



## KNOWLEDGE AND ATTITUDE OF PERIOPERATIVE NURSES TOWARD SAFETY PRACTICES AND TEAMWORK IN SELECTED TERTIARY HEALTH INSTITUTIONS IN SOUTH WESTERN NIGERIA

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### ARTICLE INFO

#### Article History:

Received 5<sup>th</sup> July, 2016  
Received in revised form 13<sup>th</sup> August,  
2016 Accepted 24<sup>th</sup> September, 2016  
Published online 28<sup>th</sup> October, 2016

#### Key words:

Safety Practices, Knowledge,  
Perioperative, Attitude, South  
western.

### ABSTRACT

Health care industry is a place where the safety of the patients is in the hands of the health care professionals as patient may not have adequate knowledge of what could constitute a threat to their health and where there is knowledge, they may be incapacitated by ill health. In view of this, health care experts nurses inclusive must as a matter of professional duty ensure that all patients are prevented from unnecessary iatrogenic harm. Therefore, the study was conducted to assess the perioperative nurses knowledge about safety practices, identify factors influencing safety practices and also determine their attitude toward teamwork in the operating room. This was with a view to identifying the level of perioperative nurses' knowledge about safety practices in selected teaching hospitals.

Descriptive cross sectional design was adopted for the study. Yamane's formulae was used to determine the sample size and multistage sampling technique was used to select 211 respondents. Two instruments were used to collect the data for the study: a validated questionnaire which was rated on likert scale and a rated checklist was used to directly observe 50% of the respondents during surgical procedures. A twenty point test items was used for knowledge with yes/no option and the score was categorized into poor (10-11), fair (12-13) and good (14-20). Attitude was assessed using a ninety-five point test items on a likert scale 1-5 and it was categorized into negative (26-53) and positive (54 and above) attitude. Frequency tables, mean, bar & pie charts, Pearson correlation were used to analyze the data using Statistical Product and Service Solution (SPSS) version 20. The P values was considered significant at >0.05

The results showed that (80.0%) of the respondents in both state and federal institutions had good knowledge about safety practices. More than half (65.1% & 65.6%) of federal and state teaching hospitals had positive and negative attitude towards teamwork respectively. The result also showed that absence of sanction or punishment following safety challenges was a major factor influencing safety practices in the operating theatre. Findings also showed that there was a significant relationship between nurses' years of experience and safety practices [ $r^{cal} = (0.751)$ ,  $sig^{val} = (0.02)$ ].

This study concluded that perioperative nurses have good knowledge about safety practices, absence of sanction following safety challenges was a major factor influencing safety practices while federal and state teaching hospitals nurses demonstrated positive and negative attitude towards teamwork respectively.

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### INTRODUCTION

Every human being want to stay in a safe environment that is free of danger, harm & risk and ill health should not be a barrier or hindrance towards achieving it. Safety has been identified long ago by Abraham Maslow as one of the basic human needs. Health and safety are two relative terms that has to do with the state of being well in body and mind, and the condition of being free from danger and risks. [1]

Health care industry is a place where the safety of the patients is in the hands of the health care professionals as patient may not have adequate knowledge of what could constitute a threat

to their health and where there is knowledge, they may be incapacitated by ill health. In view of this, health care experts must as a matter of professional duty ensure that all patients are prevented from unnecessary iatrogenic harm. [2]

Surgical patients are more prone to adverse events in the theatre because most often they are not aware of what goes on in the theatre due to the effect of anaesthesia and therefore, it is the duty of the clinicians caring for them to strive and ensure that surgical care is safe and of good quality. Perioperative nurses are usually at the centre of surgical care and their roles are of utmost importance and significance to the outcome of surgical care. Existing evidence suggests that surgical errors

are excessive in the current healthcare system as half of iatrogenic events occur within the perioperative setting coupled with the fact that 'surgical errors often appear to be fatal and this call for concern of every stakeholder.[3]

The optimal aim of the healthcare industry should be the protection of the patients' health, and at avoiding any harm to them and this could not be achieved without adequate knowledge. Perioperative nurses as core member of the surgical team is not left out in ensuring that surgical patients are protected from any surgical related harm and possession of adequate knowledge will ensure that appropriate safety interventions are demonstrated by this group of nurses within the legal and ethical framework of their profession. Safety practice requires that every member of the surgical team has the necessary knowledge regarding the ideal protocols to be used in an area of practice. [4]

Analysis from the National Patient Safety Benchmarking Center, Safety-Centered Solutions, Incorporation reports that the five most costly adverse event categories are surgery, nonsurgical treatment, nosocomial infections, medication errors, and pressure ulcers. These adverse events accounted for 81.5% of the total costs in their database. The most common adverse event categories in the database were surgery (20%), medication errors (16%), nonsurgical treatment (14.8%), patient falls (8.8%), and nosocomial infections. [3]

It has also been shown that one out of ten patients in developed countries has been somehow harmed during hospitalization, whereas in developing countries there is an even higher medical error risk. In developing countries like Nigeria, the risk may be as high as 20 times higher compared to developed countries and according to the European Union (EU), 8% to 12% of hospitalized patients in EU member-states have faced some kind of unwanted situation, in other words 6.7 to 15 million of hospitalized patients, and more than 37 million users of primary health care services. [5]

An estimated 234 million major surgical operations are performed annually worldwide and as volume and importance of surgery in global healthcare increase, patient safety and quality in surgical care gain more attention.[6] The national Reporting and Learning Service in England and Wales reported that out of 135,000 reports of patients' safety incidents relating to surgical specialties in a year, 40, 941 caused low, moderate or service harm and 296 patients died. For an average English hospital this equates to approximately two deaths per year 90 patients who suffer severe harm. [7]

In addition to this, WHO stated that 7 million patients have post-operative complications, and one million patients die because of medical errors that lead to various serious infections.[5]

These data provide an imperative for perioperative nurses as members of surgical team to actively address errors that result in adverse events in perioperative phases and develop a practice system that will ensure safe care for all surgical patients. To achieve this, actions that minimize the risks to surgical patients must be identified, implemented, tested, and evaluated by them. [3]

Safety practices that is patient centered should be the focus of perioperative nurses according to Association of Operating Room Nurses (AORN) guidance statement that was issued in 2006. This guidance statement also stressed the need for healthcare system to provide an atmosphere where all member

of the perioperative family can openly discuss errors, process improvement or system issues without fear of reprisal.

This statement will be difficult to achieve without possession of adequate knowledge about patient safety practices and positive attitude to teamwork by perioperative nurses. There is paucity of data on perioperative nurses' knowledge about safety practice and their attitude to teamwork to ensure patient safety in the operating room.

Hence, this study was designed to:

1. assess the perioperative nurses' knowledge about safety practices in the operating room;
2. determine the attitude perioperative nurses to teamwork in operating room and
3. identify factors that influence safety practices among perioperative nurses in selected tertiary health institutions.

This was with the aim of providing baseline data on level of perioperative nurses' knowledge about safety practices and the nature of their attitude towards teamwork which will help to determine the need to (if any) develop educational programme and training that will improve their knowledge on safety practices and promote their attitude toward teamwork to ensure improved patient safety practices in our operating theatres. We also hypothesized that there is no significant relationship between nurses' years of experience and their safety practices.

## MATERIALS AND METHODS

**Design:** Descriptive cross sectional design was adopted using quantitative method of data collection. The study was conducted in the operating theatres of four selected tertiary health institutions (University College Hospital, Ibadan, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, LAUTECH Teaching Hospital, Osogbo & LAUTECH Teaching Hospital, Ogbomoso) using multistage and proportionate sampling methods.

**Sample size Determination:** A Sample size of 201 was determined from perioperative nurses in the teaching hospitals using Yamane's formula ( $n = N / (1 + N(e)^2)$ ) from a target population of 401. Thus, using proportional allocation, the sample sizes from the four selected institutions are UCH Ibadan- 117, OAUTHC Ile-Ife-61, LTH Osogbo-19 and LTH Ogbomoso- 14.

**Instrumentation:** Two instruments were used for the study: a self-administered structured questionnaire that was adapted from: the Operating Room Management Attitudes Questionnaire (ORMAQ) 2006 edition that assessed subjects' demographics, the Perioperative nurses knowledge about patient safety and the option was scored from 2 to 1 (Yes to No) categorize score into 10-11, 12-13 and 14-20 translating into poor, fair and good knowledge respectively and also elicited perioperative nurses' attitude to teamwork and patient safety using likert scale that was scored from 5 to 1 for positive statements while it will be from 1-5 for negative statements Score of 26-53 was negative attitude while 54 and above was positive attitude. It also assessed the factors influencing patient safety. A rated checklist was adapted from Observational Teamwork Assessment for Surgery checklist. The checklist had eight items to elicit safety practices to promote teamwork and effective communication. The observed practices were score from not applicable, not done at all, several major mistakes, major mistakes, moderate

mistakes, minor mistakes and done very well. Not applicable score is 1 while done very well score 7. **Psychometric Properties of the Instrument:** The reliability of the research instruments was assessed using test retest technique at Ekiti State Teaching Hospital Ado-Ekiti after clearance from the hospital's ethical committee with this reference number: EKSUTH/A67/2014/09/004 and the Cronbach's alpha coefficient of the instrument was 0.923.

Letter of introduction was taken to all the selected teaching hospitals and permission to conduct the study was granted. Ethical approval from the selected institutions were also obtained with the following reference numbers: LTH/OGBO/EC/2014/051, LTH/EC/2014/11/0186, OAUTHC/ERC/2014/09/23 & UI/EC/14/0300. Informed consent to participate in the study was also sought from the individual respondent by the researcher before administering the questionnaire and their right to privacy was respected. Data generated from the research instruments was analyzed using Statistical Product and Service Solution (SPSS) version 20. Ten questions that were used to assessed the Perioperative nurses knowledge about patient safety were scored by allocating two (2) marks to every correct answer and one (1) to incorrect answers (Yes to No) giving a total of 20 (100%). Test scores was used to categorize score into 10-11, 12-13 and 14-20 translating into poor, fair and good knowledge respectively. Perioperative nurses' attitude to teamwork and patient safety were scored using 19 items questions that were measured on 5-points likert scale that ranged from strongly agree, Agree, I don't know, strongly disagree to disagree.

The response was scored from 5 to 1 for positive statements while it will be from 1-5 for negative statements and a total of 95 was obtainable. Each respondent's total score was used to rate his/her attitude and scores of 26-53 were termed negative attitude while 54 and above were termed positive attitude. Sixteen questions that were measured on 5-points likert scale were used to assess the factors influencing patient safety in operating theatre and their means and standard deviation values were calculated. The checklist had eight observable practices to elicit safety practices that promote teamwork and effective communication that were score on 7-points scale from not applicable, not done at all, several major mistakes, major mistakes, moderate mistakes, minor mistakes and done very well. Not applicable score is 1 while done very well score 7. Mean and SD values of each variable were calculated.

## RESULTS

### Results of Socio-demographic Variables of the Respondents

Findings from this study revealed that less than half of respondents (46.1%) of the respondents fall in age bracket of 41-50 with mean age of 36.24 and Standard deviation of 7.02, there were more females (66.2%) than males and more than half (63.7%) of the perioperative have RN/RPON as educational qualification. Also, more than half (68.6%) of the respondents are in general surgery practice and 42.2% have between 1-5 years of experience as perioperative nurses. In addition, 32.8% of the respondents were NOI by professional rank. Majority of the respondents were Christians (88.7%) and lastly, 93.1% were Yoruba

**Table 1** Socio-demographic variables of the respondents

Variables	Frequency (n=204)	Percentage (100)
<b>Age in years</b>		
21-30	27	13.3
31-40	44	21.5
41-50	94	46.1
51-60	39	19.1
61 and above	-	-
<b>Sex</b>		
Male	69	33.8
Female	135	66.2
<b>Educational qualification</b>		
RN/RPON	137	67.1
RN/RPON and BNSC	55	27.0
M.sc (others)	11	5.9
<b>Area of surgical specialty</b>		
ORTHOPAEDICS	5	2.5
OBSTETRICS/GYNAECOLOGY	25	12.3
OPHTHALMIC	12	5.9
GENERAL	140	68.6
OTHERS	22	10.7
<b>Years of experience</b>		
1-5	86	42.2
6-10	43	21.1
11-15	59	28.9
20-25	11	5.4
26 and above	5	2.5
<b>Present rank</b>		
NO II	34	16.7
NO I	67	32.8
SNO	24	11.8
PNO	38	18.6
CNO	16	7.8
ADNS	25	12.3
<b>Religion</b>		
Christian	181	88.7
Islam	23	11.3
<b>Ethnicity</b>		
Yoruba	190	93.1
Igbo	8	3.9
Hausa	6	2.9

### Findings on knowledge about Safety Practices

**Table 2** Knowledge of perioperative nurses about safety practices

Variables	Federal teaching hospitals		State teaching hospitals	
	Frequency	Percentage	Frequency	Percentage
Good knowledge	139	80.8	26	81.3
Fair knowledge	20	11.6	4	12.5
Poor knowledge	13	7.6	2	6.2
Total	172	100.0	32	100.0

Findings on knowledge about safety practices showed that majority of respondents in both federal and state teaching hospitals had good knowledge about safety practices 80.8% & 81.3% respectively, 11.6% & 12.5% have fair knowledge while 7.6% & 6.2% were reported to have poor knowledge about safety practices.

### Results of Perioperative nurses' Attitude toward teamwork in federal and state teaching hospitals

**Table 3** Attitude of perioperative nurses to team work in federal teaching hospitals

Variables	Federal teaching hospitals		State teaching hospitals	
	Frequency	Percentage	Frequency	Percentage
Positive attitude	112	65.1	11	34.4
Negative attitude	60	34.9	21	65.6
Total	172	100.0	32	100.0

Results of the attitude of perioperative nurses about toward team work in federal and state teaching hospitals. The findings from this study revealed that more than half (65.1%) of the

respondents in federal teaching hospitals were reported to have positive attitude while that less than half (34.4%) of perioperative nurses in state teaching hospitals were reported to have positive attitude to teamwork in the operating theatre.

### Results of Factors Affecting Safety Practices in Operating Theatre

**Table 4** Factors influencing patient safety practices in operating theatres

Factors	Mean	SD	Rank
Absence of Sanction/ punishment following any safety challenge	3.10	1.45	1
Absence of safety challenges /incident report book.	2.92	1.52	2
Absence of a well-coordinated team in Operating Theatre	2.83	1.54	3
Inattention, haste and inexperience of perioperative nurses	2.79	1.44	4
Lack of commitment from hospital management/ leadership	2.78	1.52	5
Inadequate staffing	2.61	1.63	6
Lack of team work spirit among the surgical team	2.60	1.57	7
Non-practicing of pre-surgery surgical briefing and poor communication among	2.59	1.54	8
Inadequate preparation before surgery	2.58	1.47	9
Absence of records for all errors and near misses	2.56	1.41	10
Lack of supportive and considerate leadership	2.65	1.50	11
Lack of standardized patient safety policy	2.54	1.60	12
Inadequate tools and equipment's	2.50	1.50	13
Failure to check equipment's before surgery	2.42	1.50	14
Lack / inadequate of necessary equipment's to work with in Operating Theatre	2.40	1.47	15
Excessive workload/fatigue	2.36	1.45	16

Results of factors affecting safety practices in operating theatre revealed that the mean and standard deviation values of absence of sanction /punishment following any safety challenge were ranked very high among others (mean= 3.10 ± 1.45) while excessive workload/fatigue were the least in the ranking with mean and standard deviation (mean= 2.36 ± 1.45).

**Results of the Hypothesis:** There is no significant relationship between nurses' years of experience and safety practices.

**Table 5** Pearson Correlation Analysis on the relationship between nurses years of experiences and safety practices.

Variable	N	Mean	SD	Df	r-cal	sig-val	P-val	½ 0.05
Nurses years of experience	204	2.05	1.07					
				202	0.751	0.02	<0.05	
Safety practices	204	10.75	1.65					

Table showed the Pearson's correlation coefficient statistics that was produced to show the relationship between nurses years of experience and safety practices. [ $r^{cal}=(0.751)$ ,  $sig^{val}=(0.02)$ ,  $P^{val}>(0.05)$ ] which is not significant at P 0.05 level (2 tailed). Since the r- calculated is greater than the r-tabulated we then reject null hypothesis and accept the alternative hypothesis. Therefore, there is significant relationship between nurses' years of experience and safety practices.

## DISCUSSION OF FINDING

Patient safety is a new discipline in the health industry and little study had been done on it in this part of the world. This study contributes to the existing knowledge on issues of patient safety practices in the theatre. It also explored various measures employed by perioperative nurses to ensure patient safety in the operating theatres of the selected hospitals as well as perceived factors affecting safety practices. The findings from this study will be discussed under these sub headings;

Less than half of the respondents were between 41-50 years old and is in disagreement with[8]where they reported that majority of nurses were between 21 and 30 years old and more than half of them were female, this is in agreement with a study by [9]&[10]which reported that 87% & 70% of the

operating room nurses were females and it is also supported by[11]in their study when they reported that more than half of the Perioperative nurses were female. More than sixty percent have diploma certificates (RN/RPON) as minimum qualification and this is supported by [8] when they reported that above sixty percent of nurses had Diploma certificates,

majority are general perioperative nurses and this agreed with findings of [9]as they reported that majority of theatre nurses partake in general surgery. Less than half had 1-5 years of experience, this is in consonant with the report of[8]when they reported that less than half of nurses had 1-5 years working experience and also agreed with [12] as well as [13] when they also reported that less than half of operating room nurses had 1-5 years of working experience.

Larger percentage of the respondents from the two categories of the institutions have good knowledge about patient safety practices and this agreed with the findings of [13]that majority of operating room nurses possess excellent knowledge about the subject matter. The implication of this is that during their training, they were exposed to both theoretical terms and clinical aspect of activities and issues relating to patient safety. This is supported by [14]when they stated that Registered Perioperative Nurses are in unique position to understand and prevent adverse events and unrepeated patient safety issues that occur every day in the theatre by virtue of their training. This statement made them to conduct a study titled Perioperative nurses perceptions of near-miss patient safety events from where ten top safety issues in operating theatre were identified.

More than half of the respondents in federal government owned tertiary health institutions reported to have positive attitude to team work and this is supported by [15] and [9] when they reported that operating room personnel had positive attitude to behavior that will enhance teamwork and patient safety in the operating theatre. In contrary, majority of respondents in state government owned tertiary institutions have negative attitude to teamwork in the operating theatres This finding from state government owned hospitals is in line with the report of [16]when they concluded that attitude to teamwork between physicians and nurses was not as that good and from the study conducted by [17]when they concluded that nurses perceive teamwork as mediocre and this may accounted for their negative attitude toward it. Other factors that may be accountable for this difference in attitude may be difference in working conditions of these respondents. There is relatively adequate staff, regular and adequate remuneration in federal

government institutions as compared with those in state government institutions where there is backlog of salary arrears coupled with inadequate staff and equipment. Good or effective communication and team work spirit have been cited as essential for achieving high reliability and creating a culture of safety to support the safe delivery of patient care in critical area like operating room [18]. From this result, patient safety practices may be threatened in state owned tertiary health institutions because majority of the perioperative nurses did not have negative attitude to team work and by extension to patients' safety.

The mean and standard deviation of absence of sanction or punishment following any safety challenge were ranked very high among others (mean= 3.10 ± 1.45) and this may explain why nurses in hospitals where there are instances of litigation from patients are committed to safe practices while others from where there is no litigation performed their task the way they like. This is followed by absence of safety challenges/ incident report book (mean= 2.92 ± 1.52) while excessive workload/fatigue were the least in the ranking with mean and standard deviation (mean= 2.36 ± 1.145). This findings disagreement with Williamson (1993) as cited by [19] when they listed factors as contributing to safety challenges in the theatre and ranked misjudgment high as factor contributing to error in the theatre. The findings was also in disagreement with the finding of [20] when they submitted that incident reporting and the use of Swedish Patient Safety Law were major factors influencing patient safety practices.

Pearson analysis showed that there significant relationship between nurses' years of experience and safety practices [ $sig^{val}=(0.02), P^{val}>(0.05)$ ] and this finding is supported by [21] when submitted that years of experience in nursing practice support expertise and have a positive impact on patient safety and the quality of care provided. This findings was also supported by [22] when concluded that years of experience was related with expertise in nursing practice but the finding was in disagreement with [23] when they concluded that such a relationship did not exist between years of experience and safety practice.

## CONCLUSION

This study assessed knowledge and attitude of perioperative nurses toward safety practices and teamwork in selected tertiary health institutions in south Western Nigeria.

The study concluded that perioperative nurses' have adequate knowledge about patient safety practices and this is imperative for reduction in surgical related errors and quality surgical care. The study also concluded that there is positive and negative attitudes among perioperative nurses in federal and state teaching hospitals respectively Therefore there is need for attitudinal change toward teamwork among the perioperative nurses in state owned tertiary health institutions if patients' safety in their operating theatres will be improved upon. It was also concluded from this study that absence of sanction or punishment following breach of safety practices was main factor influencing safety practices in the operating theatre. Based on the conclusion from this study, the following are recommended:

- Continuous education should be made compulsory for all perioperative nurses from time on new trends about the necessity of positive attitude to teamwork and appropriate measures to improve patients' safety

practices not only among themselves but the surgical team as a whole. to time so that they can be in tune with trend of global patient safety practices.

- Each hospital should set up perioperative nursing audit that will enforce and monitor practices to improve patient safety.
- There should be appropriate sanction or punishment following any safety challenges.

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