



Knowledge and Perception of the Dichotomy between Medical Laboratory Science and Clinical Laboratory Medicine among Students of the University of Calabar, Nigeria

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ABSTRACT

Background: There has been recurrent industrial disharmonies in the Nigerian healthcare system, mainly between the Medical Laboratory Science (MLS) and Clinical Laboratory Medicine (CLM) professionals. This tussle for supervision of job role on the bench and responsibilities for patient care seems to be as a result of misunderstanding of the core differences between these two similar but entirely different professional fields of work. This misunderstanding was recently seen to have extended to the Medical Laboratory Science Students of the University of Calabar. Even though there is resemblance in these two professional fields, Medical Laboratory Science and Clinical Laboratory Medicine are two autonomous professions with clearly defined roles both by global best practice and the Acts of law in Nigeria. Understanding the core difference between CLM and MLS is important to foster a successful and strife-free professional environment in the hospital.

Objective: This study investigated knowledge and perception of the dichotomy between medical laboratory science and clinical laboratory medicine among students of the University of Calabar, Nigeria.

Method: The study was a cross-sectional observational study that used validated semi-structured and interviewee self-administered type.

Result: The result indicate that 49.7% of the students perceive Medical Laboratory Science as the same as Clinical Laboratory Medicine. Most of the study participants thought that doctors working in hospital (clinical) laboratory were Medical Laboratory Scientists, and when a medical laboratory scientist is working in the clinical laboratory, he becomes a clinical laboratory physician. About 70.1 % of the student had no knowledge of the domain of practice of the MLSSs. There was also gross deficiency in the knowledge and perception of students on the dichotomy between Medical Laboratory Science and Clinical Laboratory Medicine

Conclusion: The conclusion of this study is that most of the medical laboratory science students have wrong knowledge and perceptions on the dichotomy between medical laboratory science and the clinical laboratory medicine.



Unique contribution: This study has provided empirical data on knowledge and perception of the dichotomy between medical laboratory science and clinical laboratory medicine among the medical laboratory science students in University of Calabar, Nigeria. It is hoped that this would be useful to policymakers including the government, educational and health institutions, researchers, Medical Laboratory Science and Clinical Laboratory Medicine students, and the general public.

Key recommendation: There is need to introduce the students to the Acts of Law that established Medical Laboratory Science (MLS) Profession which has clearly spelt out the job role of the MLS

Keywords: Medical Laboratory Science, Clinical Laboratory Medicine, Dichotomy, Acts of Law.

INTRODUCTION

In recent times, a lot of light has been drawn to the recurrent industrial disharmony in the Nigerian health care system involving especially between the medical laboratory science and clinical laboratory medicine professionals (Erhabor and Adias 2014, Aturaka 2018). There is a tussle for supremacy and responsibility that seems to be as a result of misunderstanding of the core differences between these two similar but entirely different professional fields of work (Bassey 2012, Erhabor 2014, Uko 2015).

Medical laboratory science and clinical laboratory medicine are two autonomous professions with clearly defined roles and are expected to work as a team so that the patient receives the highest standard of care. These roles have been clearly stated by the Acts of law that established these professional bodies in Nigeria (Archibong et al 2019). Clinical laboratory medicine involves the collection of human samples (including body fluids, tissue and excrement), analysis of these samples and diagnosis is made based on results of these analysis which will eventually culminate in the making of appropriate management of disease in a patient. This is a branch of medicine that deals absolutely with human specimen and these physicians who practise clinical laboratory medicine are also called pathologist (MDCN 2021). Medical laboratory science deals also with samples of humans but in addition, animals' samples are collected for the purpose of analysis, however the reason of this is mainly to aid in the production, stockpiling of diagnostic reagent and for the manufacture of diagnostic tools and apparatus (MLSCN 2021). This out rightly in line with the global job specification of a scientist which is for discovery purposes.

The resemblance in these two professional fields is that they both analyse samples and specimen but however the uses of their results of the analysis differ. The Medical and Dental Council of Nigeria (MDCN) Act and Medical Laboratory Science Council of Nigeria (MLSCN) Act clearly stated this fact. It therefore begs the question: Why then does there seem to be a misunderstanding of these roles across the nation's health sector? Why is there still a constant scuffle for supremacy, relevance, benefits and incentives when these professional bodies need not worry over that but rather works in harmony while performing their ascribed roles and responsibilities?

Knowledge is key in any society and ignorance of facts could lead to confusion, ruin and chaos. According to Asiyai (2013) in a study stated that, 'The quality of knowledge which is generated in institutions of higher learning is critical to national competitiveness. It is only quality education that can sharpen the minds of the individual and help transform the society economically, socially and politically'. Quality higher education requires that the graduates of institutions of higher



education should be able to perform according to expected standard and compete favourably with global standards and demands. The dichotomy between Medical Laboratory Science and Clinical Laboratory Medicine had at several times created disharmony in health institutions, particularly government owned ones in our country, Nigeria. Efforts at addressing this controversy have remained topical across different fora. This topical subject has formed the focus of this study. It is therefore hoped that the article would help push the frontiers of our understanding in this area and contribute to solving societal problems.

Research Question

1. What is the knowledge of students on the dichotomy between Medical Laboratory Science and Clinical Laboratory Medicine?
2. What is the perception of students on the dichotomy between Medical Laboratory Science and Clinical Laboratory Medicine?

METHODS

This study was conducted in the University of Calabar, a second-generation university which was founded in 1975 by the Federal Government of Nigeria. (Simona, 2021) The study population were students from all undergraduate academic levels of the Department of Medical Laboratory Science in University of Calabar. The school records revealed that there were one thousand one hundred and sixty-four (1,164) students in this department. This study was a cross-sectional observational study. A validated semi-structured and interviewee self-administered questionnaire was used for data collection. Staff and students of other departments in the University of Calabar were excluded from the study. The sample size for the study was estimated using the Lesley Kish formula, (Singh, 2014) for estimating population > 10,000 and it gave a sample size of 289 for this study. Simple random sampling method was used to recruit participant into the study. A total of six weeks was used for data collection (January 10th to February 21st, 2022). The data collected for this study were analysed to address the aim of the study, using SPSS version 25. Descriptive and inferential statistics were conducted from the generated data.

RESULT

Table 1: The sociodemographic descriptive analysis of the data revealed that majority of the participants 151 (51.4%) were between the ages of 21 – 25 years, males were more than females by 26 (8.8%). About 278 (95%) were Christians and 273 (92.8%) were unmarried. Majority of the respondents were of the Igbo tribe 88 (29.9%), this was followed by other tribes 79 (26.9%) they include Ejagham, Tiv, Bantu, Ibibio, Anang, Oron. Most of the study participants were in the second year 117(39.8%), followed by those in first year in the university.



Table 1: Socio-Demographic Characteristics Of Study Participants

Variable	Frequency (n= 289)	Percentage (100%)
Age Group		
< 20 years	103	35.0
21 – 25 years	151	51.4
26 – 30 years	38	12.9
> 30 years	2	0.7
Gender		
Male	160	54.4
Female	134	45.6
Religion		
Christianity	278	94.5
Islam	7	2.4
Traditional	9	3.1
Marital status		
Single	262	89.1
Married	21	7.1
Divorced	6	2.0
Widowed	5	1.7
Tribe		
Efik	71	24.1
Hausa	23	7.8
Yoruba	33	11.3
Igbo	88	29.9
Others	79	26.9
Level in school		
1 st year	70	23.8
2 nd year	117	39.8
3 rd year	38	12.9
4 th year	37	12.6
5 th year	32	10.9

Table 2

The result from this study revealed that 146 (49.7%) had a wrong perception that medical laboratory science was exactly same as clinical laboratory medicine, while 226 (76.9%) of the study participants felt these two disciplines were similar. About 118(40.1%) perceived that the two professions were entirely different.

PERCEPTION

Med Lab Science Versus Clinical Lab Medicine	Yes	No
Exact same discipline	146 (49.7%)	148 (50.3%)
Similar Discipline	226 (76.9)	68 (23.1)
Entirely different	118 (40.1)	176 (59.9)

Figure 1

In figure 1, the study revealed that 177 (60.2%) of the students felt that those who practiced clinical laboratory medicine are known as laboratory scientist.

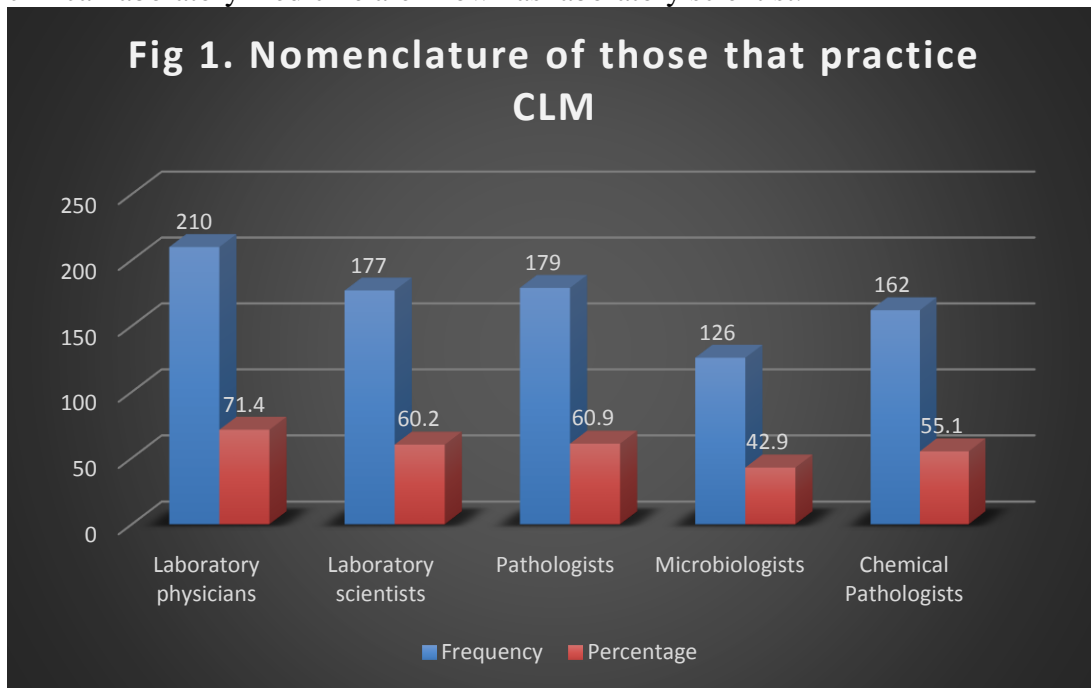
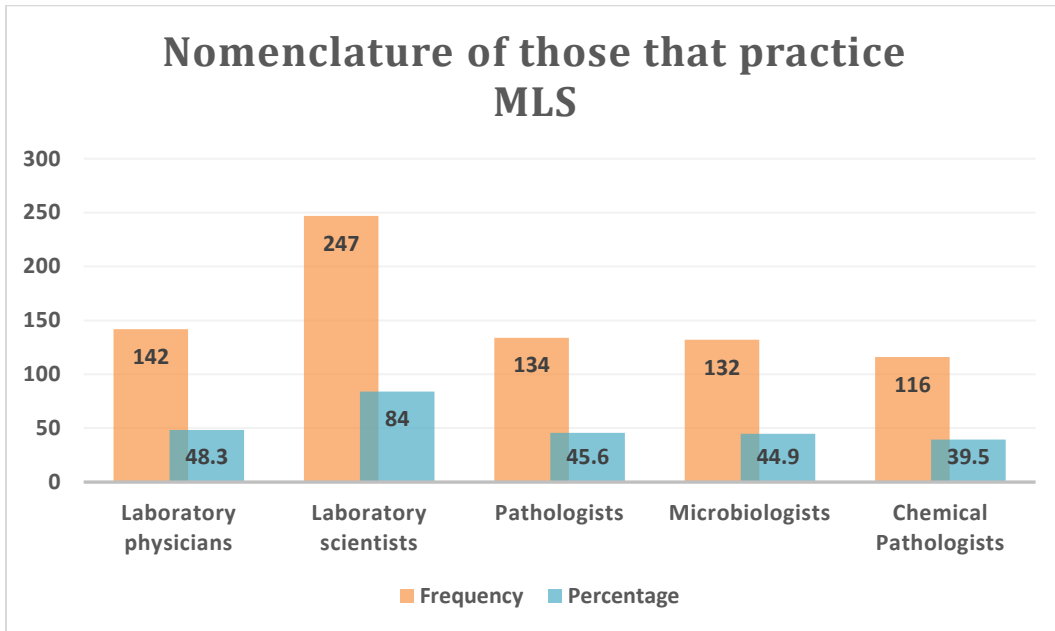


Figure 2

In this study, 142 (48.3%) of the medical laboratory science (MLS) students reported that those who practice MLS are called laboratory physicians. However, significant numbers 247 (84%) knew that they are called laboratory scientists.



In Table 3, the Medical Laboratory Science students 127 (43.2%) lack knowledge of the government regulatory agency that oversees regulation of the activities of clinical laboratory. About 175 (59.5%) thought that the clinical laboratories are regulated by the Medical Laboratory Council of Nigeria

Table 3: Knowledge of Government regulatory Agencies for MLS and CLM

Government agency that regulates activities of	Yes	No
CLM		
Medical Laboratory Science Council	175 (59.5)	119 (40.5)
Medical and Dental Council of Nigeria	167 (56.8)	127 (43.2)
MLS		
Medical Laboratory Science Act Council	230 (78.2)	64 (21.8)
Medical and Dental Council of Nigeria	107 (36.4)	187 (63.6)

Figure 3 and 4 revealed that 53% of the study participants had heard of MLSCN Acts and only 35% of them had read the Act.

Figure 3: Awareness of MLSCN Act



Figure 4: Knowledge of MLSCN Act



In table 4, it was noticed that majority 206 (70.1%) of Medical Laboratory Science students that took part in the study felt that hospital laboratory was the main place for the scientists should practice their profession.



Table 4: Knowledge of the core domain of practice of MLS and CLM

Core domain of practice of Medical Laboratory Scientists	Yes	No
Hospital Laboratory	206 (70.1)	88 (29.9)
Research Laboratory	183 (62.2)	111 (37.8)
Medical Laboratory Science Laboratory	174 (60.1)	115 (39.9)
All three Laboratories	175 (59.5)	119 (40.5)
None of the three Laboratories	87 (29.6)	207 (70.4)
Core domain of practice of Clinical Laboratory Physician	Yes	No
Hospital Laboratory	233 (79.3)	61 (20.7)
Research Laboratory	189 (64.3)	105 (35.7)
Medical Laboratory Science Laboratory	176 (59.9)	118 (40.1)
All three Laboratories	170 (57.8)	124 (42.2)
None of the three Laboratories	106 (36.1)	187 (63.9)

Table 5 showed that most of the study participants 179 (60.9%) thought that Medical Laboratory Scientists that work in hospital (clinical) laboratory are called laboratory physician.

Table 5: Nomenclature of MLS working in a Clinical Laboratory

Nomenclature of MLS working in a clinical laboratory	Yes	No
Allied healthcare worker	189 (64.3)	105 (35.7)
Support staff	116 (39.5)	178 (60.5)
Core healthcare worker	145 (49.3)	149 (50.7)
Laboratory physician	179 (60.9)	115 (39.1)

DISCUSSION

A cross-section of the undergraduate Medical Laboratory Students in the University of Calabar have erroneous perception about their profession and Clinical Laboratory Medicine as almost 50% of them thought that the two professionals were the same, while 76.9% perceived that the two professions were similar. This finding was like a study by Archibong et al (2021) which reported misperception about the two distinct professions and in the study the knowledge of the laws were limited because most of the study participant had not read the Act of the law that established the professions in Nigeria. Almost 50% of the students did not know the regulatory body in Nigeria that oversees the activities of the hospital laboratory. This study reported that 65% of the students had not read the MSLCN act and without reading the laws guiding their profession, it would lead



to wrong perceptions and in-depth knowledge of their profession. There was a lot of wrong knowledge on the nomenclatures of hospital laboratory staff as some of them thought that a laboratory scientist that work in the hospital laboratory is called laboratory physician. It is more likely that the wrong knowledge and perception of the dichotomy between these two professions is the root reason for the misunderstanding and industrial disharmony noticed in the hospital laboratories across the Nigerian health system. There is a knowledge gap noticed in this study because a causal effect of lack of knowledge of the Acts of law regulating these two professions and industrial disharmony was established. There would be need for an interventional study to establish causal effect of the knowledge and perception of the dichotomy between MLS and CLM in relation to industrial disharmony in government hospitals in Nigeria.

CONCLUSION

The result from this study has shown that most of the medical laboratory science students have wrong knowledge and perceptions on the dichotomy between medical laboratory science and the clinical laboratory medicine. The study recommends introduction of the MLSCN Act to the undergraduate students of the Medical Laboratory Science, University of Calabar as this may help to bring industrial harmony in the hospitals in Nigeria.

Ethical Clearance

Ethical consent was sought and obtained from the Health Research Ethics Committee of University of Calabar Teaching Hospital with number UCTH/HREC/33/Vol.III/ 023. The participants used in this study were made to understand that the exercise was purely for academic purposes, written consent was gotten from them and their participation was voluntary.

Sources of Funding

The study was not funded.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Authors' Contributions.

Archibong Felix conceived the study, including the design. Atrogor Matthew and Nformi Kemjei joined him in collating the data. Antagwho Anietie and Legogi analysed and interpreted the data, while Nwafor and Archibong wrote the initial manuscript. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Availability of Data and Materials.

The datasets on which conclusions were made for this study are available on reasonable request. The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.



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