BJMHR
British Journal of Medical and Health Research
Journal home page: www.bjmhr.com

Reported Postoperative Wound Care Practices Among Clinical Nurses In Selected Hospitals In A South Western State, Nigeria

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ABSTRACT

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. This study examined the post-operative wound care practices among nurses in selected hospitals in Osun State. A descriptive cross-sectional design was adopted, a purposive sampling technique was used to select the respondents. Structured questionnaire was used to collect data and the analysis was done with Statistical Package for Social Sciences (SPSS) version 25 while descriptive and inferential statistics were used to present the data. Findings show that more than half (60.5%) of the respondents had good post-operative wound care practices while every four out of every ten nurses (39.5%) in the study had poor post-operative wound care practices among nurses. The results also showed that (58.0%) have a positive attitude towards post-operative wound care practices among nurses. It was also revealed that above half of the respondents (51.6%) have good knowledge of surgical wound dressing while 24.7% had poor knowledge about surgical wound dressing. This study concluded that the more than half of the respondents have good practice of postoperative wound care There is no relationship between the knowledge of nurses on surgical wound care dressing and post-operative wound care practice.

Keywords: Post- Operative, Wound Care, Nurses, and Surgical Patients

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Received 02 May 2024, Accepted 28 May 2024

Please cite this article as: Oyediran OO *et al*., Reported Postoperative Wound Care Practices Among Clinical Nurses In Selected Hospitals In A South Western State, Nigeria. British Journal of Medical and Health Research 2024.

INTRODUCTION

Over the past 30 years, scientific evidence has revolutionized changes in wound care practice from the traditionally held premise of dry to moist wound healing. While the notion of the most interactive wound is strongly advocated, its use in clinical practice remains variable [1].

A wound is any break in the skin that can vary from a superficial to a full-thickness wound. A partial-thickness wound is confined to loss of the epidermis and partial loss of the dermis; whereas a full-thickness, the wound has a total loss of the epidermis and dermis and can involve the deeper subcutaneous and muscle tissues and/or bone [2]. Causes of the wound are broadly categorized as external causes and internal causes. External causes of the wound occur when a severe force is applied to the tissues externally. The body structures may be crushed without signs of external bleeding. Examples of causes from external sources are trauma (cuts, sharps) on the skin, insect bites, immobility resulting in bed sores or pressure injuries, the deliberate wound can also occur from a surgical incision, also from chronic illness such as in people with tuberculosis or leprosy, diabetes foot ulcers. While Internal causes of the wound are the result of forceful trauma that injures an internal structure without breaking the skin. Examples of causes from internal sources are infection from micro-organisms such as in surgical site breakdown, inflammatory response, blow to the chest, abdomen, or head with a blunt instrument [3].

Postoperative wounds have been reported to cause devastating consequences and measurable mortality. Regardless of the advancement in the operative techniques and improved understanding of the pathogenesis of wound infection, postoperative wound infection has continued to be a major source of morbidity and mortality especially for the patients undergoing operative procedures [4].

Woo, *et al.* reported that surgical site infections (SSIs) have led to a high proportion of healthcare-associated infections (HCAIs) accounting for 20 percent of all HCAIs and affect more than 5 percent of patients who had surgery [5]. Additionally, wound dressing practice has been also mentioned to be among the factors which affect wound healing. Wound dressing practice using gauze is disruptive to the healing wound as it dries and causes tissue damages when it is removed. Inappropriate use of dressing may lead to unwanted effects. Gove *et al.* [6] 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.

Dowsett *et al.* [7] recommended that at the end of the operation, surgical incisions thought to heal through primary intention need to be covered by a film membrane with or without a central absorbent. Currently, postoperative dressing practice comprises the use of a vapor-permeable film dressing as those suggested by Dowsett *et al.* [7]. Although there has been advancement in the operative techniques, methods, and improved understanding of the

pathogenesis of wound infection, postoperative wound infection continues to be a major source of morbidity and mortality for patients undergoing operative procedures [8].

Post-operative wound infection has been noted to be one of the highest common causes of nosocomial infections which constitute 20% to 25% of all nosocomial infections worldwide [9]. 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 [10].

Regardless of the advancement made in technology related to surgery and wound management, wound infection has been regarded as the most common nosocomial infection especially among the patients undergoing surgery[11], it is a commonly known cause of illness that results in prolonged staying in the hospital, costs increase and more resource-demanding for general wound management practices [12]. SSI continues to remain a major problem in hospitals, contributing considerably to the increase in the rate of morbidity, mortality, and cost of care [13].

In Nigeria, postoperative wound healing remains a problem for surgical patients and a challenge to clinicians despite that much effort in wound care management has been provided. Nigeria 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 postoperative patients get inadequate wound treatment and wound care management in surgical wards, resulting to wound healing delay and complications [14]. This study is therefore assessed nurses' wound care practice among postoperative patients in selected hospitals in Osun state.

MATERIALS AND METHOD

A descriptive cross-sectional study, it employed a quantitative technique to assess wound care practices for postoperative wounds among nurses. The study was carried out in Obafemi Awolowo University Teaching Hospital Complex (OAUTHC), Seventh-Day Adventist Hospital (SDA), and State Hospital Asubiaro, Osogbo. The hospitals were selected purposively based on ownership status. The target populations of the study were nurses in selected hospitals in Osun state. These are qualified nurses who are well trained, experienced and engage post-operative wound care.

The sample size was determined by a using Taro Yamane’s formula based on the number of nurses in each hospital as follows. In all a total of one thousand one hundred and eighty six (1186) nurses are in the three hospitals (OAUTHC-800; SDA-128 and State hospital Asubiaro-258). Out of this, a total sample of four hundred and thirty eight (438) nurses were recruited for the study , after adding 10% no response rate of 39 to the initially calculated

sample size of 399. Respondents were recruited from each hospital as follows OAUTHC-295, SDA-47 and Asubiaro-96, based on the proportion of their population in the total nurses' population in the three hospitals.

A purposive sampling technique was used to select the respondents. Purposive sampling is a non-probability sampling that selects samples of similar characteristics and it was adopted for this study because of the relatively small number of nurses working in surgical wards. Inclusion criteria were being a registered nurse and currently working in surgical wards in the selected hospitals; provided wound care for post-operative patients in the last three months while nurses that had not provided wound care for post-operative nurses were excluded from the study.

The instrument used in this study was a structured questionnaire that was developed from an extensive literature review. The questionnaire consisted of five parts. The first part elicited pertinent information on socio-demographic variables of the respondents. While the second part seek to determine the knowledge of nurses on wound care. To achieve this, the respondents were made to answer 20 'Yes or No' questions. Each correct answer attracts "1" mark while each incorrect answer was given "0" mark. Highest obtainable score was 20. The total score was converted to percentage and respondents who score "0-33" were considered as having poor knowledge of post-operative wound care; those with score of 34-66-fair knowledge while those with score between "67-100" were said to have good knowledge. The third part of the instrument was a Likert scale item, it was used to determine the attitude of nurses towards wound care. This part contains 10 attitude questions and they were graded as follows; Agree-5, Strongly Agree- 4, Undecided-3, Disagree-2, Strongly Disagree-1. Total obtainable score is 50. The score was also converted to percentage and respondents who score below average was said to have negative attitude while those that score above average was said to have positive attitude. The fourth part of the questionnaire assessed wound care practices among nurses. This was achieved also by adopting Likert scale of "Always-5", "Sometimes-4", "Occasionally-3". "Rarely-2" and "Never-1". Total score obtainable is 80. The score was also converted to percentage and respondents who score below average was said to have poor practices while those that score above average was said to have good practices.

The data collection involved collecting data by administering a structured questionnaire. Permission to collect data was obtained from the head of the selected hospitals and preliminary visits will be made to the selected hospitals. Respondents' written consent was obtained. The study was approved by the Obafemi Awolowo University ethics and research Committee with registration number – ERC/2021/06/10. After obtaining ethical clearance, rapport was established with the participants. The questionnaires were administered to the

respondents through personal delivery of the researcher to be able to ensure respondents understand the content of the questionnaire and fill them accordingly. Two research assistants were employed during the data collection. All the respondents who are not literate enough to comprehend the instrument was assisted by the research assistants. During the data collection process, the purpose and the importance of the study was explained to the respondents to stress on the significance of the study. Averagely the participants spent about 5 minutes to answer the questions and data were collected within 3weeks

All data for this research were collected through the information that were be retrieved from the questionnaires and the same were encoded and subjected to computer analysis using statistical product and service solutions (SPSS, version 20). Descriptive like tables, bar charts, and pie charts were used to present the data and inferential (chi-square) statistics were used to test the hypothesis at a significant level of 0.05.

RESULTS AND DISCUSSION

Table 1 Socio-Demographic Characteristics of the Respondents

Variables	Frequency	Percentages
Age as at last birthday (11.55±8.06)		
20-29	153	34.9
30-39	78	17.8
40-49	139	31.7
50years and above	68	15.5
Gender		
Male	179	40.9
Female	259	59.1
Ethnicity		
Yoruba	308	70.3
Igbo	80	18.3
Hausa	50	11.4
Religion		
Christian	282	64.4
Islam	148	33.8
Traditional	8	1.8
Professional Qualifications		
RN/RM	39	8.9
RN/RPON	244	55.7
RN/RPsy	115	26.3
Others	40	9.1
Years of clinical experience.		
1-3years	262	59.9
4-5	116	26.5
6-10	40	9.1
10 and above	20	4.6

Dominantly, the study had respondents within the age intervals of 20-29 years old (34.9% each). The study consists of 59.1% female. Most of the respondents (64.4%) were Christian

while 55.7% are Registered Nurse/Registered Perioperative Nurse (RN/RPON). However, 59.9% of the respondents having 1-3 years of clinical experience (table 1).

The table displayed four domains of knowledge on surgical wound dressing which are: post-operative wound assessment, the precaution of post-operative that must be followed, holistic post-operatives wound care, and aseptic method of post-operative wound care. In the first domain, there were 96.8% of the respondents observing physically with 97% of them using the photographic method in wound assessment. More so, PH and chemical methods were used by 69.4% of the nurses in wound assessment with79% of the nurses documenting wound assessment. The next domain showed that 86.8% observed the number of available stitches with 93.6% of the respondents following the colour of exudates. There were 94.5% of respondents made sure the wound granulates with 78.3% negating the level of pain experienced by the patient. The third domain reveals that most of the respondents negated that the holistic post-operative wound involves: overall patient examination (79.9%), psychological status of the patient (85.6%), the effect of anaesthesia (77.6%), nutritional status of the patient (84.5%) and involvement of patients' relatives during dressing (81.1%). Finally, the last domain reveals that most of the respondents also negate the notion that the aseptic method of post-operative wound care involves: the use of the unsterile instrument for wound dressing is not necessary; ensuring the fan is on during wound dressing promotes contamination (79.5), cleaning of wound inside out is an appropriate aseptic practice (79%), talking excessively during wound dressing promote wound healing (78.8%) and ensuring nothing crosses over the sterile field during wound dressing is a bad practice (55.7%).

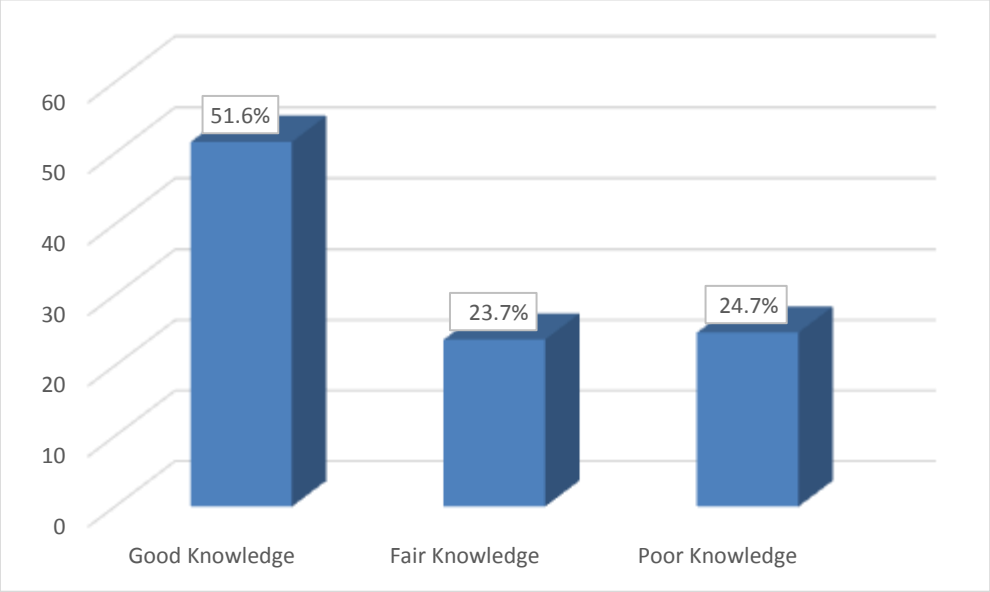

Figure 1: Summary of Knowledge of Nurses on Surgical Wound Dressing

It was revealed that half of the respondents (51.6%) have good knowledge on knowledge of nurses on surgical wound dressing; also 23.7% fair knowledge and 24.7% had poor knowledge about surgical wound dressing.

Table 2: Knowledge of Nurses on Surgical Wound Dressing.

S/N	Post-operative wound assessment methods include	Yes	No
1	Physical observation	424(96.8)	14(3.2)
2	Photographic method	425(97)	13(3)
3	PH and chemical method	406(92.7)	32(7.3)
4	Wound measurement	304(69.4)	134(30.6)
5	Documentation	346(79)	92(21)
The following must be observed during post-operative wound care			
6	Number of available stitches	380(86.8)	58(13.2)
7	Colour of exudates	410(93.6)	28(6.4)
8	Extent of wound granulation	414(94.5)	24(5.5)
9	Level of pain experienced by the patient	95(21.7)	343(78.3)
Holistic post-operative wound care involves;			
10	Overall patient examination	88(20.1)	350(79.9)
11	Psychological status of the patient	63(14.4)	375(85.6)
12	Effect of anaesthesia	98(22.4)	340(77.6)
13	Nutritional status of the patient	68(15.5)	370(84.5)
14	Involvement of patients' relatives during dressing	83(18.9)	355(81.1)
The aseptic method of post-operative wound care involves;			
15	The use of the unsterile instrument for wound dressing is not necessary	106(24.2)	332(75.8)
16	Ensuring the fan is on during wound dressing promotes contamination	90(20.5)	348(79.5)
17	Cleaning of wound inside out is an appropriate aseptic practice	92(21)	346(79)
18	Cleaning of wound outside is the best practice during wound dressing	127(29)	311(71)
19	Talking excessively during wound dressing promote wound healing	93(21.2)	345(78.8)
20	Ensuring nothing crosses over the sterile field during wound dressing is a bad practice	194(44.3)	244(55.7)

Table 3: Attitude of Nurses towards Surgical Wound Care

Items	Agree	Strongly agree	Undecided	Disagree	Strongly Disagree
Post-operative wound care must be carried out only by a wound specialist.	92(21)	71(16.2)	42(9.6)	93(21.2)	140(32)
Post-operative wound care is time-consuming.	263(60)	132(30.1)	15(3.4)	13(3)	15(3.4)
The postoperative wound does not need extensive wound care.	52(11.9)	82(18.7)	61(13.9)	147(33.6)	96(21.9)
Post-operative wound care must be carried out by senior nurses.	58(13.2)	84(19.2)	39(8.9)	155(35.4)	102(23.3)
There is no need of following the principles of asepsis during post-operative wound care.	27(6.2)	58(13.2)	24(5.5)	157(35.8)	172(39.3)

All nurses must be trained in post-operative wound care.	44(10)	79(18)	26(5.9)	142(32.4)	147(33.6)
Post-operative patients do not need holistic wound care	49(11.2)	75(17.1)	27(6.2)	145(33.1)	142(32.4)
Nurses may occasionally educate patients on how to care for their wounds at home without coming to the hospital.	36(8.2)	83(18.9)	52(11.9)	132(30.1)	135(30.8)
Post-operative wounds care must be carried out the way open wounds will be cared for	51(11.6)	70(16)	55(12.6)	132(30.1)	130(29.7)
1I don't think I need to document my observations after post-operative wound care.	91(20.8)	95(21.7)	102(23.3)	94(21.5)	56(12.8)

Table 4: Post-Operative Wound Care Practices Among Nurses.

To what extent do you practice the following during post-operative wound care:	**Always**	**Sometimes**	**Occasionally**	**Rarely**	**Never**
1. Ensuring cleanliness and safety of the patient environment.	94(21.5)	39(8.9)	225(51.4)	66(15.1)	14(3.2)
2. Prior discussion with a patient about the procedure.	20(4.6)	111(25.3)	208(47.5)	99(22.6)	0(0)
3 Ensuring Privacy.	262(59.8)	47(10.7)	40(9.1)	89(20.3)	0(0)
4. Washing of hands before and after post-operative wound care.	347(79.2)	38(8.7)	6(1.4)	47(10.7)	0(0)
5. Placing waste bag for soiled items within reach.	48(11)	53(12.1)	301(68.7)	36(8.2)	0(0)
6. Closing room or cubicles curtain or screen around.	304(69.4)	70(16)	26(5.9)	38(8.7)	0(0)
7. Assist client/ patient assume a comfortable position	260(59.4)	102(23.3)	32(7.3)	44(10)	0(0)
8. Put on disposable gloves and open wound	321(73.3)	58(13.2)	12(2.7)	47(10.7)	0(0)
9. Removing old dressing leaving inner dressing.	316(72.1)	96(21.9)	0(0)	26(5.9)	0(0)
10. Use forceps; lift the inner dressing off slowly.	337(76.9)	83(18.9)	0(0)	18(4.1)	0(0)
11. Observe and inspect the nature of the wound.	288(65.8)	114(26)	3(0.7)	33(7.5)	0(0)
12. Dispose of inner dressing and put them in the waste bag.	306(69.9)	108(24.7)	3(0.7)	21(4.8)	0(0)
13. Dressing wound aseptically	306(69.9)	72(16.4)	25(5.7)	35(8)	0(0)
14. Cleaning all used equipment and supplies	299(68.3)	85(19.4)	28(6.4)	26(5.9)	0(0)
15. Document wound changes and client's response.	248(56.6)	96(21.9)	41(9.4)	39(8.9)	14(3.2)
16. Reporting patients' level of comfort.	280(63.9)	88(20.1)	18(4.1)	38(8.7)	14(3.2)
17. Record date and time of dressing.	314(71.7)	55(12.6)	28(6.4)	41(9.4)	0(0)
18. Instruct the patient /relative to avoid tempering with the wound	341(77.9)	52(11.9)	3(0.7)	42(9.6)	0(0)
19. Discuss with the patient and significant others nutrition that will hasten wound healing.	375(85.6)	40(9.1)	0(0)	23(5.3)	0(0)

Table 3 shows the attitude of nurses towards surgical wound care. There were 53.2% of the nurses with the attitude of not approving that post-operative wound care must be carried out by only wound specialists while 90.1% of them approved that post-operative wound care is time-consuming. There were also 55.5% of the respondent negating the notion that post-operative would do not need extensive wound care with 58.7% of them also negate all nurses must be trained on post-operative wound care. However, 59.8% of the respondent were also against the idea that there is no need to document any observations after postoperative wound care.

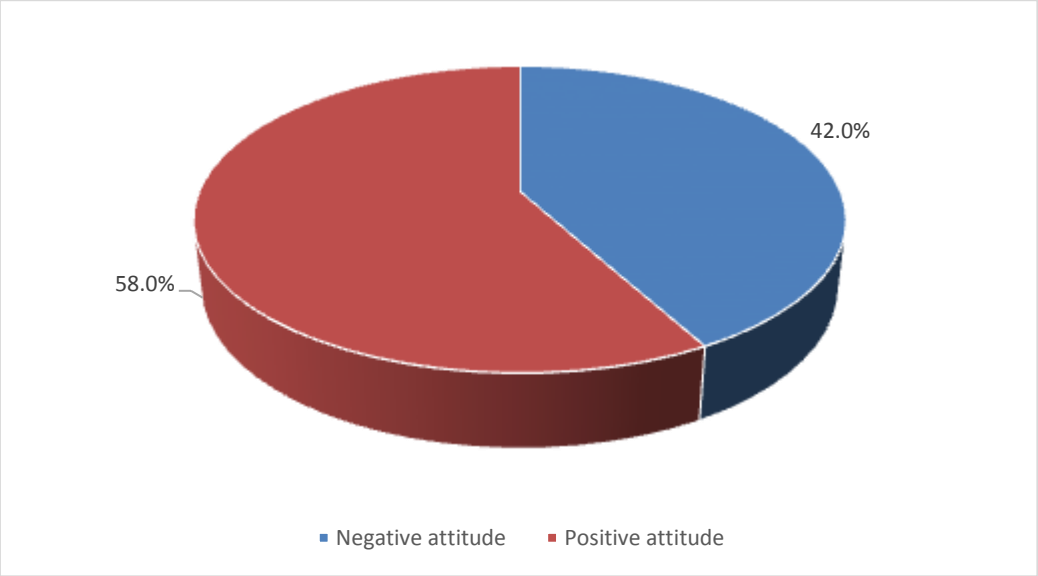

Figure 2: Attitude of nurses towards surgical wound care

The figure revealed that more than half of the respondents (58.0%) have positive attitude towards surgical wound care and 42.0% have negative attitude towards post-operative wound care practices among nurses.

Table 4 shows the postoperative wound care practices among nurses. Occasionally, nurses ensure cleanliness and safety of patient environment with 47.5% of them also occasionally, prioritize discussion with a patient about the procedure. More so, 79.2% of nurses always wash hands before and after post-operative wound care while 68.7% occasionally place waste bags for soiled items within reach. However, the respondents always do dressing wound aseptically (86.3%), Cleaning all used equipment and supplies (87.7%), observe and inspect nature of wound (91.8%), reporting patients' level of comfort (84%), discuss with the patient and significant others on nutrition that will hasten wound healing (94.1%).

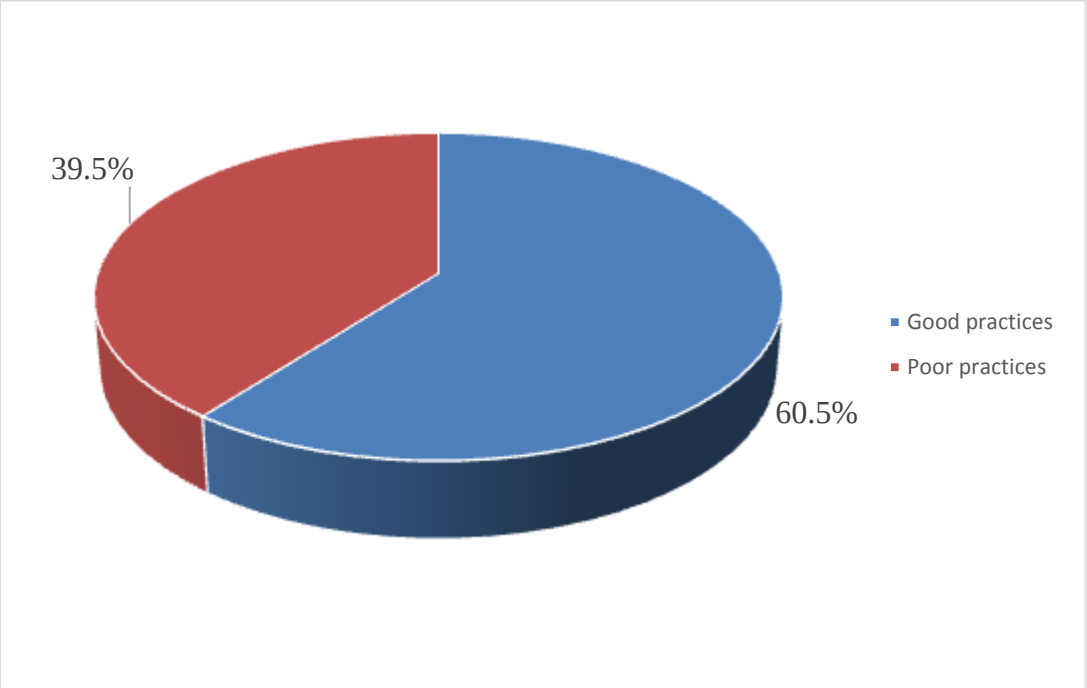

Figure 3 Summary of Post-Operative Wound Care Practices Among Nurses

It was revealed that above half of the respondents (60.5%) have good practices of post-operative wound care practices among nurses and 39.5% have poor practices post-operative wound care practices among nurses.

DISCUSSION

Predominantly, the study had more respondents within the age intervals of 20-29 old. Likewise, the study had more female respondents than male respondents with the majority of the respondents having RN/RPON. Likewise, the majority of the respondents were Yoruba by ethnicity with most of the respondents having clinical experience for 1-3years. These sociodemographic characteristics were similar to Qasem and Hweidi, [15] whose study showed that there was a positive relationship between the number of years of occupational experience and nurses' level of knowledge on the prevention of SSIs

The majority of the respondents were physically observed, used the photographic method, PH and chemical method, documentation, and wound measurement in assessing post-operative wound dressing. More so, the respondents made sure that they follow the number of available stitches, the color of exudates, and wound granulation during post-operative wound care. However, the majority of the respondents believed that holistic post-operative wound care does not involve an overall patient examination, psychological status of the patients, the effect of anaesthesia, nutritional status, and involvement of patients' relatives during dressing. More so, a substantial number of respondents were against the idea that the aseptic method of post-operative wound care involves the use of unsterile instruments for wound dressing is not necessary, and ensuring the fan is on during wound dressing promotes contamination. Likewise, cleaning of wound inside out is an appropriate aseptic practice with talking

excessively during wound dressing promotes wound healing. Harrington [16] and Labeau *et al.*, [17] also emphasized education programs as such they reported that successful application of infection control measures, especially SSI prevention measures, and well-structured continuing education programs are considered as a substantial element that would improve nurses' knowledge about evidence-based guidelines to prevent SSIs and ultimately leads to positive impacts on surgical patients who admitted to the acute care settings in the context of patients' quality of care and patient safety.

More so, Mccluskey & Mccarthy, [18] concluded that nurses' general knowledge about wound assessment was very good contrasting with findings in previous research. However, a large number of nurses rated their competence in wound assessment on the lower end of the scale.

The result of the study shows that majority of nurses were not in support of the idea that post-operative wound care must be carried out only by wound specialist, operative wound nurse does not need extensive wound care and must be carried out by senior nurses. The result of the study also reveals that there is a need to follow the principles of asepsis during post-operative wound care with all nurses must be trained on post-operative wound care. However, nurses were of the view that they should be educated regularly on how to care for wounds, and educating patients on how to care for their wounds at home without coming to the hospital should not be allowed nor condole. These findings are similar to Surme [19] who found that half of the nurses do not perform practices for wound healing, and more than half of them do not regularly perform discharge training related to wound care and that nurses need training. More so Kolade *et al.* [20] reported that nurses demonstrated a relatively poor attitude towards SSIs prevention and an unsatisfactory level of SSIs prevention. Hence, Nurses' level of knowledge does not translate to desired attitude and practices on SSIs prevention. Improving attitude and practice of SSIs through close supervision, patients' rights education, in-service training, and provision of supplies and consumables were recommended.

The study results revealed that nurses occasionally ensure cleanliness and safety of the patient environment, discuss the procedure with patients and place waste bags for soiled items within reach. A substantial number of nurses always ensured privacy, washing of hands before and after post-operative, closing room or cubicles curtain or screen around, assist client/patient assume a comfortable position, disposable gloves, and open wound, removing old dressing leaving inner dressing, disposal of inner dressing and putting them in the waste bag, recording patients level of comfort and data recording about the wounds. However, the nurse also often instruct the patient/relatives to avoid tempering with the wound, cleaning all used equipment and supplies, observe and inspect the nature of the wound. These findings were similar to Abdulkareem [21] who assessed nurse's practice concerning postoperative

wound care and also identified the relationship between nurse's practice and their demographic characteristic. The study result indicated that there were no significant associations between the nurse's gender, age, level of education, and practice. There were significant associations between the nurse's years of experience and their practice. The results demonstrated a practice deficit in most items of post-operative clean wound care for a patient in surgical units. However, Ding *et al* [22] and Gillespie [23] were of the notion that management of wound management of SSIs and the protection of surgical patients from SSIs are determined by accurate wound assessment and documentation practice, updated knowledge of proof-based wound care clinical practice guidelines

CONCLUSION

Nurses' practice was observed to be good in covering the wound with sterile gauze, however, regarding recording of inflammation and infection signs was the poorest practice reported by nurses. Overall nurses' practice towards post-operative wound care was a poor performance. Nurses Practice of post-operative wound care depends on work experience, educational level, and lack of materials.

ACKNOWLEDGMENT

We sincerely appreciate the health workers that participated in this study. We also appreciate the Medical Directors and the Management Board of the hospitals where this data was collected for their support**.**

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