KING-UK International Journal of Academic Anthology, UNITED STATES
ISSN: 2630-7230 HC, 2630-7231 SC, VOL.9 NO.1, SEPTEMBER 2025

ATTITUDE OF NURSES AND BARRIERS TO NURSING PRACTICE AS DETERMINANTS OF INJECTION SAFETY PRACTICE AT SECONDARY HEALTH FACILITY IN AKWA IBOM NORTH- EAST SENATORIAL DISTRICT.

By

OKOKO, Enobong Ubong
Department of Public Health
Faculty of Health Sciences
National Open University
Uyo Study Center

ABSTRACT

The study assessed the attitude of nurses and barriers to nursing practice as determinants of injection safety practice at secondary health facility in Akwa Ibom North-East Senatorial District. This study employed a non-experimental descriptive method. This research was carried out in the Akwa Ibom North East Senatorial District of Nigeria. The population of the study consisted of 191 nurses in the 18 secondary healthcare facilities in Akwa Ibom North East Senatorial District. A sample of ninety 90 nurses offering direct patient care out of 191 nurses were selected from nine out of 18 secondary healthcare facilities in Akwa Ibom North East Senatorial District. Purposive sampling technique was used for the study. A researcher designed instrument tagged "Awareness of Practice of Injection Safety and Safe Injection Practice Questionnaire (APISSIPQ) was used to collect data for the study. Validity was ensured through the use of well-structured questionnaire and validation by the supervisor and two lecturers in the Department of Nursing, University of Uyo, Uyo. Descriptive and inferential statistics were employed to evaluate the data, and the Statistical Package for Social Sciences (SPSS) Version 23 (IBM, Armonk, NY) was utilized. The chi-square test was used to establish the association between the variables, and a p-value of 0.05 was selected for statistical significance. The study showed that there is a strong correlation between safe injection methods and barriers to nursing practice—are accepted and the null hypothesis is rejected. Based on the results, it is recommended that employees who reported suffering sharp injuries should be given support and counseling services.

KEYWORDS: Barriers, Nursing practice, Injection safety practice, and secondary health facility in Akwa Ibom North-East Senatorial District.

INTRODUCTION

Safe injection is one that does not cause injury to the receiver, does not put the healthcare workers (HCWs) at unnecessary risk, and does not generate waste that poses a threat to the public. Therefore, safe injection practices entail the rational injection of a patient by a certified and trained individual utilizing a sterile instrument, appropriate technique, appropriate disposal, and waste management. The World Health Organization (WHO, 2013b) established the Safe Injection Global Network (SIGN) (2013) as a coalition of international partners to promote and guarantee the safe, rational, and appropriate use of injections globally. Healthcare staff behavior modification is one of the coalition's strategies for achieving its goal, as noted by SIGN. According to Joseph and Joseph (2016), healthcare workers are

people who provide medical services to the sick, such as injections, either directly as nurses and doctors or indirectly as laboratory, environmental health, and other,,,,, support staff, such as trash handlers. According to Gyawali et al. (2013), injector behavior modification is thought to increase the safety of patients and healthcare personnel by limiting the reuse of injection equipment, cutting down on needless injections, preventing needlestick injuries, and enhancing community safety through the se of safe sharps and other waste management practices. To address the issue of dangerous injection practices, Nigeria developed a national strategy in 2017 on injection safety and healthcare waste management (Ministry of Health MOH, 2017). Healthcare professionals received training on injection safety within the framework of infection prevention and control, as well as behavior modification, as part of the President's Emergency Plan for AIDS Relief (PEPAR) project, which was funded by the United States Agency for International Development (USAID). In certain regions of Nigeria, there have been reports of a high injection rate and dangerous practices, even with the policy document in place and healthcare providers trained (Sowande et al, 2014). Reusing a syringe or needle, using injections against safer alternatives, touching the needle, leaving a needle in the vial to withdraw additional doses, recapping needles, improperly disposing of used syringes, and exposing used needles to the public are examples of unsafe injection practices (Rehan et al., 2021). Rehan et al. (2021) revealed that 40 percent of cases of hepatitis C and 32 percent of cases of hepatitis B were related to unsafe injecting practices (HCV).

In poor nations such as Nigeria, the issue of improper injecting practices is a significant concern. According to Aziz et al. (2013), 2 million cases of hepatitis C and one- third of new cases of hepatitis B were caused by unsafe injecting practices in poor nations. Aziz et al went on to say that Asia and Africa account for the majority of HIV infections. According to the United Nations Children's Fund (2013), improper injecting practices and blood transfusions result in 250–500 new HIV infections every day in Africa. In addition to endangering the patients, unsafe injections put the healthcare professional at risk for needle stick injuries. Healthcare professionals who operate in clinical settings with hypodermic syringes and other sharp equipment run the risk of suffering from needle stick injuries, which are wounds caused by needles that unintentionally damage the skin (Dulon et al, 2017). Healthcare professionals may contract HIV, HBV, or HCV from needle stick injuries. According to Gyawali et al. (2013), the fact that so few Secondary Health Care Workers (SHCWs) in poor nations have received the hepatitis B vaccination is a severe cause for concern.

STATEMENT OF PROBLEM

Safe and appropriate use of injection as recommended by WHO/CDC offer the best infection control and is the key element for injection safety improvement. Annually, unsafe injection account for 30 percent and 40 percent new hepatitis B and hepatitis C respectively and also cost government 3-5 times the cost of auto-disposable syringes. Although several studies have pointed out the prevalence of unsafe injection existing in the whole world and in Nigeria, recent reports still show the alarming and increase incidences of unsafe injections practices.

The researcher has observed that nurses do not apply infection prevention and control

measures in the hospital setting which is required to ensure safety. Lack of awareness and practices of injection safety among nurses has contributed to high rate of hospital-acquired infections. According to Miller and Pisani (2019), unsafe injection practices are linked to significant morbidity and mortality, especially from hepatitis A and C. For this reason, the researcher set out to determine or evaluate the nurses' knowledge and usage of injection safety in the North-East senatorial district of Akwa Ibom State.

RESEARCH OBJECTIVE

1. Examine the relationship between attitude of nurses and practice of injection safety in secondary health facilities in Akwa Ibom North East senatorial District.
2. Ascertain the barrier to injection safety practices among nurses in secondary health facilities in Akwa Ibom North-East senatorial District.

RESEARCH QUESTION

1. What is the attitude of nurses towards injection administration in secondary health facilities in Akwa Ibom North-East Senatorial District?
2. What are the barriers to nursing practice in secondary health facilities in Akwa Ibom North-East Senatorial District?

RESEARCH HYPOTHESIS

- There is no significant relationship between attitude of nurses and practice of injection safety at secondary health facility in Akwa Ibom North-East Senatorial District.
- There is no significant relationship between barriers to nursing practice and practice of injection safety at secondary health facility in Akwa Ibom North-East Senatorial District.

CONCEPTUAL REVIEW

INJECTION SAFETY

The World Health Organization defines injection safety as an injection that is given with the proper equipment, does not damage the receiver, does not put the provider at unnecessary risk, and does not produce waste that could endanger people. With the development of the syringe in 1848, a new avenue for the spread of infections was created, and as time went on, medical professionals discovered more ailments to treat and more drugs to inject (Bellis, 2019). Bellis (2019) notes that bloodborne pathogen knowledge and cleanliness emerged more than a century after the creation. According to Salman (2022), injectable therapy was first made widely available to people in undeveloped countries during the 1920s battles against Yawa and Kala-azar. This was made possible by the discovery of Penicillin during World War II. Only studies that were relevant to this investigation were reviewed, despite the fact that many have been done on injection safety measures awareness and practice. Adejumo and Dada (2013) employed a sample size of 385 nurses in a comparative study on the use and knowledge of injection safety precautions among nurses in two hospitals in Ibadan, Nigeria. The results showed that a substantial percentage of respondents (70.4%) knew a lot about injection safety precautions, but that knowledge was not put into practice. Additionally,

nearly half of the respondents (50.4%) had received sharp injuries from intramuscular and subcutaneous injections. In a separate study, Ezenwuba et al. (2019) looked at the awareness of injection safety precautions among in-service training nurses in Owerri Senatorial Zone hospitals according to gender. The findings indicated that most females had a higher perception of injection safety precautions than males did. Based on gender, there was no discernible difference in the in-service training student nurses' perceptions of injectable safety measures in the Owerri Senatorial Zone. This result was consistent with other studies that showed female nurses in Lagos State, Nigeria, had a better degree of awareness and perception of injection safety precautions. Based on their years of experience, in-service training nurses in hospitals in the Owerri senatorial zone perceived injection safety measures. Of the 26 students with fewer than five years of experience, few had a moderate view and some had a bad perception. The most of them had experiences ranging from 11 to 16 years old, and while some had low perception, the majority had moderate perception. Of the 48 individuals with experience spanning 17 years or more, most had moderate perception, whereas a small number had low perception.

ATTITUDE ON SAFE INJECTION

Attitude means a predisposition or a tendency to respond positively or negatively towards a certain idea, object, person, or situation. Safe injection practices according to WHO (2014) are parts of standard precautions and are aimed at maintaining basic level of patience safety and provider protections. Attitude influences the personal choice of action, and responses to challenges, incentives, and rewards. Several studies have shown positive attitude toward safe injection practice. Adejumo and Dada's (2013) study produced similar results. Merely 54.3% exhibited a positive attitude, and 32% strongly concurred that training will enhance safe injection practices. 23% thought that insufficient equipment was the reason for the dangerous injection.While 55.1 percent strongly agreed that safe injection practices should be used in all primary healthcare settings, 9.3 percent said that injections were prescribed excessively in medical facilities.

BARRIERS TO THE PRACTICE OF INJECTION SAFETY

Gadzama et al. (2014) evaluated injection safety practices among nurses in a major referral hospital in northeastern Nigeria and found that most nurses and other healthcare professionals followed safe injection procedures. Their study did, however, identify certain shortcomings and difficulties in certain units/wards, such as the absence of adequate disposable injection equipment for both sharp and non-sharp infectious waste, the infrequency of running water and soap for hand washing, and the disregard for general precautions that could have decreased the possibility of a small number of staff members contaminating injection materials. Additionally, some units failed to offer assistance and guidance to employees who reported being cut by sharp objects, and there was a low uptake of the hepatitis B vaccination among healthcare professionals. Therefore, it was necessary to make investments in the ongoing education of nurses and other healthcare professionals as well as in the provision of support supervision and logistics to guarantee that they follow accepted protocols. According to Onyemocho et al. (2013), working under pressure and facing significant social, political, and

economic challenges are among the reasons why nurses fail to follow injection safety protocols, putting patients and healthcare providers at risk of both infectious and non-infectious adverse events. According to Gyawali et al. (2013), the aforementioned problems indicate that the facilities do not have a management policy or waste disposal rules, which poses a significant obstacle to the practice of injection safety.

EMPIRICAL FRAMEWORK

In Jimma University Medical Center, Jimma Southwest Ethiopia, nurses' knowledge and practices about injection safety were evaluated by Birhanu (2019). The study was carried out in the Oromia Regional State's Jimma Zone at the Jimma University Medical Center. A cross-sectional study that was institution-based was conducted by selecting 247 nurses using a basic random selection technique. Utilizing a self-administered questionnaire, data were gathered. In order to characterize the study variables and pinpoint variables related to injection safety practices, descriptive statistics and the chi-square test were employed. Approximately 287 individuals, or twenty nine percent, demonstrated strong awareness of injection safety procedures. Injectable safety practice levels were 63, or 25.5%. The study's conclusions also shown a statistically significant correlation between the amount of education ($p=0.003$, $df=1$), sex ($p=0.048$, $df=1$), and years of experience ($p=0.000$, $df=3$) and injection safety practices among nurses employed by Jimma University Medical Center. This study showed that Jimma University Medical Center nurses had inadequate knowledge and practice regarding injection safety. It was consequently suggested that Jimma University Medical Center and other relevant parties hold frequent training sessions and workshops on injection safety.

In Ilorin, Nigeria, Oladimeji et al. (2016) evaluated the injection safety protocols used by Primary Health Care Workers (PHCWs). Using multistage sampling approaches, a descriptive cross-sectional study involving 336 PHCWs from the three Local Government Authorities in Ilorin city was conducted. The pretested questionnaire and observation checklist served as the research tools. The EPI-INFO software suite was utilized to examine the generated data. A p-value of less than 0.05 was the predefined threshold of significance. The study found that although 320 respondents (95.2%) utilized safety boxes to collect used needles and syringes right away, 181 respondents (53.9%) used burn and burial, and 98 respondents (29.2%) used local incineration for the last disposal of used needles. A portion of the PHCWs continued to employ risky techniques, such as open dumping (11, 3.3%), burial (29, 8.6%), and dumping in any pit (five, 1.5%). After an injection was given, it was noted that 26 (86.7%) health establishments recapped their needles. Needles were also seen outside the safety box in 24 (80%) of the health institutions that we visited, and on the premises of 10 (33.3%) of the health facilities that we visited, we also found used needles. It was determined that PHCWs in Ilorin City engaged in a high rate of dangerous injection practices, and local government authorities were advised to provide the PHCWs with supporting monitoring and training.

Theory of Reasoned Action (TRA) by Martin Fishbein and Icek Ajzen (1975)

A broad theory of behavior, the Theory of Reasoned Action (TRA) was first presented by Martin Fishbein in 1967. It was later expanded upon by Fishbein and Icek Ajzen in 1975

and 1980, respectively. The theory started with the idea that the simplest and most effective way to predict a given behavior was to ask a person whether they were going to perform that behavior or not. It was developed primarily in response to the repeated failure of traditional attitude measures to predict specific behaviors. Thus, the theory states that an individual's intention to perform (or not perform) a given behavior, defined as the subjective likelihood that one will perform (or try to execute), is what ultimately determines whether an individual performs the behavior or not.

The purpose of the TRA is to clarify how attitudes and behaviors relate to one another in human behavior. Its primary application is in behavior prediction, based on an individual's pre-existing opinions and behavioral intentions. An individual chooses to participate in a specific behavior depending on the results they hope to achieve from the behavior.

The main goal of the TRA is to comprehend a person's voluntary behavior by looking at the fundamental reasons why they act in a certain way. According to TRA, the primary indicator of whether or not someone will carry out a behavior is their intention to do so. The normative element, which includes social norms related to the behavior, also influences whether or not the individual will carry out the behavior. The notion states that an action's intention comes before its actual execution. This intention, often referred to as behavioral intention, is the result of a conviction that carrying out the behavior will produce a particular result. Because behavioral intentions "are determined by attitudes to behaviors and subjective norms," they play a crucial role in the theory. Stronger intentions, according to TRA, are thought to result in greater effort to carry out the behavior, which raises the possibility that it will be carried out.

According to Fishbein, these rational actions were as follows:
Behaviour

TRA makes an effort to foresee and clarify a person's purpose to carry out a specific behavior. According to the theory, behavior must be precisely described in terms of the following four concepts: Action (e.g., go, get); Target (e.g., mammography); Context (e.g., at the breast screening center); and Time (e.g., in the next 12 months). As on TRA, people's attitudes and norms are the two primary drivers of behavioral intention, with behavioural intention being the primary motivator of behaviour.[8] Researchers can determine if a subject will carry out the anticipated activity by looking at attitudes and subjective norms.

Attitudes

As per TRA, attitudes—which relate to people's feelings regarding a specific behavior—are among the primary determinants of behavioral intention. Two elements influence these attitudes: one's assessment of the possible outcomes (i.e., if the outcome is positive) and the degree to which one believes that the behavior will result in the desired consequence (i.e., whether the outcome is probable). Positive, negative, or neutral attitudes might be held about a certain behavior. According to the theory, attitudes and results are directly correlated,

meaning that people are more likely to have a positive attitude toward a behavior if they believe it will result in a desirable or favorable outcome. On the other hand, one is more likely to have a negative attitude toward a behavior and have an impact on the decision to adopt an innovation if they think that the behavior will have an unwanted or bad effect.

Behavioural Belief

Understanding people's motivations for their actions in light of the consequences of their actions is made possible by behavioral beliefs. According to this theory, people frequently identify particular behaviors with particular results or characteristics. For instance, someone may think that if they study for a month before taking the driver's license exam, they would pass even though they failed it the first time around and didn't study at all. In this case, the behavioral assumption is that a month of study is equivalent to success, whereas not studying at all is equivalent to failure.

METHODOLOGY

This study employed a non-experimental descriptive method. This research was carried out in the Akwa Ibom North East Senatorial District of Nigeria. The population of the study consisted of 191 nurses in the 18 secondary healthcare facilities in Akwa Ibom North East Senatorial District. A sample of ninety 90 nurses offering direct patient care out of 191 nurses were selected from nine out of 18 secondary healthcare facilities in Akwa Ibom North East Senatorial District. Purposive sampling technique was used for the study. A researcher designed instrument tagged "Awareness of Practice of Injection Safety and Safe Injection Practice Questionnaire (APISSIPQ) was used to collect data for the study. Validity was ensured through the use of well-structured questionnaire and validation by the supervisor and two lecturers in the Department of Nursing, University of Uyo, Uyo. Descriptive and inferential statistics were employed to evaluate the data, and the Statistical Package for Social Sciences (SPSS) Version 23 (IBM, Armonk, NY) was utilized. The chi-square test was used to establish the association between the variables, and a p-value of 0.05 was selected for statistical significance.

Presentation and Analysis of Data According to Research Questions Research Question One

What is the attitude of nurses towards injection administration in secondary health facility in Akwa Ibom North-East Senatorial District?

Table 1: Responses of attitude of nurses towards injection administration

	Attitude of nurses	Yes	No
1	I respect the dignity of patients	90 (100%)	0(0%)
2	I communicate effectively with patient	88 (98%)	2 (2%)
3	I have passion for nursing	86 (96%)	4 (4%)
4	I have proper supervision	75 (83%)	15 (7%)
5	I pay attention to details	87 (97%)	3 (3%)

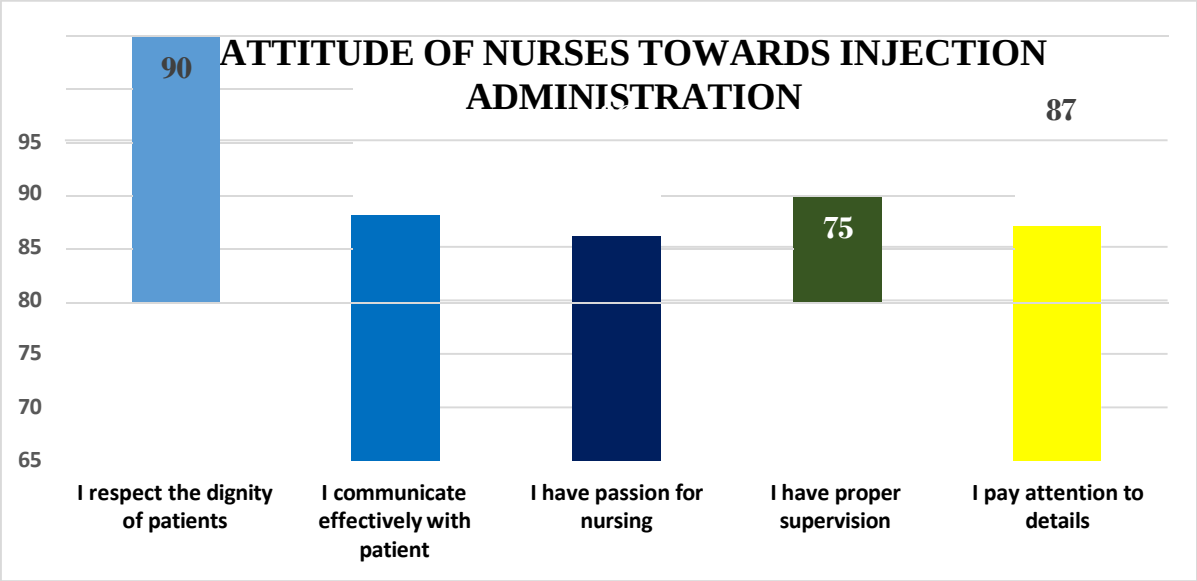

Table 1 shows the responses on attitude on nurses towards injection administration where 100 percent of nurse respondents perceived themselves to respect the dignity of patients. 98 percent of the respondents clearly perceived themselves as communicating effectively with the patient. 96 percent of respondents admitted having passion for nursing and 97 percent say they pay attention to details in injection administration. 75 percent admitted to having proper supervision while 15 percent said that they do not.

Research Question Two

What are the barriers to nursing practice in secondary health facility in Akwa Ibom North-East Senatorial District?

Table 4.5: Responses to barriers to nurses practice in secondary health facility

	Barriers to safety practices	Yes	No
1	Inadequate supply of safety materials	90 (100%)	0(0%)
2	Non-display of safety guidelines	90(100%)	0(0%)
3	Lack of training and retraining	85 (95%)	5 (5%)
4	Excessive work pressure	89 (99%)	1 (1%)
5	Emergency situations	87 (97%)	3 (3%)

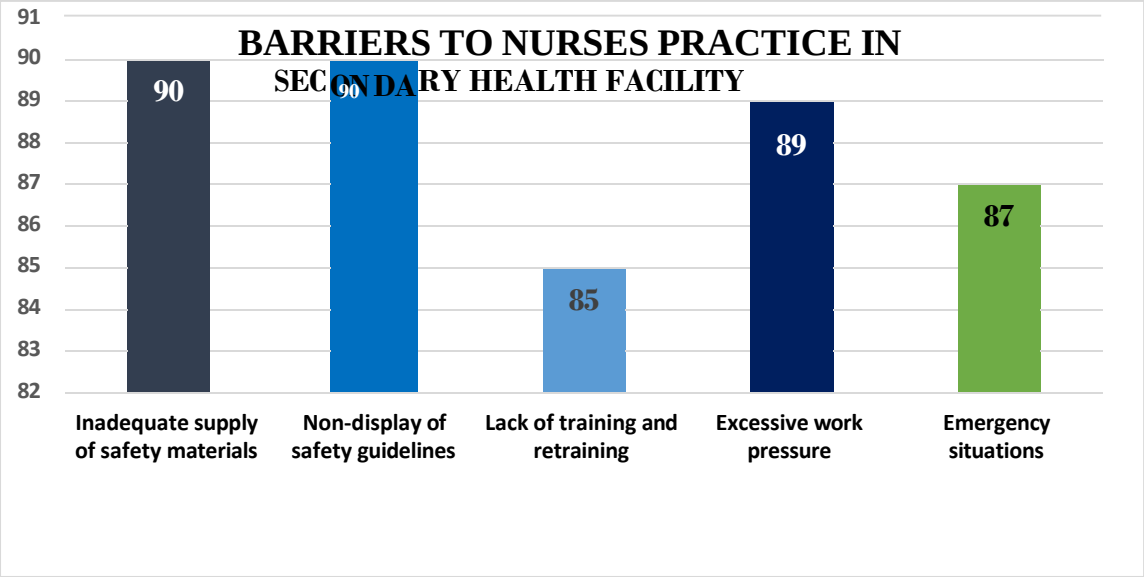

Figure 2: Bar chart showing Responses to barriers to nurses' practice in secondary health facility

Safety materials and non-display of safety guidelines as some of the barriers to safe nursing practice. 99 percent and 97 percent of the respondents attributed excessive work pressure and emergency situations respectively as barriers to effective safety practices. Also 95 percent of respondents said lack of training and retraining were part of barriers to safe nursing practices.

Hypothesis Testing Hypothesis 1

There is no significant relationship between attitude of nurses and practice of injection safety at secondary health facilities in Akwa Ibom North-East Senatorial District.

Table 3: Chi-square analysis of attitude of nurses and practice of injection safety

			Safe injection practice			df	X^2	P-value	Decision at 0.05 alpha level
			Yes	No	Total	1	38.05	0.001	Significant
Attitude of nurses	Yes	n	82	1	83				
		%	98.8%	1.2%	100.0%				
	No	n	4	3	7				
		%	57.1%	42.9%	100.0%				
Total		n	86	4	90				
		%	95.6%	4.4%	100.0%				

A p-value of 0.001 less than 0.05 alpha level of significance is determined for the X^2 value of 38.05 at 1 degree of freedom, which is significant (X^2 = 38.05, df = 1, p-value = 0.001 ≤ 0.05), according to the results of testing hypothesis 3. These results are displayed in Table 4.10. Consequently, it is determined that there is a strong correlation between nurses' attitudes and safe injection practices, rejecting the null hypothesis and accepting the alternative.

Hypothesis 2

There is no significant relationship between barriers to nursing practice and practice of injection safety at secondary health facilities in Akwa Ibom North-East Senatorial District.

Table 4: Chi-square analysis of barriers to nursing practice and practice of injection safety

			Safe injection practice			df	X^2	P-value	Decision at 0.05 alpha level
			Yes	No	Total	1	22.34	0.002	Significant
Barriers to nursing practice	Yes	n	81	1	82				
		%	98.8%	1.2%	100.0%				
	No	n	5	3	8				
		%	62.5%	37.5%	100.0%				
	Total	n	86	4	90				
		%	95.6%	4.4%	100.0				

Test result 4 (X^2 = 22.34, df = 1, p-value = 0.002 ≤ 0.05) is shown in Table 4.11 and indicates that the X^2 value is significant at computed p-value of 0.002 less than 0.05 alpha level of significance at 1 degree of freedom. As a result, the alternative—that there is a strong correlation between safe injection methods and barriers to nursing practice—is accepted and the null hypothesis is rejected.

CONCLUSION

The study concluded that there is a strong correlation between safe injection methods and barriers to nursing practice—are accepted and the null hypothesis is rejected. The result from the studies determined that there is a strong correlation between nurses' attitudes and safe injection practices, rejecting the null hypothesis and accepting the alternative.

RECOMMENDATIONS

- Employees who reported suffering sharp injuries should be given support and counseling services.
- More seminars on the significance of injection safety should be held by hospital infection control units, nursing services, and continuing education departments.

REFERENCES

Adejumo, P. O. & Dada, F. A. (2013). A comprehensive study on knowledge and practice of injection safety among nurses in two hospitals in Ibadan, Nigeria. *International Journal of Injection Control*, 4 (1), 55-156.

Aziz, A., Reuben, K. E. & Winfred, D. (2013). Assessment of injection safety practices in health facilities in Bingo and Tahensi districts in the Upper East Region of Ghana: Part 1-injection safety practices. *International Journal of Scientific and Technology Research*, 2(11), 359-369.

Bellis, M. (2019). Clinical Nursing, Department of primary care and Health Systems Nursing, Southern Illinois University (6th Ed). Edward Ville, Illinois. Elsevier limited.

Birhanu, U. (2019). Injection safety knowledge and practice among nurses in Jimma University Medical centre, Jimma southwest Ethopia. *Community Medicine and Public Health Care*, 97 (10), 708-712.

Dulon, M., Lisiak, B., Wendeler, D. & Nienhaus, A. (2017). Causes of needle stick injuries in three healthcare settings: analysis of accident notifications registered six months after the implementation of EU directive 2010/32/EU in Germany. *Journal of Hospital infection*, 95(3), 306-311.

Ezenwuba, C. O., Osuala, E. O., Ibe, S. N. O. & Neji, O. I. (2019). Perception of injection safety measures among in-service training nurses in selected health facilities in Owerri Senatorial Zone, Imo State, Nigeria.Federal Ministry of Health, JSI/MMIS (2017) *Do no harm: Injection safety in the context of infection prevention and control trainer's guide*. FMOH and JSI/MMIS, Nigeria 1-126.

Gadzama, G. B., Bawa, S. B. & Ajinoma, Z. (2014). Injection safety practices among nurses in a main referral hospital in north eastern Nigeria. *Niger J. Clin Pract*, 2(1), 253-168, DOI: 10.4103/1119-3077.127420.

Gyawali, S., Rathore, D. S., Shankar, P. R. & Kumar, K. V. (2013). Strategies and challenges for safe injection practice in developing countries. *J Pharmacol Pharmacother*, 4(1), 8–12. https://doi.org/10.4103/0976-500X.107634Joseph and Joseph (2016),

Miller, M. A & Pisani, E. (2019). The cost of unsafe injections. *Bulletin of the World Health Organization*, 77 (10), 808-811.

Ministry of Health (2017). National policy on injection safety and healthcare waste management. Abuja, Nigeria.

Oladimeji, A. B., Adekunle, G. S., Sunday, A. A., Omotoso, I. M., Tanimola, M. A. & James, O. B. (2016). Injection safety practices among Primary Health Care Workers (PHCWs) in Ilorin, Nigeria. *Health Science Journal. www.hsj.gr*.

Onyemocho, A., Istifanus, J. A. & Enokela, O. P. (2013). Level of knowledge among nurses and doctors about injection safety in Nigerian Prison service health facilities in Kaduna State. *American Journal of Public Health Research,* 1 (7), 171-176.

Rehan, H. S., Chopra, D., Sah, R. K., Chawla, T., Agarwal, A. & Sharma, G. K. (2021). Injection practices of healthcare professionals in a Tertiary Care Hospital. *Journal of Infection and Public Health*, 5(2), 177-181.

Salman, M. (2022). Clinical nurse specialist for nursing practice and nursing information. Southwest General Health Center partnering with university hospitals health systems. Middleburg, Ohio. (6th Edi).

Sowande, A. O., Jibowu, O. L., Amaefule, K. E., Pearson, J. & Iyortim, I. (2014). Safe injection in the context of IPC – Changing landscape in Nigeria. *Int J Infect Control*, 10(1),1–4. https://doi.org/10.3396/IJIC.v10i1.005.14.

World Health Organization (2014). Safety of injection: Global facts and figures. *The Pan African Medical Journal,* 1-2.

World Health Organization (2013b). WHO best practice for injections and related procedures tool kit. Geneva.