Original Research | TORGJ | Volume 2 Issue 3 | September 2026

DOI: https://doi.org/10.64573/torgj2602002

The Operating Room Global Journal (TORGJ)

https://torgjournal.org/

ISSN: 3105-3262

Crossref

OPEN ACCESS

Knowledge and Attitude of Staff Nurses at University of Ilorin Teaching Hospital Towards Nursing Anaesthesia Programme

Racheal Olufunmilayo Oyelude[1,5*], Chuwang Bitrus Zi[2,3], Phillip A. Ojo[4]

[1] Anaesthesia Unit, Department of Nursing services, University of Ilorin Teaching Hospital, Kwara State, Nigeria.
[2] Department of Urban and Regional Planning, Faculty of Environmental services, University of Jos.
[3] School of Post Basic Nursing Anaesthesia, Jos University Teaching Hospital. Plateau State, Nigeria.
[4] College of Nursing sciences, University College Hospital, Ibadan. Oyo State, Nigeria.
[5] The Operating Room Global (TORG)

***Corresponding Author:**
Racheal Olufunmilayo Oyelude
olufunmilayo2206@gmail.com

Declaration:
Authors' Contribution:
Racheal O. Oyelude - Conceptualisation, data collection, manuscript drafting and editing; Chuang B. Zi - Supervision, review and editing; Phillip A. Ojo - Review and editing.
Conflict of Interest: No conflict of interest.
Funding: No funding received.

Article History:
Received: 05-02-2026
Accepted: 19-08-2026
Available Online: 21-08-2026

QR access this Article

ABSTRACT

Background: Nursing anaesthesia is a specialized field of nursing practice that plays a vital role in the delivery of safe perioperative care. Despite the increasing demand for nurse anaesthetists in Nigeria, enrollment into the nursing anaesthesia programme remains low. Understanding nurses' knowledge, attitudes, and perceived barriers to enrollment is essential for developing strategies to strengthen the anaesthesia workforce.

Objective: To assess the knowledge and attitude of staff nurses towards the nursing anaesthesia programme and identify factors influencing enrollment at the University of Ilorin Teaching Hospital, Ilorin, Nigeria.

Methods: A descriptive cross-sectional study was conducted among 261 staff nurses selected using a total enumeration sampling technique. Data were collected using a structured self-administered questionnaire comprising sections on socio-demographic characteristics, knowledge, attitude, perceived barriers to enrollment, and suggested strategies for improving enrollment. Descriptive statistics were used to summarize the data, while Chi-square tests were employed to examine the relationships between age and awareness and between gender and willingness to enroll. Statistical significance was set at $p < 0.05$.

Results: Respondents demonstrated a high level of awareness of the nursing anaesthesia programme, with 92.0% correctly identifying it as a nursing specialty. Overall, 88.1% exhibited a positive attitude and willingness to enroll in the programme. Respondents perceived nursing anaesthesia as offering opportunities for professional advancement, independent and collaborative practice, and improved remuneration. Financial constraints (36.4%), lack of flexible entry pathways (24.5%), distance to training institutions (13.0%), and family-related responsibilities (11.1%) were the leading barriers to enrollment. Preference for locally available specialty programmes (54.8%) was identified as the principal reason for the low number of nurse anaesthetists. Respondents strongly supported expanding training institutions, providing financial assistance, upgrading the programme to a master's degree, and strengthening mentorship and clinical exposure as strategies for improving enrollment. A statistically significant relationship was observed between age and awareness ($\chi^2 = 30.12$, $df = 9$, $p < 0.05$), whereas no significant relationship was found between gender and willingness to enroll ($\chi^2 = 6.82$, $df = 6$, $p > 0.05$).

Conclusion: Staff nurses demonstrated high awareness and positive attitudes towards the nursing anaesthesia programme; however, enrollment remains constrained by financial, institutional, and accessibility barriers. Strengthening financial support, expanding training opportunities, improving awareness, and implementing supportive institutional policies may enhance enrollment and contribute to addressing the shortage of nurse anaesthetists in Nigeria.

Keywords: Nursing Anaesthesia Programme, Knowledge, Attitude, Enrollment, Nurse Anaesthetists, Nigeria.

INTRODUCTION

Anaesthesia services are indispensable to safe surgical care, obstetric interventions, emergency procedures, and critical care. Despite advances in healthcare delivery, the shortage of skilled anaesthesia personnel remains a major global challenge, particularly in low- and middle-income countries such as Nigeria. The growing demand for anaesthesia services continues to outpace the available workforce, and this gap is unlikely to be addressed by physician anaesthetists alone because of limited training capacity, brain drain, and the uneven distribution of specialists [14,18,19].

The shortage of anaesthesia providers is also evident at the University of Ilorin Teaching Hospital (UITH), where the demand for anaesthesia services has increased both within and outside the operating theatre. Although the hospital has a nursing workforce of approximately 750 staff nurses, fewer than ten were trained as nurse anaesthetists at the time of this study[21].

Nursing anaesthesia has emerged as a practical and sustainable strategy for addressing shortages of anaesthesia providers and improving access to safe anaesthesia services. Nevertheless, enrollment into nursing anaesthesia programmes remains low despite the increasing need for qualified personnel. This situation raises concerns about staff nurses' knowledge of the programme and their attitudes toward pursuing specialization. Previous studies have reported that inadequate awareness of the specialty, limited understanding of the roles of nurse anaesthetists, financial constraints, distance to training institutions, preference for other nursing specialties, inadequate mentorship, and insufficient institutional support may discourage nurses from enrolling in the programme [2,5,6].

This study is anchored on the Theory of Cognitive Dissonance proposed by Leon Festinger (1957) and the Theory of Operant Conditioning developed by B. F. Skinner (1938). Festinger's theory explains that individuals strive for consistency between their beliefs, attitudes, and behaviours. When new information challenges existing beliefs, individuals are motivated to modify their attitudes or behaviours to restore internal consistency. Skinner's theory, on the other hand, posits that behaviour is influenced by its consequences, with behaviours followed by positive reinforcement being more likely to be repeated. Applied to this study, increased knowledge and awareness of nursing anaesthesia may positively influence nurses' attitudes toward specialization, while institutional support such as financial sponsorship, favourable policy reforms, mentorship, clinical exposure through in-service education and clinical postings, and the transition of the nursing anaesthesia programme from a post-basic qualification to a master's degree may serve as positive reinforcers that encourage enrollment.

Against this background, this study assessed the knowledge and attitude of staff nurses at the University of Ilorin Teaching Hospital toward the nursing anaesthesia programme. Specifically, it sought to identify knowledge gaps regarding the programme, determine staff nurses' willingness to enroll in the nursing anaesthesia programme, identify factors responsible for the low enrollment of nurses into the specialty, and suggest motivating factors that could enhance participation in nursing anaesthesia training.

The findings of this study are expected to provide evidence for nurse educators, hospital administrators, policymakers, and professional nursing bodies in developing interventions to improve awareness of nursing anaesthesia, address barriers to enrollment, strengthen institutional support, and encourage specialization among nurses. Ultimately,

increased participation in nursing anaesthesia programmes will contribute to strengthening the anaesthesia workforce and improving the quality, safety, and accessibility of anaesthesia services in tertiary health institutions in Nigeria [15,18].

METHODS

Research Design

A descriptive cross-sectional research design was employed to assess the knowledge and attitude of staff nurses at the University of Ilorin Teaching Hospital towards the nursing anaesthesia programme. This design was considered appropriate because it allows for the systematic collection of data from a defined population at a single point in time.
The descriptive approach enabled the researcher to obtain detailed information on existing conditions, opinions, and practices while facilitating the analysis of relationships among the study variables. It is particularly suitable for studies that seek to describe the characteristics, knowledge, and attitudes of a specific population.

Study Population

The study population comprised registered nurses working at the University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria. At the time of the study, the hospital had an estimated nursing workforce of approximately 750 registered nurses distributed across various departments, units, and clinical specialties.
This population was considered appropriate for assessing staff nurses' knowledge and attitude towards the nursing anaesthesia programme.

Sample Size Determination

The sample size for this study was determined using the Taro Yamane formula:
[n=\frac{N}{1+N(e)^2}]
Where:
n = required sample size
N = target population (750)
e = margin of error (0.05), corresponding to a 95% confidence level
Substituting the values into the formula:
[n=\frac{750}{1+750(0.05)^2}].
[=\frac{750}{1+750(0.0025)}]
[=\frac{750}{2.875}]
[=260.87 \approx 261]

Therefore, the minimum required sample size was 261 respondents. However, a total of 296 respondents participated in the study through the Google Forms survey, thereby exceeding the minimum sample size and improving the precision of the findings.

Sampling Technique

The study initially proposed the use of stratified random sampling. However, due to the movement restrictions and safety measures imposed during the COVID-19 pandemic, convenience and purposive sampling techniques were adopted.
The questionnaire was converted into a Google Form and distributed electronically through readily accessible online platforms. The survey link was also shared within nursing WhatsApp and Telegram groups to reach registered nurses who met the inclusion criteria.

Although this approach facilitated efficient data collection during the pandemic, it may have introduced selection bias and consequently limited the generalizability of the findings to the entire nursing population.

Instrument for Data Collection
Data were collected using a self-structured questionnaire developed from the study objectives and relevant literature. The questionnaire consisted of closed-ended questions and was divided into five sections. Section A contained four questions on the socio-demographic characteristics of the respondents. Section B consisted of five questions assessing respondents' knowledge of the nursing anaesthesia programme. Responses were measured using three options: Yes, No, and Not Sure.

Section C comprised six questions assessing respondents' attitudes and willingness to enroll in the nursing anaesthesia programme. The first three questions were measured using the response options Yes, No, and Not Sure, while the remaining three questions were measured on a four-point Likert scale of Strongly Agree, Agree, Disagree, and Strongly Disagree. The use of different response formats within the same section may have introduced some measurement inconsistency and could limit the instrument's applicability in similar studies.

Section D contained two questions assessing perceived reasons for the low enrollment of nurses in the nursing anaesthesia programme. Respondents were asked to select the factors applicable to them from the options provided. This might also contribute to poor construct and very low internal consistency because their different construct in the questions.
Section E consisted of seven questions assessing factors that could motivate nurses to enroll in the nursing anaesthesia programme. Responses were measured using a four-point Likert scale of Strongly Agree, Agree, Disagree, and Strongly Disagree.

Inclusion Criteria
The study included registered nurses who were actively working in the clinical units of the University of Ilorin Teaching Hospital during the period of data collection. Only nurses directly involved in patient care and who willingly consented to participate were included in the study.

Exclusion Criteria
Nurses working in non-clinical areas, including the School of Nursing and other academic units, were excluded from the study. Heads of departments, ward managers, and senior nursing administrators who had reached the peak of their professional careers were also excluded, as they were not the primary target population for the study.

Validity of the Research Instrument
The research instrument underwent face and content validity to ensure that it adequately measured the intended constructs. Face validity was established through the review of the questionnaire by two experts in nursing anaesthesia and nursing education, who assessed its clarity, relevance, and appropriateness.
Content validity was established through evaluation by a nurse anaesthetist and the research supervisor to ensure that the questionnaire adequately covered the study objectives and variables. Their recommendations were incorporated before the final administration of the instrument.

Reliability of the Research Instrument
The reliability of the instrument was assessed using Cronbach's Alpha to determine the internal consistency of the questionnaire items.
Although a pilot study was not conducted due to the movement restrictions associated with the COVID-19 pandemic, reliability analysis was performed using the data obtained from the main study. This provided an empirical assessment of the internal consistency of the research instrument.

Data Collection Procedure
Ethical approval was obtained from the Ethics Review Committee of the University of Ilorin Teaching Hospital before the commencement of the study.

Data were collected over a four-week period by the researcher with the assistance of two trained research assistants. Owing to the COVID-19 movement restrictions, the questionnaire was converted into a Google Form and distributed electronically through WhatsApp and Telegram platforms used by nurses working at the University of Ilorin Teaching Hospital.

Data Analysis

Data were analysed using descriptive and inferential statistics. Descriptive statistics, including frequencies, percentages, and tables, were used to summarize and present the data clearly. Inferential statistics (Chi-square test) were used to examine the relationships between selected variables, including age and awareness, as well as gender and willingness towards the nursing anaesthesia programme. Statistical significance was determined at a 5% level of significance ($p < 0.05$).

Ethical Considerations

Ethical approval was obtained from the Ethics Review Committee of the University of Ilorin Teaching Hospital, Ilorin, Kwara State. Informed consent was obtained electronically from all participants before data collection. Participation was entirely voluntary, and respondents were assured of confidentiality and anonymity. The information obtained was used solely for research purposes, and participants were treated with dignity, respect, and fairness throughout the study.

RESULTS

Response Rate

Due to the movement restrictions imposed during the COVID-19 pandemic, the originally planned method of physically distributing questionnaires was discontinued. Instead, the research instrument was converted into a Google Form and distributed electronically through WhatsApp and Telegram platforms accessible to eligible respondents.

A total of 296 responses were received during the four-week data collection period. Following data screening, 261 responses were found to be complete, non-duplicated, and suitable for analysis. This represents 88.2% of the total responses received and corresponds to the calculated sample size for the study. The remaining 35 responses (11.8%) were excluded from the analysis due to incomplete submissions and duplicate entries.

Table 1:0 Response Rate of Respondents

Description	Frequency	%age (%)
Questionnaires Retrieved	296	100
Valid questionnaire Analyzed	261	88.2
Excluded Questionnaires	35	11.8

Table 2.0 Socio- Demographic characteristics of respondents (n = 261)

Variables	Category	Frequency (n)	Percentage (%)
Age (Yrs.)	20 -29	39	14.9
	30-39	81	31.0
	40-49	93	35.6
	> 50	48	18.4
Gender	F	212	81.2
	M	43	16.5

	Not disclose	6	2.3
Marital Status	Married	235	90.0
	Single	20	7.7
	Widowed	6	2.3
Years of Service	1-10yrs	71	27.2
	11-20yrs	115	44.1
	21-30yrs	57	21.8
	31-35yrs	18	6.9

The socio-demographic characteristics of the respondents were analysed based on age, gender, marital status, and years of service.

Age Distribution

The findings showed that respondents aged 40–49 years constituted the largest proportion of the study population, accounting for 93 (35.6%) respondents. This was followed by those aged 30–39 years, who comprised 81 (31.0%) respondents. Respondents aged 50 years and above accounted for 40 (15.3%), while those aged 20–29 years constituted 39 (14.9%) of the respondents. The mean age of the respondents was 39.5 years.

Gender Distribution

The majority of the respondents were female, accounting for 212 (81.2%), while 43 (16.5%) were male. A further 6 (2.3%) respondents did not disclose their gender.

Marital Status

Most of the respondents were married, representing 235 (90.0%) of the study population. Single respondents accounted for 20 (7.7%), while 6 (2.3%) respondents were widowed.

Years of Service

With respect to years of service, the largest proportion of respondents, 115 (44.1%), had 11–20 years of service. This was followed by 71 (27.2%) respondents with 1–10 years of service, 57 (21.8%) respondents with 21–30 years of service, and 18 (6.9%) respondents with 31–35 years of service. The mean years of service among the respondents was 19.9 years.

Table 3.0. showing the response rate for knowledge (awareness) of respondents on nursing anaesthesia programme

Knowledge	Frequency (n)	Percentage (%)
Accurate knowledge	924	70.8
Inaccurate knowledge	381	29.2
Total	1305	100

A total of 1,305 responses were obtained from the five knowledge items assessing respondents' awareness of the nursing anaesthesia programme. Of these, 924 (70.8%) represented accurate knowledge, while 381 (29.2%) indicated inaccurate knowledge.

Table 3.1 Respondents knowledge on nursing anaesthesia programme

Variables	Frequency (n)	Percentage (%)	Cumulative Frequency
Anesthesia a specialty in nursing			261 (100.0)
Yes	240	92.0	240
Not Sure No	12 9	4.6 3.4	252 261
Knowledge on existence of the course in nursing anaesthesia			
Yes Not sure	230 12	88.1 4.6	230 242
No	19	7.3	261
Awareness On existence of post basic nursing anaesthesia programme			
Yes Not Sure	235 9	90.1 3.4	235 244
No	17	6.5	261
A nurse anaesthetist is a nurse trained to administer anaesthesia			
Yes	203	77.8	203
Not Sure	43	16.5	246
No	15	5.7	261
A nurse anaesthetist is a nurse Who assist physician anaesthetist			
Yes	16	6.1	16
Not sure	15	5.7	31
No	230	88.1	261

The findings revealed a generally high level of awareness of the nursing anaesthesia programme among the respondents. The majority of respondents, 240 (92.0%), correctly identified nursing anaesthesia as a specialty in nursing. Similarly, 230 (88.1%) reported being aware of the availability of nursing anaesthesia courses, while 235 (90.0%) indicated awareness of post-basic nursing anaesthesia programmes.

Regarding knowledge of the role of nurse anaesthetists, 203 (77.8%) of the respondents correctly identified a nurse anaesthetist as a nurse specially trained to administer anaesthesia. However, 16 (6.1%) respondents incorrectly identified a nurse anaesthetist as a nurse who assists a physician anaesthetist. These findings suggest that, although respondents generally demonstrated a high level of awareness of the nursing anaesthesia programme, some misconceptions regarding the professional role of nurse anaesthetists still exist.

Response rate for attitude towards nursing anaesthesia programme: Table 4.0., 4.1.1 & 4.1.2 shows respondents' attitude towards nursing anaesthesia programme.

This section comprises questions designed to assess respondents' attitudes toward the nursing anaesthesia programme, particularly their willingness to enroll in the programme and their perceptions of the opportunities and career prospects associated with it. The responses provide insight into the extent to which these perceived opportunities influence respondents' willingness to pursue specialization in nursing anaesthesia.

Table 4.0. Shows response rate of attitude towards nursing anaesthesia programme.

ATTITUDE (WILLINGNESS)	FREQUENCY **(n)**	PERCENTAGE **(%)**
Positive attitude	1380	88.1
Negative attitude	186	11.9
Total score	1566	100

A total of 1,566 responses were obtained from the attitude items assessing respondents' willingness to enroll in the nursing anaesthesia programme. Of these, 1,380 (88.1%) reflected a positive attitude, indicating respondents' willingness to enroll in the programme, while 186 (11.9%) reflected a negative attitude, indicating unwillingness to enroll.

TABLE 4.1.1. Shows respondents attitude (willingness) towards enrollment for nursing anaesthesia programme

Variables	Frequency (f)	Percentage (%)	Cumulative Frequency
Are you specialized?			
Yes	188	72%	188
No	73	28%	261
Do you think that Nursing anaesthesia programme can offer you another opportunity for specialization			
Yes			
No	249	95.4%	249
Not sure	8	3.1%	257
	4	1.5%	261
Do you think Nursing anaesthesia can gives you job satisfaction?			
Yes	219	84%	219
No	29	11%	248
Not sure	13	5%	261

The findings revealed that 188 (72.0%) of the respondents possessed one or more post-basic nursing specialties, while 73 (28.0%) had no post-basic nursing specialty. Furthermore, 249 (95.4%) of the respondents believed that the nursing anaesthesia programme would provide an additional opportunity for specialization, whereas 8 (3.1%) did not share this opinion and 4 (1.5%) were unsure.

Regarding job satisfaction, 219 (84.0%) of the respondents believed that the nursing anaesthesia programme could enhance job satisfaction, while 29 (11.0%) disagreed and 13 (5.0%) were uncertain.

Table 4.1.2: Opportunities that Nursing Anesthesia programme provides related the respondents willingness towards nursing anaesthesia programme

Variables	Strongly Agreed	Agreed	Strongly Disagreed	Disagreed
	N(%)	N(%)	N(%)	N(%)
Professional Advancement	207 (79.3)	51 (19.5)	2 (0.8)	1 (0.4)
Independent & Collaborative Practice	15 (5.7)	221 (84.7)	10 (3.8)	15 (5.7)
Increase in Salary & Allowance	132 (50.6)	98 (37.5)	22 (8.4)	9 (3.4)

The findings presented in Table 4.1.2 revealed that 207 (79.3%) of the respondents strongly agreed and 51 (19.5%) agreed that the nursing anaesthesia programme provides opportunities for professional advancement. In contrast, 2 (0.8%) strongly disagreed and 1 (0.4%) disagreed with this statement.
Regarding independent and collaborative practice, 15 (5.7%) of the respondents strongly agreed, while the majority, 221 (84.7%), agreed that the nursing anaesthesia programme promotes independent and collaborative practice. Conversely, 10 (3.8%) strongly disagreed and 15 (5.7%) disagreed.
Furthermore, 132 (50.6%) of the respondents strongly agreed and 98 (37.5%) agreed that the nursing anaesthesia programme could lead to increased salary and allowances. However, 22 (8.4%) strongly disagreed and 9 (3.4%) disagreed with this assertion.

Overall, the findings indicate that the majority of the respondents were already specialized in one or more post-basic nursing fields and perceived the nursing anaesthesia programme as an avenue for further specialization and improved job satisfaction.

Decision Rule for the Four-Point Likert Scale
A four-point Likert scale was used to assess respondents' attitudes towards the nursing anaesthesia programme. The response options were assigned the following scores: Strongly Agree = 4, Agree = 3, Disagree = 2, and Strongly Disagree = 1. The mean score for each questionnaire item was computed based on these assigned values.
The criterion mean was calculated as follows:
[\frac{4 + 3 + 2 + 1}{4} = 2.50]
Therefore, a mean score of 2.50 or above was interpreted as agreement (positive perception/attitude), while a mean score below 2.50 was interpreted as disagreement (negative perception/attitude).

Table 4.1.3. Showing likert scale decision interpretation

Mean/Range	Interpretation
3.26 – 4.00	S.A (Very High)
2.51 – 3.25	A (High)
1.76 – 2.50	D (Low)
1.00 – 1.75	SD (Very Low)

The findings of this study indicate that respondents perceived the nursing anaesthesia programme as offering substantial professional and economic benefits. Specifically, respondents strongly agreed that the programme provides opportunities for professional advancement, as reflected by a mean score of 3.78. Similarly, respondents agreed that the programme promotes independent and collaborative practice, with a mean score of 2.90. In addition, respondents strongly agreed

that specialization in nursing anaesthesia is associated with increased salary and allowances, as indicated by a mean score of 3.35.

The overall grand mean score of 3.34 demonstrates a highly positive perception of the opportunities and benefits associated with the nursing anaesthesia programme among the respondents.

Table 5.1 and 5.1.2 shows respondents' reasons for low enrollment to nursing anaesthesia programme

Table 5:1 Reasons for Low Enrolment to Nursing Anesthesia Programme

Variables	Frequency (F)	% Age	Cum. Frq.	Ranking
Financial Constraints	95	36.4	95	1st
Lack of Flexible Entry Point	64	24.5	159	2nd
Distance of Training Institution	34	13.0	193	3rd
Family Issue	29	11.1	222	4th
Reference for University sited Programme	13	5.0	235	5th
Lack of Motivation	13	5.0	248	6th
Lack of Sponsorship	8	3.1	256	7th
Lack of Information	5	1.9	261	8th

The findings revealed that respondents identified several barriers to enrollment in the nursing anaesthesia programme. Financial constraints emerged as the most frequently reported barrier, identified by 95 (36.4%) respondents, making it the highest-ranked barrier. This was followed by the lack of flexible entry pathways, reported by 64 (24.5%) respondents. The distance of training institutions and family-related issues were also identified as notable barriers by 34 (13.0%) and 29 (11.1%) respondents, respectively.

Other less frequently reported barriers included lack of motivation and preference for university-based programmes, each identified by 13 (5.0%) respondents, while lack of sponsorship was reported by 8 (3.1%) respondents. The least frequently reported barrier was lack of information, identified by 5 (1.9%) respondents. Overall, the findings suggest that financial and structural factors were the predominant barriers influencing enrollment in the nursing anaesthesia programme.

Table 5.1.2: Perceived Reasons for Fewer Nurse Anesthetist

Variables	Frequency (F)	%	Rank
Preference for Locally Available programme	143	54.8	1st
Lack of Understanding of Role & Duties of nurse anaesthetists	47	18.0	2nd
Misinformation about nursing anaesthesia programme	38	14.6	3rd
Lack of Interest in the programme	33	12.6	4th
	261	100.0	-

The findings revealed that the low number of nurse anaesthetists was primarily attributed to a preference for locally available programmes, as reported by 143 (54.8%) respondents, making it the highest-ranked contributing factor. This was followed by a lack of understanding of the roles and responsibilities of nurse anaesthetists, reported by 47 (18.0%) respondents. In addition, misinformation about nursing anaesthesia was identified by 38 (14.6%) respondents, while lack of interest in the specialty was reported by 33 (12.6%) respondents. Overall, the findings suggest that preference for locally available programmes, limited awareness of the nurse anaesthetist's role, and misconceptions about the specialty were the major factors contributing to the low number of nurse anaesthetists.

Table 6.0: Shows suggestion on ways to motivate nurses toward pursuing a career in anesthesia.

Variable	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly disagree n (%)
Do you think increasing the number of post basic nursing anesthesia schools will facilitate nurses' interest to anesthesia Programme	149 (57.1)	103 (39.)	6 (2.3)	3 (1.1)
Giving incentive, study leave And/or sponsorship will motivate Nurses toward pursuing a career In anesthesia	153 (58.7)	88 (33.7)	17 (6.5)	3 (1.1)
Denying of approval for nurses from going for courses where there are so many specialist nurse to go nursing anesthesia programme	55 (21.1)	79 (30.3)	106 (40.6)	21 (8.0)
Raising the qualification of post Basic nursing anesthesia to Master's degree in Nigerian will Raise interest and encourage enrollment in nursing anesthesia programme	139 (53.3)	110 (42.1)	10 (3.8)	2 (0.8)
Posting and rotation of nurses to Anesthesia department will Motivate nurses to pursue a Career in nursing anesthesia	120 (46.0)	128 (49.0)	10 (3.8)	3 (1.1)
Inclusion of nursing anesthesia At in-service training level will Promote interest to nursing Anesthesia programme	107 (41.0)	144 (55.2)	9 (3.4)	1 (0.4)
Mentoring of junior nurse about post basic nursing anesthesia programe will promote nursing anesthesia specialty among nursing in UITH	132 (50.6)	110 (42.1)	18 (6.9)	1 (0.4)

Likert scale interpretation

Item	Mean	Decision
Increase training schools	3.52	Strongly agree
Incentives/sponsorship	3.50	Strongly agree
Master's degree upgrading	3.45	Strongly agree

Posting to anaesthesia unit	3.40	Strongly agree
Mentorship of junior nurses	3.43	Strongly agree
In-service training inclusion	3.36	Strongly agree
Denying approval for other specialty	2.73	Agree

Grand mean = 3.34

The findings of this study revealed strong agreement among respondents on several strategies that could improve enrollment into the nursing anaesthesia programme, The suggestion to increase the number of post-basic training schools for nurse anaesthetists (mean = 3.52) received very strong support. Provision of incentives and sponsorship (mean = 3.50) was also highly supported. The suggestion to upgrade the nursing anaesthesia programme to MSc degree level (mean = 3.45) also received strong agreement, respondents strongly supported posting nurses to anaesthesia departments (mean = 3.40) and mentorship of junior nurses (mean = 3.43). The inclusion of nursing anaesthesia in in-service training programmes (mean = 3.36) was also strongly supported,

However, the suggestion to deny approval for specialty training to certain categories of nurses (mean = 2.73) was less supported, falling within the "Agree" range.

HYPOTHESES TESTING

HYPOTHESIS 1: HA : There is a significant relationship between age and awareness level(knowledge) towards nursing anaesthesia programme.
Table 7.0., 7.1 & 7.2 shows data analysis for hypothesis 1 testing.

Table 7.0 showings data for hypothesis 1

Awareness level (knowledge)	01	01	02	02	03	03	04	04	05	05	Total Yes	Total No/ Not sure
	Yes	No/not sure	Yes	No/not sure	Yes	No/not sure	Yes	No/not sure	Yes	No/not sure		
Age group												
20 – 29	32	7	26	13	30	9	18	21	4	33	110	83
30 – 39	80	1	78	3	81	0	70	11	5	77	314	92
40 – 49	89	4	82	11	86	7	80	13	5	90	342	125
50 and above	39	9	44	4	38	10	35	13	2	45	158	81
	240	21	230	31	235	26	203	58	16	230	924	381

Table 7.1 showing continuation of data for hypothesis 1

Awareness level	Correct knowledge		Incorrect knowledge		Total
	Observed (O_a)	Expected (E_a)	Observed (O_i)	Expected (E_i)	
Age group					
20 – 29	110	136.6	83	56.3	193

30 – 39	314	287.5	92	118.5	406
40 – 49	342	330.7	125	136.3	467
50 and above	158	169.2	81	69.8	239
	924		381		1305

Table 7.2. Showing calculation for chi square statistical analysis for hypothesis 1

$O_T = O_a \& O_i$	$E_T = E_a \& E_i$	O-E	$(O-E)^2$	$(O-E)^2/E$
110	136.6	-26.6	707.6	5.18
314	287.5	-26.5	702.3	2.44
342	330.7	11.3	127.7	0.39
158	169.2	-11.2	125.4	0.74
83	56.3	26.7	712.9	12.7
92	118.5	-26.5	702.3	5.93
125	136.3	-11.3	127.7	0.94
81	69.8	11.2	125.4	1.80

The Chi-square statistic was calculated using the following formula:
[\chi^2 = \sum \frac{(O - E)^2}{E}]
where:
O = Observed frequency
E= Expected frequency
The calculated Chi-square (\chi^2) value was 30.12.
The degree of freedom (df) was determined using the formula:
[df = (R - 1)(C - 1)]
where:
R= Number of rows
C = Number of columns
Thus,
[df = (4 - 1)(4 - 1) = 3 \times 3 = 9]
At a 0.05 level of significance, the critical Chi-square value for 9 degrees of freedom is 16.919. Since the calculated Chi-square value (30.12) is greater than the critical value (16.919), the null hypothesis was rejected and the alternative hypothesis was accepted.
This indicates that there is a statistically significant relationship between age and the level of awareness of the nursing anaesthesia programme among staff nurses at the University of Ilorin Teaching Hospital ($\chi^2 = 30.12$, $df = 9$, $p < 0.05$).

HYPOTHESIS 2: There is a significant relationship between gender and willingness towards enrollment for nursing anaesthesia programme.
Table 8.0, 8.1 & 8.2 show data analysis for hypothesis 2 testing

Table 8.0 showing data for hypothesis 2

Attitude (willingness)	O1 Yes / SA/ A	O1 No/ Not sure/ SD/D	O2 Yes/S A/A	O2 Yes/No/ Not sure/SD /D	O3 Yes / SA/ A	O3No/ Not sure/ SD/D	O4 Yes / SA/ A	O4 No/ Not sure/ SD/D	O5 Yes / SA/ A	O5 No/ Not sure/ SD/D	O6 Yes / SA/ A	O6 No/ Not sure/ SD/D
MALE	34	9	40	4	37	6	42	0	41	2	42	1
FEMALE	150	62	206	7	178	34	210	2	190	22	183	29
NOT DISCLOSED	4	2	3	1	4	2	6	1	5	1	5	1
TOTAL	188	73	249	12	219	42	258	3	236	25	230	31

Table 8.1. Showing continuation of data for hypothesis 2 testing

Willingness	Positive Attitude		Negative Attitude		Total
Gender	Observed Variable (O_p)	Expected Variable (E_p)	Observed Variable (O_n)	Expected Variable (E_n)	
Male	236	227.4	22	30.6	258
Female	1117	1121.8	156	151.2	1273
Not Disclosed	27	30.8	8	4.2	35
Total	1380		186		1566

Table 8.2. Shows chi square statistical analysis for hypothesis 2

O_t =Op+On	E_t = E_p+E_n	O-E	$(O-E)^2$	$(O-E)^2/E$
236	227.4	8.6	73.96	0.32
1117	1121.8	-4.8	23.04	0.02
27	30.8	-3.8	14.44	0.47
22	30.6	-8.6	73.96	2.42
156	151.2	4.8	23.04	0.15
8	4.2	3.8	14.44	3.44

The Chi-square statistic was calculated using the following formula:
[\chi^2 = \sum \frac{(O - E)^2}{E}]
where:
O= Observed frequency
E= Expected frequency
The calculated Chi-square (◎\chi^2◎) value was 6.82.
The degree of freedom (df) was determined using the formula:
[df = (R - 1)(C - 1)]
where:
R = Number of rows
C= Number of columns

Thus,
[df = (3 - 1)(4 - 1) = 2 \times 3 = 6]
At a 0.05 level of significance, the critical Chi-square value for 6 degrees of freedom is 12.592. Since the calculated Chi-square value (6.82) is less than the critical value (12.592), the alternative hypothesis was rejected and the null hypothesis was accepted.
Therefore, there is no statistically significant relationship between gender and willingness to enroll in the nursing anaesthesia programme among staff nurses at the University of Ilorin Teaching Hospital ($\chi^2 = 6.82$, $df = 6$, $p > 0.05$).

Standard Interpretation of Cronbach's Alpha

≥ 0.90.	Excellent and high staking
0.80 – 0.89.	Good
0.70 – 0.79.	Acceptable
0.60 – 0.69.	Questionable
0.50 – 0.59.	Poor
< 0.50.	Unacceptable

Reliability Analysis

Knowledge about Nursing anaesthesia programme	0.56
Attitude towards nursing anaesthesia programme.	0.65
Reasons for low enrollment of nurses into anaesthesia programme.	0.40
Suggestions	0.81

The reliability of the research instrument was assessed using Cronbach's alpha coefficient to determine the internal consistency of the questionnaire. The knowledge domain yielded a Cronbach's alpha coefficient of 0.56, indicating poor internal consistency. The attitude domain produced a coefficient of 0.65, indicating questionable internal consistency. Similarly, the domain assessing reasons for the low enrollment of nurses into the nursing anaesthesia programme yielded a coefficient of 0.40, indicating unacceptable internal consistency. In contrast, the suggestions domain demonstrated a Cronbach's alpha coefficient of 0.81, indicating good internal consistency.

DISCUSSION OF FINDINGS

This chapter discusses the findings of the study on the knowledge and attitude of staff nurses towards the nursing anaesthesia programme at the University of Ilorin Teaching Hospital, Ilorin. The discussion is presented in line with the study objectives and hypotheses. Specifically, it focuses on the socio-demographic characteristics of the respondents, their knowledge of the nursing anaesthesia programme, their attitude and willingness to enroll in the programme, perceived barriers to enrollment, strategies for improving enrollment, the hypotheses tested, and the reliability of the research instrument. The findings are discussed in relation to relevant empirical literature and the theoretical framework underpinning the study.

Socio-demographic Characteristics of the Respondents

The findings revealed that the mean age of the respondents was 39.5 years, with the largest proportion of respondents (33.3%) falling within the mid-career age group. This finding suggests that the nursing workforce at the University of Ilorin Teaching Hospital comprises predominantly experienced professionals who are at a stage in their careers where specialization and professional advancement are likely to be considered. Nurses within this age group possess substantial clinical experience, which may positively influence their readiness to pursue advanced specialty training such as nursing anaesthesia.[1]

The study also revealed that the nursing workforce was predominantly female, which reflects the long-established gender distribution within the nursing profession globally. This finding is consistent with Adeleke (2010), who reported that nursing in Nigeria remains a female-dominated profession. The predominance of female nurses may have implications for career progression, particularly where family commitments, marital responsibilities, and geographical mobility influence decisions regarding enrolment into specialty programmes. Adeleke (2010) further observed that competing family responsibilities and gender-related challenges may limit opportunities for professional advancement among nurses.[1]

Furthermore, approximately 90% of the respondents were married. This finding suggests that family obligations may influence decisions regarding postgraduate education and specialty training, particularly where such programmes require relocation or prolonged periods of study.[1,19] Similar observations have been reported by Haron (2014), who identified family responsibilities as one of the factors influencing nurses' career choices and professional development.[4] With respect to years of service, the respondents had a mean duration of service of 20.5 years, indicating that the majority were moderately to highly experienced nurses with considerable clinical exposure. Such experience may contribute to better appreciation of specialty nursing roles and the importance of professional development. Experienced nurses are generally more capable of evaluating career opportunities based on professional autonomy, job satisfaction, and long-term career prospects.[5,10]

Overall, the socio-demographic profile of the respondents suggests a mature and experienced nursing workforce with substantial potential for specialization. However, personal and structural factors, including marital responsibilities and accessibility of training institutions, may influence the decision to enroll in specialty programmes such as nursing anaesthesia.[1,2]

Respondents Knowledge of nursing anaesthesia programme

This study demonstrated a high level of awareness of the nursing anaesthesia programme among staff nurses. Specifically, 92.0% of respondents correctly identified nursing anaesthesia as a recognized nursing specialty, indicating substantial awareness of the programme. Nevertheless, gaps remained in respondents' understanding of the specific roles and responsibilities of nurse anaesthetists, suggesting that general awareness does not necessarily translate into comprehensive knowledge of the specialty.

The findings are consistent with previous reports indicating that nurses are increasingly aware of specialty nursing programmes but often have limited understanding of their scope of practice and professional responsibilities.1 Similarly, the American Association of Nurse Anesthetists emphasized that continuous professional education and role clarification are essential for strengthening nurses' understanding of the specialty and promoting professional identity.[7,8,9] The observed knowledge gaps may therefore reflect limited exposure to structured information regarding the educational requirements, scope of practice, and career opportunities available in nursing anaesthesia[2,5.]

The significant association observed between age and awareness further suggests that awareness of the nursing anaesthesia programme increases with professional maturity and clinical experience. Older nurses are more likely to have participated in continuing professional development activities and to have interacted with nurse anaesthetists in clinical practice, thereby increasing their awareness of the specialty. This finding is consistent with previous studies that identified professional experience as an important determinant of awareness of specialty nursing programmes and opportunities for career advancement.[1,5]

The findings also lend support to the Theory of Cognitive Dissonance, which proposes that acquisition of new knowledge can influence attitudes and subsequent behaviour by reducing inconsistencies between existing beliefs and newly acquired information.[20] Consequently, improving nurses' knowledge of the nursing anaesthesia programme through

continuing professional education, seminars, workshops, and institutional awareness campaigns may enhance positive perceptions of the specialty and encourage greater interest in enrollment.[1,2]

Discussion of Hypothesis One

The first hypothesis examined the relationship between respondents' age and their level of awareness of the nursing anaesthesia programme. The Chi-square analysis demonstrated a statistically significant relationship between age and awareness among staff nurses at the University of Ilorin Teaching Hospital ($\chi^2 = 30.12$, $df = 9$, $p < 0.05$). Since the calculated Chi-square value exceeded the critical value, the null hypothesis was rejected, while the alternative hypothesis was accepted.

The finding suggests that respondents' age significantly influenced their level of awareness of the nursing anaesthesia programme. Older and more experienced nurses are likely to have had greater exposure to professional practice, continuing education activities, and interactions with nurse anaesthetists, thereby enhancing their awareness of the specialty. Conversely, younger nurses may have had fewer opportunities for such exposure.

This finding is consistent with previous studies, which reported that professional experience and years of service contribute significantly to nurses' awareness of specialty nursing programmes and opportunities for career advancement.1,5. The implication is that awareness programmes should target nurses across all age groups, particularly those in the early stages of their careers, to facilitate informed career decisions and encourage enrollment in the nursing anaesthesia programme.[4,10,13-16]

Respondents attitude towards nursing anaesthesia programme

Respondents demonstrated a positive attitude towards the nursing anaesthesia programme, with 88.1% expressing a favourable attitude and willingness to enroll in the programme. Furthermore, respondents perceived the programme as providing opportunities for professional advancement, greater professional autonomy through independent and collaborative practice, and improved remuneration. These findings suggest that nurses recognize nursing anaesthesia as a viable career pathway with substantial professional and economic benefits.

The positive attitude observed in this study is consistent with previous findings that nurses generally exhibit favourable attitudes towards professional development and specialization when opportunities for career advancement, job satisfaction, and professional recognition are evident.4,5. Similarly, improved professional autonomy and expanded clinical responsibilities have been identified as important factors that enhance nurses' motivation to pursue advanced specialty training.[15,16] The high level of willingness to enroll observed in the present study may therefore reflect respondents' recognition of the professional and financial advantages associated with the nursing anaesthesia programme.[6]

Despite the favourable attitude, enrollment in the nursing anaesthesia programme remains relatively low, suggesting that positive attitudes alone may not translate into actual enrollment. This disparity indicates that external barriers, including financial constraints, limited training opportunities, and accessibility challenges, may hinder nurses from pursuing the programme despite their willingness. Similar observations have been reported in previous studies, which identified institutional and financial barriers as significant obstacles to professional advancement among nurses [2,12,-15]

Hypothesis Two

The second hypothesis examined the relationship between gender and willingness to enroll in the nursing anaesthesia programme. Chi-square analysis revealed no statistically significant relationship between gender and willingness to enroll ($\chi^2 = 6.82$, $df = 6$, $p > 0.05$). Consequently, the null hypothesis was accepted, indicating that willingness to pursue the nursing anaesthesia programme did not differ significantly between male and female nurses.

This finding suggests that gender was not a determining factor in respondents' willingness to specialize in nursing anaesthesia, as both male and female nurses expressed comparable levels of interest in the programme. The favourable attitude and willingness to enroll observed among respondents appear to be influenced more by perceived professional benefits, career advancement opportunities, increased autonomy, anticipated job satisfaction, and improved remuneration than by gender. This indicates that both male and female nurses are equally receptive to pursuing the nursing anaesthesia programme when enabling conditions are available.

The finding is consistent with previous studies, which reported that career decisions among nurses are primarily influenced by professional aspirations, institutional support, and opportunities for advancement rather than gender. Although the nursing profession remains predominantly female, willingness to pursue specialty training depends more on the availability of supportive policies, financial assistance, flexible training opportunities, and institutional support than on demographic characteristics.[1,6,12-16]

The findings also support the Theory of Operant Conditioning, which proposes that behaviour is influenced by its consequences.6 The positive attitudes demonstrated by respondents may be explained by the anticipated rewards associated with specialization, including professional advancement, increased autonomy, enhanced remuneration, and greater job satisfaction. These anticipated outcomes serve as positive reinforcers that can motivate nurses to pursue specialty training in nursing anaesthesia.[6,20]

The implication of this finding is that interventions aimed at increasing enrollment in the nursing anaesthesia programme should not be gender-specific. Instead, efforts should focus on addressing modifiable structural and institutional barriers, including financial constraints, limited training capacity, inadequate awareness of the specialty, and restricted access to accredited training institutions. Addressing these barriers is more likely to improve enrollment among both male and female nurses than interventions based on gender differences.[2,12-16]

Reasons for Low Enrollment in the Nursing Anaesthesia Programme

Although respondents demonstrated a favourable attitude and willingness to enroll in the nursing anaesthesia programme, several barriers were identified that may limit actual enrollment. Financial constraints emerged as the most frequently reported barrier, followed by lack of flexible entry pathways, distance to training institutions, and family-related responsibilities. These findings suggest that economic and structural challenges are the primary factors limiting nurses' participation in the programme.[1,2,19]

The prominence of financial constraints indicates that the cost of tuition, accommodation, transportation, and other training-related expenses may discourage nurses from pursuing specialization in nursing anaesthesia. Similar findings have been reported among nurses undertaking advanced professional education, where inadequate financial support and limited sponsorship opportunities were identified as major barriers to career progression.[1,2] The findings also align with reports from the World Health Organization, which recognized inadequate investment in health workforce education and training as a significant challenge to strengthening the anaesthesia workforce in low-resource settings.[12]

The identification of limited entry pathways and the geographical location of training institutions further highlights the influence of institutional accessibility on enrollment decisions. Restricted availability of training centres may increase the financial and logistical burden associated with specialty education, thereby reducing participation. Comparable findings have been reported in studies demonstrating that the availability and geographical distribution of training institutions influence the production and retention of specialist nurses and anaesthesia providers.[2,4,13,14,15] Similarly, evidence from Ghana showed that the location of nurse anaesthesia training schools significantly influenced the distribution of trained nurse anaesthetists across the country, with specialists more likely to practice in areas where training opportunities were available.[19]

Family-related responsibilities also emerged as an important consideration, suggesting that personal obligations may influence nurses' decisions to pursue specialty training. Balancing work commitments, family responsibilities, and academic demands may present additional challenges, particularly where programmes require relocation or prolonged periods of full-time study. Previous studies have similarly reported that personal and family responsibilities influence nurses' decisions regarding postgraduate education and professional specialization.[1,4,5]

In addition to these barriers, respondents identified preference for locally available specialty programmes, limited understanding of the roles and responsibilities of nurse anaesthetists, misinformation about the specialty, and lack of interest as factors contributing to the low enrollment in the nursing anaesthesia programme. These findings indicate that enrollment is influenced not only by financial and structural barriers but also by knowledge and perception of the specialty. Similar observations have been reported, with career choice among nurses being influenced by programme accessibility, perceived career prospects, and understanding of specialty roles.[4,10] Collectively, these findings suggest that improving enrollment will require interventions that address both structural barriers and educational gaps through increased investment in training capacity, financial support, and sustained professional awareness programmes.

Suggestions for Improving Enrollment in the Nursing Anaesthesia Programme

Respondents expressed strong support for several strategies aimed at improving enrollment in the nursing anaesthesia programme. The findings indicate that expanding training institutions, upgrading the programme to a master's degree, providing financial support, increasing clinical exposure to the specialty, and strengthening mentorship were perceived as effective approaches for enhancing enrollment.[2] These findings suggest that respondents recognized the need for institutional and policy reforms to improve access to specialty training.[12,13]

The strong support for expanding training institutions reflects the need to improve geographical access to the programme and reduce barriers associated with the limited availability of training centres. This finding is consistent with recommendations by the World Health Organization, which emphasized the expansion of training capacity as a key strategy for strengthening the surgical and anaesthesia workforce, particularly in low- and middle-income countries.[12] Similarly, the Global Surgery 2030 Commission recommended increased investment in specialist health workforce education to improve access to safe surgical and anaesthesia services.[13]

Respondents also supported upgrading the nursing anaesthesia programme to a master's degree, suggesting that academic advancement and enhanced professional recognition could increase the attractiveness of the specialty. Higher educational qualifications are widely recognized as important drivers of career progression, professional autonomy, and leadership opportunities within the nursing profession. This finding is consistent with previous studies that reported that opportunities for academic and professional advancement positively influence nurses' decisions to pursue specialty education.[4,14,15]

Financial assistance through scholarships, sponsorships, and institutional support was also identified as an important strategy for improving enrollment. This finding reinforces the observation that financial barriers remain a significant obstacle to specialty training and suggests that reducing the economic burden of education could increase participation in the programme. Similar recommendations have been made by previous studies advocating increased investment in nursing education and workforce development to address shortages of specialist healthcare professionals.[2,17,18]

Furthermore, respondents recognized clinical exposure and mentorship by practising nurse anaesthetists as important strategies for stimulating interest in the specialty. Increased exposure during clinical practice may improve understanding of the roles and responsibilities of nurse anaesthetists, thereby correct misconceptions and fostering informed career decisions. These findings support the Theory of Operant Conditioning, which proposes that behaviour is influenced by positive reinforcement.[5,6] Institutional support, mentorship, professional recognition, and financial incentives may therefore serve as positive reinforcers that encourage nurses to pursue specialization in nursing anaesthesia.[1,2,4,12,13]

Interestingly, respondents did not support restricting access to other nursing specialty programmes as a strategy for increasing enrollment in nursing anaesthesia. This finding suggests that nurses favour policies that expand educational opportunities rather than those that limit professional choices. Consequently, interventions aimed at improving enrollment should focus on creating enabling environments through policy support, increased training opportunities, and financial assistance rather than restricting access to alternative specialties.[2,5,11,12]

CONCLUSION

This study demonstrated that staff nurses at the University of Ilorin Teaching Hospital had a high level of awareness and a positive attitude towards the nursing anaesthesia programme. Respondents recognized the programme as an important pathway for professional advancement, increased autonomy, and improved remuneration. Despite these favourable perceptions, enrollment into the programme remains low because of financial constraints, limited training opportunities, inflexible entry pathways, geographical inaccessibility of training institutions, and misconceptions regarding the specialty. Addressing these barriers through institutional support, policy reforms, and improved access to training may enhance enrollment and contribute to the development of the nursing anaesthesia workforce in Nigeria.

IMPLICATIONS FOR NURSING PRACTICE AND POLICY

The findings have important implications for nursing education, workforce planning, and health policy. The positive attitude demonstrated by respondents indicates that nurses are receptive to specialization in nursing anaesthesia when appropriate support systems are available. Expanding training institutions, strengthening continuing professional education, improving awareness of the roles of nurse anaesthetists, and providing financial support through scholarships and sponsorship programmes may increase enrollment into the programme. These interventions could contribute to addressing the shortage of nurse anaesthetists and strengthening the capacity of the healthcare system to provide safe anaesthesia services.

STUDY LIMITATIONS

This study has some limitations that should be considered when interpreting the findings. The study was conducted in a single tertiary healthcare institution, which may limit the generalizability of the findings to other healthcare settings in Nigeria. In addition, a pilot study was not conducted before the main survey, which may have contributed to the relatively low internal consistency observed in some domains of the questionnaire, particularly the knowledge scale. Future studies should validate the instrument through pilot testing and include a larger and more diverse sample drawn from multiple institutions. The questionnaires were disseminated in Google forms via WhatsApp and telegram platform to the respondents, due to restrictive movement from COVID 19 pandemic and it may have introduced selection bias and consequently limited the generalizability of the findings to the entire nursing population. The use of different response formats within the same section introduced some measurement inconsistency and could limit the instrument's applicability in similar studies. Some sections also show poor construct in the questionnaires which contributed to the low internal consistency.

RECOMMENDATIONS

Based on the findings of this study, it is recommended that healthcare institutions, nursing regulatory bodies, and policymakers should strengthen awareness programmes on the nursing anaesthesia specialty through continuing professional education, seminars, and workshops. Financial support mechanisms, including scholarships, sponsorships, and study leave, should be implemented to reduce barriers to specialty training. The number and geographical distribution of nursing anaesthesia training institutions should be expanded to improve accessibility, while consideration should be given to upgrading the programme to the master's degree level to enhance professional recognition and career

progression. Future research should involve multicentre studies with larger sample sizes and psychometrically validated instruments to provide more robust evidence on factors influencing enrollment in the nursing anaesthesia programme.

FUNDING
This work received no funding.

DECLARATION OF COMPETING INTEREST
The authors declare that this manuscript is original, has not been published previously in any journal or other publication, and is not currently under consideration for publication elsewhere. Furthermore, the work has not been presented at any conference, seminar, or workshop.
The authors declare that there are no conflicts of interest, financial or otherwise, related to this research. No external funding or financial grant was received for this study. The corresponding author solely funded the research and was responsible for all associated expenses.
Ethical approval for this study was obtained from the Health Research Ethics Committee of the University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria, prior to the commencement of the research.

AUTHORS' CONTRIBUTIONS
Corresponding author
Racheal O. OYELUDE is the primary author responsible for data sourcing, data collation, writing of the research work, editing and funding of this research. A Chief Nursing Officer from the Anaesthesia Unit, department of Nursing Services, University of Ilorin Teaching Hospital, Kwara state, Nigeria, was a student at School of Post Basic Nursing Anaesthesia Jos University Teaching Hospital, Plateau State Nigeria at the time of conducting this research. 2019-2021.

Second author
Chuang B. Zi was the supervising lecturer for this project, a visiting lecturer , school of post basic nursing anaesthesia, Jos University Teaching Hospital, plateau State, Nigeria. He supervised, edited and reviewed the work.

Third author
Phillip Ojo a lecturer from the college of Nursing, University College Hospital, Ibadan, Oyo State, Nigeria. He is a Registered Nurse Anaesthetist who assisted with reviewing and editing of the research work.

REFERENCES

1. Adeleke AO. The challenges of best practice and standards in nursing in Nigeria. Okada (Nigeria): Igbinedion University Press Ltd; 2010.
2. Golfa T, Yunusa U, Olatunbi MI, Ahmed S, Suleiman D, Dathimi H. Appraisal of barriers and facilitators associated with advanced professional education among nurses in Adamawa State, Nigeria. Int J Educ Res Inf Sci. 2015;2(4):102-107.
3. Gilanie G. Knowledge and its types. Bahawalpur (Pakistan): Islamia University of Bahawalpur; 2022. Available from: https://www.researchgate.net. Accessed 2022 Oct.
4. Haron Y, Reichert S, Riba S. Factors influencing nursing career choices and choice of study programme. Health Mark Q. 2014;31(2):167-177. doi:10.1080/07359683.2014.907126.
5. Uba SC, Zi CB. Attitude of nurses towards professional development for improved service delivery at the Jos University Teaching Hospital. Texila Int J Nurs. 2019;5(1-2).
6. McLeod SA. Skinner: operant conditioning. Simply Psychology. 2018. Available from: https://www.simplypsychology.org/operant-conditioning.html. Accessed 2026 Jul 24.
7. American Association of Nurse Anesthetists. Scope and standards of nurse anesthetist practice. Park Ridge (IL): American Association of Nurse Anesthetists; 2013. Available from: https://www.aana.com

8. American Association of Nurse Anesthetists. Professional attributes of the nurse anesthetist. Park Ridge (IL): American Association of Nurse Anesthetists; 2016. Available from: https://www.aana.com
9. American Association of Nurse Anesthetists. What is nurse anesthesia? Park Ridge (IL): American Association of Nurse Anesthetists; 2018. Available from: https://www.aana.com
10. Khan FA, Hamdani GA. Factors influencing the choice of anaesthesia as a career in a developing country. Middle East J Anaesthesiol. 2007;19(1):149-157.
11. Fente BG, Ouserigba OE. Experience working with nurse anaesthetists as non-physician anaesthesia providers in a semi-urban Niger Delta University Teaching Hospital, Okolobiri: a review of the literature. Niger J Med. 2013;22(1):36-40.
12. World Health Organization. Surgical care systems strengthening: developing national surgical, obstetric and anaesthesia plans. Geneva: World Health Organization; 2017. Available from: https://iris.who.int/handle/10665/255566
13. Meara JG, Leather AJM, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global surgery 2030: evidence and solutions for achieving health, welfare, and economic development. Lancet. 2015;386(9993):569-624.
14. Dubowitz G, Detlefs S, McQueen KA. Global anesthesia workforce crisis: a systematic review. Anesth Analg. 2014;118(5):1005-1010.
15. Kempthorne P, Morris WW, Møttin-Olsen J, Gore-Booth J. Global anesthesia workforce survey. Anesth Analg. 2017;125(3):981-990. doi:10.1213/ANE.0000000000002258.
16. Bharati SJ, Chowdhury T, Gupta N, et al. Anaesthesia in underdeveloped world: present scenario and future challenges. Niger Med J. 2014;55(1):1-8. doi:10.4103/0300-1652.128146.
17. Famewo OE, Bodman RI. The choice of anaesthesia as a career by undergraduate medical students. Middle East J Anaesthesiol. 1985;8:179-185.
18. Fawaz MA, Hamdan-Mansour AM, Tassi A. Challenges facing nursing education in the advanced health care environment. Int J Afr Nurs Sci. 2018;9:105-110. doi:10.1016/j.ijans.2018.10.005.
19. Potisek MG, Hatch DM, Atito-Narh E, et al. Where are they now? Evolution of a nurse anaesthesia training school in Ghana and a survey of graduates. Front Public Health. 2017;5:78. doi:10.3389/fpubh.2017.00078.
20. Miller MK, Clark JD, Jehley A. Cognitive dissonance theory. In: Caution RL. Lilienfeld SO, editors. The Encyclopaedia of Clinical Psychology. Hoboken (NJ): Wiley;2015. Doi:10.1002/9781118625392.wbecp200.

CITE THIS ARTICLE:

- **APA (7th edition):** Oyelude, R. O., Zi, C. B., & Ojo, P. A. (2026, August 21). *Knowledge and attitude of staff nurses at University of Ilorin Teaching Hospital towards nursing anaesthesia programme. The Operating Room Global Journal (TORGJ)*, 2(3). https://doi.org/10.64573/torgj2602002
- **Harvard**: Oyelude, R.O., Zi, C.B. and Ojo, P.A., 2026. *Knowledge and attitude of staff nurses at University of Ilorin Teaching Hospital towards nursing anaesthesia programme*. *The Operating Room Global Journal (TORGJ)*, 2(3). Published 21 August. Available at: https://doi.org/10.64573/torgj2602002
- **Vancouver**: Oyelude RO, Zi CB, Ojo PA. Knowledge and attitude of staff nurses at University of Ilorin Teaching Hospital towards nursing anaesthesia programme. *The Operating Room Global Journal (TORGJ).* 2026 Aug 21;2(3). https://doi.org/10.64573/torgj2602002
- **MLA (9th edition)**: Oyelude, Racheal Olufunmilayo, Chuwang Bitrus Zi, and Phillip A. Ojo. "Knowledge and Attitude of Staff Nurses at University of Ilorin Teaching Hospital Towards Nursing Anaesthesia Programme." *The Operating Room Global Journal (TORGJ)*, vol. 2, no. 3, 21 Aug. 2026, https://doi.org/10.64573/torgj2602002
- **Chicago (Author-Date)**: Oyelude, Racheal Olufunmilayo, Chuwang Bitrus Zi, and Phillip A. Ojo. 2026. "Knowledge and Attitude of Staff Nurses at University of Ilorin Teaching Hospital Towards Nursing Anaesthesia Programme." *The Operating Room Global Journal (TORGJ)* 2 (3), August 21. https://doi.org/10.64573/torgj2602002