

# Perception and Practice of Aseptic Technique Among Nursing Students in Holy Rosary Hospital Emekuku, Owerri-North, Imo State

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## Abstract

Medical professionals utilise the aseptic approach to stop infections from spreading. Achieving asepsis—an environment devoid of dangerous microorganisms—is the aim of the aseptic technique. The purpose of this study was to use a descriptive survey methodology to investigate how nursing students at Holy Rosary Hospital in Emekuku, Owerri-North, Imo State, perceive and apply aseptic technique. Four distinct objectives served as the study's compass, and it was from these that four research questions were developed. Purposive sampling was used to choose a sample size of 177 respondents from the study's target group, which consisted of 317 nursing students. The tool used to collect the data was a well-structured questionnaire that was deemed reliable for the study after being evaluated by an expert. Frequency, percentage, and mean—all descriptive statistics—were used to analyse the data, and SPSS version 22.0 was used to generate them. According to the study's findings, the grand mean of 3.24 indicates that students have a positive opinion of aseptic technique, 3.32 indicates that all respondents accepted all items and practiced aseptic technique well, 3.43 indicates that respondents were well-informed about the negative effects of poor aseptic technique practice, and 3.99 indicates that students have good strategies for improving their aseptic technique. The students came to the conclusion that aseptic method may be utilised to prevent microbial contamination and should be applied in all procedures. These findings led to the recommendation that hospitals and other health facilities offer facilities and equipment to enhance the use of aseptic technique.

## Keywords

Perception, Practice, Aseptic Technique, Nursing Student, Hospital

## 1. Introduction

The way nursing students view and use aseptic technique has a significant impact on how well they implement infection prevention and control strategies in clinical settings. Numerous research have looked into how students view aseptic procedures and how these views affect their practices, academic performance, and patient safety in medical settings [1].

Medical professionals utilise the aseptic approach to stop infections from spreading. Achieving asepsis—an environment devoid of dangerous microorganisms—is the aim of the aseptic technique. Aseptic technique as a procedure intended to avoid microbial contamination. To reduce the chance of contracting an illness, it entails following the most stringent guidelines and making use of the knowledge that has been gained regarding infection prevention [2].

It was discovered that although nursing students understood the fundamentals of aseptic procedures, they lacked the confidence to use them when providing patient care. This was mostly ascribed to either inadequate training direction or a lack of clinical exposure [3].

In order to lower the risk of illnesses linked to healthcare, nursing students are expected to get training in these strategies and follow infection prevention guidelines, particularly during clinical rotations[4]

Asepsis, or the absence of pathogenic organisms in the clinical setting, is maximised and maintained by the use of aseptic technique. Protecting the patient from infection and stopping the spread of pathogens are the two main objectives of aseptic technique. The goal of aseptic method is to stop pathogenic organisms in large enough quantities from infecting vulnerable body areas through the hands of personnel, surfaces, or equipment[5].

Although they describe difficulties in strictly adhering to aseptic technique in real-life clinical circumstances, nursing students frequently view aseptic technique as extremely important. Significant obstacles were identified as stress, time restraints, and a lack of monitoring. [6]

Every healthcare facility has a unique set of procedures for reaching asepsis. Aseptic procedures are crucial for avoiding hospital-acquired infections, which can result in increased expenses from extended hospital stays as well as morbidity and mortality. Examining how nursing students practise and perceive aseptic technique in relation to following basic

safety precautions is crucial because, in the last few decades, the lack of use of aseptic technique in healthcare settings has resulted in nosocomial infections being reported as a serious public health threat in the majority of African hospitals. Infection is still an undesirable side effect of healthcare that frequently causes patients to suffer severe injury, despite the nurses' best efforts. "A hospital acquired infection is an evil that one acquires where one hopes to lose one's own disease," said Johan Peter Frank, the director of the general hospital in Vienna circa 1800. The primary issue is not a lack of evidence-based guidelines and effective approaches, but rather the underutilisation of these measures by healthcare professionals. One of the key components of enhancing the use of aseptic technique, which is necessary for infection control in healthcare, is changing the perception of healthcare personnel [7].

the impact of an interventional program on the aseptic approach used by nursing staff in operating rooms. Their study, which comprised 60 nurses and was conducted at Al-Diwaniya Teaching Hospital between October 2021 and April 2022, sought to determine how the training affected the improvement of aseptic technique practices. Prior to the training, most participants had a moderate awareness of aseptic technique practices, according to the study. Nonetheless, following the program, the nurses' practices shown a notable improvement [8].

In order to guarantee that nursing staff members follow appropriate aseptic procedures, which will ultimately lower the risk of infections and enhance patient safety, the researchers underlined the significance of continual education and training. According to studies, the risk of surgical site infections (SSIs) is decreased when aseptic procedures are followed throughout procedures [9].

In healthcare settings, properly cleaning and disinfecting surfaces helps lessen the spread of diseases like Norovirus, MRSA, and *Clostridium difficile*. Although cleaning is necessary, infection control efforts may be hampered by using ineffective disinfectants, poor cleaning methods, and insufficient frequency of cleaning [10].

Even without sophisticated medical equipment, studies indicate that low-cost IPC practices (such as hand hygiene, basic personal protective equipment, and environmental cleaning) can dramatically lower infection rates in low-resource healthcare settings [11].

According to a comprehensive analysis, infection rates in healthcare settings are considerably decreased by ongoing teaching on infection prevention methods, such as hand cleanliness and aseptic procedures. Research on aseptic technique is still crucial, and many studies show how important interventions like PPE, environmental cleaning, and hand hygiene are in lowering healthcare-associated infections (HAIs). Nonetheless, issues like inadequate training and scarce resources in specific contexts continue to exist [12].

Based on this, the researcher aims to find out how nursing students at Holy Rosary Hospital Emekuku in Owerri, Imo State, perceive and use aseptic practices.

The skin is the biggest and most vital organ in the body. In order to repair the skin's integrity after a wound occurs, the skin and its constituent parts participate in the healing process [13].

Because it is the body's first line of defence against infection, healthy skin is crucial for preventing illness or infection. Any intrusive procedure, such as passing an intravenous cannula, should be performed aseptically [14]. Many nurses do not appear to be using aseptic practices, despite their education, training, and ongoing efforts to promote them. Based on this submission, the researcher plans to conduct a study on how nursing students at Holy Rosary Hospital Emekuku, Imo State, perceive and apply aseptic technique, the effects of improper aseptic technique practice, and strategies for enhancing aseptic technique practice.

## **2. Materials and Methods**

### **2.1 Design**

The researcher used a descriptive survey design to determine the perception and practice of aseptic technique among nursing students in Holy Rosary Hospital Emekuku.

### **2.2 Setting**

The study was carried out in Holy Rosary Hospital Emekuku, Owerri North Local Government Area, Imo State. The hospital is located along Owerri Umuahia road. It is bounded in east by Nkwo-emeke, in the west by Ezeogba, in the north by Ezedibia, and in the south by Emii.

People living in Emekuku Owerri north are mostly farmers, market sellers/traders and provision store sellers. Mostly Igbo speaking people and dominated by Christians. They have a culture/tradition which they celebrate every 23<sup>rd</sup> November known as Uguzo. They are not known as cultist community, hence, few youths struggle to further their education in the tertiary level while others mostly the men engage in agents for selling and renting properties, then they rest set up some good reasonable businesses. However, they have approximately 4-6 hotels, 2-3 fuel station, gas station and 1 health center.

The hospital was built in 1932. Hence, inside the hospital environment, there is school of Nursing which was established in 1932, made up of male and female students who are undergoing educational and practical nursing for three years and is headed by Rev. Sr. Mary Roseflora Ekperinwa as the principal while the hospital is headed by Rev. Fr.

Justine Okoro as director with Rev. Sr. Ivan Marie M. as the Hospital matron. They are governed by the Archdioceses of Owerri.

The hospital is made up of two main departments; administrative and clinical block. The hospital comprises of 17 units with one mortuary and a canteen. They are: Emergency unit, outpatient unit, obstetrics and gynecology unit, ophthalmology unit, neurology unit, dietitian unit, dental unit, orthopedics unit, cardiology, special care baby unit, chest unit/comprising Christian Relieve Service and Tuberculosis), pediatric unit, general surgery unit, diagnostic unit, laboratory unit, pharmacy unit and center for sterile supply department.

The above unit/wards listed are fully equipped with their appropriate equipment, and instrument needed to use on patient. The hospital has total of 41 doctors, 75 licensed Nurses, 15 pharmacists and 10 lab scientists. The reason for choosing the setting is that the respondent can easily be assessed by the researcher and his assistant, in that the hospital gave a maximum assess for student undergoing educational and practical studies to carry out research work.

### 2.3 Target Population

The target population of the study comprises of three classes in nursing department, first year batch A, second year batch A and third year batch B all in Holy Rosary Hospital, Emekuku, first year batch A class has a total population of 108 students, second year batch A class has a total population of 117 students and third year batch B class has total population of 92 students. This gave the target population of 317.

### 2.4 Sample Technique

In this study, a multistage sampling technique was used to select the sample used for the study.

Firstly, using the stratified random sampling techniques, the researcher divided the classes into 3 strata which were; first year, second year and third year.

Secondly, purposive sampling technique was used to select the appropriate respondents which were all students.

Lastly, using the simple random technique and the homogenous nature of the group, a total of 60 student from first year class, 65 students from second year class and 52 students from third year class were chosen making it a total of 177.

This was achieved by using the ballot system. The researcher wrote 'YES' on 177 slots and 'NO' on 140 slots and the students were asked to pick.

The inclusion criteria which the researcher used for his respondents are as follows;

- ❖ They must be nursing students of Holy Rosary Hospital, Emekuku.
- ❖ They must be willing.

### 2.5 Instrument for Data Collection

The instrument for data collection was a well-structured questionnaire titled "Perception and Practice of Aseptic Technique among Nursing Students Questionnaire (P.P.A.T.N.S.Q)". The questionnaire was developed by the researcher after review of literature and objectives. The questions and statement were structured in such a way that it will be able to answer the research questions. The questionnaire was measured using a 4 point Likert type scale. The variables were weighted as follows; Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points and Strongly Disagree (SD) = 1 point. The questionnaire contains 20 items generally, which comprises of section A = 5 item, section B = 5 items, section C = 5 items and section D = 5 items.

### 2.6 Validity of the Instrument

Face and content validity of the instrument were carried out by given a draft copy of the instrument to the project supervisor and to an expert in College of Nursing Science, Holy Rosary Hospital Emekuku Owerri, who made appropriate corrections and suggestions that helped the instrument to meet the face and content validity. The irrelevant items were removed and more relevant ones added. Recommendation and corrections made by the validate was used to produce the final copy of the instrument. Only the items accepted by the validate was used for data collection.

### 2.7 Reliability of the Instrument

The reliability of the instrument was established with a trial test administered on 20 respondents at College of Nursing Umulogho, Obowo, Imo State. This was so because, these respondents in College of Nursing Umulogho have the same experience regarding knowledge, attitude and practice towards hand hygiene practices and they are not part of the study sample. The reliability index of the instrument was determined by using Cronbach's Alpha. For the Perception of nursing students towards aseptic technique, practice of aseptic technique among nursing students and consequences of poor practice of aseptic technique among nursing students, ways of improving aseptic technique practice among nursing students, the co-efficient alpha of the three sections were 0.801, 0.801, 0.801 and 0.801 respectively, which gave overall reliability index mean of 0.801. Hence, shows that the instrument is reliable.

## 2.8 Ethical Consideration

The research was carried out in College of Nursing, Holy Rosary Hospital Emekuku, Imo State.

- Permission was obtained from the provost of the school.
- The researcher also ensured that informed consent was obtained from the respondents used in the study.
- The purpose of the study was explained to them to elicit their co-operation.
- Assurance of anonymity and confidentiality was given to them before data collection.
- The right of the respondent was respected.
- Finally, voluntary participation was ensured.

## 2.9 Method of Data Collection

The researcher obtained an introduction letter from Provost of the College of Nursing Science, Emekuku, who is also the school principal for her permission to carry out the study. The purpose to carry out the study was explained to her in order to gain her co-operation and support.

The researcher and his trained personnel administered questionnaire to the students. The researcher and his assistants did on the spot administration and retrieval to ensure 100% return rate. A total of 177 questionnaires were distributed to the respondents, same were retrieved, properly filled and found useful for the study showing 100% retrieval rate.

## 3. Method of Data Analysis

The data collected were collated and analyzed using frequency, percentage and mean which are descriptive statistics. The descriptive statistics were used in answering the research questions. Any item that score mean value of 2.5 and above were regarded as Agreed while any item with mean value less than 2.5 were regarded as Disagreed. The computation of data was done using the Statistical Package for Social Sciences (SPSS) version 22.0 while the results were presented in table.

## 4. Results

The results were presented in tables.

Table 1 shows that majority 139 (78.3%) of the students were females, only 38 (21.7%) were males. Most of the respondents were between the ages of 20 – 30 years old as 111 (62.6%) are between 20 – 30 years old, 34 (19.2%) are below 20 years and while 32 (18.1%) are above 30 years old. Out of the 177 (100%) participants, all (100%) respondents were from College of Nursing. Most of the respondents are 1<sup>st</sup> year respondents 60 (34.0%), 2<sup>nd</sup> year respondents 64 (36.0%) while 3<sup>rd</sup> year respondents 53 (30.0%). All of my respondents are Christians 177 (100%).

**Table 1.** Demographic Variables of the Respondents (n: 177) 100%

S/N	Variables		Frequency	Percentage
1.	Gender	Male	38	21.7
		Female	139	78.3
2.	Age Distribution	Below 20 years	34	19.2
		20 – 30 years	111	62.7
		Above 30 years	32	18.1
3.	Level of Study	1 <sup>st</sup> Year	60	34.0
		2 <sup>nd</sup> Year	64	36.0
		3 <sup>rd</sup> Year	53	30.0
4.	Religion	Christian	177	100.0
		Muslim	0	0
		Traditional	0	0
<b>Total</b>			<b>177</b>	<b>100.0</b>

The criterion mean for this study is 2.5. Hence, weighted mean response equal to or above the criterion mean (2.5) denotes rejection region. The analysis on table 2 which seeks to investigate the perception of aseptic technique shows a grand mean of 3.24 which exceeded the criterion mean of 2.5. This gives the general conclusion that the respondents accepted most of the items as their opinions on perception of aseptic technique. Specifically, the weighted mean response for most of the items raised exceeded the criterion mean (i.e 3.36, 3.90, 3.79, 3.34 >2.5 respectively). Hence, the perception of aseptic technique are: Aseptic technique is crucial in preventing hospital-acquired infections, their clinical training has adequately prepared them to apply aseptic techniques in patient care, health care professionals in the hospital consistently follow aseptic technique protocols, they feel confident in their ability to practice proper aseptic technique during clinical procedures. The respondents rejected that the hospital provides enough resources to maintain aseptic techniques.

**Table 2.** Perception of aseptic technique (n = 177)

S/N	Perception of Aseptic Technique	SA 4	A 3	D 2	SD 1	Total	Mean	Remark
1	Aseptic technique is crucial in preventing hospital-acquired infections.	90	65	17	5	594	3.36	Agree
2	My clinical training has adequately prepared me to apply aseptic techniques in patient care.	160	17	0	0	691	3.90	Agree
3	The hospital provides enough resources to maintain aseptic techniques.	13	11	86	67	324	1.83	Disagree
4	Health care professionals in the hospital consistently follow aseptic technique protocols	140	37	0	0	671	3.79	Agree
5	I feel confident in my ability to practice proper aseptic technique during clinical procedures	100	56	15	6	592	3.34	Agreed
<b>Grand mean</b>							<b>3.24</b>	<b>Agreed</b>

#### Criterion Mean = 2.5

The analysis on table 3, which seeks to investigate the practice of aseptic technique shows a grand mean of 3.32 which exceeded the criterion mean of 2.5. This gives the general conclusion that the respondents accepted the items as their opinion on the practice of aseptic technique. Specifically, the weighted mean response of the items raised exceeded the criterion mean (i.e 3.27, 2.93, 3.62, 3.49, 3.31 >2.5 respectively). Hence, the practice of aseptic technique are: Aseptic technique is not practiced 100%, aseptic technique should be applied in all procedure, Sterile gloves should be worn during delivery, Gloves should be worn for every procedure and sterile gloves should be used for wound dressing. This shows that the students had a good practice of aseptic technique.

**Table 3.** Practice of Aseptic Technique (n = 177)

S/N	Practice of Aseptic Technique	SA 4	A 3	D 2	SD 1	Total	Mean	Remark
1	Aseptic technique is not practiced 100%	69	87	11	10	580	3.27	Agree
2	Aseptic technique should be applied in all procedure.	86	32	25	34	520	2.93	Agree
3	Sterile gloves should be worn during delivery	113	61	3	0	641	3.62	Agree
4	Gloves should be worn for every procedure.	90	85	2	0	619	3.49	Agree
5	Sterile gloves should be used for wound dressing	89	66	11	11	587	3.31	Agree
<b>Grand Mean</b>							<b>3.32</b>	<b>Agreed</b>

**Source:** Field Survey, (2025)

#### Criterion Mean = 2.5

The analysis on table 4 which seeks to investigate the consequences of poor practice of aseptic technique shows a grand mean of 3.43 which exceeded the criterion mean of 2.5. This gives the general conclusion that the respondents accepted the items as their opinion on the consequences of poor practice of aseptic technique. Specifically, the weighted mean response of the items raised exceeded the criterion mean (i.e 3.42, 3.33, 3.41, 3.32, 3.65 > 2.5 respectively). Hence, the consequences of poor practice of aseptic technique are lack of practices of aseptic technique can cause wound breakdown, poor practice of aseptic technique causes nosocomial infection, poor practice can cause septicemia which

can lead to death, poor practice of aseptic technique can lead to overstay of patient in the hospital and poor practice of aseptic technique can cause bloodstream infections. This shows that the respondents had a good knowledge on the consequences of poor practice of aseptic technique.

**Table 4.** Consequences of Poor Practice of Aseptic Technique

S/N	Consequences of Poor Practice of Aseptic Technique	SA 4	A 3	D 2	SD 1	Total	Mean	Remark
1	Lack of practices of aseptic technique can cause wound breakdown	85	82	10	0	606	3.42	Agree
2	Poor practice of aseptic technique can cause nosocomial infection.	75	88	11	3	589	3.33	Agree
3	Poor practice can cause septicemia which can lead to death	84	83	9	1	604	3.41	Agree
4.	Poor practice of aseptic technique can lead to overstay of patient in the hospital	80	79	13	5	588	3.32	Agree
5	Poor practice of aseptic technique can cause bloodstream infections	128	39	8	2	647	3.65	Agree
<b>Grand Mean</b>							<b>3.43</b>	<b>Agreed</b>

Source: Field Survey, (2025)

Criterion Mean = 2.5

The analysis on table 5 which seeks to determine the ways of improving aseptic technique shows a grand mean of 3.99 which exceeded the criterion mean of 2.5. This gives the general conclusion that the respondents accepted the items as their opinion on the ways of improving aseptic technique. Specifically, the weighted mean response of the items raised exceeded the criterion mean (i.e 4.00, 3.98, 4.00, 3.98, 4.00 > 2.5 respectively). Hence, the ways of improving aseptic technique are: hospital management should make it compulsory for student to practice aseptic technique, poor utilization of aseptic technique should be punishable, institution should make protective devices available for their worker, sterilization and autoclaving equipment should be well equipped and properly managed and proper training should be given to nursing students on aseptic procedures. This reveals that they students has good ways of improving aseptic techniques.

**Table 5.** Ways of improving Aseptic Technique Practice among students

S/N	Ways of Improving Aseptic Technique Practice	SA 4	A 3	D 3	SD 4	Total	Mean	Remark
1	Hospital management should make it compulsory for students to practice aseptic technique	177	0	0	0	708	4.00	Agree
2	Poor utilization of aseptic should be punishable	173	4	0	0	704	3.98	Agree
3	Institution should make protective devices available for their worker.	177	0	0	0	708	4.00	Agree
4.	Sterilization and autoclaving equipment should be well equipped and properly managed.	175	2	0	0	704	3.98	Agree
5.	Proper training should be given to nursing students on aseptic procedures.	177	0	0	0	708	4.00	Agree
<b>Grand Mean</b>							<b>3.99</b>	<b>Agreed</b>

Source: Field Survey, (2025)

Criterion Mean = 2.5

## 5. Discussion

The study's findings revealed that the perception of aseptic technique is that it is critical in preventing hospital-acquired infections, that clinical training adequately prepares students to apply aseptic techniques in patient care, that healthcare professionals in the hospital consistently follow aseptic protocols, and that they are confident in their ability to practise proper aseptic technique during clinical procedures. The findings are consistent with the study conducted by [15], who discovered that nurses and doctors are aware and have a positive attitude towards aseptic technique. This demonstrates that a thorough understanding of aseptic technique is a useful means of guaranteeing quality care.

The respondents agreed that aseptic technique is not always utilised, that it should be used in all procedures, that sterile gloves should be worn throughout delivery, that gloves should be worn for all procedures, and that sterile gloves should be used to dress wounds. They correspond to [16]'s study, which found that hand washing is one of the most significant aspects of infection control in general patient care. Organisms on the hand are either resident or temporary; transient organisms associated with an infected patient or infected equipment can be quickly eradicated with an appropriate hand washing approach.

The findings show that lack of practices of aseptic technique can cause wound breakdown, poor practice of aseptic technique causes nosocomial infection, poor practice can lead to death, unnecessary overstay of patient due to nosocomial infection, and poor practice of aseptic technique can cause bloodstream infections.

This is consistent with [17], who found that poor aseptic technique among nursing students leads to longer patient stays and even hospital-acquired illnesses. The use of sterile gloves for wound dressing reduces the risk of infection and its spread. It is also consistent with [18], who said in his study that inadequate aseptic technique is a significant risk factor for prolonged hospital stay.

According to the respondents, hospital management should make it mandatory for students to practise aseptic technique, poor aseptic technique use should be punished, institutions should make protective devices available for their employees, sterilisation and autoclaving equipment should be well equipped and properly managed, and nursing students should receive proper aseptic procedure training. This is consistent with the work of [19], who emphasised that nursing students should be well trained in various aseptic methods. Training students in diverse aseptic procedures reduces infection rates while also promoting health and wellness.

## 6. Conclusion

All procedures should employ aseptic techniques, which can be used to combat microbial infection. Indeed, employing sterile gloves during delivery and gloves for all procedures demonstrates good aseptic technique. The most serious effects of improper aseptic technique are wound collapse and mortality due to septicemia. As a result, making protective gear available and mandating that students practise aseptic technique are effective approaches to improve aseptic technique.

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