MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

SCHOOL OF MEDICINE

DEPARTMENT OF SURGERY

RESEARCH REPORT

KNOWLEDGE AND PRACTICE REGARDING THE GENERAL PRINCIPLES OF POST-OPERATIVE WOUND CARE AMONG NURSES IN SURGICAL WARDS AT MNH.

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ABBREVIATIONS

HCAI/HAI – Healthcare Associated Infection

MNH – Muhimbili National Hospital

SSI – Surgical Site Infection

CDC – Center for Disease Control

I.C.P – Infection control and Prevention Practice

WHO – World Health Organization

UTI – Urinary Tract Infection

CS – Cesarean Section

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DEFINITIONS OF KEY TERMS

Health care-associated infections (HCAIs) – are infections that occur while receiving health care, developed in a hospital or other health care facility that first appear 48 hours or more after hospital admission, or within 30 days after having received health care

Surgical Site Infection – refers to an infection that occurs after surgery in the part of the body where the surgery took place

Dehiscence refers to a condition where a cut made during a surgical procedure separates or ruptures after it has been stitched back together.

Nosocomial infections also referred to as healthcare-associated infections (HAI), are infection(s) acquired during the process of receiving health care that was not present during the time of admission.

A **registered nurse (RN)** is a licensed medical professional who provides hands-on care in different medical and community settings. This includes: hospitals, doctor's offices, nursing homes, Prisons, long-term care facilities, homes and other facilities.

An **enrolled nurse** is a professional who has completed, at minimum, their diploma qualification. An enrolled nurse, while working a significant role, has less authority in a hospital. They will work as part of a team, more than in a supervisory role

ABSTRACT

Poor post-operative care is among the leading cause of surgical complications and mortality in patients who underwent surgery. A good example is this fact; most of the surgical patients will be discharged 2 to 3 days earlier after a surgical procedure instead of weeks of stay. These changes have been driven by a lot of factors, including realizing risks associated with prolonged immobilization and hospital stay like infective and thromboembolic complications and pressures on hospital beds and funding especially in poor hospital settings. A good post-operative care will lead to a smooth, quick and complete recovery from surgery with reduction of complications and a shorter hospital stay. There are three main objectives of any post-operative care: supporting the patient during restoration of physiological functions, promoting healing of tissues; and recognizing and managing complications.

Aim: This study aimed to evaluate knowledge and practice regarding general principles of post-operative wound care among nurses in surgical wards at Muhimbili National Hospital (MNH).

Methodology: Our study was a hospital based observational cross-sectional study that involved nurses working in surgical wards at MNH, Upanga, Dar es Salaam, in Tanzania, from October 2021 to April 2022. Participants were randomly selected. Data were collected by using a standardized structured checklist provided by MNH.

Results: A total of 32 nurses in surgical wards were involved in the study and majority were females, 24 (75%). Half (16) of our study participants had good post-operative wound care practice by 90%. Registered nurses had better practice than enrolled nurses, however there was no considerable difference in the scores ($P > 0.05$). Most (93.8%) of our participants could wash their hands before and completion of procedure. All participants ensured the environment is clean but few of them (46%) did not use screen or even closing the room during wound dressing. There was good practice in use of clean gloves during the removal of the old dressing by 96.9% and sterile gloves during wound dressing by 90.6%. Good practice was noted in all participants in applying dressing solution as recommended, dry sterile dressing was applied by (99%), but poor arrangement and setting up of dressing forceps and other items that may be needed in order

of their application using forceps was observed in majority of nurses (15.6%). Usage of forceps to dip gauze into antiseptic solution (71.9%) and cleaning of the wound cleaning from least contaminated to most contaminated area was only adhered to by 90.6%. Post-operative counseling and giving to the patient not to temper with the wound was done by a representation of only 84.4% of nurses. More than half of the nurses did not do the documentation of the changes observed on the wound nor did they report on the patient's comfort and the date and time after the procedure wound changes, reported patient comfort, and recorded date or time after the procedure

Conclusion and recommendation: There still is a significant high number of the nurses in surgical wards who do not follow the post-operative wound care checklist as a standard guideline provided by MNH. Documentation of most of the post-operative wound procedures is poor and so a failure to follow up the progress of patient's wound frequently occurs and this affects their treatment. Nurses are reasonably knowledgeable and aware about most of the principles of wound dressing but lack knowledge on some key principles shown within results. It could be due to the level of education or the level of experience on the management of such procedures or purposely neglect to follow the guidelines.

1. INTRODUCTION

1.1. BACKGROUND

It is important to implement optimal management of post-operative wounds to prevent potential complications such as surgical-site infections (SSI) and wound dehiscence from developing. As such, general practitioners, who play an important part in the acute and subacute management of post-operative wounds such as nurses, should appreciate the physiology of wound healing and the general principles of post-operative wound care. According to a medical article in PubMed (14), the author lays down five general principles of wound management. One being the assessment and exclusion of any occurring disease process; wound cleansing; timely dressing change; appropriate dressing choice as well as considered antibiotic prescription. The implementation of such principles has been sought to halt post-operative complications, one being surgical-site infections.

In the process of ensuring a full recovery of a patient from a surgical procedure, studies have shown that the body's response to wound healing depends on factors that could actually accelerate or halt a full wound recovery. These are oxygenation, infection, age and sex hormones, stress, diabetes, obesity, medications, alcoholism, smoking, and nutrition. A better understanding of the influence of these factors on repair may lead to therapeutics that improve wound healing and resolve impaired wounds. (2)

Performing a research on prevention and treatment of wounds gives a great prominence especially in health care publications, demonstrating the important role and responsibility of the nurse and other medical personnel, which must evaluate the patient and its injury and prescribe the most appropriate care.

The knowledge of nurses and practice based on scientific evidence are initiated during their formal training in certificate, diploma, undergraduate and graduate courses and are key factors in the timely of implementation of conducts covering prevention and treatment of patients with wounds.

This study was relevant for the opportunity to review the practice, knowledge and sources of information with regard to the provision of nursing care to patients with post-operative wounds

at MNH with nurses whose employers saw that they qualify and have knowledge for post-operative wound care.

1.2. PROBLEM STATEMENT

Hospital acquired infections are one of the main causes of morbidity and mortality in hospitalized patients at the present time globally. (10) With the statistical data provided, there is little knowledge on the magnitude, consequences and the related risk factors of SSI in countries with fewer resources. In countries where there have been studies, the SSI rates frequently are reported higher than 10%. (10) In a study done in Ethiopia it was estimated that each patient with post-operative infection did cost at least 100 US Dollars extra and that 14 of 18 deaths among surgical patients were attributed to Nosocomial infections. (11)

The infection rate in hospitals in Tanzania is not up to date. The economic impact of Nosocomial infections in countries with fewer resources is far greater than in developed countries due to the larger number of infections and small health budget. Nosocomial infections are an important health problem worldwide but the efforts to control them has been initiated only in some developing countries. Lack of administrative and financial support has led to inadequate key ICP personnel training thus little or no standard guidelines on ICP practice (12). Post-operative wounds infections can be disastrous to the patient. It involves suffering of the patients, a risk to other patients, extra cost because of the need for more operations, blood, antibiotics nursing and prolonged hospitalization. Nosocomial infections are too expensive to be tolerated in terms of prolonged hospital stay, time for treatment, increased use of staff time for treatment, increased cost of supplies for wound care, loss of man hours may be the largest but hardest to measure. The informed medical consumer is unlikely to return to a hospital or recommend a hospital where they became more ill while they were inpatients than they were before being admitted (10). Some of the effects of hospital acquired infections include loss of life, incapacitation which leads to less production by the person and to the family at large, psychological trauma, long periods of hospitalization and in other cases change of lifestyle.

Infection control committees should be formed in health care facilities and may include a simple team of a doctor, infection control nurse and a lab technician where applicable a record officer:

In other facilities the team may be bigger depending on the size of the facility and staff availability. (13)

1.3. RATIONALE

The efficacy of programs to prevent post-operative hospital-associated wound infections has not been up to date. For example, such programs were done in the SENIC project in the USA. It was shown that hospitals with effective programs reduced their infection rates by 32%. Effective programs included organized surveillance and control activities, an infection control physician, one infection control nurse per 250 beds, and a system for reporting infection rates to practicing surgeons. Studies like this will increase awareness on the importance of and the need for infection prevention programs at MNH. This interest and the hospital's cooperation in the study, was a reason for conducting this research at MNH. Documentation of the magnitude of hospital associated infections will be used in many countries to create interest and generate funds from authorities to improve infection prevention programs. Our research documentation belongs to MUHAS & MNH. The hospital administration can choose to use the report in future funding applications.

1.4. RESEARCH QUESTIONS

1) Do nurses at surgical wards in MNH have the knowledge regarding general principles of post-operative wound care?
2) Do nurses at surgical wards in MNH know the basic practice of post-operative wound care?

1.5. RESEARCH OBJECTIVE

1.5.1 BROAD OBJECTIVE

To determine knowledge and practice regarding the general principles of post-operative wound care among nurses in surgical wards at MNH.

1.5.2 SPECIFIC OBJECTIVES

I. To determine knowledge that nurses at surgical wards in MNH have regarding the general principles of post-operative wound care.
II. To determine the practice of post – operative wound care among nurses at the surgical wards in MNH.

III. Identify risk factors associated with post – operative surgical site infections

2. LITERATURE REVIEW

There have been different studies in the field of post-operative wound infections; those focusing on identification of rates and risk factor pattern and those trying to establish a scientific basis for the influence of different procedures on the development of post-operative wound infection.

For example, The SSI rates reported from countries with more resources is often below 5%. In Brazil and Mexico, the SSI rates are usually between 10% and 15%. Reported rates from African countries range from about 16% to 38.7%. In an international survey arranged by the World Health Organization (WHO) in 1988 the SSI rates varied between 5.2% and 34.4%. (3) In Tanzania, a recent study in Bugando Health Centre, Mwanza, Tanzania shows that surgical site infection (SSI) is the second most common infectious complication after urinary tract infection (UTI) following a delivery by caesarean section (CS). The results obtained were; overall cumulative incidence of SSI was 10.9% with an incidence rate of 37.5 per 10,000 people/day (95% CI, 26.8-52.4). (1)

With such amount of data obtained, post-operative wound infection became listed as one of the highest common causes of nosocomial infections which constitute of 20% to 25% of all nosocomial infections worldwide. Post-operative wound infections have been one of the factors for increasing cost, morbidity and mortality related to surgical operations and are increasingly becoming a major problem worldwide. Globally, surgical site infection rates have been reported to range from 2.5% to 41.9 %. (4) In the United States alone, approximately 2% to 5% of the 16 million patients who undergo surgery each year have postoperative surgical site infections. (5)

Woo et al. (2015) (6) reports that SSIs have led to a high proportion of healthcare-associated infections (HCAIs) accounting to 20 percent of all HCAIs, and affect more than 5 percent of patients who had surgery. Gove et al. (2014) (7) claim that the management of postoperative

wounds has perhaps been given less attention than it is required, with more emphasis being on the nursing care of chronic wounds.

Regardless of the advancement made in technology related to surgery and wound management, wound infection is still a post-surgical problem (9), it is commonly known as a cause of illness that can lead to prolonged staying in the hospital, costs increase and more resource-demanding for general wound management practices. SSI continues to remain a major problem in hospitals, contributing considerably to increase rate of morbidity, mortality and cost of care. The problem is even more chronic and serious in developing countries where resources are limited and with staff supply being low. (9)

In Tanzania, post-operative wound infections still remains a problem to surgical patients and a challenge to clinicians despite that much effort on wound care management has been provided. Tanzania still suffers from a lack of qualified health workers. Increased burden of diseases affects the quality and supply of effective health services, which has seen post-operative patients get inadequate wound treatment and wound (dressing) care management in surgical wards, resulting to wound healing delay and complications. This study sought to assess the nursing practice used by nurses to care for the postoperative wound in surgical wards at Muhimbili National Hospital Tanzania.

3. METHODOLOGY

3.1. STUDY DESIGN AND AREA

This was an observational cross-sectional study to assess knowledge and practice regarding post-operative wound care among surgical nurses which was carried out through the use of randomly selected surgical wards at Muhimbili National Hospital in Tanzania from October 2021 to April 2022.

A multistage cluster sampling technique was used to obtain the required number of study participants.

3.2. STUDY POPULATION

Nurses working in surgical wards at MNH who were currently employed by MNH and had been in the job for more than 2 years.

3.2.1 Inclusion criteria

I. Nurses who were working at MNH

II. Those stationed at surgical wards

III. Those who had been working for more than 2 years

3.2.2 Exclusion criteria

I. Student nurses

II. Intern nurses

III. Health care workers apart from nurses.

3.3 SAMPLE SIZE CALCULATION

From;

$$n = \frac{z^2 p(1-p)}{\varepsilon^2}$$

Where;

- n = Sample size
- z = the level of confidence: 95% confidence interval = 1.96
- p = Prevalence from any study. From a study done in MNH to find the prevalence of nurses with poor post-operative wound care practice (57.7%)
- = the margin of error. For P > 10%,
- = 5%. Therefore 0.05/2 = 0.025

Then, n = $\underline{1.96}^2 \times 0.577 \times (1\text{-}0.577) \div (0.025^2)$ = 375 nurses

Therefore**;** sample size for the study should had been 375 nurses**.** However, due to small number of registered and enrolled nurses all nurses in surgical wards at the time of study who gave consent formed the sample size of 32 nurses.

3.4 SAMPLING TECHNIQUE

The study participants were obtained on convenient basis from those eligible nurses who were on duty during the data collection period. The calculated estimated sample size for the study was 375 but due to small number of registered and enrolled nurses, all nurses in surgical wards at the time of study who gave consent formed the sample size of 32 nurses. This was due to a number

of reasons as some of nurses were not around at all times and those qualified for the sample study were few compared to the estimated sample size.

A multistage cluster sampling technique was used. First, a number of surgical wards were randomly selected; second, a simple random sampling in selecting another number of wards was used and from each ward, a total number of 32 nurses were randomly selected through simple random sampling

3.5. DATA COLLECTION

3.5.1 TOOLS AND MEASUREMENTS

3.5.1.1 QUESTIONNARE/CHECKLIST

Data was collected by the use of a hardcopy checklist on standard nursing practice on wound care. The tool was a copy of a predesignated one from MNH and also it follows the standard's principles of wound dressing and it is internationally acceptable. The content of Validity of the checklist had to be assessed and then approved by the research supervisors and copies shared to the head of nurses in surgical wards of MNH.

The first part of the checklist included questions pertaining to demographic data: age, education, and gender. The second part of the tool is on standard nursing practice on wound care, the third part of the tool includes questions on availability of dressing materials, the fourth part of the tool includes assessment on the proper use of available dressing materials, and the tool is in English language.

3.5.1.2 PLAN FOR DATA COLLECTION

The assessment was performed for four months during the working days of the week (Monday to Friday), whereas the principal investigator used a duty roster to avoid double observation of the study participants. In this study, the data was collected from the participants who met inclusion criteria of the study after seeking their consent. Volunteers were asked questions pertaining their social demographic characteristics including age, education qualification, highest level of nursing education and the job title whether registered or enrolled nurse. Knowledge and practices

on post-operative wound care were assessed through an observational method by comparing what was done with the standard checklist prepared.

3.6. DATA MANAGEMENT AND PROCESSING

After data collection; the checklist forms were kept in envelopes and ready for data recording. Data processing was done using SPSS version 28 software. Data organization involved creating folders and naming files and data storage in personal computer which had the password accessible by the principal investigator only and email of the principal investigator which was only accessible by him. Data backup involved retrieving using an email of the principal investigator in case of any loses.

3.7. DATA ANALYSIS

The latest Statistical Package for Social Sciences software (SPSS for windows 28.0, SPSS Inc., Chicago, IL, USA) was used in computing statistical analyses from IBM company.

Descriptive analysis was done and used to present results in frequency distributions tables and bar graphs. Mean was calculated in determining nurses' post-operative wound care scores with the difference in mean scores used as a measure for poor and better post-operative wound care practice. Independent sample t-test was done and used in assessing the significant difference in mean practice score with a p-value of 0.05 considered as a significance level at 95% confidence interval with ANOVA done for multiple comparisons. Chi-square test was used to assess the association between nurses' proper use of available dressing material with a p-value of 0.05 considered significant at 95% confidence interval.

3.8. ETHICAL ISSUES

Ethical clearance was sought from Ethics Review Board of directorate of research and publications of the Muhimbili University of Health and Allied Sciences (MUHAS). Research permission was also being requested from the school of medicine. Each participant was informed on the rights of consent before beginning of any study and the collected information were kept strictly confidential.

Participants were informed of their right to decline or withdraw from the study at any time in the course of the study without any required explanations. The checklist's results collected were secured to maintain privacy and confidentiality.

4. RESULTS

4.1 SAMPLE DESCRIPTION

Table 1. Distribution of participant by demographic characteristics

Factors	Specific variable	Number N = 32	Percentage
Sex	Male	8	25%
	Female	24	75%
Age (Years)	Less than 24	1	3.1%
	25 to 34	14	43.8%
	35 to 44	5	15.6%
	More than 45	12	37.5%
Professional Education Level	Certificate	6	18.8%
	Diploma	23	71.9%

	Degree	3	9.3%
Job Title	Registered Nurse	20	62.5%
	Enrolled Nurse	12	37.5%

As shown in Table 1 above, a total of 32 nurses from the surgical wards, Kibasila 9, 11, 12, 14, and Sewahaji 17, participated in this study. Out of those, 24 (75%) were female and 8 (15%) were male. 14 (43.8%)% of nurses were of age group between 25 to 34 years. Only one (3.1%) participant was less than 24 years old. Enrolled nurses were 12 (37.5%). Nearly two third, 20 (62.5%) were registered nurses. 23 participants, (71.9%) had a professional education level of Diploma and only 3 (9.3%) had a degree while 6 (18.8%) had attained a Certificate level.

4.2. ASSESSMENT OF NURSES ON POST-OPERATIVE WOUND CARE PROCEDURE-PREPARATION PHASE

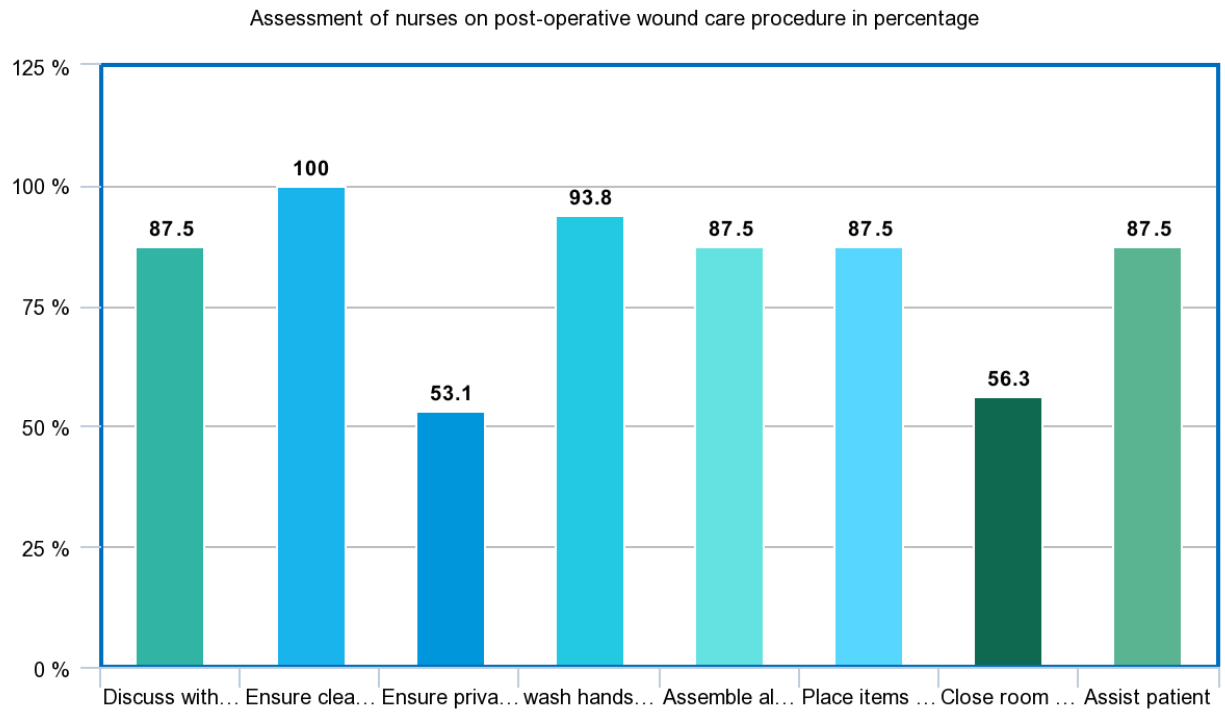

FIGURE 1

Figure 1 above shows an assessment of the preparation phase for post-operative wound care. 87.5% of nurses ensured the available waste bag was within reach before the procedure. 87% of respondents were able to discuss with the patient about the procedure. Assembling of all needed supplies was done by nearly 90% of nurses. Majority of the nurses, by 93.8%, observed hand washing before and after procedure. 87.5% of nurses assisted the patient to assume the comfortable position All the nurses did ensure that there is clean and safe surrounding environment ahead of starting the procedure. 53.1**%** of the nurses observed patients' privacy using screen and closing the room before procedure.

4.3. DISTRIBUTION OF NURSE'S PRACTICE ON POST-OPERATIVE WOUND CARE-USAGE OF DRESSING EQUIPMENT

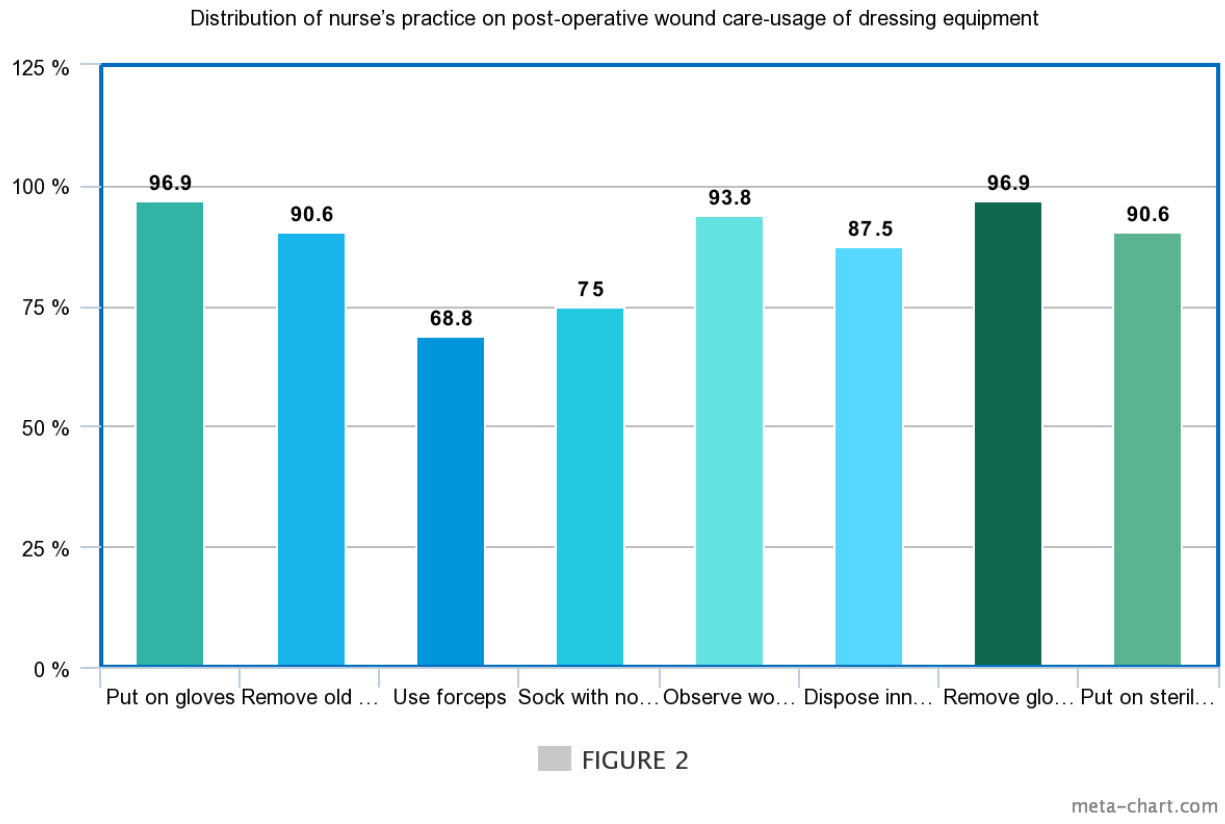

Figure 2 above illustrates the use of clean disposable gloves by the nurses as was observed, with (96.9%) using them effectively. 90.6% of nurses were able to remove old dressing leaving inner

dressing, 75% used normal saline to soak and remove stuck dressing from the wound.87.5% of the nurses disposed inner dressing and put them in the waste bag, 96.1% removed disposable groves and 90.6% put on a sterile glove. Usage of forceps in lifting inner dressing was observed by only two-third of respondents and more than 90% of nurses took time to observe the nature of the wound during dressing.

4.4. DISTRIBUTION OF NURSES' PRACTICE ON POST-OPERATIVE WOUND CARE-DRESSING PHASE

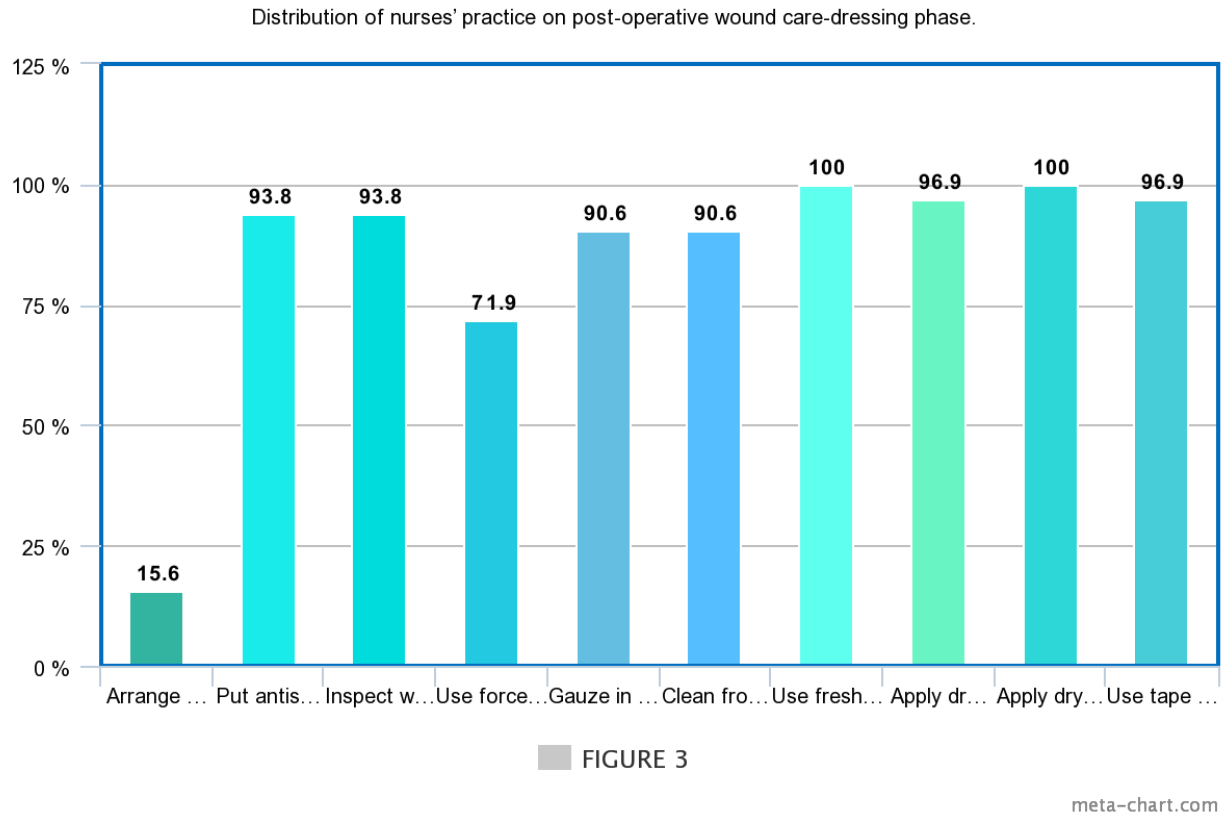

FIGURE 3

Figure 3 above depicts that there was an observation of good practice during application of dressing solution as in the directives by 96.9%, 93.8% poured antiseptic solution into the sterile receiver, all nurses applied dry sterile dressing, and all nurses used tape as adhesive plaster or

bandage. Less than 16% of the nurses prepared the forceps to be used for dressing and all other required items in order to their application using forceps, 71.9% made use of the forceps for dipping the gauze into antiseptic solution and more than 90% understood the importance of cleaning of the wound from least contaminated to most contaminated area.

4.5. NURSING PRACTICE ON POST-OPERATIVE WOUND CARE-COUNSELING AND DOCUMENTATION

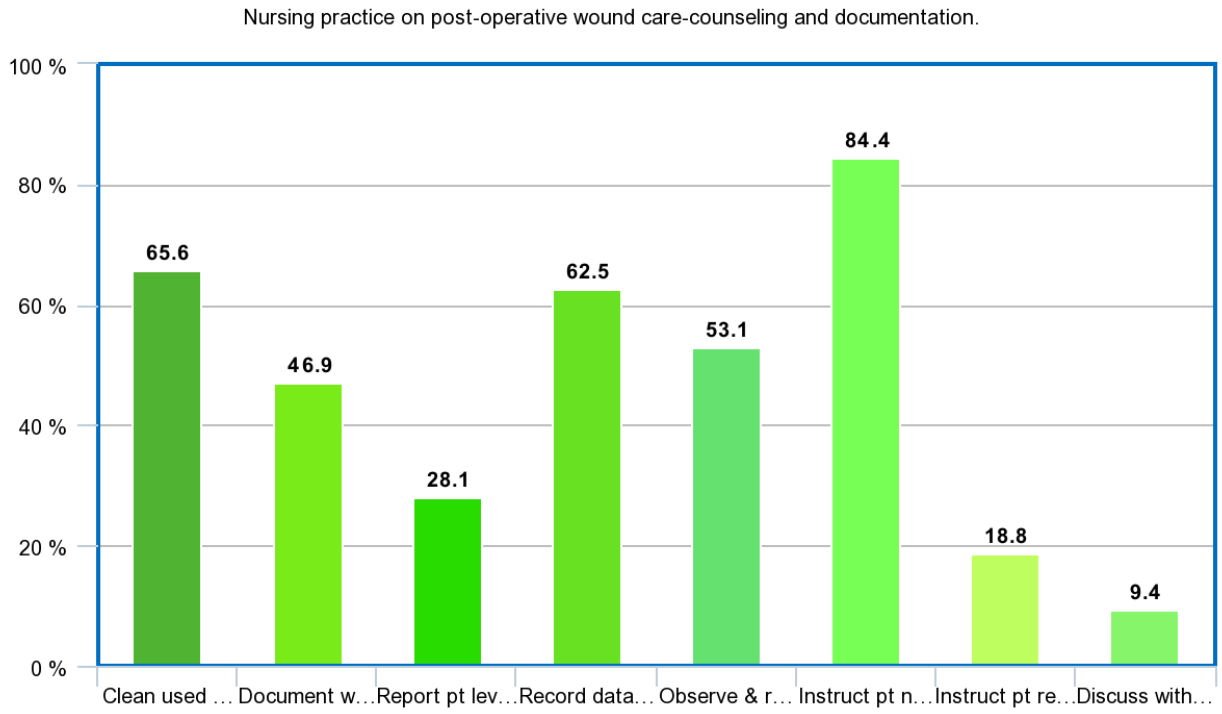

FIGURE 4

As shown in Figure 4 above, 65.6% of nurses cleaned all used equipment. Post-operative counseling and giving instructions to the patient not to temper with the wound was done by only

84.4% of nurses and only 53.1% of nurses recorded wound changes. More than half of the nurses did not document changes of the wound and more than three quarter did not report patient comfort. However, 62.5% of nurses recorded date and time after the procedure.

4.6. AVAILABILITY OF DRESSING EQUIPMENT

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Table 3. Distribution of availability of dressing equipment

Item	Present(%)	Absent(%)	Item	Present(%)	Absent(%)
Trolley	32(100)	0(0)	1 artery forceps	11(34.4)	21(65.6)
Toothed dissecting forceps	17(53.1)	15(46.9)	Mask	29(90.6)	3(9.4)
Non toothed dissecting forceps	11(34.4)	21(65.6)	Plastic apron	6(18.8)	26(81.3)
Cheatle's forceps	1(3.1)	31(96.9)	Sterile Gloves	30(93.3)	2(6.3)
Jar cheatles	0(0)	32(100)	Clean gloves	32(100)	0(0)
Drum	31(96.9)	1(3.1)	Normal saline	32(100)	0(0)
Gauze	32(100)	0(0)	Spirit	26(81.3)	6(18.8)
Cotton swab	32(100)	0(0)	Eusol solution	1(3.1)	31(96.9)
Dressing towel	16(50)	16(50)	Hydrogen peroxide	3(9.4)	29(90.6)
Dressing mackintosh	1(3.1)	31(96.9)	Povidone/Iodine	31(96.9)	1(3.1)
2 gall pots	12(37.5)	20(62.5)	Container for soiled item	32(100)	0(0)
2 kidney pots	11(34.4)	21(65.6)	Plaster	32(100)	0(0)
			Bandages	32(100)	0(0)

Table 3 above shows there was a good/bad availability of items in the dressing pack. Non toothed forceps was available by 34.4% while half of the observed cases had dressing towel. Moreover, only 34.4% of cases observed had Artery forceps. In terms of dressing solutions,

Normal saline, spirit and povidone were available through hydrogen peroxide and eusol Solution was not available in less than 10% of the cases. It's satisfactory to conclude that enough dressing equipment was available although there were inadequate Plastic Apron, Jar cheatle, cheatle forceps and dressing mackintosh. There were adequate clean and sterile gloves, drums, trolleys and containers for dirty items.

4.7. ASSESSMENT OF NURSES ON PROPER USAGE OF AVAILABLE DRESSING MATERIAL

Table 4. Distribution of nurses on proper usage of available dressing materials (Chi-square test to assess association on proper usage between registered and enrolled nurses).

Dressing material	**Registered Nurse(s)**	**Enrolled Nurse(s)**	**p-value**
	N(%)	**N (%)**	
Dust dressing Trolley for carrying equipment	19(100)	13(100)	0.05
Place waste bag for soiled item within reach	19(100)	12(92.3)	0.219
Put on disposable (clean) gloves when open wound	19(100)	13(100)	0.05
Using toothed dissecting forceps to lift inner dressing off slowly	10(52.6)	7(53.9)	0.946
Use normal saline to sock the wound if dressing stick on the wound	16(84.2)	9(69.2)	0.314
Pour antiseptic solution into sterile receiver (kidney dish or gall pots)	13(68.4)	12(92.3)	0.108
Put on sterile gloves while dressing the wound (Use one glove for one patient)	19(100)	9(69.2)	0.010
Clean the wound by using forceps (non-toothed dissecting forceps)	5(26.3)	3(23.03)	0.835
Use single sterile gauze in one direction only	18(94.7)	11(84.6)	0.335

Use fresh gauze to dry the wound	19(100)	12(92.3)	0.219
Apply dressing solution as prescribed	19(100)	12(92.3)	0.219
Apply dry sterile dressing	19(100)	13(92,3)	0.05

Table 4 above shows that registered nurses demonstrated better usage of dressing material than enrolled nurses. Almost all nurses placed the waste bag for soiled items within reach, dusted trolley for carrying equipment, usage on dressing solutions but there was poor usage of forceps in wound dressing. Both sides showed better usage of fresh gauze to dry the wound and better usage of gloves, and gauze in one direction. However, enrolled nurses performed better than registered ones in the usage sterile receivers to pour antiseptics. There was statistically significant difference in the usage of dressing materials between registered and enrolled nurses in all procedures ($P > 0.05$).

5. DISCUSSION OF RESULTS

A total of 32 nurses were included in this study. Of those three quarters were female. With such a high number, it is conclusive that females are more interested becoming nurses as profession. Majority of respondents (43.8%) were of age group between 25 to 34 years. Less than 3% of nurses had less than 24 years. Seventy-two percent of nurses had diploma level of education. This can be explained by few enrollments of nurses in degree programs. This study also demonstrates that nearly sixty-three percent of nurses were registered and this could be due to the diploma level of education, and the fact that MNH is a referral hospital. Undergraduate nurses scored higher with evidence of good practice compared to those with diploma (registered nurses) and enrolled or certificate level of education, however no significant difference in practice among nurses with certificate and diploma level of education. Good post-operative wound care practice among the undergraduate nurses could be as a result quality of training and exposure to more advanced knowledge compared to the rest. Registered nurses recorded a higher performance with good postoperative wound care compared to enrolled nurses. This could be related to high level of education they possess and good practice in post-operative wound care. The study has also validated that documentations of wound changes was very poor and almost not observed while attending patients more than 95% of the nurses did not document what has

been done and changes that happened to the wound before and after the procedure. This could be the result of lacking easy and portable means of documentations like computers usage instead of using hand written exercise books. Majority of the nurses did not ensure privacy by the screening or putting curtains before doing procedures to the patient. This could be as a result of inadequate screens to provide for the needs and requirements of all patients, unfavorable environment for procedures as the wards were overcrowded. The same findings have been demonstrated by the study done by Mahoney and Kirsty (15) that showed the problem of overcrowding brings difficulties in ensuring and maintaining privacy for patients. All nurses observed a clean and safe environment before the procedure, all of them washing their hands before and after the procedure indicating progress comparing to the study that was done previously which showed poor contamination prevention practice. (9) There was an observation of good use of clean gloves which is a good practice for personal protection as only 9.4% of nurses did not change to sterile gloves on wound dressing. This demonstrates good practice and could be a major factor to play in prevention of wound infections. Wound dressing being a non-touch technique use of forceps was expected throughout the dressing procedure. Results indicate that only three-quarter of nurses make use of forceps in wound dressing. For the remaining quarter, poor observation of non-touch procedures could be due to ignorance on knowing the importance of the technique as these instruments are present in the ward, and also be as a result of lack of adequate education, training and non-adherence to wound dressing checklist. Wound inspection was observed in on 93% of the nurses. This is verifying the results to a study done by Mukagendaneza et al. (16) confirmed good practice in wound inspection before dressing as noted in 81% of participants. Nurses revealed better wound dressing techniques. With only more than 90% of nurses using single gauze in one direction. Moreover, 96%% of nurses ensured the use of clean gloves whenever cleaning the wound and more than 90% of nurses cleaned the wound from the less contaminated area to the most contaminated one. These findings proved better wound dressing practice at the MNH surgical wards. Poor documentation of after wound assessment and dressing is another important factor demonstrated in this study as almost half of the nurses (46.9%) did not document the date and time after wound assessment. A good number of toothed forceps was available together with Cotton swab, Gauze, and kidney dish. On the other hand, dressing towels were accessible to only half of nurses. Artery forceps were not available almost at all. Eusol solution and hydrogen peroxide solution were not available at all but there was adequate available amount of normal saline and spirit and Povidone/Iodine. There was scarcity of plastic

aprons, jar cheatle, cheatle forceps and dressing mackintosh. There were a good number of clean and sterile gloves, Drum Trolleys and Containers for soiled items. Unavailability of dressing material could be attributed to low economic power of the MNH Hospital to purchase their items or due to that the facility is not aware of the importance of such equipment and their role in prevention of post-operative wound infections. There was proper use of waste bags for disposing of the items already soiled within reach, trolley adequately dusted for equipment carrying, dressing solutions usage, forceps using during wound dressing and the use of fresh gauze for drying the wound. It also seemed, registered nurses did perform better as compared to the enrolled ones during the assessment of proper use of the available materials. These results could be attributed to the fact that registered nurses are more knowledgeable compared to enrolled ones and the fact that MNH has the usual of employing very qualified nurses as it is a National hospital

6. CONCLUSION

Majority of the nurses do not follow the postoperative wound care checklist provided, although they know its importance. Assessment of the wound and documentation continues to be a problem in the nursing profession in Tanzania. Nurses are reasonably knowledgeable about the principal of wound dressing; however, lack of knowledge on some of the key principles of wound dressing is worth noting. Almost a third of the nurses do not observe use of appropriate instruments involving arranging and prepare dissecting forceps. Also it seems that documentation of procedures is minimal and so there is failure of tracking wound changes in patients which may help in change of treatment when necessary. There are about 10% of nurses at MNH who don’t use single gauze in one direction only, don’t clean wounds from least contaminated to most contaminated area, which can also lead to wound contamination and this number can be prevented.

7. RECOMMENDATION

Health institutes should emphasize on the use of standard methods and procedures in the process of ensuring the wellbeing of patients. Neglects in the minor steps to be followed can be fatal especially when it comes to exposure of patients' wounds in the hospital settings. It is more likely that most of the standard procedures are understood, but the fact that most nurses ignore to follow them, still remains an issue when it comes to fighting post-operative wound infections with such, professionalism plays part. Also, health institutes should design and implement a continuous professional education programs on post-operative wound care with special focus on how to use the checklist in wound care for those who still lack knowledge especially to the old aged nurses. It is also important that all mandatory instruments for wound dressing and care to be available to prevent complications of wound infections. Documentation of patients records should not end immediately after operation, every change to patients wound should be documented. The use of word of mouth is unprofessional and faces a lot of comebacks.

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