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# The Challenges of Anatomy Education among Medical Students in Nigeria

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## ABSTRACT

Until recently, the failure rates of anatomy education across Nigerian universities received huge attention from the higher authorities and solution to this medical challenge is required. The aim of the study investigated the anatomy challenges among medical students in Nigeria. A total of 300 self administered questionnaires, 20 were pretested and noticeable suggestions from respondents were put into consideration. Informed consent was read and signed by the participants before the study. This study was conducted from Nov.2015 to Sept. 2016 on 200, 300 and 400L of anatomy, Faculty of Basic Medical Sciences (FBMS), Federal University Ndufu Alike Ikwo, Abakaliki Ebonyi State, Nigeria. About 2% of the students actually applied through Joint Admission Matriculation Board, the organ of admissions to universities to study anatomy, the reasons given were: 75% students believed MBBS have societal respect than anatomy. 20.7% of the students agreed to continue anatomy education after 1<sup>st</sup> degree. While 90.3% of the students blamed federal government for poor interest in anatomy education, 48.3% of the students reasoned that anatomy is not lucrative. Also, 52.3% of the students wanted academic year of anatomy education be increased, reason given that quality time to professionalized the program. Anatomy education in Nigeria is met with serious challenges ranging from poor teaching, lack of zeal for anatomy education and unemployment among the degree holders of anatomy. Hence, the continuity of anatomy education in Nigeria would be difficult across universities if urgent action is not taking.

## INTRODUCTION

Anatomy is the basic medical science course and the fundamental to establishing faculties or colleges of medicine. Over the years, medical students in Nigerian universities have complained of the course as to how is being handled. Of recent, the worries as individuals and

governments remained the massive withdrawal, repeated classes and changed of courses among medical students in Nigeria. Anatomy education is globally considered an essential part of medical training and award of degree programs in institutions offering the course.<sup>1</sup> With time anatomy education is needed in full scale in other to appreciate the growing knowledge of the fact that a good medical or surgical practice is possible by adequate and very exact understanding of human anatomy.<sup>12,18</sup> Poor anatomical knowledge among medical students in Nigeria has resulted in poor medical practices and affected the life expectancy rates of Nigerians.<sup>12</sup> With literally acquired private medical colleges, supporting varied degree of medical facilities and debate regarding significance of anatomy education is being lighted up.<sup>18,19</sup>

Many medical schools around the world have either removed the practical of dissection in the medical undergraduate curriculum or are seriously considering such a measure, due to poor financial or human resource grounds.<sup>1, 3, 21,19</sup> In the United Kingdom, the new system-based curriculum in many medical schools includes less than two hours of gross dissection per week from eight hours in the core traditional curriculum.<sup>3,7,15</sup> This is already a major challenge to anatomy education. Some schools have entirely reduced the anatomy education system curriculum like: removed cadaver dissection from the class room and replaced it with computer pictures.<sup>19,20</sup>

Recently there was a complete removal of anatomy dissection and being replaced with computer aided-programs in Australia. This was due to poor administrative responses and financial cost.<sup>16</sup> In Nigeria, the medical education has been from time immemorial and remained the most noble profession but anatomy education is bedeviled with high tension challenges. Expansion of medical institutions in Nigeria is really of need not only to combat rapidly increasing health challenges but also position the nation in the 21th century scientific development.

Very important as challenge is the review of medical curriculum especially in hours dedicated to teaching anatomy education. If no faculty of medicine can survive without anatomy as a course in both preclinical and clinical then the foundation of medicine is based on anatomy itself. It is in this perilous stage of 21st century that how best anatomy as course can be studied becomes an issue and how possible anatomy can be thought in the lecture halls, audio-visual centers and gross laboratories effectively. Lack of teaching facilities, transportation, laboratory consumables, e-libraries, cadaveric system, information communication technology (ICT), class room, sites for clinical demonstrations, skill training laboratories, hospital facilities and inefficient national budget affected anatomy education in Africa.<sup>16,18</sup>

Here, the roles and commitments of medical educators, planners and policymakers has greatly affected anatomy as basic medical science.<sup>14,15,21</sup> Also suggested by the medical commentators in the Asian communities that teachers of health professional education should be well-informed of the anatomy trends and innovations for proficiency.<sup>15,21</sup>

Recently the problem of mass failure in anatomy education among students was addressed by group discussions and tutorials. When it works well, discussion can allow students to negotiate meanings, express themselves in the language of the subject and establish closer contact with academic staff. It is not only in Nigeria that anatomy is facing challenges but also in the United States in the health disparities among the medics and the paramedics.

Education in medical colleges is experiencing a paradigm shift by moving from teacher centered to more learner centered, from being more passive to active learning and from individual learning to group learning.<sup>3,4,8</sup> Lecture is the most commonly used traditional method for teaching and learning anatomy education. With these objectives in mind, the present study was planned by using student's opinions to

assess the challenges of anatomy education among medical students in Nigeria, so as to create a baseline data for medical education.

## **MATERIALS AND METHODS**

### **Research Setting and Design**

The study was cross-sectional and descriptive methodology conducted in the Department of Anatomy, Federal University Ndufu Alike Ikwo Abakaliki Ebonyi State, Nigeria.

### **Population and Sampling**

The study population made up of 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year anatomy students. The selected level of students was deliberate. This is because at this time, have been interacted with anatomy teachers, observed preclinical equipments, ability to make direct choice on anatomy education and exposed to graduates of the degree program. The choice of the university and department was also deliberate because the research team members are anatomists and staff.

### **Data Collection**

The instrument used for data collection was a structural questionnaire. All the students concerned were called and guided while the general lecture theatre, permanent campus of the university on the teaching of anatomy education and challenges. The students were divided into two groups. The first set were 2<sup>nd</sup> year students into the hall while the 3<sup>rd</sup> and 4<sup>th</sup> year by larger population and opened door for preclinical respects were in the second group. A total of 300 self administered questionnaires, 20 were pretested and noticeable suggestions from respondents were put into consideration. Accessibility, credibility, dependability and trustworthiness of the survey were considered as decisive factors for the study. Accessibility and credibility was obtained from detailed and descriptive methodology to get data and results from investigation. To allow dependability and trustworthiness, sufficient reports and scientific protocol for survey investigations. Also,

recent researches and researchers were consulted and properly referenced. Dependability in the futuristic investigation was also opened for further survey.

### **Data Analysis**

Our team of researchers cross-checked and corrected all necessary observations and data were coded in an open-code system. A Likert Scale was used in two dimensions of the questionnaire, in addition to closed "YES and NO" questions. The scale has a range between low of 1 and high of 5. Chi square test was applied, results found to be statistically significant. The study posed no risk to participants.

### **Ethical Information**

With the administrative waiver obtained from the Faculty Board, the Department of Anatomy cleared the way for the research of first of its kind to be conducted in the university concerned. Written consent attached the front page of the questionnaires was filled and detached before the commencement of the study. The research team informed the participants of the research objectives, aims, methodology and possible risks involved. Confidentiality was maintained by avoiding the use of registration numbers and names.

## **RESULTS**

The results of 300 valid filled questioners were compiled. It was found that on average, 2% of the students actually applied to study anatomy through Joint Admission and Matriculation Board while 75% students applied to study medicine (MBBS). Further evaluation of these results revealed that 93.6% of students reasoned it on unemployment and 45% of students avoided anatomy through JAMB due to societal respect for MBBS holders. 48% students reasoned anatomy is not lucrative in Nigeria while 87% students that anatomy is hard a course to study. While 90.3% students blamed federal government of Nigeria for the poor interest in anatomy education, they were 52.3% students wanted

anatomy degree licensed. 85.3% of the students demanded for more time to teach anatomy while 99% of the students' respected cadavers used for dissection (Table-1, 2).

Religious colorations (66.7%) contributed to anatomy education, 0.7% believed federal government of Nigeria could provides stipends to the jobless anatomists with first degree. Also suggested was how anatomy be professionalized which contributed 41% of the students, provision of more cadavers contributed about 34.6% of the students while the provision of medical equipment about 15% of the students respectively. Also anatomists that were encouraged to participate in administrative profiles contributed to about 1% of the students universities in Nigeria (Table-2 and 3.0). The importance of plastinated models as part of the medical equipment for appreciation contributed about 73.7% of the students, the student studying anatomy with interest of 18.7% while the used of laboratory technicians contributed 6% of students were also considered (Table-4.0).

Table 1.0: frequency for student's decisions/opinions

STUDENTS/DECISIONS	YES	%	NO	%	OTHERS	%
Number of students who made 1 <sup>st</sup> choice for anatomy through JAMB	6	2	220	73.3	74	24.7
Number of students made 1 <sup>st</sup> choice for mbbs through JAMB	225	75	20	6.7	55	1.8
students that are prepared to continue anatomy education after 1 <sup>st</sup> degree in anatomy	62	20.7	224	74.7	14	4.7
Students who want academic years of anatomy be extended to allow professionalism	157	52.3	140	46.7	3	1
Student who want time allocated to teach anatomy be extended for better understanding	256	85.3	34	11.3	10	0.3
Students in support of anatomy quizzes, tutorials and group discussions	257	85.7	29	9.7	14	4.7
Students that supported orals and written examinations to enhance anatomy teaching	57	19	60	20.7	183	61
Students who blamed FG of Nigeria for poor interest in anatomy education	271	90.3	21	7	8	2.7
Students who believed Anatomical Society of Nigeria(ASN) made decision for Nigerian government	30	10	265	88.3	5	1.7

Table 2.0: reasons to which students attributed their decisions/opinions

REASONS	YES	%	NO	%	OTHERS	%
Unemployment among anatomists in Nigeria	281	93.6	10	3.3	9	3
Societal respect for mbbs holders	225	75	20	6.7	55	1.8
Anatomy education and challenges	145	48.3	150	50	5	1.7
Licensing of anatomy education	157	52.3	140	46.7	3	1
Quality time for anatomy education	256	85.3	34	11.3	10	0.3
Anatomy difficult a course to study among students	261	87	21	7	18	6
Religious beliefs to cadavers and dissections	200	66.7	52	17.3	48	16
Respect for cadavers	297	99	2	0.7	1	0.03



Table 3.0: student's suggestions for improvement in anatomy education in Nigeria

Suggestion(s)	Number	Percentage
Professionalized anatomy	123	41
Provisions of more cadavers	104	34.6
Provisions of medical equipment	45	15
Provision of more time for anatomy education	15	5
Provision of administrative offices for anatomy staff	8	2.7
More administrative interest for anatomists	3	1
FG of Nigeria provides stipends for 1 <sup>st</sup> degree anatomists	2	0.7

Table 4.0: summary

Summary	Number	Percentage
Students studying anatomy with interest	56	18.7
Classically trained faculty members with PhD in anatomy department	5	1.7
The importance of plastinated models for anatomy demonstrations	221	73.7
Classically trained laboratory technicians and prosectors were not enough for anatomy practicals	18	6

## DISCUSSION

Our study has shown the fact that students learn Anatomy with challenges. Previous literature revealed that they were varying responses with regards to the motivation towards anatomy education and students who wanted academic years of anatomy education extended.<sup>4, 8, 10</sup> Students in our research blamed federal government of Nigeria for poor anatomy education. There previous reviews on medical education among medical students towards anatomy quizzes.<sup>1,2</sup>

More research in anatomy education is necessary to counter balance emotional arguments about job opportunities, professionalizing the program with license and allowing administrative profiles. Recently in the UK, the General Medical Council (GMC) offered a new guideline on what is a minimum knowledge requirement for any medical subject and suggested that medical schools to determine their own curricula and methods of assessment that will favor anatomy education.<sup>2,5,6,7</sup>

Generally the establishment of anatomy department as part of medical education is expensive some of the challenges to anatomy have been identified in this study. Anatomy since her establishment is traditionally been delivered at the beginning of medical education to provide a basis for clinical training and practice across the world.<sup>7,8,9</sup> This study reviewed the insufficient provision of laboratory technicians to handling anatomical specimens and other medical equipments as challenges in teaching anatomy teaching.

No interest in anatomy contributed 75% of the student while 93.6% of the students claimed poor motivation from federal government of Nigeria. This study by student opinion expressed that anatomy as medical education demanded for more attention and provision of teachers. Even though anatomy is said to be an exhausted science, the contents taught in anatomy are ill-defined. Also job insecurity among anatomists maintained of the reasons for poor anatomy education.

Again the professional situation of anatomists has been devalued. The poor medical training background and insufficient equipment give anatomy teachers less interest to research and teaching.<sup>9,10,11</sup>

Despite the fact that anatomy is hard a course to studying in this research as one of the reasons for not continuing the education it is also believed that more respect for cadavers reduced dissection. It was in recent record in Pakistan that scarcity of anatomy tutors, poor medical equipment and the zeal to continue anatomy that the government demanded an overhaul of the medical curricula to arrest the situation.<sup>11,15,16</sup>

This study has identified six factors claimed to be challenges anatomy as they were options of the medical students. These were the teaching of anatomy by non-medically qualified teachers and the absence of a core anatomy curriculum. Also, the decreased anatomy teaching time in timetables and the choice of studying anatomy that is not licensed.

In some medical schools computers are now used as an adjunct to do some anatomy teaching, enabling students to see before they do dissection.<sup>16,17,18</sup> However, tools like interactive multimedia resources, models and specimens have been insufficient due to fund. About 73.7% students in our study thought that the provision of models would be the best way to also teach anatomy education.

A recent study revealed Pakistani perspective on the challenges in establishing anatomy across universities.<sup>19,20</sup> Although majority of the students have positive perceptions about anatomy education, it was blamed on the government for poor funding of the medical program.<sup>15</sup>

We agreed with the earliest commentators where authors tried to compare the effectiveness of anatomy, the challenges in creating anatomy as a department and the administrative.<sup>13</sup> Also, the challenge of

anatomy education is worldwide, it is possibly surmounted by creating awareness. The establishment and the challenges of anatomy education have survived the most rigorous test but have remained relevant for a very long time.<sup>21</sup> we needed to address in this present study how best anatomy could be studied, the required medical facilities and awareness to raise future anatomy students that will champion the course of anatomy education to the last.

This research was carried out in the Department of Anatomy, Faculty of Basic Medical Sciences, Federal University Ndufu Alike Ikwo, Ebonyi State, Nigeria have the limitation of not being truly random because of some kind of bias arising. It was possibly representing the opinion polls of good students as part of the stakeholders.

## RECOMMENDATION

Collection of similar data from medical colleges across Nigerian in a future research is highly solicited. Also if anatomy is the bedrock of medicine then it would be recommended that good medical equipments and classically trained anatomists be allowed to teach the course. The medical curriculum should be allowed to run an exclusive pattern from the main university calendar to allow more time to teaching gross anatomy and audio-visual monitoring.

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## CONCLUSION

The study revealed the challenges of anatomy education in Nigeria ranging from poor medical equipment, inability to apply through JAMB to study anatomy, unemployment with first and second degrees of anatomy among degree holders and poor presentation of medical

examinations. Adequate suggestions through the survey were made to allow continuity of anatomy education, better the program and enhance medical proficiency in the universities.

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