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Knowledge and Attitude toward Patients' Safety among Clinical Students in a South Western University, Nigeria

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ABSTRACT

Introduction:
The study investigated the knowledge, attitude, sources of knowledge, as well as the relationship between knowledge and attitude towards patients' safety among clinical students in Obafemi Awolowo University.

Materials and Methods:
The study adopted a descriptive cross-sectional design and 281 students were selected from the Department of Nursing Science, Medicine, Dentistry, Medical Rehabilitation and Pharmacy using a convenient sampling technique. A semi-structured questionnaire was used to collect data and the data were analyzed by using Statistical Package for Social Sciences (version 25). Data were presented with descriptive and inferential statistics.

Results:
Findings from this study revealed that respondents' mean age was 21.56±3.20 with the majority of the respondents (65.5%) being within 20-24 years old. 68.7% of the respondents had good knowledge, 19.6% had fair knowledge and 11.7% had poor knowledge. The result also showed that more than half of the respondents (69.4%) were taught about patient safety as part of my course of study in my department while less than half (46.3%) learnt about patient safety on their own. The result further showed that 64.1% had a negative attitude while 35.9% had a positive attitude towards patient safety. There was a significant relationship between clinical students' knowledge and their course of study (*Chi-square value =26.90, P-value >0.01*).

Conclusion:
This study established that clinical students have a good knowledge of patient safety but with negative attitude towards patient safety. Hence, the health professionals' educators need to integrate patient safety curriculum into the education of young health professionals.

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Introduction

It is highly unpredictable to assume that the patient safety concept and the topics in the patient safety curriculum developed by World Health Organization (WHO) will be learned and mastered after graduation by young health professionals. Not all those who teach, mentor or supervise these students are knowledgeable, skilled or experienced with the concepts of patient safety. Hence, the reason why it is acceptable and recommended that patient safety education should begin during professional training and should be very effective following the recommended curriculum guide (1). In the USA, instructions on patient safety are provided to young health professionals (2). The Australian Medical Council (AMC), as well as the UK General Medical Council (GMC), works with health institutions to teach young health professionals about patient safety (3,4). Worldwide, millions of clients suffer infirmities, injuries or even lost their lives annually due to perilous practices of the healthcare professionals. This has led to extensive recognition of the importance and incorporation into the healthcare organization of patient safety methods as well as improvement in the research studies (5). The prevalence of adverse events in the health industry is about at 43million each year. This means one in ten patients is affected by one or more adverse events during their period of hospitalization (6). The article published in 1999 by the Institute of Medicine (IOM); "To Err is Human: Building a Safer Health System" was the milestone published article for patient safety. It cautioned of errors and potential for patient injury (IOM, 1999). Since then, several efforts have been made toward improving patient safety. Patient safety is being documented as a measure of quality healthcare and its concepts are slowly becoming incorporated into students teaching as an integral part of the curriculum (1). There are limited studies evaluating quality and safety even though it is now widely being taught in health professional institution. Over the past decades, several strategies have been put in place to report medical errors in other to advance patient safety but the dominant administrative culture has been identified as a major barrier. The attitude of the physician to medical error is identified as a major component of safety culture. Hence, an in-depth education is recommended as the greatest approach to promotes a positive attitude towards patient safety. Some scholarships suggested education for health professionals and also reiterate the necessity for patient safety education in the training of young health professionals (7). Therefore, to sustain a safe patient milieu and safe practices, it is necessary to encourage the assessment and enhancement of safety attitudes across healthcare workers (8). Infection linked with healthcare affects about one in twenty of hospitalized patients yearly (approximated at 4.1 million patients) with these most common types; urinary tract infections (27%), lower respiratory tract infections (24%), surgical site infections (17%) and blood related infections (10.5%). Multi-resistant staphylococcus aureus is present in 5% of the entire infections that have been linked with health care. The United Kingdom National Audit Office approximates the cost of such infections at 1 billion euros annually. While 23% of European Union citizens claim to have been affected by medical error, 18% claimed to have experienced a grievous medical error in a hospital and 11% to have been prescribed the wrong medication. Evidence on medical mistakes showed that 50% to 70% of such harm can be prohibited through detailed and organized methods to patient safety. Health care facilities have improved significantly due to advance medical technology; however, healthcare-related infections (HAI) are the major cause of mortality and morbidity among the hospitalized patients contributing 7-10% of hospital admissions. In advanced countries, with adequate funds and modern technology, one out of ten patients are injured (9).

While, the weight of unsafe care is uncertain in developing nations where unsuitable infrastructure, technology and inadequate or even incompetent health personnel have caused a higher likely risk of harm to the consumers of health services in hospitals and in primary care compared with advanced nations (9). In Nigeria only a few

studies have been conducted to assess patient safety (10,11), none had evaluated knowledge of clinical students on patient safety and their attitude towards patient safety. Hence, this study investigated the knowledge of clinical students' knowledge and attitudes towards patient safety as well the relationship between their level of knowledge on patient safety and their various course of study attitude in Obafemi Awolowo University, Ile-Ife.

Materials and Methods

This descriptive cross-sectional study was conducted at the Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria. The study population was clinical students in the departments of Nursing Science, Medicine, Dentistry, Medical Rehabilitation and Pharmacy. The total population of the clinical students in the selected institution was nine hundred and fifty-five (955) and a sample size of two hundred and eighty-one (281) was calculated using Taro Yamane's formula. A convenient sampling technique was employed to select sample proportionately from all the departments. The researcher started the sample selection from his department (Nursing) and then moved to other departments to select the remaining samples. Informed consent was gained from all the respondents and their confidentiality and anonymity were ensured and the study proposal was approved by the Ethics Committee of the Institute of Public Health, OAU, Ile-Ife with the approval number (IPH/OAU/12/1506). Permission of the heads of the selected departments was also obtained before distributing the questionnaire to the students.

A structured questionnaire that was adapted from WHO's medical school curriculum guide for patient safety education developed at the University of Aberdeen was used for this study (12).

The questionnaire consists of three sections. The first part includes the socio-demographic variables of the respondents. The second section is a 14 item questions with yes/no options that assessed the knowledge of the respondents on patient safety. Respondents are to tick yes or no ("yes" = 1 and "no" = 0). The minimum score was 0 while the maximum score was 14 and respondents that scored between 0-4 were grouped as poor knowledge, those that scored between 5-9 were grouped as having fair knowledge while those that scored between 10-14 were classified as good knowledge of patients' safety. The third section is a 5-item question that elicited information on the source of the knowledge on patient safety among the respondents with "yes" or "no" questions.

The means and standard deviation of each variable were calculated and rank-ordered. The fourth section is a five-point Likert scale that determined the attitude of the respondents toward patients' safety (strongly agree= 5, agree = 4, neutral = 3, disagree= 2, strongly disagree= 1). The highest and lowest scores were 15 and 75 respectively and 15-45 was classified as negative attitude while the respondents that scored between 46-75 were classified as having a positive attitude toward patients' safety. The validity of the questionnaire was established through the face and content validity. The research instrument was presented to experts in the field of psychology, education test and measurement for extensive review and their recommendations were used to improve the final instrument. The reliability of the instrument was established by test-retest and the Cronbach alpha was calculated to be 0.85. Hence, the instrument was adjudged reliable. Data were collected over a period of eight weeks by distributing the questionnaire to the respondents at their respective departments. The collected data were sorted and cleaned before subjecting them to analysis with the aid of Statistical Package for Social Sciences (SPSS) version 25. Data were presented using descriptive and inferential statistics. Descriptive statistics were used to present the demographic characteristics. Knowledge and attitude were described in terms of frequency and percentage, mean, standard deviation, and range and inferential statistics (Chi-Square) was used to determine the relationship between variables at a significant level of 0.05.

Results

All the 281-questionnaires were recovered and were analyzed

Table 1: Socio-Demographic Variables of the Respondents

Variables	Frequency (n=281)	Percentage (%)
Age (years) Mean: 21.56±3.20		
15-19	21	10.0
20-24	184	65.5
25-29	68	24.2
30 and above	1	0.4
Sex		
Male	147	52.3
Female	134	47.7
Religion		
Christianity	207	73.7
Islam	74	26.3
Other	-	-
Ethnicity		
Yoruba	238	84.7
Igbo	29	10.3
Hausa	2	0.7
Others	12	4.3
Department		
Dentistry	24	8.5
Pharmacy	31	11.0
MRH	55	19.6
MED	85	30.2
Nursing	86	30.6
Level/Part		
Part Three	36	12.8
Part Four	86	30.6
Part Five	122	43.4
Part Six	37	13.2

The table above shows the demographic characteristics of respondents. The study had (65.5%) respondents with 20-24 years old with the majority of the respondents being male (52.3%). They were more Christian respondents than Islam (52.3% vs 26.3%) likewise the study had 84.7% of his respondent being Yoruba. However, the study respondents were from five departments (Dentistry, Pharmacy, Medical Rehabilitation, Medicine and Nursing) from the College of Health Sciences Obafemi Awolowo University. Respondents from Dentistry were 8.5%, 11% of respondents from Pharmacy, 19.6% of respondents were from medical rehabilitation.

30.2% of respondents were from medicine and lastly, 30.6% of respondents were from the nursing department. 43.4% of respondents were in part five with 12.8% of respondents in part three. Also, 30.6% of respondents were in part four while the last proportion to crown it was 100% from part six.

Table 2: Students' Knowledge of Patient Safety

Variables	Yes	No
Patient safety was designed to avert and decrease risks, errors and harms that happen to the patient during the delivery of health care.	279(99.3)	2(0.7)
Patient Safety is a sub-specialty in healthcare that developed with the growing advancement in health care systems.	278(98.9)	3(1.1)
"Errors," "deviations" and "accidents" are components of patient Safety.	175(62.3)	106(37.7)
Patient safety is the inhibition and enhancement of adverse outcomes or injuries stemming from the processes of health care.	280(99.6)	1(0.4)
Medication errors are patient safety issue and are one of the leading causes of injury and avoidable harm in health care systems.	279(99.3)	2(0.7)
Unsafe injections practices are component of patient safety in health care settings and can transmit infections, including HIV and hepatitis B and C.	278(98.9)	3(1.1)
Unsafe surgical care procedures are patient safety challenge and can complicate up to 25% of patients.	166(59.1)	115(40.9)
Diagnostic errors can occur in up five percent of adults in outpatient environment and are patient safety issue.	239(85.1)	42(14.9)
Unsafe blood transfusion practices put patients at risk of adverse blood transfusion reactions and the spread of infections.	274(97.5)	7(2.5)
Radiation mistakes include overexposure to radiation and incidence of wrong-patient and wrong-site identification.	275(97.9)	6(2.1)
One of the very common and avoidable causes of patient injury in our hospitals is Venous thromboembolism	272(96.8)	9(3.2)
Patient safety is a central principle and significant actions must be taken to avoid any adverse events.	281(100)	0(0.0)
Patient safety is when there is non-occurrence of avertible harm to a patient while receiving health care and decline of risk of needless harm related with health care to a tolerable level.	279(99.3)	2(0.7)
Regular hand washing is the most essential action to prevent healthcare related infections.	281(100)	0(0.0)

From the above table, majority (99.3%) agreed that patient safety intends to avoid and decrease hazards, errors and harms that happen to patient throughout the delivery of health care, 98.9% reported that Patient Safety is a specialty within the healthcare that arose with the emerging complexity in health care industry, almost all of the respondents (99.6%) agreed that patient safety is the circumvention, prevention, and improvement of adverse consequences or injuries stemming from the processes of health care, 99.3% agreed that Medication errors are patient safety issue and are one of the leading causes of injury and preventable harm in healthcare industry, 98.9% in agreement that unsafe injections practices are element of patient safety in health care setting and can spread infections, including HIV and hepatitis B and C similarly, 97.5% agreed that unsafe blood transfusion practices put the patients at risk of adverse blood transfusion reactions and the spread of infections, 97.9% agreed that radiation mistakes include overexposure to radiation and events of wrong-patient and wrong-site identification. Lastly, the entire respondents reported that regular hand washing is the most vital measure to avoid healthcare-related infections.

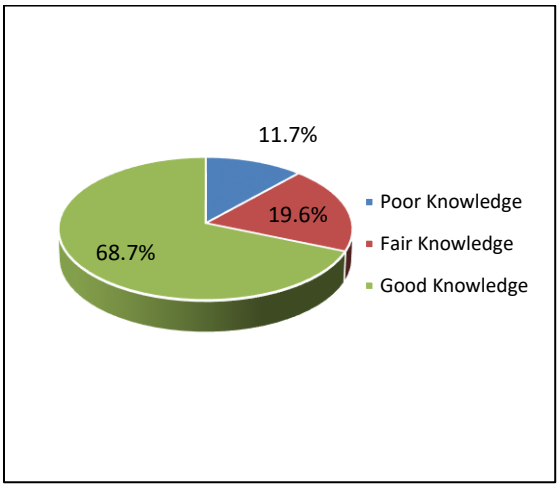

Fig 1: Summary of Respondents' Knowledge of Patient Safety

The summary of the respondents' responses of their knowledge on patient safety. More than two-third of the respondents (68.7%) had good knowledge about patient safety while 19.6% of the respondents demonstrated fair knowledge about patient safety. However, 11.7% of the respondents displayed poor knowledge about patient safety.

Table 3: Sources of Knowledge on Patient Safety

Variables	Yes	No	Mean ±SD	
I was taught about patient safety as part of my course of study in my department.	195(69.4)	86(30.6)	0.83±0.37	1
I learnt about patient safety on my own.	130(46.3)	151(53.7)	0.62±0.48	2
I have been learning about patient safety through my mistakes.	114(40.6)	167(59.4)	0.54±0.49	3
I attended a seminar on patient safety.	97(34.5)	184(65.5)	0.50±0.50	4
I learnt about patient safety from my parents who are health care professionals.	25(8.9)	256(91.1)	0.42±0.49	5

From the above table on the sources of knowledge, 69.4% of respondents were taught about patient safety as part of the course of study in their respective department. 53.7% of the respondents did not learn about patient safety on their own while 59.4% of respondents had been learning about patient safety through their mistakes. Similarly, 65.5% of respondents did not attend a seminar on patient safety likewise 91.1% of respondents were unable to learn about patient safety from their parents who are health care professionals.

87.2% of respondents either agreed or strongly agreed that patient safety is a global issue. 88.2% of respondents were in support of the notion that most clinical errors are preventable likewise 62.3% of respondents believed that most errors are out of staff control. Inherently, 67.3% of the respondents negated the notion that competent physician doesn't make error. In contrast, 65.5% of respondents were in support of the view that learning from a mistake can help prevent incidents. 87.2% of the respondents hold the view that acknowledging and dealing with

mistakes will be a major part of the job. However, 86.6% of respondents believed that it is necessary to learn how best to accept and handle their mistakes by the end of medical training. More so 35.2% of respondents negate telling others about an error the made would be easy with 34.5% of respondents being neutral on the notion. There were 54.5% of respondents negate that it is easier to find somebody to fault rather than focus on the causes of error. There was a significant relationship between their knowledge and attitude towards patient safety.

Table 4: Attitude towards Patient Safety

Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Patient safety is a global issue.	8(2.8)	9(3.2)	19(6.8)	166(59.1)	79(28.1)
Most clinical errors are preventable.	7(2.5)	9(3.2)	20(7.1)	170(60.5)	75(26.7)
Most health care staff make errors.	5(1.8)	33(11.7)	68(24.2)	136(48.4)	39(13.9)
Most errors are out of staff control.	15(5.3)	115(40.9)	98(34.9)	49(17.4)	4(1.4)
Competent physician doesn't make Error	34(12.1)	155(55.2)	44(15.7)	39(13.9)	9(3.2)
If I continue to learn from my mistakes, I can avert incidents.	9(3.2)	49(17.4)	39(13.9)	158(56.2)	26(9.3)
Accepting and dealing with my faults will be a significant part of my job.	6(2.1)	11(3.9)	19(6.8)	190(67.6)	55(19.6)
It is necessary for me to acquire knowledge on how best to acknowledge and manage with my mistake after my medical training.	8(2.8)	17(6)	24(8.5)	146(52)	86(30.6)
Informing other team members about mistakes I made would be easy.	17(6)	82(29.2)	97(34.5)	76(27)	9(3.2)
It is easy to find somebody to fault rather than concentrating on the sources of the mistake.	53(18.9)	100(35.6)	48(17.1)	67(23.8)	13(4.6)
I am bold in speaking to my colleague who is displaying a lack of concern for a patient's safety.	14(5)	50(17.8)	85(30.2)	110(39.1)	22(7.8)
I believe that completing documentation forms will help to advance patient safety.	6(2.1)	15(5.3)	49(17.4)	183(65.1)	28(10)
I am able to speak about my own mistakes.	14(5)	33(11.7)	84(29.9)	140(49.8)	10(3.6)
Meeting the target of my job is more important than patient safety.	109(38.8)	110(39.1)	29(10.3)	32(11.4)	1(0.4)
Patient safety is not an important concern for my profession.	167(59.4)	74(26.3)	12(4.3)	18(6.4)	10(3.6)

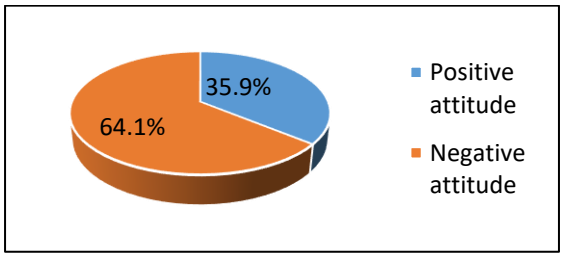

Figure 2: Summary of Respondents' Attitude towards Patient Safety

The summary of responses of the respondents' attitude towards patient safety.

Majority of the respondents (64.1%) had a negative attitude towards patient safety while 35.9% of the respondents had a positive attitude towards patient safety.

Table 5: Chi-square test showing the association between Clinical students' Knowledge and their Course of Study

Course of study	Knowledge			χ^2	*p-value*
	Good knowledge	Fair Knowledge	Poor Knowledge		
Medical Rehabilitation	45(70.3)	9(14.1)	10(15.6)	26.90	0.01
Dentistry	27(93.2)	1(3.4)	1(3.4)		
Medicine	69(69.7)	14(14.1)	16(16.2)		
Nursing Science	52(58.4)	31(34.8)	6(6.8)		

The chi-square derived a value of 9.822, a degree of freedom of 6 and a significant value of 0.01. The sig. value is lesser than the critical value of 0.05. Thus, there was a significant relationship between clinical students' knowledge and their course of study. Hence, there is a similarity between the knowledge of the undergraduate students across the department.

Discussion

The study showed that the majority of the respondents had fair knowledge about patient safety with only a few respondents with good knowledge about patient safety. The study revealed that 62.3% of the respondents had knowledge of the different components of patient safety while 37.7% doesn't. This supports Mohd, 2014 recommendation on the importance of understanding the components of patient safety. These components enable health professionals to view all aspect influencing the image of patient safety and the various interconnections between the components, as well as their effect on each other. As a result, they help health professionals pursue the required skills and expertise to address each component effectively (13). 99.3% of the respondents reported knowing the definition of patient safety as the absence of avertible harm to a patient while receiving healthcare and decline of risk of needless harm linked with health care to a tolerable minimum while 0.7% does not. This is in accordance with WHO, 2017 definition of patient safety which states that "Patient safety is the absence of avertible harm to a patient while receiving care in the of healthcare industry (6).

While 59.1% reported that unsafe surgical care procedures are patient safety challenge and can cause complications in up to 25% of patients, 40.9% said no. This supports WHO submission that surgical intervention is still responsible for the high rate of disease and death with almost seven million patients suffering from complications and about 1 million dying during or immediately after surgery (14).

97.9% of the respondents accepted that radiation mistakes include overexposure to radiation and incident of wrong-patient and wrong-site identification with 2.1% negating it. This is in accordance with Shafiq, 2016 about radiation errors that reported that the overall incidence of safety in radiotherapy estimates that around 15 per 10,000 treatment courses (15). The study also showed that more than half of the respondents (64.1%) had a negative attitude towards patient safety while 35.9% of the respondents demonstrated positive attitude towards patient safety. The 35.2% of the study subjects negate telling others about an error they made easily with 34.5% of the study subjects being neutral on the notion. The study also established no significant relationship between clinical students' knowledge and attitudes regarding patient safety exist. In a similar direction Carruthers et al., 2009 reported that dominant organizational culture in the health care milieu is one of the main hindrances. The attitude of doctors to medical mistakes is one of the major elements of a safety culture. Appropriate education is suggested as the best approach to progress proper attitude toward patient safety (7). 87.2% of the study subjects agreed that most clinical errors are preventable while 5.7% disagreed. This is in accordance with WHO report in 2011 that most harm is caused by several adverse events, with almost 50% of them being avoidable. A study of regularity and avoidance of adverse events among 26 health facilities in eight low and middle-income nations revealed adverse event frequency to be close to 8%. Of which 83% was avoidable while 30% were linked with the death of the patient (16). From the result, 46.9% of the study subjects reported being confident about talking to someone who is displaying a carefree attitude towards patient safety, 30.2% were neutral on the notion. This negates characteristics of the good safety culture of an organization as reported by Elosus et al., 2016. The 28.4% of study subjects reported that it is easier to find someone to blame rather than focus on the causes of error with 54.5% negating it. This corroborates the report by Elosus et al., 2016 on the need to promote a safety culture in the workplace that place priority on the error as a source of advancement and not for blaming employees involved (17).

The study revealed that 69.4% of the respondents were taught about patient

safety as part of their course of study while 30.6% negates being taught about patient safety as part of their course of study. This is in accordance with Walton et.al (2010) submission that it is highly unpredictable to assume that the concepts of patient safety and the topics in the curriculum will be learned and mastered after graduation by young health professionals. Since, not all who mentor and teach them are skilled, knowledgeable or experienced with the concepts. The reason why it is therefore accepted and recommended that patient safety education begins during their training, following the recommended curriculum guide effectively (1).

Also, the declaration of Helsinki approved the role of education: "education contributes a major role in improving patient safety and we all support the development, publishing and provision of patient safety education" (18). 53.7% of the respondents did not learn about patient safety on their own while 59.4% of respondents had been learning about patient safety through their mistakes. This finding was similar to Liao, 2014 who reported that the hidden curriculum consists of things taught implicitly using examples day today and not the explicit teachings in the form of lectures, grand rounds and seminars (19).

The study was limited by un-cooperated respondents due to the busy lecture hours of the students and the different lecture hours allotted to different courses, thus making the gathering of the data cumbersome and time-consuming. The time allotted for this study was also limited and that to a large extent hinder the author from extending the study to other southwestern Nigerian universities. This is likely to affect the generalization of the results. Ethical Considerations: The approved ethical code for the study is IPH/ OAU/ 12/ 1506 as issued by the Ethics Committee of the Institute of Public Health at the College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria after the study protocol was submitted and reviewed by the committee. Informed consent was also gained from all the respondents and the liberty to terminate their participation at any time without penalty was also guaranteed. The respondents'confidentiality and anonymity of all information provided were ensured.

Conclusion

There is a need to enlighten health professionals on patient safety inclusive safety practices and elimination of errors. Adequate remembering aids should be provided likewise mandatory seminar, conferences for both graduated medical student and non-graduated medical student should be encouraged by hospitals management. More so environment or organizational climates should be free of potential dangers likewise precautionary aids to arrest vulnerability of hazard should also be in place in hospitals. The study points out to health professionals and educators the need to incorporate both implicit and explicit patient safety education to both medical student and paramedics. It is imperative that health professional bodies work on the negative attitudes displayed by the respondents towards improving patient safety.

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