ইউ |
| | স্ট্রোক ব্যবস্থাপনা বিষয়ে পূর্বে কোন প্রশিক্ষণ গ্রহণ করেছেন কি? | ☐ হ্যাঁ ☐ না |
| | উত্তরটি যদি হ্যাঁ হয় তবে নির্দিষ্ট করুন | _____ সাল _____ মেয়াদ |
| | স্ট্রোক বিষয়ে শিক্ষা গ্রহণ করে থাকলে এই শিক্ষায় আপনি কতটুকু সন্তুষ্ট? | ☐ সম্পূর্ণরুপে সন্তুষ্ট ☐ মোটেও সন্তুষ্ট নই |
| | স্ট্রোক রোগীব্যবস্থাপনার সেবা প্রদানের কাজে আপনি কতটুকু সন্তুষ্ট? | ☐ সম্পূর্ণরুপে সন্তুষ্ট ☐ মোটেও সন্তুষ্ট নই |

**এখানেই শেষ**

**আপনার সদয় অংশগ্রহণের জন্য আপনাকে অসংখ্য ধন্যবাদ।**

# Appendix 4. Table for Regression Model for Predicting Factors of Performance of Stroke Management

(N=226)

| Variables | B | SE | β | t | p | Adjusted $R^2$ | F (p) |
|---|---|---|---|---|---|---|---|
| (Constant) | 21.091 | 5.837 | | 3.613 | 0.000 | 0.292 | 11.299 (0.000) |
| Stroke education | 2.539 | 1.494 | 0.099 | 1.700 | 0.091 | | |
| Medicine ward | 1.958 | 2.188 | 0.135 | 0.895 | 0.372 | | |
| ICU ward** | 7.787 | 2.393 | 0.400 | 3.255 | 0.001 | | |
| Neuro-Medicine | 3.276 | 2.349 | 0.180 | 1.395 | 0.165 | | |
| Leadership Practice* | 0.032 | 0.015 | 0.180 | 2.154 | 0.032 | | |
| Organizational learning | 0.010 | 0.023 | 0.031 | 0.448 | 0.655 | | |
| Organizational Readiness | -0.165 | 0.085 | -0.145 | -1.927 | 0.055 | | |
| Stroke knowledge** | 0.831 | 0.226 | 0.267 | 3.668 | 0.000 | | |
| Attitudes on stroke | 0.052 | 0.092 | 0.034 | 0.570 | 0.569 | | |

# Appendix 5. Table for Correct and Incorrect Answer of Nurses' Knowledge of Stroke Management

(N=226)

| Nurses Knowledge on Stroke Management | Correct Answer | | Incorrect Answer | | |
|---|---|---|---|---|---|
| | n | % | n | % | M±SD |
| 1. Perceptual problems only occur if a stroke patient has weakness or sensory loss | 3 | 1.3 | 223 | 98.7 | .01±.115 |
| 2. Dyspraxia is due to muscle weakness | 5 | 2.2 | 221 | 97.8 | .02±.147 |
| 3. A patient with an ischemic stroke may likely exhibit decreased level of consciousness, left leg weakness and right arm weakness. | 24 | 10.6 | 202 | 89.4 | .11±.309 |
| 4. Agnosia is a condition in which the patient loses the ability to recognize objects | 116 | 51.3 | 110 | 48.7 | .51±.501 |
| 5. Silent aspiration can be detected with video fluoroscopy | 89 | 39.4 | 137 | 60.6 | .39±.490 |
| 6. An intact gag reflex indicates a safe swallow | 24 | 10.6 | 202 | 89.4 | .11±.309 |
| 7. The Barthel Activities of Daily Living Index is a measure of functional dependency | 108 | 47.8 | 118 | 52.2 | .48±.501 |
| 8. An ischemic stroke patient's neurologic status and vital signs should be assessed frequently for 48 hours after tPA administration. | 5 | 2.2 | 221 | 97.8 | .02±.147 |
| 9. It is recommended that treatment with intravenous tPA begin within 3 hours of stroke symptom onset. | 124 | 54.9 | 102 | 45.1 | .55±.499 |

| Nurses Knowledge on Stroke Management | Correct Answer | | Incorrect Answer | | |
|---|---|---|---|---|---|
| | n | % | n | % | M±SD |
| 10. The recommended dosage of tPA for patients who have had an ischemic stroke is 0.9 mg/kg. | 100 | 44.2 | 126 | 55.8 | .44±.498 |
| 11. Body temperatures of $103^0$ F should be treated in a patient with ischemic stroke. | 15 | 6.6 | 211 | 93.4 | .07±.249 |
| 12. Prior to administering intravenous tPA for ischemic stroke, labetalol is recommended for lowering the blood pressure to less than 185/110. | 109 | 48.2 | 117 | 51.8 | .48±.501 |

# Appendix 6. Table for Agreement and Disagreement of Nurses Attitudes on Stroke Management

(N =226)

| Nurses Attitudes on Stroke Management | Agreed | | Disagreed | |
|---|---|---|---|---|
| | n | % | n | % |
| 1. I feel it meaningful to work with stroke patients | 215 | 95.1 | 11 | 4.9 |
| 2. I like working with old people | 193 | 85.4 | 33 | 14.6 |
| 3. Carrying out an activity on his/her own strengthens the stroke patient's self-confidence | 198 | 87.6 | 28 | 12.4 |
| 4. Stroke patients are often uncooperative | 27 | 11.9 | 199 | 88.1 |
| 5. Stroke patients are uninteresting, e g compared with patients with myocardial infarction | 27 | 11.9 | 199 | 88.1 |
| 6. I would like very much to work in long-term care | 181 | 80.1 | 45 | 19.9 |
| 7. Patients activation is an important part of nursing care all types of nurses should participate | 219 | 96.9 | 7 | 3.1 |
| 8. It is impossible to devote more time to stroke patients unless the staffing level is increased | 12 | 5.3 | 214 | 94.7 |
| 9. Activation is the task of the physiotherapist and occupational therapist and should not be an additional load on the ward staff | 47 | 20.8 | 179 | 79.2 |
| 10. The motivation to participate in patient activation increases the more you learn | 207 | 91.6 | 19 | 8.4 |
| 11. Stroke patients take too much time in nursing work, other patient groups are neglected | 59 | 26.1 | 167 | 73.9 |

| **Nurses Attitudes on Stroke Management** | Agreed | | Disagreed | |
|---|---|---|---|---|
| | n | % | n | % |
| 12. Incontinent stroke patients should have catheters to a greater extent | 13 | 5.8 | 213 | 94.2 |
| 13. Relatives should participate in the activation of the stroke patients while the latter are still on the ward | 210 | 92.9 | 16 | 7.1 |
| 14. It is unrealistic to practice activation and rehab rehabilitation on a general medical care of the elderly ward | 46 | 20.4 | 180 | 79.6 |

# Appendix 7. Table for Nurses Performed and not Performed towards Stroke Management

(N=226)

| **Nurses Performance on Stroke Management** | Performed | | Not performed | |
|---|---|---|---|---|
| | n | % | n | % |
| 1. I measure functional status with Barthel Index | 96 | 42.5 | 130 | 57.5 |
| 2. I often use water swallow screening test and pay attention to predictors | 162 | 71.7 | 64 | 28.3 |
| 3. I assess for the risk of falling by using instrument | 154 | 68.1 | 72 | 31.9 |
| 4. I screen the nutritional status with the MUST | 102 | 45.1 | 124 | 54.9 |
| 5. I observe cognitive status by using standard scale | 113 | 50.0 | 113 | 50.0 |
| 6. I assist patients with sitting position while eating | 208 | 92.0 | 18 | 8.0 |
| 7. I support patients in improving their self-efficacy | 197 | 87.2 | 29 | 12.8 |
| 8. I always control intake of fluid | 179 | 79.2 | 47 | 20.8 |
| 9. I always support patients concerning compliance to therapy | 205 | 90.7 | 21 | 9.3 |
| 10. I provide patients and partner with education <24 h. of admission | 191 | 84.5 | 35 | 15.5 |