

Original Research

Perception of Autopsy among Selected Healthcare Workers at a Tertiary Hospital in Freetown, Sierra Leone- A Cross-Sectional Study.

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Abstract

Background: Autopsy is a specialized surgical procedure that thoroughly examines a dead body to determine the cause and manner of death and assess any pre-existing conditions. Studies show its practice has significantly declined in recent years. In Sierra Leone, some deaths are attributed to traditional and religious beliefs due to the lack of scientific explanations. Even within the medical community, many deaths remain undiagnosed despite advanced diagnostic tools like CT scans and MRIs. Clinicians often overlook autopsy as a tool for solving such mysteries. This study aimed to evaluate the perception of autopsy among doctors and nurses at a tertiary hospital in Freetown, Sierra Leone.

Methodology: A cross-sectional study design enrolled 215 doctors and nurses using probability proportionate to size, followed by random sampling. Data was collected through a semi-structured questionnaire, and SPSS Version 26.0 was used for analysis. Descriptive statistics, Chi-square, and logistic regression analyses were performed.

Results: The mean age of participants was 32.8 ±7.42 years. Nurses accounted for 73.5% of the study participants. 48.4% and 38.1% of the participants had fair and good knowledge regarding autopsy respectively, and 81.9% displayed a positive attitude. However, only 53.5% had a positive perception, with doctors showing a higher proportion. Only 36.7% were open to organ donation, and most (71.6%) were unaware of policies guiding autopsy practice at the study site. Profession did not predict participant's knowledge (p-value > 0.05); but it significantly predicted their perception, with doctors 4.62 times more likely to have a positive perception (AOR= 4.62, p value< 0.001). The T-test analysis showed that doctors showed higher knowledge and perception than nurses.

Conclusion: Although many participants had fair to good knowledge and a positive attitude, more awareness is still needed about the medical benefits of autopsy.

Keywords: Autopsy; Perception; Healthcare workers; Sierra Leone.

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How to cite: Duduyemi BM, Momoh MT, Ngongou FR, Kalawa A Sandy SFF, Onyishi NT. Perception of Autopsy among Selected Healthcare Workers at a Tertiary Hospital in Freetown, Sierra Leone- A Cross-Sectional Study. Niger Med J 2025;66(2):512-527. <https://doi.org/10.71480/nmj.v66i2.667>.

Quick Response Code:



Introduction

Postmortem examination which is also known as autopsy is a highly specialized surgical procedure that involves the thorough examination of a dead body in order to establish the cause of death. Professionals who are trained in the performance of this procedure are known as pathologists. The two main types are clinical (medical) and coroner (forensic) autopsies. Clinical autopsy requires the deceased next of kin's approval before it can be performed whereas coroner's autopsy does not require any consent from the deceased next of kin for its performance as it is carried out in the course of a police investigation.

Many publications have highlighted numerous reasons for which autopsy is performed. For instance, an autopsy can be done to: determine the cause of death, identify lesions that were not apparent during clinical examination and investigation, establish the exact course of a disease, determine malignant disease staging, and resolve diagnostic controversies in situations where investigation reports differ or contradict among managing teams, dispel relatives doubt regarding the care provided by clinicians before death of their loved one, teaching and research purposes, and address coroner concerns relating to death^[1-6]

However, irrespective of the numerous advantages of autopsy, its practice has drastically declined globally. King reported, in 1984, this decline in the United States, England and Wales, Canada, France, China and Zambia^[7] This was further supported by Hill in 1993^[8] It is worthwhile to note that coroner autopsy rate has not experienced such an exponential decline as compared to clinical autopsy.^[9]

Some of the reasons for the decline in autopsy utilization are: religious, cultural, and family objections, doubt about its value, over-reliance of clinicians on the investigative capacity of modern sophisticated medical equipment, such as computerized axial tomography scanning and magnetic resonance imaging, the inquisitory nature of autopsy, audit implications and potential liability for the clinician, fear of medical lawsuits resulting from autopsy revelations, reduction in number of medical professionals specializing in the field of pathology and costs. ^[6,10-12]

Not much publication has been done in the field of pathology in Sierra Leone including autopsy. Autopsies are mainly for medico-legal reasons. Doctors and nurses who are noted to play key roles in providing adequate healthcare service to patients are supposed to encourage the practice of autopsy. These professionals are responsible for educating the public about the benefits of autopsy. They are also responsible for counselling the relatives of the deceased about the indication of autopsy, and its benefit to the health community. Thus, assessing their knowledge, attitude, and perception regarding autopsy becomes very crucial. This is because what they perceive about autopsy can affect the overall public utilization of the procedure. This study therefore aimed to assess the perception of autopsy among doctors and nurses at a tertiary teaching hospital in Freetown, Sierra Leone.

Methodology

Study design and population: Connaught is a tertiary hospital which is a component of the University of Sierra Leone Teaching Hospital Complex. It is an adult tertiary hospital for both medical and surgical cases. It is located in the central business district of Freetown. It has a 300-bed capacity and two emergency units for both medicine and surgery. The study population comprises doctors and nurses who work at the study site. All doctors and nurses who were on duty and expressed interest in being part of the study during data collection were eligible to participate. Pathologists, laboratory technicians, scientists, and all nurses working at the pathology unit and those working at the mortuary were excluded from the study. A descriptive cross-sectional study design was used. The sample size was calculated using the Cochran formula which was later adjusted to study a population of less than 10,000. A 10% non-response rate was added, and the final sample size was 186. Probability proportionate to size was used and 148 nurses and 38 doctors were enrolled respectively. A simple random sampling technique was used to select participants, on a first come first serve basis. A semi-structured questionnaire which was first

pretested among fifteen participants was used to collect data; and was based on self-interview. Data collection lasted for five months (January to May- 2023). During the data collection, 215 participants correctly responded, comprising 57 doctors and 158 nurses respectively; and this was entered into the IBM statistical package for social sciences (IBM-SPSS-version 26.0) for analysis. Categorical variables were expressed in frequency tables, percentages, and charts. The mean age and standard deviation were calculated from the group data.

Scoring of participants

Every correct answer to a question on knowledge of autopsy was awarded one (1) mark whereas zero (0) was awarded to the wrong answer, don't know or can't tell, and no response. The participants' knowledge was graded as good, fair, or poor. Scores of <50% were graded as poor knowledge, scores of 50–69% were graded as fair knowledge, and scores of 70–100% were graded as good knowledge.^[3] The attitudes and perceptions of participants were categorized as either negative or positive. An appropriate response to attitude or perception was awarded one (1) mark whereas an inappropriate response was awarded zero (0) mark. A score aggregate of <50% was regarded as a negative attitude or perception and $\geq 50\%$ was regarded as a positive attitude or perception^[3]

A Chi-square test of association was carried out to determine the presence of a statistical association between respondents' sociodemographic characteristics and knowledge, attitude, and perception of an autopsy. Since the outcome variable for knowledge had three-level factors: poor, fair, and good, a multinomial logistic regression was used to identify respondents' characteristics that are potential predictors of the observed level of knowledge. Binary logistic regression analysis was carried out to identify predictors of respondents' attitudes and perception of autopsy because they had only two outcome variables (negative and positive). For all the bivariate and multivariate analyses, the level of statistical significance (alpha error) was set at 5%. An independent sample test was carried out to compare the knowledge, attitude, and perception of doctors with nurses. Ethical clearance was obtained from the ethics committee of Connaught Hospital. In addition, informed consent was sought from each participant before the questionnaire was administered.

Results

Table 1 shows the socio-demographic distribution of the 215 participants. The mean age was 32.8 ± 7.42 years. The modal age category was 20-40 years. There were more nurses accounting for 73.5% of the total respondents. 72.1% of the respondents were females. Christians accounted for 60.5% of the total respondents.

Table 2 presents the responses of the participants to questions relating to knowledge regarding autopsy. Over 95% of respondents knew the meaning of autopsy, and the purpose for which it is performed, and 94.4% knew that an autopsy is performed by a pathologist. 74% did not know the meaning of coroner autopsy and therefore could not differentiate coroner autopsy from hospital-based autopsy. Over seventy percent had no knowledge whether there were rules or policies guiding the practice of autopsy at the study hospital; but on the other hand, over ninety percent knew that autopsy was done at the study site.

Table 1: Socio-demographic characteristics of the study population

Variables	Frequency (N=215)	Percentage (%)
Age of participants		
<20years	3	1.4%
20-40years	180	83.7%
>40years	32	14.9%
Gender of participants		
Male	60	27.9%
Female	155	72.1%
Level of education		
Tertiary	162	75.3%
Postgraduate	53	24.7%
Religion		
Christianity	130	60.5%
Islam	83	38.6%
No response	2	0.9%
Marital status		
Single	118	54.9%
Married	91	42.3%
Others	6	2.8%
Designation		
Doctor	57	26.5%
Nurse	158	73.5%
Nationality		
Sierra Leonean	211	98.1%
Liberian	1	0.5%
Nigerian	3	1.4%
Number of years of practice		
<1year	48	22.3%
1-5years	80	37.2%
6-10yers	57	26.5%
>10years	30	14.0%

Table 2: Knowledge of some aspects of autopsy

Variable	Frequency (N=215)	Percentage (%)
A post-mortem examination is an examination of a body after death.		
Yes	205	95.3%
No	5	2.3%
Don't know	5	2.3%
A post-mortem examination is performed for legal or medical purposes.		
Yes	207	96.3%
No	4	1.9%
Don't know	4	1.9%
A coroner autopsy is a form of a post-mortem examination.		
Yes	163	75.8%
No	17	7.9%
Don't know	35	16.3%
Coroner autopsy is?		
Autopsy without relative's consent	56	26.0%
Autopsy with relative's consent	97	45.1%
Can't tell	62	28.8%
A hospital autopsy is?		
Autopsy without relation's consent	39	18.1%
Autopsy with the relation's consent	136	63.3%
Can't tell	38	17.7%
No response	2	0.9%
A post-mortem examination is usually performed by:		
Pathologist	203	94.4%
Surgeon	11	5.1%
Scientist	1	0.5%
The following deaths are exempted from autopsy.		
Death from suspected hemorrhagic viral diseases		
Yes	117	54.4%
No	59	27.4%
don't know	39	18.1%
Death from HIV/HBV		
Yes	84	39.1%
No	91	42.3%
don't know	38	17.7%
No response	2	0.9%
Are you aware of any existing policies guiding the practice of post-mortem examination at Connaught Hospital?		
Yes	61	28.4%
No	154	71.6%
Are you aware that a postmortem examination is done at this hospital?		
Yes	201	93.5%
No	14	6.5%
Have you ever witnessed an autopsy?		
Yes	63	29.3%
No	151	70.2%
No response	1	0.5%

Figure 1 shows the knowledge level distribution of participants. 38.1% demonstrated good knowledge and 13.5% demonstrated poor knowledge. Figure 2 presents a summary of the attitude levels of study participants. Only 18.1% of the total population demonstrated a negative attitude. Figure 3 represents the summary of the perception levels of the study population. Just over half demonstrated positive perception.

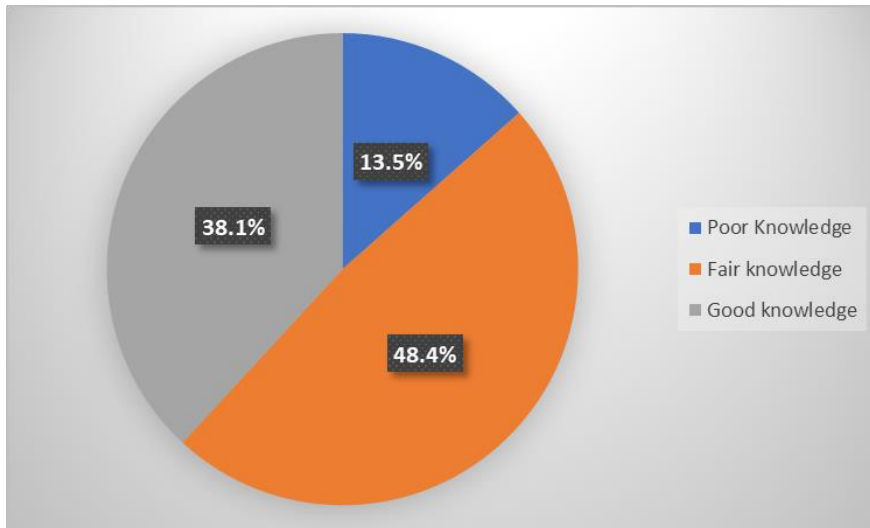


Figure 1: Cumulative knowledge score of participants

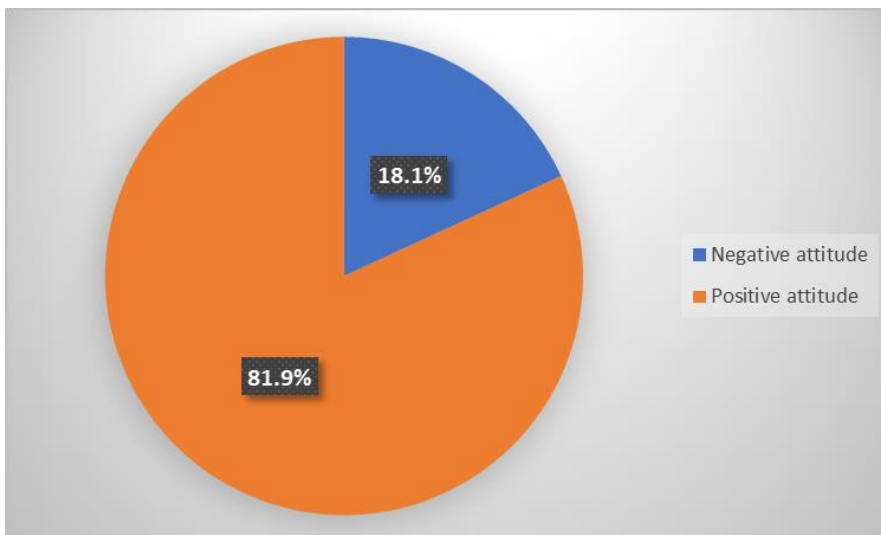


Figure 2: Summary of attitude levels of study participants

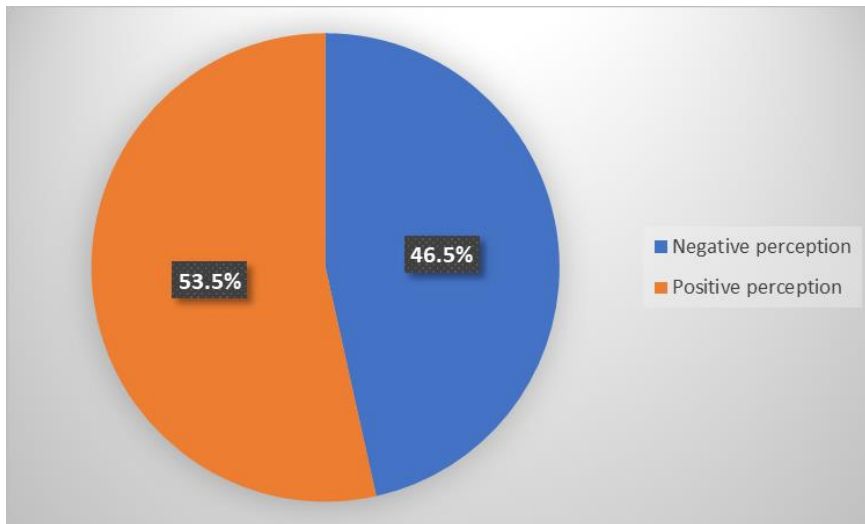


Figure 3: Summary of perception levels of respondents.

Table 3 enumerates the responses of the participants regarding the objectives of an autopsy. The majority of the respondents showed adequate knowledge. Table 4 shows respondents' attitudes towards some aspects of Autopsy. Only 3.7% of the respondents felt autopsy is unnecessary and 90% supported its practice. The majority supported the need for public awareness of the benefits of autopsy (92.1%). However, only a few, 36.7% agreed to receive an organ from a deceased donor and 64.7% and 34.6% were willing to consent to an autopsy on the corpse of their family member and themselves respectively. Table 5 represents respondents' perceptions of autopsy. The results indicated that 62% of the respondents perceived autopsy to be of no benefit to the dead, whereas 63.7% perceived it to be of great benefit to the living. 39% felt the dead should not be mutilated for any reason, and 65.6% viewed autopsy to cause only further distress and anguish to the grieving family. 43.3% responded that autopsy is contrary to their religious belief.

Table 6 presents suggestions made by participants on how the practice of autopsy can be encouraged at the study site. Suggestions such as encouraging doctors to specialize in the field of pathology and to request autopsies for their deceased patients, counseling relatives of the deceased on the benefits of autopsy, waiving procedural fees when payment is a problem, and having mutual understanding between physicians and pathologists were the most mentioned.

An independent sample t-test analysis (Table 7) compared the knowledge, attitude, and perception between doctors and nurses. The analysis for knowledge showed that there were significant differences in the scores $\{t(213) = 3.01, p = 0.003\}$, with the mean for doctors ($M = 2.47, SD = 0.57$) being higher than that of nurses ($M = 2.16, SD = 0.69$). The magnitude of the difference in the means (mean difference = 0.31, 95% CI = 0.11-0.51) was significant. Therefore, doctors portrayed higher knowledge levels than nurses towards autopsy. Similarly, the test analysis for perception levels showed that doctors had higher mean perception score {Mean (SD) (1.79 ± 0.41) compared with nurses (1.44 ± 0.50) with a mean deviation of 0.35 ($p < 0.001$, 95% CI = 0.21-0.48). However, the attitude levels for doctors and nurses showed no significant differences $\{t(213) = 0.94, p = 0.35\}$ in the scores with mean for doctors ($M = 1.86, SD = 0.35$) and nurses ($M = 1.80, D = 0.50$). The mean difference was small and not statistically significant ($MD = 0.06$, $p\text{-value} = 0.35$, 95% CI = -0.06-0.17).

Table 3: Participants responses on objectives of autopsy

Variables	Frequency (N=215)	Percentage (%)
To determine the cause of death		
Yes	210	97.7%
No	1	0.5%
Not sure	4	1.9%
To determine the manner of death		
Yes	173	80.5%
No	26	12.1%
Not sure	16	7.4%
To determine if medical treatment before death was appropriate		
Yes	131	60.9%
No	53	24.7%
Not sure	31	14.4%
To supply tissues and organs for transplant		
Yes	70	32.6%
No	112	52.1%
Not sure	33	15.3%
For teaching or medical research		
Yes	169	78.6%
No	30	14.0%
Not sure	16	7.4%
To expose mistakes made by hospitals and clinicians in the management of the patient		
Yes	117	54.4%
No	52	24.2%
Not sure	45	20.9%
No response	1	0.5%

Table 4: Participant's attitudes on some aspects of autopsy

Variable	Frequency (N=215)	Percentage (%)
What do you think about postmortem examination?		
Very necessary	118	54.9%
Necessary	89	41.4%
Unnecessary	8	3.7%
There is inadequate information on the purpose of postmortem examination.		
Yes	117	54.4%
No	52	24.2%
Not sure	46	21.4%
Do you support the practice of postmortem examination?		
Yes	194	90.2%
No	12	5.6%
Not sure	9	4.2%
Will you agree with the need for improved public awareness of the benefit of postmortem examination?		
Yes	198	92.1%
No	17	7.9%
Will you consent to postmortem examination on the corpse of your family member or relative		
Yes	139	64.7%
No	43	20.0%
Not sure	33	15.3%
Will you consent to a postmortem examination to be done on you when you die		
Yes	73	34.0%
No	98	45.6%
Not sure	44	20.5%
Have you ever consented to an autopsy to be done on your deceased relative?		
Yes	26	12.1%
No	189	87.9%
Have you ever counseled a relative of a deceased to consent to an autopsy?		
Yes	41	19.0%
No	174	81.0%
Will you consent to organ removal postmortem?		
Yes	65	30.2%
No	119	55.3%
Not sure	31	14.4%
Will you accept an organ from a deceased donor?		
Yes	79	36.7%
No	101	47.0%
Not sure	35	16.3%

Table 5: Perception levels on some aspects of autopsy

Variable	Frequency (N=215)	Percentage (%)
A postmortem examination is of no benefit to the dead.		
Yes	133	61.9%
No	82	38.1%
A postmortem examination is of no benefit to the living.		
Yes	78	36.3%
No	137	63.7%
A postmortem examination is contrary to my religious beliefs.		
Yes	93	43.3%
No	122	56.7%
A dead body should not be mutilated for any reason.		
Yes	84	39.1%
No	130	60.5%
No response	1	0.5%
A postmortem examination will cause further distress and anguish to the grieving family.		
Yes	141	65.6%
No	72	33.5%
Not certain	2	0.9%

Table 6: Various suggestions given by respondents on how to improve autopsy practice at the study site.

Variable	Frequency (N=215)	Percentage (%)
To have more doctors specializing in the field of pathology		
Yes	211	98.1%
No	4	1.9%
To encourage doctors to request an autopsy		
Yes	167	77.7%
No	48	22.3%
To counsel relatives of the deceased on the importance of autopsy		
Yes	199	92.6%
No	16	7.4%
To waive procedural fees when payment is a problem		
Yes	165	76.7%
No	50	23.3%
To have good communication between physicians and pathologists		
Yes	200	93.0%
No	15	7.0%

Table 7: An independent sample t-test comparing the knowledge, attitude, and perception between doctors and nurses

Variable	Mean (SD)	F	p-value	T(df)	p-value	Mean Difference	Confidence Interval
Knowledge							
Doctor	2.47(0.57)	0.20	0.660	3.01(213)	0.003	0.31	0.11- 0.51
Nurse	2.16(0.69)						
Attitude							
Doctor	1.86(0.35)	3.84	0.051	0.94(213)	0.35	0.06	-0.06-0.17
Nurse	1.80(0.40)						
Perception							
Doctor	1.79(0.41)	62.90	0.000	5.14(119)	0.00	0.35	0.21-0.48
Nurse	1.44(0.50)						

Table 8 shows that gender ($\chi^2=8.88$, $df=2$, $p=0.012$); level of education ($\chi^2=13.78$, $df=6$, $p=0.032$), and designation ($\chi^2=9.15$, $df=2$, $p=0.01$) had statistically significant association with respondents' knowledge levels of an autopsy. However, only religion showed a statistically significant association with respondents' attitude levels ($\chi^2=10.84$, $df=3$, $p=0.01$); and gender and profession of respondents ($\chi^2=7.37$, $df=1$, $P=0.007$, Fisher's exact test=0.009; and $\chi^2=20.20$, $df=1$, $P<0.001$, Fisher's exact test=0.001 respectively) showed statistically significant association with their perception levels.

Predictors of knowledge, attitude, and perception of autopsy

Table 9 discusses the different predictors influencing knowledge, attitude, and perception of autopsy among the study participants. The multinomial logistic regression analysis showed that respondent's gender did not significantly predict whether they had fair or poor knowledge; $b=0.43$, Wald $\chi^2(1)=0.35$, $p\text{-value}>0.56$, adjusted odds ratio (AOR) =1.54. The AOR suggests that the male gender is 1.54 times more likely to have fair knowledge than poor knowledge of autopsy. Similarly, level of education and profession did not significantly predict whether respondents had poor or fair knowledge: Profession: $b=1.42$, Wald $\chi^2(1)=2.63$, $p\text{-value}=0.11$, AOR=4.14; level of education, tertiary: $b=0.23$, Wald $\chi^2(1)=0.16$, $p\text{-value}=0.69$, AOR=1.26. But also it suggests that doctors were 4.14 times more likely to have fair knowledge than poor knowledge of autopsy. Also, respondents with tertiary education were 1.26 times more likely to have fair knowledge than poor knowledge of autopsy when compared with those with postgraduate education.

The binary logistic regression analysis on participants' attitudes and perception levels towards autopsy revealed that religion did not predict the attitude of the respondents. Christianity: $b=-19.18$, Wald $\chi^2(1)=0.000$, $p\text{-value}=0.999$, AOR=0.000; Islam: $b=-20.30$, Wald $\chi^2(1)=0.000$, $p\text{-value}=0.999$, AOR=0.000. However, the profession was a significant predictor of respondents' perception of postmortem examination, $b=1.53$, Wald $\chi^2(1)=12.34$, $p\text{-value}<0.001$, AOR=4.62. The odds of having good perception is 4.62 (respondents who are medical doctors, were more likely to have good perception of autopsy). Gender did not significantly predict whether respondents will have a good perception or poor perception of an autopsy, $b=0.04$, Wald $\chi^2(1)=0.01$, $p\text{-value}=0.93$, AOR=1.04. The odds ratio of 1.04 implies that the male gender does not show much significant increase in the likelihood of having good perception than poor perception of postmortem examination as compared with the female gender.

Table 8: Chi-square test of association between participants' knowledge, attitude, and perception levels and their socio-demographic characteristics

Variables			Knowledge Levels			Test statistics
			Poor	Fair	Good	
Gender	Male		3(10.35%)	26(25.0%)	31(37.8%)	x ² =8.88, df=2, P=0.012*
	Female		26(89.7)	78(75.0%)	51(62.2%)	
Level of Education	Primary		1(3.4%)	0(0.0%)	1(1.2%)	x ² =13.78, df=6, P=0.032*
	Secondary		1(3.4%)	2(1.9%)	1(1.2%)	
	Tertiary		22(75.9%)	84(80.8%)	50(61.0%)	
	Postgraduate		5(17.2%)	18(17.3%)	30(36.6%)	
Designation	Doctor		2(6.9%)	26(25.0%)	29(35.4)	x ² =9.15, df=2, P=0.01*
	nurse/midwife		27(93.1%)	78(75.0%)	53(64.6%)	
Attitude Levels						
			Negative attitude	Positive attitude		
Religion	Christianity		15(38.5%)	115(65.4%)	x ² =10.84, df=3, P=0.01*	
	Islam		24(61.5%)	59(33.5%)		
	No response		0(0.0%)	2(1.1%)		
Perception Levels						
			Negative perception	Positive perception		
Gender of participants	Male		19(19.0%)	41(35.7%)	x ² =7.37, df=1, P=0.007*,	
	Female		81(81.0%)	74(64.3%)		
Designation	Doctor		12(12.0%)	45(39.1%)	x ² =20.20, df=1, P<0.001*,	
	Nurse		88(88.0%)	70(60.9)		

Table 9: Predictors of knowledge, attitude, and perception of autopsy among the study population

Knowledge levels	B	Degree of freedom (df)	Significant level	Odds Ratio	Confidence Interval (95%)
Fair Knowledge					
Male	0.43	1	0.56	1.54	0.37-6.45
Tertiary education	0.23	1	0.69	1.26	0.41-3.89
Doctor	1.42	1	0.11	4.14	0.74-22.98
Good Knowledge					
Male	0.69	1	0.36	1.98	0.47-8.45
Tertiary education	-0.70	1	0.22	0.50	0.16-1.51
Doctor	1.63	1	0.06	5.10	0.91-28.46
Attitude levels					
Islam	-19.18	1	0.999	0.00	0.00-0.00
Christianity	-20.30	1	0.999	0.00	0.00-0.00
Perception levels					
Male	-0.04	1	0.93	0.97	0.44-2.14
Doctor	1.53	1	<0.001	4.62	1.97-10.83

Reference categories; poor knowledge, negative perception, and negative attitude

Discussion

The study conducted at the tertiary adult referral hospital assessed the knowledge, attitude, and perception of autopsy among doctors and nurses. Specific objectives were to assess the current knowledge, attitude, and perception status of these healthcare workers, to compare the knowledge, attitude, and perception of doctors with nurses towards autopsy, to know whether there were any existing policies guiding the practice of autopsy at the study site, and to know what is needed to be done in order to encourage the practice of autopsy at the hospital.

Two hundred and fifteen respondents were enrolled with a mean age of 32.8 ± 7.42 years. A similar age distribution was reported by Kaoje and colleagues in Nigeria.^[3] There were more female respondents than males which could be explained by the fact that female nurses make up the majority of the population at the study site. However, there were more males noted in the Olowookere study and almost equal gender distribution in the Kaoje study. Respondents with tertiary education accounted for almost three-fourth of the study population; and for that of religion, there were more Christians (60.5%). Similar findings were noted by Oluwasola and Olowookere (6,9) but contrary to that of Kaoje.^[3]

In the study, 13.5%, 48.4%, and 38.1% demonstrated poor, fair, and good knowledge respectively. This indicated that the majority of the respondents showed adequate knowledge of autopsy. These findings slightly differ from what was reported by Kaoje and colleagues in 2016 even though the study populations were similar. The majority of the respondents (96.3% and 97.7%) knew that an autopsy was performed for medical and legal purposes and that it was performed by a pathologist. A good number of the respondents (>60%) knew the objectives of performing an autopsy with just a few who stated that an autopsy was done in order to supply tissues and organs for transplant (32.6%). Although this study revealed that a greater proportion of the respondents had fair to good knowledge of autopsy, one in every seven respondents had poor knowledge. Kaoje and colleagues in 2016 reported one in every five having poor knowledge.^[3] In addition, knowledge of specific aspects varied, with some respondents having poor knowledge or being unsure about certain statements. For example, a considerable number of respondents

did not know the definition of coroner and hospital autopsy (74%) and (36.7%) respectively; a similar finding noted by Udoh in 2022.^[13] Only, 6.5% of respondents did not know that an autopsy was performed at the study center, and the majority (71.6%) were unaware of any existing policies guiding the practice of autopsy at the study site. This suggests a potential need for the development or clarification of policies in this area. When the result from this study was compared with other studies involving different study populations (medical students, physicians, relatives of the deceased), a varying knowledge trend was noted. Medical students and physicians demonstrated better knowledge in comparison with nurses and relatives of the deceased. This difference can be attributed to the professional background of the different study populations.^[4,6,9,11,14-17] The Chi-squared test revealed that gender (p -value=0.012), level of education (p -value=0.032), and profession (p -value=0.010) had statistically significant associations with respondents' knowledge level. For example, more male participants exhibited good knowledge, higher educational levels were associated with better knowledge, and doctors had higher knowledge levels. However, Kaoje and colleagues in 2016 identified age group, profession, and duration of practice to have a statistically significant association with respondent's knowledge.^[3] In contrast to these findings and other studies; Udoh in 2022 did not report any statistically significant correlation between knowledge grade and age, sex, marital status, level of education, and years of work experience.^[13] In addition, the multinomial regression analysis of the socio-demographic characteristics of the respondents did not predict whether participants had fair or poor knowledge. However, the adjusted odds ratios (AORs) provided insights into the associations observed in the analysis. For instance, doctors, postgraduate education, and males were more likely to have good knowledge. Other studies noted gender, marital status, religion, ethnicity, and profession, to be predictors of knowledge.^[3,18,19] The independent-sample t-test analysis revealed that doctors demonstrated higher knowledge levels. This test was not seen in any of the papers reviewed.

A significant number of the participants had a positive attitude towards autopsy, considering it either necessary or very necessary, 96.1% (doctors 100% vs nurses 95%). More than half of the respondents believed that there is inadequate information on why an autopsy should be performed. A large number (>90%) supported the practice of postmortem examination and agreed with the need for improved public awareness of its benefits. However, only one-third were willing to accept organs from a deceased donor, and consent for autopsy on their corpse, and less than one-third supported autopsy with the removal of organs for transplant. These findings suggest that respondents' knowledge levels could not be translated into their attitudes. Kaoje reported similar findings.^[3] Only religion showed a statistically significant association with attitude, but the bivariate analysis did not show any predictors influencing the attitude of study participants. In addition, the independent sample t-test did not show any significant difference in the mean attitude scores between doctors and nurses $\{t(213) = 0.94, p = 0.35, 95\% \text{ CI} = -0.06-0.17\}$. However, the descriptive analysis showed that doctors demonstrated a positive attitude more than nurses. Just over half of the participants (53.5%) demonstrated a positive perception towards autopsy. The majority of respondents did not perceive autopsy to be beneficial to the dead, and they believed that it could cause further distress to grieving families (>60.0% respectively). However, over sixty percent (>60.0%) did not believe the statement that a corpse should not be mutilated for any reason and that an autopsy is of no benefit to the living. Additionally, less than fifty percent admitted that autopsy was against their religious beliefs. Kaoje and colleagues in 2016 reported similar findings from their study with just a few variations. Kaoje reported that 58.5% of respondents believed that autopsy was against their religious beliefs.^[3] This could be explained based on the variation in the study population sociodemographic structures. The Kaoje study had more Muslims (70.5%),^[3] which is almost the complete opposite of this study. The Chi-square test revealed that gender and profession had a statistically significant association with respondents' perception levels; with male participants and doctors showing higher positive perception levels. The bivariate analysis noted only profession to be a significant predictor of participants' perception of autopsy (p -value <0.001). Respondents who were medical doctors had 4.62 times higher odds of having a positive perception. The t-test analysis also shows that doctors exhibited higher mean perception scores with a mean difference of 0.35 ($p < 0.001, 95\% \text{ CI} = 0.21-0.48$).

The most reported suggestions as to how autopsy can be encouraged at the study site were: To have more doctors specializing in the field of pathology, encourage doctors to request autopsy, counsel relatives of the deceased on the importance of autopsy, waive procedural fees when payment is problem, and have good communication between physicians and pathologists.

Conclusion

This study reported that over eighty percent of participants demonstrated good to fair knowledge and a positive attitude towards autopsy. However, only over half of the study population demonstrated a positive perception towards autopsy. A significant number of the participants were unable to clearly define coroner and hospital-based autopsy. The majority (71.6%) of the study subjects were not aware of any existing policies guiding the practice of autopsy, but a huge proportion did agree that they knew that autopsy was done at the study site. This suggests a potential need for the development or clarification of policies in this area. These findings overall suggest that the participants were knowledgeable about the whole process of autopsy.

References:

1. Chakraborty R. Infections and other causes of death in HIV-infected children in Africa. *Paediatr Respir Rev.* 2004 Jun;5(2):132–9.
2. Bamber A, Quince T. The value of postmortem experience in undergraduate medical education: current perspectives. *Adv Med Educ Pract.* 2015 Mar;159.
3. Kaoje A, Mohammed U, Abdulkarim A, Raji M, Ango U, Magaji B. Knowledge, Attitude, and Perception of Postmortem Examination Among Doctors and Nurses in a Tertiary Hospital of Sokoto, Nigeria. *J Forensic Sci Med.* 2016;2(2):78.
4. Moorthy TN, Thenmoli R. Study of knowledge, attitude and perception regarding medicolegal autopsy among malaysian hindus: a focus on hinduism. *Journal of Bio Innovation* 2016;5(6):890–9.
5. Uneke CJ, Uro-Chukwu HC, Chukwu OE. Validation of verbal autopsy methods for assessment of child mortality in sub-Saharan Africa and the policy implication: a rapid review. *Pan Afr Med J.* 2019;33:318.
6. Olowookere S, Komolafe A, Abiodun A, Omole JG, Babalola A, Sanni O, et al. Physicians' knowledge, attitude and practices towards autopsy in a Nigerian tertiary hospital. *Archives of Asian Pathology* 2020 Mar;2 number 1.
7. King DW. Potential of the autopsy. *Arch Pathol Lab Med.* 1984 Jun;108(6):439–43.
8. Hill RB. The current status of autopsies in medical care in the USA. *Qual Assur Health Care.* 1993 Dec;5(4):309-13. doi: 10.1093/intqhc/5.4.309.
9. Oluwasola OA, Fawole OI, Otegbayo AJ, Ogun GO, Adebamowo CA, Bamigboye AE. The Autopsy: Knowledge, Attitude, and Perceptions of Doctors and Relatives of the Deceased. *Arch Pathol Lab Med.* 2009 Jan 1;133(1):78–82.
10. Talmon GA, Czarnecki D, Bernal K. The eAutopsy. *Am J Clin Pathol.* 2014 Nov 1;142(5):594–600.
11. Atanda AT, Umar AB, Yusuf I, Imam MI, Sule AA. Autopsy and religion: A review of the literature. *Sahel Medical Journal* 2016;19:119-24.
12. Blum LS, Karia FP, Msoka EF, Oshosen Mwanga M, Crump JA, Rubach MP. An In-Depth Examination of Reasons for Autopsy Acceptance and Refusal in Northern Tanzania. *Am J Trop Med Hyg.* 2020 Oct 7;103(4):1670–80.
13. Udoh M. Autopsy-related work experience: An important factor affecting knowledge and attitudes of health personnel toward autopsy. *Niger J Clin Pract.* 2022;25(8):1221.

14. Bharanthi M, Loo C, M V, Priyamvada S. Current status of perceptions towards autopsy and post-mortem examination among medical undergraduate students. *Int J Med Soc Sci* 2015;1(3):66–71.
15. Ekanem VJ, Akhigbe KO. Attitudes of Nigerian Medical Students Towards Autopsy. *Turk J Med Sci* [Internet]. 2006;36. Available from: journals.tubitak.gov.tr/medical/vol36/iss1/8
16. Chawla H, Tyagi A, Kumar R, Malhotra R, Kumar N. A study evaluating effectual of knowledge, attitude and perception of undergraduate medical students towards medico-legal autopsy. *Indian J Forensic Community Med*. 2019 Oct 28;6(3):138–43.
17. Bagga I, Goyal V, Singh A, Chawla H, Goel S, Sharma S. Knowledge towards post-mortem examination and reasons for not specialising in morbid anatomy: study among medical undergraduate students. *Int J Res Med Sci*. 2016;2792–5.
18. Cedric Egnonwa B, Agnes B, Anthelme A, Armand Finagnon W, Kouanou Angele A. Forensic Autopsy in the Republic of Benin: Knowledge and Perceptions of Relatives of the Deceased. *Cent Afr J Public Health*. 2022;8(3):91.
19. Parmar P, Gunvanti BR. Study of knowledge, attitude and perception regarding medico-legal autopsy in general population. *International Journal of Medical and Pharmaceutical Sciences* 2013;3:01-06.