

**KNOWLEDGE ATTITUDE AND PRACTICES TOWARDS NASOGASTRIC TUBE
INSERTION AMONG THE NURSES IN INTERNATIONAL
HOSPITAL -KAMPALA**

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DECLARATION

I declare that this research report is my own work and has not been presented to any University for academic award. And that all sources of information used in the dissertation are acknowledged as complete references.

NALUKENGE JUSTINE

Signature.....

Date.....

APPROVAL

This is my validation that the research report about Knowledge attitude and practices of the nasogastric tube insertion among the nurses of International Hospital Kampala by Justine Nalukenge has been closely under my supervision as assigned by International Health Sciences University.

MR. AFAYO ROBERT

SIGNATURE.....

DATE.....

DEDICATION

I dedicate this research work to my family and International Hospital Kampala.

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All the Glory and honour unto God for this opportunity, for the gift of life and the strength he gave me to accomplish this work.

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DEFINITION OF OPERATIONAL TERMS

Nasogastric tube:

In clinical settings for care of patients who need decompression of the gastrointestinal tract, diagnosis and assessment, nutritional support and medical administration

LIST OF ABBREVIATIONS

IHK	:	International Hospital Kampala
IHSU	:	International Health Sciences University
NGT	:	Nasogastric Tube
WHO	:	World Health Organization

ABSTRACT

Nasogastric tube feeding is a very vital among patients with conditions that cannot allow them to feed orally. They are also used for drug administration. The study aimed to assess the knowledge attitude and practices towards the nasogastric tube insertion among the nurses of International Hospital Kampala. The study employed a cross sectional research design. The sample size of 120 respondents who were nurses was selected by simple random sampling. Data was collected using a questionnaire and analyzed through SPSS.

Findings about nurse's knowledge towards insertion of the nasogastric tube indicated good knowledge. This was because all the nurses had ever heard about it and understood its use and got this information during their formal training. All of them knew the indications for nasogastric tube. Majority 98 (82%) knew the determinants of selecting the nasogastric tube size where they mentioned age, weight, condition of the patient and diagnosis. They 78 (94%) were also aware of confirming the right position where the tube is inserted and this could be indicated by aspiration of the stomach contents.

Nurses generally had poor attitude because; majority 75 (62.5%) felt uncomfortable when inserting the nasogastric tube, 92 (76.7%) would not accept insertion of a nasogastric tube if they fell sick, 72 (60%) believed that all patients feel uncomfortable when inserting it.

Nurses had fair practices in NG tube insertion where; 65 (54.1%) introduced and explained the procedure to the patients, 76 (63.3%) checked the position of the tube, 70 (58.3%) kept the tube in a firm and secure position, 67 (55.8%) left the patients in a comfortable position and 59 (49.2%) maintained good hygiene. However; 83 (69.2%) partially prepared for the procedure i.e. swabs, water, stethoscope, gloves, litmus paper, appropriate size of tube, 20mls syringe, 70 (58.4%) partially washed their hands and put on gloves, 56 (46.7%) did not position the patient well in a sit up position with head a bit flexed before inserting the tube, 66 (55%) partially cleaned the nostril, and demonstrated proper insertion of tube from the tip, behind the ear up to the tip of the sternum.

In conclusion, nurses were knowledgeable about NGT insertion and its uses but had a negative attitude on its insertion because they did not want it to be used upon them, felt uncomfortable when inserting it due to patients reactions such as sneezing, coughing and unnecessary movements. This could have led to inappropriate insertions that could cause trauma and other side effects to patients. The researcher suggest that, all nurses are given on the job training about NGT insertion so that they develop a positive attitude towards its use which could lead to good practice thus quality service delivery to the patients.

CHAPTER ONE: INTRODUCTION

1.1 Background

Nasogastric tube feeding is a very common practice in the hospital practice today among patients with conditions that cannot allow the patient to feed orally. Enteral feeding is preferred to parenteral feeding due to its advantages involved. It helps the in digestive system function, it is cheap and has more nutritional benefit to the patients compared to parenteral nutrition.

Nasogastric tube insertion is a common clinical procedure carried out by doctors and nurses in NHS hospitals daily. For the last 30 years, there have been reports in the medical literature of deaths and other harm resulting from misplaced nasogastric tubes, most commonly associated with feed entering the pulmonary system. In 2005 the National Patient Safety Agency in England assembled reports of 11 deaths and one incident of serious harm from wrong insertion of nasogastric tubes over a two-year period. The agency issued a safety alert setting out evidence-based practice for checking tube placement. In the two and a half years following this alert the problem persisted with a further five deaths and six instances of serious harm due to nasogastric tube misplacement. This is a potentially preventable error but safety alerts advocating best practice do not appear to reliably reduce risk (Dolnadsen and Yardley, 2010).

The nurses, the doctors, and other practitioners who are involved in this process is very vital in ensuring the safety, proper insertion and feeding of the patients. The various fatal risks involved in nasogastric tube feeding can be minimized as much as possible. Through empowerment of the health workers with proper knowledge skills and adequate experience.

According to the National Patient Safety Agency (NSPA) 1.3% to 2.4% in the United Kingdom were malpositioned and 28% of them resulted into pulmonary complications. Similar studies done in the United Kingdom among children revealed nasogastric tube misplacement of 20.9% to 43.5%. However these statistics affirmed poor reporting meaning there could be more misplacement cases that are unaccounted for (NSPA, 2011).

In the United States of America the most commonly misplacement is the insertion of the tube to the lungs which accounts for 5% of all the nasogastric tubes inserted (Ellett, 2004).

In Canada the no specific statistics found to determine the common errors done and the success of the patient safety concerning the nasogastric tube insertion and feeding. However the misplacement of the nasogastric tubes were common and the factors that contributed to the misplacements were the

unsupervised placement of the inexperienced staff, untimely communication of the radiologists and the other practitioners, hardships in interpreting the x-ray results. The most commonly observed and reported complications were pneumothorax and acute respiratory distress syndrome (Canadian Medical Protective Association, 2013).

In Pakistan the nurses' knowledge on the use of the equipment and other nursing care procedures was found to be 13.3%. This involves all the procedures done in the pediatric ward. The knowledge level may not have a clear reflection of the nasogastric tube insertion but (Ali and Essani, 2011)

The measure of knowledge on the use of nasogastric tube feeding in Cairo Egypt, approximately more than 75% of the nurses did not have adequate knowledge on the proper administration of the medicine and feeds through the nasogastric tube. The study however did not explore on the administration of the nasogastric tube but from the findings it is assumed that if nurses had inadequate knowledge on the administration of feeds and medicine same applies to insertion of the tube. The knowledge of the tube insertion may be less than the knowledge of administration of the medicine and the feeds since the insertion needs more experience and advanced knowledge and skill (Ismail, Mohammed and Abdullah, 2014).

In Malawi the nurses' knowledge on the nasogastric tube insertion and administration of the feeds was exclusively through nursing school and the evidence based knowledge and skill was not part of knowledge acquisition on this matter. The nurses did not aspirate the gastric residual volume which helps to determine the position of the nasogastric tube before administration of the medicine and the feeds. This predisposes the patients to pneumothorax and acute respiratory distress syndrome in case the tube is misplaced. Therefore the nurses knowledge on the use of the nasogastric tube was low and inadequate (Maluwa, Ncama and Mula, 2014).

There are no published materials and statistics about the nasogastric tube insertion in Uganda. However the challenges facing nurses in other parts of the world will not be different from the challenges nurses face in Uganda. The public hospitals stand high chances of these challenges due to the understaffing of the nurses and the high deployment of students and interns in these hospitals who are not experienced enough, and the inadequate supervision. The private hospitals in Uganda haven't implemented the radiologic methods of confirming the position of the nasogastric tube and therefore this predisposes the patients to the risk of misplacement and complications associated. At International Hospital Kampala there are neither published materials nor records showing the incidences of misplacement of the

nasogastric tubes. Amid this there is evidence of aspiration pneumonia and other complications associated with the nasogastric tube among patients using the nasogastric tubes. Therefore this calls for more studies on the use of nasogastric tube. It is for this reason the researcher is carrying out a study in International hospital Kampala.

1.2 Problem statement

Despite the fact that all nurses undergo professional procedure training and practices during their studies in nursing school, there are gaps that are found during the professional practicing period. Nasogastric tube insertion is one of the nursing procedures that helps improve the patient's nutrition status in conditions when they are unable to feed normally but if it is not cautiously and carefully performed or maintained it can lead to serious adverse health complications.

Little has been done to improve the procedure of tube insertion among the nurses at IHK. The current methods of confirming the position of the nasogastric tube include chest x-rays, checking the pH of the aspirate. At International Hospital Kampala auscultation and bubbling methods are still in use as confirmatory tests of the nasogastric tube position. These are outdated methods of confirming the position of the tube since they may give higher false results unlike the Ph and the x-ray methods that are more accurate

In the year 2015 alone there was a knowledge gap of about 20% of the nurses in medical and surgical ward in nasogastric tube insertion among the nurses in Naguru hospital who use outdated methods of tube confirmation. Attention in tube size selection assessment of the tube position, methods of securing the tube of method of feeding which are important components of minimizing the risks of nasogastric tube related complications and to provide optimal patients safety and comfort. Aspiration pneumonia has been reported in the various wards among the patients using the nasogastric tube. It is believed that the desired precautions are not taken while feeding these patients.

Therefore there will be increased cases of complications of nasogastric tube use such as aspiration pneumonia, diarrhea, constipation, and tube occlusion, displacement of the tube, abdominal cramping, nausea and vomiting, delayed gastric emptying, serum electrolyte, imbalance, increased respiratory quotient, fluid overload, and hypersmolar dehydration. These complications are serious and fatal if they are not identified and managed earlier. It is for this reason the researcher is doing this study in this area.

1.3 General objective

The study aimed to assess the knowledge attitude and practices towards the nasogastric tube insertion among the nurses of International Hospital Kampala

1.3.1 Specific objectives

- To assess the nurses knowledge on the nasogastric tube insertion among nurses at IHK
- To determine the nurses attitude towards nasogastric tube insertion among nurses at IHK
- To determine the practices of nasogastric tube insertion among nurses at IHK

1.3.2 Research questions

- What is the knowledge of nurses in insertion of the nasogastric tube?
- What is the attitude of nurses towards insertion of the nasogastric tube?
- What are the nurses' practices towards nasogastric tube insertion?

1.4 Significance of the study

The results conclusion and recommendation of this study will be used:

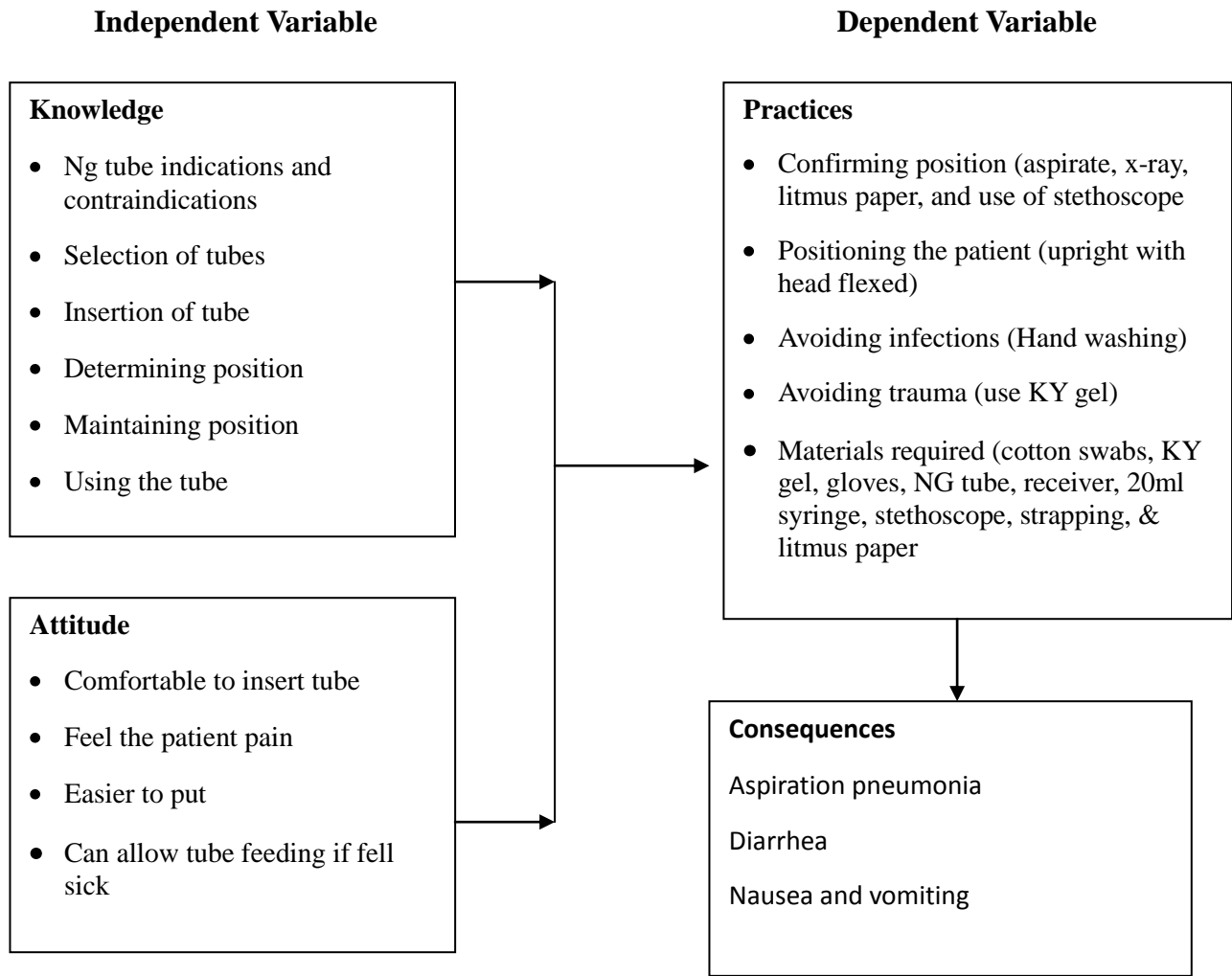
By the nurses and other health workers to improve on the practice and accountability which will ensure patients safety and recovery

Tutors on reinforcement of teaching practices

By researchers who will be interested in this area of study

1.5 Conceptual framework of the study

Figure 1: Conceptual framework:



The adequate knowledge will ensure proper tube selection, insertion, confirming position, maintaining and use of the tube. The positive attitude of the nurses on the tube use among patients in improving their nutritional status will motivate the nurses and other health workers to appropriately use the tube. This will enhance desired practices of the tube use and proper feeding of patients for nutritional support and vice versa.

CHAPTER TWO: LITERATURE REVIEW

2.0. Introduction

Nasogastric (NG) tube is a device passed through the gastrointestinal tract of patients for the purpose of feeding, gastric decompression and medication administration. This tube is very significant in ensuring that critically ill patients and patients who can't feed orally like the dysphagic patients to get their food and maintain their nutritional status. In addition some of the drugs that cannot be administered using the parenteral route can be administered. It is very important to know that it is the best way, cost effective and safer way of feeding the patients. On the other hand this mode of feeding can be dangerous and life threatening if the necessary precautions are not taken into account. The tube may be misplaced into the trachea during insertion or may get displaced at a later stage, leading to disastrous results (Chen et al, 2011).

Some of the indications of the nasogastric tube include the risk of aspiration, Ear, nose and throat abnormalities or infections, possible strictures of the oesophagus, Oesophageal varices, and anatomical abnormalities such as oesophageal diverticulae (Durai et al, 2009)

2.1 Confirmation of nasogastric tube

2.1.1 PH test

The NG tube is aspirated and the contents are checked using pH paper, not litmus paper (Earley, 2005). The NPSA (2005b) recommended that it is safe to feed patients (infants, children and adults) if the pH is 5.5 or below. This advice does not apply to neonates (preterm to 28 days). Note that taking proton pump inhibitors or H2 receptor antagonists may alter the pH. Similarly, intake of milk can neutralise the acid. Therefore enough medical and nutritional history of the patient should be taken in order to use this method.

2.1.2 Chest X-ray

When in doubt, it is best practice to use X-ray to check the tube's location (Stock et al, 2008). Patients who have swallowing problems, confused patients and those in ICU should all be given an X-ray to verify the tube's intragastric position. This involves taking a chest X-ray including the upper half of the abdomen. The tip of the tube can be seen as a white radio-opaque line and should be below the diaphragm on the left side.

2.1.3 Auscultation

Auscultation involves instilling air into the feeding tube with a syringe while using a stethoscope placed over the stomach to listen for rushing air. However, this method cannot differentiate between tube placement in the stomach or the lung/bronchial tree. In one study, x-ray confirmation identified 16 instances where nasogastric tubes were not located in the stomach. However, in 15 of those instances, clinicians using the auscultation technique believed that those tubes were in the stomach. Also, the auscultation method cannot determine when a feeding tube's ports end in the esophagus.

2.1.4 Aspirate Appearance

This method involves assessing the appearance of aspirate from the tube. Ordinarily, small bowel aspirates are golden yellow or greenish brown; in contrast, gastric aspirates are often grassy green, off-white, or tan. However, respiratory secretions can be white, yellow, straw-colored, or clear. Because both respiratory and gastrointestinal aspirates may be similar in color, they may be easily misinterpreted.

2.1.5 Complications of nasogastric tube

The introduction of nasogastric tube feeding is one of the greatest milestones made in the medical care. However this process can turn to be harmful if it is not well applied. Approximately 20% of the patients on nasogastric tube feeding experience nausea and vomiting 2%-63% get diarrhea, 1%-4% get aspirational pneumonia. Of all the tube feeding complications, pulmonary aspiration demonstrates the most frequently occurring problem in intensive care unit (Sain et al, 1999, McClave et al, 2009). Infectious complications are mainly represented by aspirational pneumonia which is 40%-75% among the feeding patients. High risk of aspiration is developed particularly when patients are kept in supine position (Mahmoud, 2011).

2.2 Knowledge of nurses towards nasogastric tube insertion

2.2.1 Source of knowledge

It was found that nurses' main source of knowledge about enteral feeding was nursing school training. This indicates that use of evidence based information is weak in the settings under study. The basic principles are that all practical decisions should be based on research studies and that these research studies are selected and interpreted according to some specific norms characteristic of evidence-based practice. The source of this evidence may not be obtained through pre service training only but also

from unit guidelines, journals and in-service education which were not mentioned by the majority (Mula, 2014).

2.2.2 Nutritional assessment

Nurses lacked adequate knowledge on assessment of patients' nutritional status. Similar findings were reported by Persenius, Hall-Lord, Baath, and Larsson. The authors found that nurses acknowledged that not all patients are nutritionally assessed, and nurses lacked skill in performing nutritional assessment (Persenius, Hall-Lord, and Baath, 2008).

2.2.3 Aspirating gastric residual volume

Nurses did not aspirate patient's gastric residual volume. These results are consistent with findings from a review of literature by Bowman which showed that there is little standardization in practice related to gastric residual volume. Similarly Persenius, Hall-Lord, Baath, and Larsson in a study done in Sweden reported that gastric residual volumes were seldom documented by nurses (Persenius, Hall-Lord, and Baath, 2008) yet Jarden reported that there are several existing reviews and clinical practice guidelines which recommend measuring of gastric residual volumes before giving the next tube feed (Jarden, 2009). This shows that there is a gap in this practice by the nurses studied. The study did not check whether protocols were available but relied on the report by the participants.

2.2.4 Used for feeding

In Brazil the knowledge level of the professional nurses about the nasogastric tube feeding was high. The nurses knew the most appropriate posture of the patients while feeding. This was considered the safety precaution to be taken while feeding the patients with a nasogastric tube to avoid aspiration of the gastric contents however there was low knowledge on the indication of the nasogastric tube among the dysphagic patients since the majority of the nurses thought the oral route was the most appropriate mode of feeding the patients (Declodt & Maartens, 2009).

2.2.5 Experience on the insertion of Nasogastric tube

A study done in Kolkata West Bengal showed that 76% of the nurses had adequate knowledge on the nasogastric tube feeding while the remaining 24% did not have adequate knowledge about the nasogastric tube feeding. The study was done among the various cadres of nurses, experience both males and females. The knowledge however had no any association with the cadre and experience (Mondal and Ahamed, 2014).

2.2.6 Used in patients in critical conditions

A study done in Egypt among the nurses revealed low level of knowledge on the nasogastric tube. The mean score of the nurses on the use of the nasogastric tube use was 45.7 out of 92. Therefore the knowledge of the nurses about enteral nutrition in the critical care department was low. The study had many items to confirm the knowledge of the nurses showed that highest knowledge was on the percentage weight, fomulas handling took the second position third was the complications of the enteral feeding, the definition took fourth, contraindications took fifth and the administration and insertion of the tube in that order (Mahmoud et al, 2012).

2.2.7 Checking NGT residual

A study done in Malawi showed that the majority of the nurses had adequate knowledge on the use of the nasogastric tube on various aspects of the use of the tube; on the other hand poor practice was reported for example checking the gastric residual content daily inspection of the nostrils and the documentation of the procedure. The study further explored the environmental factors such as the lack of guidelines, a nutrition committee and tubes shortage together with patient factors like refusal of the tube feeding which affected the nurses' practice. In this study majority (92.2%) of the nurses used the bubbling test to confirm the position of the tube, very few (3.9%) used PH indicator and 3.9% again used the auscultation method (Mula, 2011).

In the national referral hospital of Malawi the study done to determine knowledge of the ICU nurses on the enteral feeding showed that nurses did not have adequate knowledge on the confirmation of the position of the tube where they used the bubbling method of confirming the position of the tube, low knowledge on the nutritional assessment of the patients, they did not aspirate the tube before feeding and they did not document the feeding however much they reported documentation the reviewed files did not show the reported documentation. On the other hand the nurses always fed the patients when they were in the sit up position (Mula, Ncama and Maluwa, 2014).

Agree with this finding Shahin, (2012) study on 85 Critical Care Nurses found that all nurses had unsatisfactory level of knowledge less than 70 % related to administration of medication via enteral tubes in the pre-test before educational program. Similarly, Mota, et al., (2010) revealed that nurses don't have satisfactory knowledge regarding administration of medication via NGT and dosage form in the study on 49 nurses working in ICU.

Also, conferences, pharmacist, previous study and head nurses are not common source of information

for these nurses. This is agreed with Mota, et al., (2010) study on nurses to evaluate their knowledge concerning medication administration through nasogastric and enteral tubes they found that the study's participant don't value knowledge related to the procedure and this fact might be associated with lack of academic education related to medication, which does not address the medication administration technique and they suggest to universal the general knowledge concerning medication for the safety of the patient. They also mentioned that most of the nurses expect the physician to assume the entire responsibility for the type of dosage form and for correlating the dosage form with the correct tube site in the gastrointestinal tract.

This low knowledge level may be related to lack of training sessions, absent of continuous supervision and evaluation, also, it might be due to lack of hospital policy, no standard guidelines for administration of medication via nasogastric tubes as they mentioned in the opinionative sheet and absent of multidisciplinary team (Nurses- Physician- Pharmacist) cooperation when dealing with enteral tubes medication or absent of referenced person. Other reasons might be work overload, lack of nurses incentives to improve their knowledge and lack of desire to update knowledge especially whom working in ICUs for several years. This result indicates that there is a gap between theory concerning medication administration through tubes and nurses knowledge.

In Iran the study done showed that tube feeding administration is distant from its standard method; namely the majority of the studied subjects were at the moderate level of administrating this type of feeding in each one of the three phases of prior to feeding, during feeding and after feeding (Ashouri, & Fatehi, 2012)

2.3 Attitude of nurses towards nasogastric tube insertion

Agree with this finding a study for 30 nurses was conducted on in the Critical Care Department El-Manial University Hospital founded that the majority of nurses' demonstration were unsatisfactory when they administer medications via enteral access devices (Ismail, 2006). Disagree with this finding Shahin, (2012) study on 85 Critical Care Nurses found that more than half nurses had satisfactory level of practice (68.2 %) related to administration of medication via enteral tubes in the pre-test before educational program

For subareas the studied sample incorrectly practice pre-administration and administration of medication via NGT with percentage of (55 %) and (72%) respectively. As well, more than two third

(73%) of them correctly practice post-administration of medication via NGT. This low practice level may be related to the same causes of low knowledge level and also may be due to it

in addition to increase in number of patients and work load (Turgay and Khorshid, 2010). On other hand from the researcher observation some nurses worked by repetition, imitation and experience.

In Malaysia a study revealed that the caregivers' attitude towards the nasogastric tube feeding was not favourable. Despite the low reported knowledge on the use of the gastric tubes on the geriatric patients who were dependent. More than three quarters of the carers of these patients indicated that they would be willing to use the nasogastric tube if they required it. Spouses of the patients refused the use of the feeding tubes on their patients however the study also showed lowest knowledge level among the spouses (Nordin et al, 2015).

A qualitative study done in Japan among the physicians showed that they had a negative attitude towards the use of the nasogastric tube among the severe cognitive impairment patients. The majority of the physicians said they would be unwilling to be provided the same type of feeding if they were in the same situation as their patients. Some of them felt perplexed as to why they give the feeding to their patients if they would not accept the same mode of feeding themselves. The legal environment, maintainance of the peace of mind among the family members and the physicians themselves forces them to use the nasogastric tube feeding among the patients (Aita et al., 2007).

2.4 Practices of nurses towards nasogastric tube insertion

In Brazil the confirmation of the nasogastric tube is by using the pH of the aspirate and not by checking the aspect of the aspirate. The contents of the gastric aspirate can be confirmed to be from the stomach by using the pH ranges that is below five. This pH means that the contents are acidic and not just acidic but within the range of the strong acids which is the nature of the hydrochloric acid in the stomach. Bubbling and auscultation were no longer in use as confirmatory tests (Medeiros et al, 2015).

2.4.1 Administration of medicines

A study in Egypt among the critical care nurses showed that there was low level of knowledge and poor practice on the administration of medicines using the nasogastric tube. The study indicated that there is a gap between nurses' knowledge and practices as compared to the standard guidelines about medication administration via nasogastric tube. The study recommended that enrichment of the Critical Care nurses at El-Manial Specialty Hospital knowledge and practices related to administration of

medications via nasogastric tube according to the standard guidelines will be helpful to ensure patient safety and provide cost effective care (Ismael, 2014).

2.4.2 PH test

In Singapore the verification of the position of the nasogastric tube among the nurses involved three confirmatory tests. However majority of the nurses did this when they were in doubt. The use of the PH as the first test, bubbling test and auscultation were most commonly reported. On the other hand there were rare cases of the radiology confirmatory test (Jarden, 2009). Seventy-six percent would choose two or more methods to verify placement when they were in doubt. Percentage of hydrogen (pH) testing was the most common first method of checking tube placement. The second and third self-reported methods were auscultation and the bubble test. Few chose radiography to confirm tube placement. When the aspirate was pH 7, and in the presence of positive auscultation, most participants would take further steps to confirm placement. There were variations in the nurses' responses on managing the gastric residual volume, with 78.1% indicating that they would return the aspirate (Ching Ching Ang et al., 2012).

2.4.3 Nasotracheal intubation

Malpositioning of the NG tube into the trachea is a common complication of NG tube passage even among experienced medical practitioners (Lo, Wu, Reh, Nadig and Wax 2008). Therefore, it is necessary to verify its position before any medication or fluid is administered into the tube. Gastritis: Gastritis is a frequent complication of NG tube insertion. In this case, continue pressure and irritation of the stomach by the tip of the NG tube have been implicated. Frequent changing and alteration of the NG tube and the set up should be reduced so as to minimize incidence of gastritis in patients with NG tube *in situ*.

2.4.4 Bedside Confirmation of Proper Tube Placement

Clinical practice for verification of placement of large bore feeding tube is variable (Bourgault and Halm, 2008). Likewise in this study, although the majority of nurses reported that they confirm tube placement they use water bubbling method which is outdated. A review of study findings showed that no research was identified on the water bubbling method but that many nurses use auscultatory method. Though different, both methods are not based on current evidence. Current guidelines recommend use of more than one method to assure correct placement and these include: pH aspirate and auscultation as the best bedside techniques. However x-ray remains the gold standard for confirming placement,

though Turgy and Khurrshid contend that repeated radiographic confirmation is not practical, and poses a radiation hazard (Turgay and Khorshid, 2010).

2.4.5 Patient's Head Positioning during Tube Feeding

Another important finding of the study is the observation that nurses placed patients in semi fowler/sitting position during tube feeding. This finding is in line with the current guidelines which state that unless contraindicated, the head of the bed should be elevated at 30 degrees (which is semifowler) during intermittent feeds to minimize aspiration (Bourgault, Ipe and Weaver, 2007).

2.4.6 For feeding

The common feed used is the hospital kitchen feed. Similar findings were discovered in the Kenyatta hospital where Kobe found that the majority of nurses (66%) reported that they give a hospital kitchen feed. Contrary to this; in South Africa, Ellmer found that in the ten Burn Units studied; only commercial products were used (Ellmer, 2007). Despite the difference in practice, both types of feed are acceptable as literature supports that properly selected local food can be formulated into enteral feed (Sohrevardi, 2007). What is required is to make sure that the feed used meets the nutritional needs of individual clients.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter includes the following: research design, study population, inclusion criteria, exclusion criteria, data processing and analyzing, ethical consideration and administration approval and quality control.

3.1 Study design

A cross sectional descriptive study was carried out to investigate the knowledge attitude and practices towards the nasogastric tube insertion at International Hospital Kampala in Makindye division Kampala district. This design was appropriate for this study since all the data was collected at point in time.

3.2 Sources of data

The source of primary data was the nurses in international hospital Kampala in the intensive care unit, pediatric ward, specialist centers, radiology department, and adult inpatient ward. The data was collected using researcher administered questionnaires

3.3 Study area

The study was done at International Hospital Kampala. This is one of the biggest private hospital in Uganda that offers health care services. It is situated along the St. Barnabas road Namuwongo a Kampala suburb in Makindye division. The hospital offers pediatric care, obstetric and gynecologic care, critical care, emergency services, and medical services to adults. International hospital is part of International medical group that is an organization that was formed with an aim of offering quality medical services in Uganda and other parts surrounding Uganda and across the globe.

This involves the International air ambulance that offers medical airline services to the clients. International hospital has various branches across the nation that offers decentralized services to the clients who cannot easily access the main hospital. The hospital has approximately 500 employees whereby nurses are up to 171.

The hospital has recruited full time medical officers and part time specialists who work on the clients when there is need. The specialists include the general surgeons, the anaesthesiologists, gynaecologists,

obstetricians, orthopaedic surgeons, physicians, neurosurgeons, urologists and oncologists. The hospital enjoys one of the best intensive care units in East Africa with highly qualified and skilled nurses and doctors. The inpatients departments well-endowed with high level of technology monitors that are used to manage the critically ill patients and identify any deterioration in the condition of the patients and well trained and equipped nurses and doctors.

3.4 Study population

3.4.1 Target population

The study population was the nurses of the outpatient and inpatients departments of International Hospital Kampala. International hospital has 171 nurses in all the departments. The nasogastric tubes are used to boost the nutritional status of the patients who cannot feed orally.

3.4.2 Selection criteria

3.4.2.1 Inclusion criteria

All the nurses who consented to take part in the study and they work at International Hospital Kampala were included.

3.4.2.2 Exclusion criteria

The nurses did not consent to take part in the study be excluded.

3.5 Sample size calculation

The sample size calculation was calculated using slovin’s formula (1960) method of cross-sectional studies.

$$n = \frac{N}{(1 + Ne^2)}$$

Where by n= Sample size

N= Population

e= error

$$\frac{171}{1 + 171 (0.05 \times 0.05)}$$

$$\frac{171}{1 + 171 \times 0.0025}$$

Sample size = 120

The study used all the nurses at IHK to improve on the quality of the findings since the sample size was small.

3.5.1 Sampling design

Simple random sampling method was used since these units because the researcher wanted to give an opportunity to every nurse in the hospital to participate in the study. The nurses keep on moving in the ward carrying out their activities. The researcher and research assistants introduced themselves to create rapport asked for verbal consent and then written consent and the respondents responded to the questions.

3.6 Study variables

3.6.1 Dependent variables

The dependent variables are the outcome of proper practices of nasogastric tube insertion.

3.6.2 Independent variables

The independent variables included the knowledge and attitude towards the nasogastric tube insertion.

3.7 Measurement of variables

The knowledge in this study was defined as the facts and skills acquired by the nurses through the experience or education or theoretical or practical understanding of the nasogastric tube insertion. The nurses knowledge was determined by the indications of nasogastric tube insertion, complications, selection of the tube the requirements during insertion and the steps of tube insertion, and the confirmation of the tube insertion.

The attitude in this study was the way the nurses think and behave towards the nasogastric tube insertion. The nurses' easiness and willingness to insert the nasogastric tube and how they feel about inserting the nasogastric tube.

The practices of the nurses towards nasogastric tube insertion included the process of insertion of the tube. This was the translation of the knowledge into the behavior of nasogastric tube. The practices included checking the position of the tube while feeding, the position of the patient during and after feeding, determination of feeding the patient, confirmatory tests of the nasogastric tube and maintenance of the tube.

3.8 Data collection techniques

The study used structured researcher administered questionnaires to collect data from the clients. The questionnaires had sections and subsections with structured questions. The study employed simple random sampling method because of the moving nature of the nurses and the busy schedule while on duty. The sections of the questionnaire were the demographic characteristics, the knowledge, attitude and practices towards nasogastric tube insertion. The research assistants who had gone through a session on data collection and administering the questionnaire with the highest level of confidentiality of the respondents. The assistants introduced themselves seek consent from the respondents collect data, ensure completeness of the questionnaire before approaching the next respondent. The pretesting tool was done among ten nurses in Kampala hospital. Kampala hospital was selected because of the similar features it has with International hospital Kampala. The researcher and the research assistants got verbal and written consent from the nurses who took part in the study, administer the questionnaire check for completeness of the questionnaires which will be under the custody of the principal researcher only.

3.9 Data management

The data entry was done using epidata, transfer it to the statistical package for social science (SPSS) version 2016. The data was checked for completeness and internal consistency, before processing it. The data then was processed and analyzed using the statistical package for social sciences (SPSS) version 16. The code was established for data processing and analyzing by using Microsoft open office spreadsheet to get good quality pie charts, bar graphs and tables.

3.10 Quality control issues

The research assistants were trained on introducing themselves, sampling techniques, interviewing and administration of the questionnaire. This equipped the assistants with the knowledge and the skills introduce themselves performing the interview correctly and accurately according to the desired procedure. The assistants and the researcher checked the completeness accuracy and the consistency after every interview. A pilot study was done in Nsambya hospital which has inpatient wards for adults and the intensive care units. Nsambya is one of the private hospitals that are situated in Nsambya along the Gabba road. Nsambya was selected because it is a private hospital with almost similar services as International Hospital Kampala.

3.11 Ethical issues

The permission to conduct this study was sought from the International Health Sciences University, school of nursing science, the administration, the research department, and the university administrators. The letter of introduction from the university was presented to the Hospital administrators the nursing director and the hospital research department for permission to conduct the study at International hospital Kampala. Informed verbal and written consent was obtained from the respondents since they had acquired the consenting age of 18 years and above according to the constitution of Uganda. Absolutely high level of confidentiality was maintained throughout the study that is data collection and analysis since the data was under the custody of the researcher only.

3.12 Plan for dissemination

The findings, conclusion and recommendations of this study will be disseminated to the administration of International Hospital Kampala, International Health Sciences University, and the university research department. The study will later be disseminated to the ministry of health Kampala city authority and then will be published.

CHAPTER FOUR: RESEARCH FINDINGS

4.0 Introduction

This chapter presents statistically analyzed data from the study and interpretation of the data obtained from a sample size of 120 nurses of International Hospital Kampala. The data was entered and analyzed using Statistical Package for Social Sciences (SPSS) a computer software for statistical analysis and the results were transferred to Microsoft excel for presentation of good quality tables, bar graphs, and pie charts. The data was collected among all the 120 nurses who work at International Hospital Kampala.

4.1 Social demographic characteristics of the respondents

Table 1: Social demographic of the respondents N=120

Character	Indicators	Frequency (N=120)	Percentage (100%)
Gender	Males	43	32.7
	Females	77	58.3
Age	20-30 years	75	62.5
	31-40 years	35	29.2
	41 years and above	10	8.3
Cadre	Enrolled nurse	11	9.2
	Enrolled Comprehensive Nurse	12	10
	Registered Nurse	40	33.3
	Degree holder nurses	37	30.8
	Others (nursing assistants and midwives)	20	16.7
Working experience	Less than one year	8	6.7
	1-3 years	44	36.7
	4-6 years	25	20.8
	7-10 years	36	30
	11 years and above	7	5.8
Department	Pediatrics	9	7.5
	Medical and surgical wards	39	32.5
	ICU	28	23.3
	Others (Locum nurses)	44	36.7

From table 1, findings from the social demographics characteristics of the respondents indicate that; majority 77 (58.3%) were females, 75 (62.5%) were between 20 and 30 years, 40 (33.3%) were registered nurses, followed by 37 (30.8%) degree holder nurses while the least 11 (9.2%)

were enrolled nurses. Regarding working experience, 44 (36.7%) had between 1 and 3 years experience and 44 (36.7%) were locum nurses.

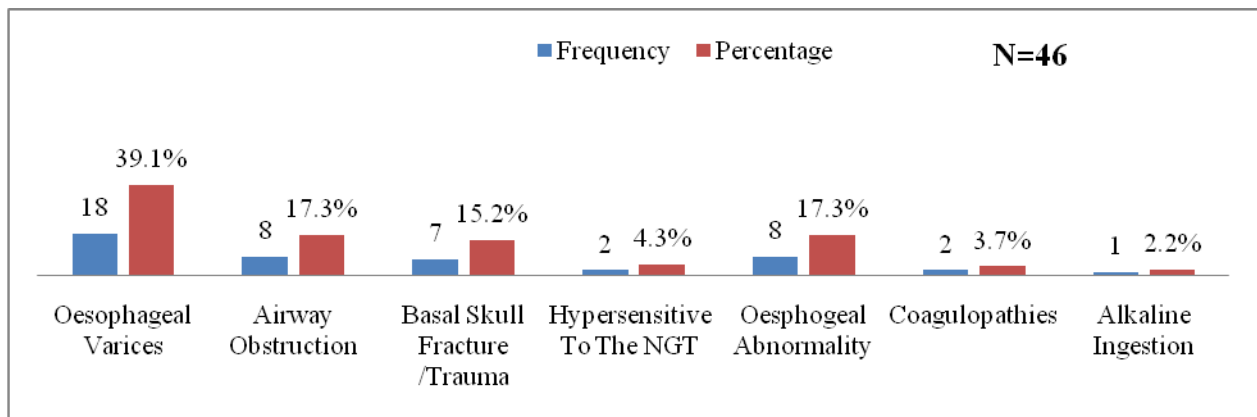
4.2 Knowledge of nurses towards nosogastric tube insertion

Table 2: Knowledge of nurses about insertion of the nasogastric tube N=120

Character	Indicators	Frequency (N=120)	Percentage (100%)
Ever heard about the nasogastric tube	Yes	120	100
	No	0	0
Uses of nasogastric tubes	In clinical settings for care of patients who need decompression of the gastrointestinal tract, diagnosis and assessment, nutritional support and medical administration	89	74.3
	For feeding only	20	16.7
	Drug administration	11	9
Source of information about nasogastric tube insertion	Nursing school	81	67
	During practices	20	16.7
	Colleagues	12	10
	Others	7	5.8
Indications of the nasogastric tube insertion	Feeding	51	42.88%
	Aspiration	39	32.55%
	Medication	11	8.97%
	Gastric Decompression/ Ravage	11	8.58%
	Cancer Of Oesopugus	04	3.51%
	Replacement of Fluids	02	1.75%
	Inability to swallow	02	1.76%
Knew the contra-indications of the NGT	Yes	46	38
	No	74	62
Knew the determinants of selecting the nasogastric tube size	Yes	98	82
	No	22	18
Knew about confirming the position of insertion of nasogastric tube	Yes	78	94
	No	22	26
Knowledge about confirming the position of insertion of nasogastric tube	Bubbling	23	24.22%
	Ausculation	30	31.64%
	X-RAY	03	3.13%
	Litmus paper	01	1.56%
	Aspiration of the stomach contents	36	38.28%
	When patient does not cough	01	1.17%

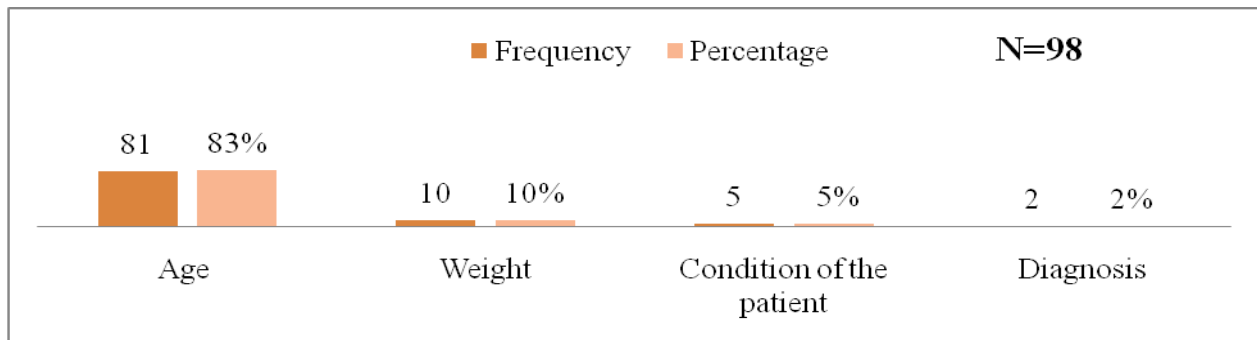
From table 2, findings about nurses knowledge towards insertion of nosogastric tube was; all the nurses had ever heard about it where; 89 (74.3%) understood its use as care patients who need decompression of the gastrointestinal tract, diagnosis and assessment, nutritional support and medical administration. The major source of information 81 (67.5%) was formal training during nursing school, all 120(100%) knew the indications for nasogastric tub use where 46 (42.88%) noted feeding, 35 (32.55%) reported aspiration and the least 2(1.75%) reported inability to shallow however majority 74(62%) did not know the contra-indications of nosogastric tube insertion while 46(38%) knew the contra-indications of nosogastric tube insertion.

Figure 2: Contra-indications of nosogastric tube insertion



Majority 98 (82%) knew the determinants of selecting the nasogastric tube size where 81 (38%) mentioned age, 10(10%) mentioned weight, 5(5%) mentioned condition of the patient while the least 2 (2%) mentioned diagnosis.

Figure 3: Determinants of selecting the nasogastric tube size



Findings showed that, 78 (94%) were aware of confirming the right position where the tube is inserted where 36 (38.28%) mentioned aspiration of the stomach contents

4.3 The attitude of the nurses towards nasogastric tube insertion

It should be noted that; the researcher regarded all nurses who were not sure about the question asked to them as having a negative attitude because all nurses are expected to have the right information regarding clinical practices.

Table 3: Attitudes of nurses towards NG Tube insertion in IHK

Variable	Category	Frequency (N=120)	Percentage (100%)
Felt conformable when inserting the nasogastric tube	Strongly disagree	30	25
	Disagree	42	35
	Not sure	18	15
	Agree	19	16
	Strongly agree	11	09
Would allow any of my family members to use a nasogastric tube	Strongly disagree	09	07
	Disagree	13	11
	Not sure	05	04
	Agree	26	22
	Strongly agree	67	56
Would suggest fellow health workers to use the nasogastric tube on the patients who have the tube indications	Strongly disagree	06	05
	Disagree	12	10
	Not sure	02	02
	Agree	25	21
	Strongly agree	75	62
If I were the patient i would accept to use a nasogastric tube	Strongly disagree	51	43
	Disagree	36	30
	Not sure	05	04
	Agree	17	14
	Strongly agree	11	09
I believe that all patients feel uncomfortable when inserting a nasogastric tube	Strongly disagree	12	10
	Disagree	25	20.8
	Not sure	11	9.2
	Agree	52	43.3
	Strongly agree	20	16.7
Easy to insert a nosogastric tube	Strongly disagree	61	50.8
	Disagree	21	17.5
	Not sure	5	4.3
	Agree	20	16.6
	Strongly agree	13	10.8

Regarding attitude of nurses towards nasogastric tube insertion respondenets had negative attitude towards nasogastric tube insertttion where; majority 75 (62.5%) of the nurses felt unonformable when inserting the nasogastric tube, 92 (76.7%) would not accept insertion of a nasogatric tube if they were patients, 72 (60%) believed that all patients feel uncomfortable when

inserting a nasogastric tube and 87 (72.5%) believed it was not easy to insert a nasogastric tube. However, some respondents had positive attitude towards nasogastric tube insertion where; 78 (65%) would allow any of their family members to use a nasogastric tube, 83 (69.2%) would suggest their fellow health workers to use the nasogastric tube on the patients who have the tube indications.

4.4 Practices of nurses towards nasogastric tube insertion

The practices of the nurses were captured by direct observations by bathe researcher right from the wards. The researcher used a checklist and personally indicated what the nurses did in regard to the set indicator on the checklist.

Table 4: Practice of nurses towards nasogastric tube insertion

Variable	Category	Frequency (N=120)	Percentage (100%)
Introducing and explaining the procedure to the patient	Not done	20	16.7
	Partially done	35	29.2
	Well done	65	54.1
Preparation for the procedure i.e. swabs, water, stethoscope, gloves, litmus paper, appropriate size of tube, 20mls syringe	Not done	03	2.5
	Partially done	83	69.2
	Well done	34	28.3
Hand washing and putting gloves	Not done	10	8.3
	Partially done	70	58.4
	Well done	40	33.3
Positioning the patient in a sit up position with head a bit flexed	Not done	14	11.7
	Partially done	56	46.7
	Well done	50	41.6
Cleaning the nostril, and demonstrate proper insertion of tube from the tip, behind the ear up to the tip of the sternum	Not done	08	6.7
	Partially done	66	55
	Well done	46	38.3
Checked the position of the tube by the use of the stethoscope and syringe, aspirating the gastric contents or use of litmus paper	Not done	03	2.5
	Partially done	41	34.2
	Well done	76	63.3
Keeping the tube in a firm and secure position	Not done	06	5
	Partially done	44	36.7
	Well done	70	58.3
Leaves the patient in a comfortable position	Not done	11	9.2
	Partially done	42	35
	Well done	67	55.8
Clear the trolley and wash hands	Not done	11	9.2
	Partially done	51	42.6
	Well done	59	49.2

It was observed that; majority 65 (54.1%) introduced and explained the nasogastric insertion procedure to the patients very well, 76 (63.3%) checked the position of the tube by the use of the stethoscope and syringe, aspirating the gastric contents or use of litmus paper very well, 70 (58.3%) kept the tube in a firm and secure position very well, 67 (55.8%) left the patients in a comfortable position and 59 (49.2%) cleared the trolleys and washed their hands very well after tube insertion.

however; 83 (69.2%) partially prepared for the procedure i.e. swabs, water, stethoscope, gloves, litmus paper, appropriate size of tube, 20mls syringe, 70 (58.4%) partially washed their hands and put on gloves, 56 (46.7%) did not position the patient well in a sit up position with head a bit flexed before inserting the tube, 66 (55%) partially cleaned the nostril, and demonstrated proper insertion of tube from the tip, behind the ear up to the tip of the sternum

CHAPTER FIVE: DISCUSSION OF RESULTS

5.0 Introduction

This chapter consists of detailed discussion of the findings of the results. Items of the findings are discussed according to the statement of the problem, specific study objectives, to answer the research questions and these findings have been compared to other researcher's findings reviewed in the relevant literature previously

5.1 Discussion of findings

5.1.1 Knowledge of nurses towards nasogastric tube insertion

Findings indicated that all nurses had ever heard about and inserted a nasogastric tube in patients. A good number knew that it is used in care of patients who need decompression of the gastrointestinal tract, diagnosis and assessment, nutritional support and medical administration which was good knowledge. Majority of them got the information during formal training at the nursing schools. However, it was found out that a big number of nurses did not know that NG tube could be used for diagnosis. Formally all nurses are trained to insert nasogastric tubes because some patients cannot feed by themselves due; unconsciousness, prematurity, and abnormalities in the esophagus. This is also used for drug administration. All nurses practice it during their clinical placements thus making them knowledgeable about the use and insertion of the nasogastric tube. The hospital gives on the job training to the nurses about some clinical practices such as nasogastric tube insertion during structured orientation and induction period. Similarly, in a study carried out in Malawi majority of the nurses had adequate level of knowledge on the nasogastric tube insertion (Mula, 2011). However in some studies the findings are different; for instance in a study carried out in Egypt, most of the nurses had low level of knowledge on the nasogastric tube insertion (Mahmoud et al, 2012).

Also all nurses knew the indications for nasogastric tube use where most of them mentioned feeding, followed by aspiration while a few mentioned inability to swallow. This implied that they had good knowledge because the major indications of nasogastric tube insertion are feeding, medical administration and suction. Feeding and drug administration are made easy because the tube is inserted direct to the stomach thus a patient is not required to chew and swallow or get any discomfort in case of cancer of the esophagus or sore throat. This also helps easy absorption of the fluid feeds because they are directed to the stomach. The nurse or the health care team should

always insert a nasogastric tube to patients who cannot feed by themselves to improve on their nutrition standards for proper work of the drugs. This finding was in line with findings in Brazil where the nurses had excellent knowledge about the indications of the nasogastric tube insertion. They mentioned that nasogastric tube is good for dysphagic patients since it is the safest route for feeding the patients (Sao Paul et al, 2013).

However majority of the nurses did not know the contra-indications of nasogastric tube insertion. This was very dangerous because being unaware of the contraindication would cause trauma which may lead to bleeding, if patient had an airway obstruction, wrong insertion would increase the obstruction thus leading to suffocation. In basal skull fracture; lack of knowledge on contraindication may cause further damage, and in case of hypersensitivity it may lead to reaction.

On the other side; a few nurses who knew the contraindications revealed oesophageal varices, airway obstruction, basal skull fracture, coagulopathies, oesophageal abnormalities and alkaline ingestion.

All most all the respondents knew the determinants of selecting the nasogastric tube size where the biggest number mentioned age. It was however found out that few had knowledge the patients weight, condition and diagnosis which are also important determinants in the selection of the NG tube. This implied that inadequate knowledge about patients weight, condition and diagnosis could lead to damage, such as aspiration, inability to feed properly in case of use of a small tube for a big patient and improper flow of the fluids. This would lead to improper feeding and drug administration thus delayed healing and recovery. As nurse; lack of proper knowledge would lead to resistance, wastage of time thus poor health care delivery. Nurses should always seek right knowledge on the insertion of NG tube in case they are not sure of the status of the patient.

Findings showed that majority were aware of confirming the right position where the tube is inserted where most of them mentioned aspiration of the stomach contents while others mentioned bubbling and auscultation. This implies that they had partial knowledge since chest X-ray and litmus paper which are major determinant to proper insertion of the NG tube yet were the least mentioned determinant. On the contrary, Ching et al (2012) in a study done in Singapore

found out that nurses were not sure on the right methods of confirming the tube position with the outdated bubbling test being one of the tests they used.

5.1.2 The attitude of the nurses towards nasogastric tube insertion

Regarding attitude of nurses towards nasogastric tube insertion respondents had negative attitude towards nasogastric tube insertion where; majority of the nurses felt uncomfortable when inserting the nasogastric tube. A big number of nurses could not stand the reactions of the patients during tube insertion where they were irritated with the coughing, movements, grabbing the nurse, sneezing and crying and failure to have the right direction on first insertion. As a nurse, they should be aware of all this and should stand them then devise mechanisms of reducing them. It is however noted that some nurses just leave the patients or become harsh to them which is not right. The hospital should orient and emphasize to all the nurses about the challenges faced during NG tube insertion that they bear with them when they happen, but this is rarely done. Similar finding was reported in Malaysia, health workers showed unfavourable attitude towards the nasogastric tube insertion among the geriatric patients (Nordin et al. (2015).

Further on, majority of the nurses would not accept insertion of a nasogastric tube in case they fell sick and could not feed by themselves. This thus indicated poor attitude. As a trained health worker, a nurse is expected to know all the advantages of inserting a nasogastric tube thus are not expected to refuse it. All institutions offering training to health workers; not only to nurses have to instill a discipline in them that they should always be free with the kind of treatment they offer other people to be administered upon them. On the contrary, more than three quarters of the caretakers of these patients indicated that they would be willing to use the nasogastric tube if they required it. Spouses of the patients refused the use of the feeding tubes on their patients however the study also showed lowest knowledge level among the spouses (Nordin et al., 2015). On the contrary, in a study done in Japan among the physicians showed negative attitude towards the use of the nasogastric tube among the severe cognitive impairment patients. The majority of the physicians said they would be unwilling to be provided the same type of feeding if they were in the same situation as their patients.

Also a big number believed that all patients feel uncomfortable when inserting a nasogastric tube. This could be right but as a nurse a patient is not expected feel pain or discomfort that would cause an alarm. Some nurses do not position the patients very well and use poor techniques

of nasogastric tube insertion which all increase patient discomfort. This could have led other nurses to believe that it is not easy to insert a nasogastric tube.

However, some respondents had positive attitude towards nasogastric tube insertion where; they would allow any of their family members to use a nasogastric tube and suggest would suggest their fellow health workers to use the nasogastric tube on the patients who have the tube indications. This was positive attitude and clinically accepted but this was not directly on the nurses.

5.1.3 Practices of nurses towards nasogastric tube insertion

It was observed that; majority of the nurses introduced and explained the nasogastric insertion procedure to the patients very well. This was good practice because explaining to the patient about insertion would minimize the negative reactions of the patient and they will be aware of them. This would in the end minimize the damages that could have occurred and them quick service delivery.

They also checked the position of the tube by the use of the stethoscope and syringe, aspirating the gastric contents or use of litmus paper very well. This helped to identify whether the tube was in the right position which minimized the occurrence of side effects such as perforations, suffocation and aspirations. As a nurse checking on the position of the tube is a must in order to achieve good health care delivery and the progress of the treatment. This also helps to identify deviations that could lead to damage. Similarly, malpositioning of the NG tube into the trachea is a common complication of NG tube passage even among experienced medical practitioners (Lo, Wu, Reh, Nadig and Wax 2008).

They also kept the tube in a firm and secure position and left the patients in a comfortable position. They cleared the trolleys and washed their hands very well after tube insertion. This reduced agitation which minimized the unnecessary movements that could have disorganized the position of the tube and its intended purpose. Clearing cleaning of trolleys minimized infections.

However; some practices were poorly done. These included partial preparation for the procedure i.e. swabs, water, stethoscope, gloves, litmus paper, appropriate size of tube, 20mls syringe. This could lead to loss of confidence among patients and increase infection spread.

Majority did not wash their hands before putting on gloves. This increased nosocomial infections because hands are some of the major parts of the body that carry pathogens. Also some nurses did not position the patients well in a sit up position with head a bit flexed before inserting the tube. This could have increased the restlessness of the patients which increased the coughing and vomiting during nosogastric tube insertion. Also some nurses partially cleaned the nostril, and demonstrated proper insertion of tube from the tip, behind the ear up to the tip of the sternum.

CHAPTER SIX: CONCLUSION AND RECOMMENDATION

6.0 Introduction

This chapter presents the pertinent conclusions and recommendations drawn from the findings of this study based on specific objectives.

6.1 Conclusion

6.1.1 Knowledge of nurses towards nasogastric tube insertion

Findings about nurse's knowledge towards insertion of the nasogastric tube indicated good knowledge. This was because all the nurses had ever heard about it and understood its use. They mentioned care of patients who need decompression of the gastrointestinal tract, diagnosis and assessment, nutritional support and medical administration and got this information during their formal training. All of them knew the indications for nasogastric tube use where they mentioned feeding, medication and diagnosis. Majority knew the determinants of selecting the nasogastric tube size where they mentioned age, weight, condition of the patient and diagnosis. They were also aware of confirming the right position where the tube is inserted and this could be indicated by aspiration of the stomach contents. However they did not know the contra-indications of nasogastric tube insertion which could lead to side effects.

6.1.2 Attitude of the nurses towards nasogastric tube insertion

Nurses generally had poor attitude towards nasogastric tube insertion because; majority felt uninformable when inserting the nasogastric tube, would not accept insertion of a nasogastric tube if they fell sick, believed that all patients feel uncomfortable when inserting it and believed it was not easy to insert it.

6.1.3 Practices of nurses towards nasogastric tube insertion

It was observed that; majority of the respondents had fair practices in NG tube insertion where; they introduced and explained the nasogastric insertion procedure to the patients, checked the position of the tube by the use of the stethoscope and syringe, aspirating the gastric contents or use of litmus paper, kept the tube in a firm and secure position, left the patients in a comfortable position and cleared the trolleys and washed their hands very well after tube insertion very well. However, some partially prepared for the procedure i.e. swabs, water, stethoscope, gloves, litmus paper, appropriate size of tube, 20mls syringe, partially washed their hands and put on gloves,

did not position the patient well in a sit up position with head a bit flexed before inserting the tube, partially cleaned the nostril, and demonstrated proper insertion of tube from the tip, behind the ear up to the tip of the sternum. This could lead to patient reactions during the process thus lead to mistakes that could lead to problems such as; trauma causing bleeding, aspiration, perforation and suffocation.

6.2 Recommendations

The researcher suggests the following should be done to

The researcher therefore proposes the following recommendations arising from the study which the stakeholders of International Hospital Kampala and all the stakeholders involved should work upon in boosting the knowledge and the practices of the nurses as far as nasogastric tubes insertion is concerned. These recommendations are considered to be very crucial in empowering the staff members and boosting the patient care.

The nurses should have continuous medical education on most of the procedures done in the wards especially their indications and contra-indication of these procedures. For this case the nasogastric tube insertion should be the point of emphasis because of the complications associated with it. This should be done more frequently since the nurses keep going and new recruitment is done at the hospital therefore the new nurses should be updated according to the standards of the International Hospital Kampala.

The empowerment and encouraging the need to use some of the procedures on the patients will help boost their attitude towards the procedures carried out especially nasogastric tube insertion.

Nurses generally had poor attitude towards nasogastric tube insertion because; majority felt unformable when inserting the nasogastric tube, would not accept insertion of a nasogastric tube if they fell sick, believed that all patients feel uncomfortable when inserting it and believed it was not easy to insert it.

The nurses should be encouraged to learn the procedures done in the ward with each nurse having experience on each procedure especially the common procedures in the ward. Nasogastric tube insertion is among the most common procedures therefore every nurse should have chances of doing it so as to improve the confidence among all the nurses.

REFERENCES

Bourgault A M, Halm M A. (2008) *Feeding tube placement in adults: Safe verification method for blindly inserted tubes. American Journal of Critical Care*; 18:73–76.

Bourgault, A. Ipe, L. and Weaver J. (2007) *Development of evidence based guidelines and critical care nurses knowledge of enteral feeding. Critical care Nurse*; 27(4):17–29.

Decloedt, E. & Maartens, G. (2009) *Pitfalls of administering drugs via nasogastric tubes. SAMJ: South African Medical Journal*, 99(3), 148-149.

Ellmer, M. (2007) *The nutritional management of adult burn wound patients in South Africa. Stellenbosch, South Africa: (Master's dissertation, Stellenbosch University 2007)*

Jarden, RJ. (2009) *Gastric residual volumes in the adult intensive care patient: A systematic review. Victoria university of Wellington; (Thesis submitted to the Victoria university of Wellington Master of Nursing (Clinical))*

Kenny, D. & Goodman, P. (2010) *Care of the patient with enteral tube feeding: an evidence-based practice protocol. Nursing Research*; 59(1), 22-31. 17.

Lo, JO., Wu, V., Reh, D., Nadig, S. and Wax, MK. (2008) *Diagnosis and management of a misplaced nasogastric tube into the pleural. Arch Otolaryngol Head Neck Surg*;134: 547-50.

Mota, M., Barbosa, I., Studart, R., Melo, E., Lima, F. & Mariano, F. (2010) *Evaluation of Intensivist-Nurses' Knowledge Concerning Medication Administration Through Nasogastric and Enteral Tubes. Ref Latino-Am Enfermagem*, 888-894.

Mula, C. (2014) *Nurses' Competency and Challenges in Enteral feeding in the Intensive Care Unit (ICU) and High Dependency Units (HDU) of a referral hospital, Malawi, Malawi Med J.*; 26(3): 55–59.

O'Keefe, SJD. (2009) *A guide to enteral access procedures and enteral nutrition, Nature and Reviews. Gastrology and Hepatology*, 6, 207-215.

Persenius, MW., Hall-Lord, ML. and Baath, C. (2008) *Assessment and documentation of patients' nutritional status: Perceptions of registered nurses and their chief nurses. Journal of*

Clinical Nursing; 17: 2125–2126.

Shahin, M., Mohammed, W., & Sayed, M. (2012) *Nurses' Knowledge and Practices regarding Enteral Nutrition at the Critical Care Department of Al-Manial University Hospital in Egypt: Impact of a Designed Instructional Program. Journal of American Science*, 8(11), 397-405. 23.

Sohrevardi SM. (2007) *Enteral nutrition and phenytoin Administration in Head trauma patients. Tanaffos.*; 7(3):59–62.

Turgay, AS. and Khorshid L. (2010) *Effectiveness of the auscultatory and PH methods in predicting feeding tube placement. Journal of Clinical Nursing*; 19:1553–1559.

Vaghjiani, T., & Atkinson, H. (2010) *Enteral Drugs Administration Guidelines. UK: Royal Free Hampstead NHS*. 24.

Zhu, L., & Zhou, Q. (2013) *Therapeutic concerns when oral medications are administered nasogastrically. Journal of Clinical Pharmacy and Therapeutics*, 11, 11-14.

APPENDIX I: CONSENT FORM

Questionnaire No: Date

My name is Namakula Justine of International Health Sciences University, pursuing Bachelors of Nursing Science. I am conducting a study **on the knowledge attitude and practices of nasogastric tube insertion among the nurses of International Hospital Kampala.**

I kindly request you take part in the above mentioned study by responding to the questions that I am going to ask you. This research is a basic requirement for study purposes. The participation in this study is free and voluntary, the information you will provide will be confidential, and will serve the purpose of this study. Taking part and responding to these questions will take you the minimum of ten and a maximum of fifteen minutes. Taking part in this study by giving your information will be a proof that you took part in the study.

Signature

Date.....

APPENDIX II: QUESTIONNAIRE

SECTION A: SOCIAL DEMOGRAPHIC CHARACTERISTICS

1. What is your gender?

- a) Male b) Female

2. How old are you?

- a) 20-30 years b) 31-40 years
c) 41-50 years d) 51 years and above

3. What is your cadre?

- a) Enrolled nurse b) Enrolled comprehensive
c) Registered nurse d) Registered comprehensive
e) BscN f) Other (specify).....

4. What is your working experience?

- a) 0-5 years b) 6-10 years
c) 11-15 years d) 16-20 years
e) 21 years and above

5. In which department do you work?

- a) Pediatric ward b) Medical ward
c) Surgical ward d) ICU
e) Others (specify).....

SECTION B: Knowledge of nurses towards nasogastric insertion

6. i) Have you ever heard about the nasogastric tube?

- a. Yes b) No

ii) If yes above, where did you hear it from?

- a) Nursing school b) From colleagues
c) At work d) Other (specify).....

7. i) Do you know the indications of the nasogastric tube insertion?

- a) Yes b) No

ii) If yes, please mention the indications of the nasogastric tube insertion you know.

.....

8. Do you know the contra-indications of the nasogastric tube insertion?

a) Yes b) No

ii) If yes, mention the contra-indications of the nasogastric tube insertion you know.

.....

9. Do you know the determinants of selection of the nasogastric tube size?

a) Yes b) No

ii) If yes, mention the determinants of selection of the nasogastric tube size?

.....

10. How do you confirm that that nasogastric tube is inserted in the right position?

.....

SECTION C: Attitude of nurses towards nasogastric insertion

	Indicator	SD	D	NS	A	SA
1	Feel comfortable when inserting the nasogastric tube					
2	You would allow any of your family members to use a nasogastric tube					
3	You would suggest to the fellow health workers to use the nasogastric tube on the patients who have the tube indications					
4	If I were a patient I would accept to use a nasogastric tube					
5	I believe that all patients feel uncomfortable when inserting a nasogastric tube					

**SECTION D: PRACTICES OF NG TUBE INSERTION: NASOGASTRIC TUBE
INSERTION CHECKLIST**

Candidate number..... Date Department

1	Action	Not done	Partially done	Well done
2	Introducing and explaining the procedure to the patient			
3	Preparation for the procedure i.e. swabs, water, stethoscope, gloves, litmus paper, appropriate size of tube, 20mls syringe			
4	Hand washing and putting gloves			
5	Positioning the patient in a sit up position with head a bit flexed			
6	Cleaning the nostril, and demonstrate proper insertion of tube from the tip, behind the ear up to the tip of the sternum			
7	Check the position of the tube by use of the stethoscope and syringe, aspirating the gastric contents or use of litmus paper			
8	Keeping the tube in a firm and secure position			
9	Leaves the patient in a comfortable position			
10	Clear the trolley and wash hands			

Thank you for taking part in the study

APENDIX III: INTRODUCTORY AND CORRESPONDENCE LETTER



making a difference in health care

Office of the Dean, School of Nursing

Kampala, 3rd August 2016

TO INTERNATIONAL
HOSPITAL KAMPALA
P.O. BOX, 8177
KAMPALA

Successfully carried
out by staff
International Hospital - Kampala
Plot No. 4088, Kisugu Namuwongo
02 DEC 2016
P.O. Box 8177, Kampala - Uganda
Tel: +256 414 309 800 / +256 312 200400

Dear Sir/Madam,

RE: ASSISTANCE FOR RESEARCH

Greetings from International Health Sciences University.

This is to introduce to you **Nalukenge Justine** Reg. No. **2013-BNS-TU-034** who is a student of our University. As part of the requirements for the award of a Bachelors degree in Nursing of our University, the student is required to carry out re: each in partial fulfillment of her award.

Her topic of research is: **Knowledge, Attitudes and Practices towards Nosogastric tube insertion among nurses in International Hospital Kampala**

This therefore is to kindly request you to render the student assistance as may be necessary for her research.

I, and indeed the entire University are grateful in advance for all assistance that will be accorded to our student.

Sincerely Yours,

Ms. Agwang Agnes
Ag. Dean, School of Nursing

03 AUG 2016
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