

An Assessment of the Knowledge of the Divisions of Anatomy among University of Port Harcourt Anatomy Students, Nigeria

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Abstract

Background: This study was designed to get insight on how the knowledge, attitude and perception of anatomy students across various divisions in the department of Anatomy, University of Port Harcourt. Important information was mapped out during this study and this knowledge is capable of transforming the undergraduate anatomy curriculum across Nigeria to position the students in their career and the overall development of anatomical sciences. If we want to gain a better understanding of teaching and learning in anatomy, it may be pertinent to move beyond the question of how and consider also the what, why and when of anatomy education. **Aim & Objectives:** This study was aimed at investigating the Knowledge, Attitude and Perception of the Divisions of Anatomy among University of Port Harcourt Anatomy Students, Nigeria. **Materials & Methods:** A purposive sample of 420 anatomy students from the 1st, 2nd, 3rd, and 4th year participated in the study. Each class came together during their semester examination and a mentorship form was issued to them to indicate the aspect of anatomy they are interested in. Data were analyzed and recorded. **Results and Discussions:** The result of the study indicated that clinical anatomy had a higher percentage of 21.65%, reproductive biology (18.47%), cell and tissue biology (9.87%), neurobiology (10.51%), physical and forensic anthropology (13.38%), and radiologic anatomy (9.87%) while multiple selections with 21.65%. The first year students showed more interest in Clinical Anatomy with a modal frequency percentage of 38.16% while the least percentage frequency was found in third year class with 9.38%. **Conclusion:** It is glaring that we are entering a time of paradigm shift aided by new understandings and new technologies as in all such times, views are held strongly and expressed emotionally. The University of Port Harcourt has taken the bold step restructure her curriculum for Anatomy education to flow with the current tide in meeting specific needs by diversifying Anatomy into divisions such as clinical anatomy, cell and tissue biology, reproductive biology, radiologic anatomy, neuroscience, physical and forensic anthropology.

Keywords: Knowledge, Attitude, Perception, Divisions, Anatomy.

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INTRODUCTION

This study was designed to get insight on how the knowledge, attitude and perception of anatomy students across various divisions in the department of Anatomy, University of Port Harcourt. Important information was mapped out during this study and this knowledge is capable of transforming the undergraduate anatomy curriculum across Nigeria to position the students in their career and the overall development of anatomical sciences. If we want to gain a better understanding of teaching and learning in anatomy, it may be pertinent to move beyond the question of how and consider also the what, why and when of anatomy education [1].

In line with National University Commission (NUC) guideline of increased societal relevance for courses offered in Nigerian Universities and crunching

need for graduates of Anatomy to find proper placement in society, and the current need trend of career and professional development in Anatomy within Africa and the global village, the department of Anatomy in its Departmental board held on 21st of November, 2012, decided unanimously to look into, review and modify the curricula of the existing Anatomy programs (particularly the undergraduate program) to give the department a proper footing in the University and make graduates of the department more labor market friendly and have global appeal.

The board reviewed contributions and suggestions from members of the department and examined the curriculum of several other departments and disciplines within and outside the University of Port Harcourt and resolved that; The department of Anatomy is reviewing and modifying her curriculum to capture the several research and professional areas of

specializations in Anatomy. This would enable Anatomists develop career in the field according to the divisions available. The department is to have divisions as areas of research specialization such as Radiological Anatomy, Clinical Anatomy, Developmental, Reproductive and Molecular Biology, Cell and Tissue Science, Anthropological and Forensic Anatomy (Biological Anthropology and Forensic Science) and Neuroscience where research focus and expertise should be skewed. This would encourage specialization and enhance competence and professionalism (Department of Anatomy, 2012) [2].

The above resolution which was passed and approved by the senate of the university of Port Harcourt in 2015, stimulate this research which focus on the knowledge attitude, and perception of the divisions of anatomy among students three years after the changes in curriculum was passed.

Some authors have investigated the knowledge, attitude and perception of their courses of study in the institution and reported their findings [3-13].

Aim of the Study

The study was aimed at investigating the knowledge, attitude and perception of the divisions of anatomy among students in the Department of Anatomy, University of Port Harcourt, Nigeria.

Significance of the Study

The result of this study will be very relevant in administering proper mentorship, encourage specialization, enhance competence and professionalism in the practice of Anatomy

Scope of the Study

This study was limited to the Knowledge, Attitude and Perception of the divisions of Anatomy.

MATERIALS AND METHODS

Research Design

The study was non-experimental and analytical.

Sample Size and Sampling Technique

A purposive sample of 420 anatomy students from the 1st, 2nd, 3rd, and 4th year participated in the study

Criteria for Subject Selection

The respondents recruited for the study were exclusively students fully admitted to run the Bachelors' degree programme in the Department of Anatomy, University of Port Harcourt, Nigeria.

Ethical Clearance

Ethical clearance was obtained from the Research Ethics Committee of the University of Port Harcourt, Nigeria.

Data Collection

Each participating class came together during their semester examination, an informed consent form was issued to the respondents, they read and signed to indicate consent to participate in the study. Thereafter, a structured close-ended questionnaire/mentorship form was issued to each respondent to indicate the aspect of anatomy they have interest. They read the questions and responded adequately to all questions. The questionnaire/mentorship form was retrieved and assembled for statistical analysis.

RESULTS

From the study, four major concerns were documented from the comments students gave concerning their perceptions on anatomy education and the various division of anatomy: The relevance of anatomical knowledge, motivation to study anatomy, Students' (in) security about their career future in anatomy and use of anatomical knowledge in clinical practice upon graduation.

In figure-1, the choice of students for the various divisions of anatomy showed variations amongst different classes across the departments and the following were observed. Clinical anatomy was observed to have the highest percentage with 21.65% while the least preferred branch of anatomy was cell and tissue biology with 4.46%. Although some students were indecisive on the specific area of interest as such opted for more than one area and was labeled as multiple selections with 21.65%.

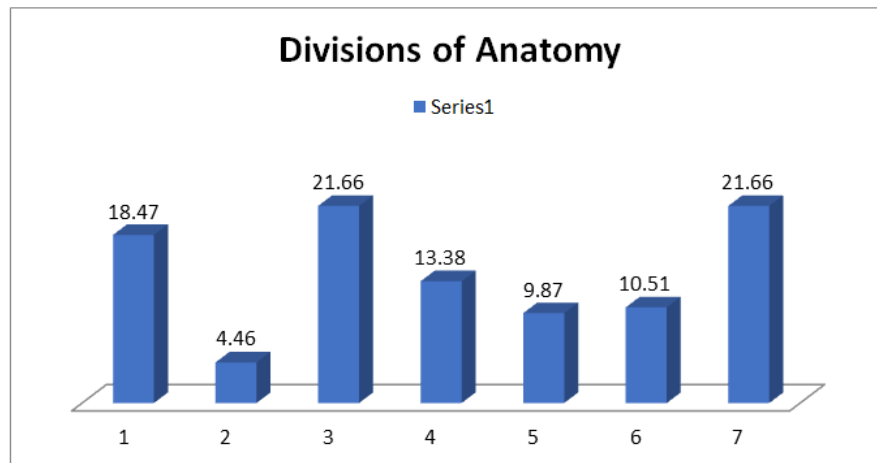


Fig-1: Showing the percentages of various divisions of Anatomy

KEY: 1. Reproductive Biology; 2. Cell and Tissue Biology; 3. Clinical Anatomy; 4. Physical and Forensic Anthropology; 5. Radiologic Anatomy; 6. Neurobiology; 7. Multiple

In figure-2, the option for career in Reproductive Biology as observed in the fourth year class showed that the year four (4) class had the highest

percentage in expressing their interest in reproductive biology with 27.03% while the first year students had the least percentage with 10.53%.

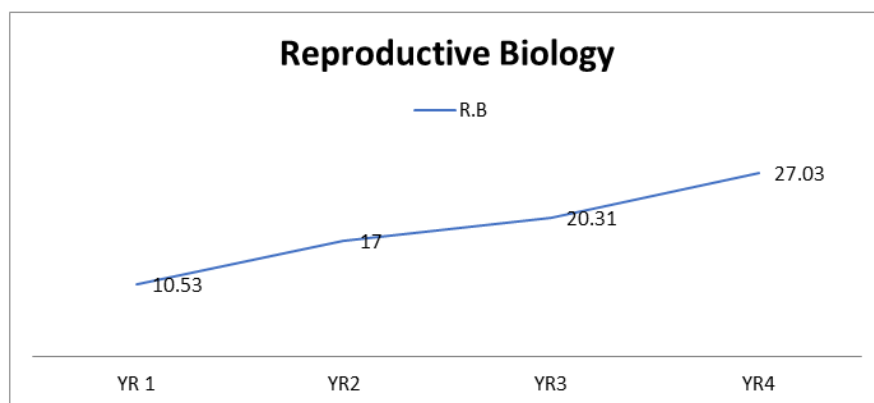


Fig-2: Showing the percentage of reproductive biology among the various classes

In figure-3, the option for career in Cell and Tissue Biology indicated that the year three (3) students showed more interest and had the highest percentage

with 10.94% while the least percentage was recorded in the second year class with 2.0%.

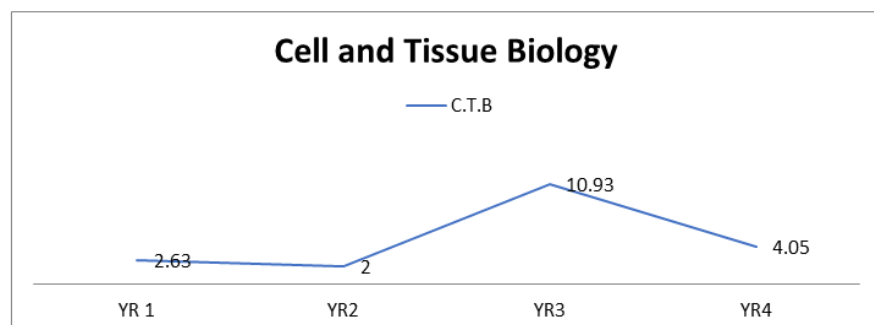


Fig-3: Showing the interest of students in cell and tissue biology among students

In figure-4, the option for career in Clinical Anatomy indicated that the first year students showed more interest in Clinical Anatomy with a modal

frequency percentage of 38.16% while the least percentage frequency was found in third year class with 9.38%.

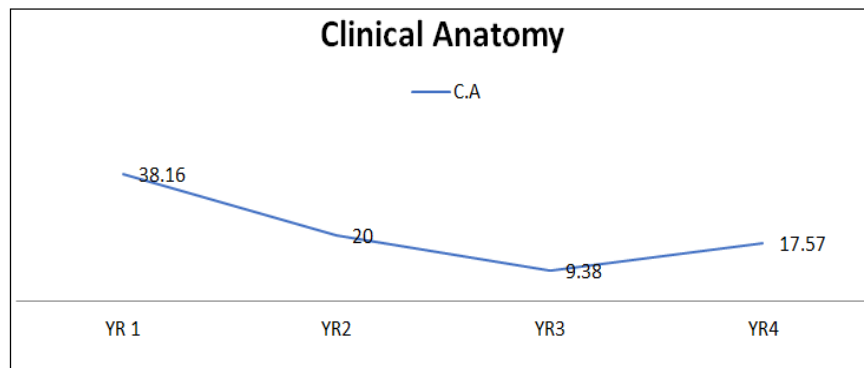


Fig-4: Showing students interest in Clinical Anatomy

In figure-5, the option for career in Physical and Forensic Anthropology showed that the third year students had more interest in Physical and Forensic

Anthropology with a modal frequency percentage of 23.43% while the least percentage frequency was found in first year class with 2.63%.

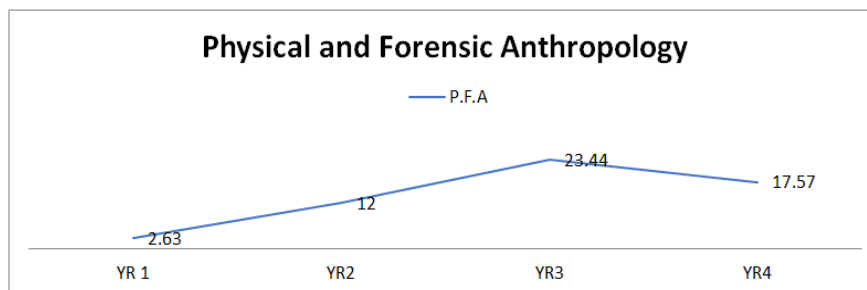


Fig-5: Showing students interest in Physical and forensic Anthropology

In figure-6, the option for career in Radiologic Anatomy showed that the third year students had more interest in Radiologic Anatomy with a frequency

percentage of 18.75% while the least percentage frequency was found in the fourth year class with 2.70%.

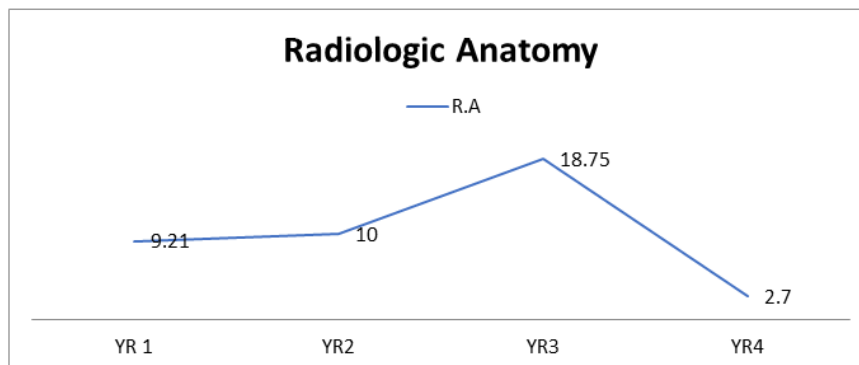


Fig-6:

In figure-7, the option for career in Neurobiology (neuroscience) showed that the first year students had more interest in Neurobiology

(neuroscience) with a frequency percentage of 13.16% while the least percentage frequency was found in the second year class with 7.0%.

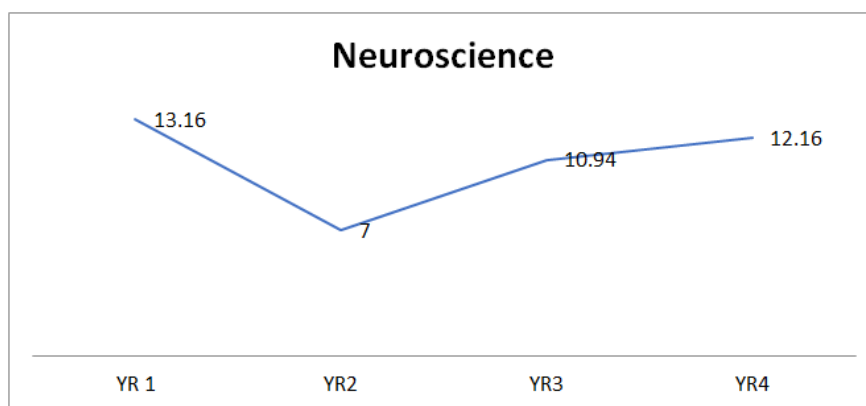


Fig-7: Showing students interest in neuroscience

In figure-8, it is observed that the reason for some of the choices could be related to peculiarity of the lectures received by a class or the interest and

consistent communication by a role model, mentor or research interest. Fig 8 below helps explain the range across various classes.

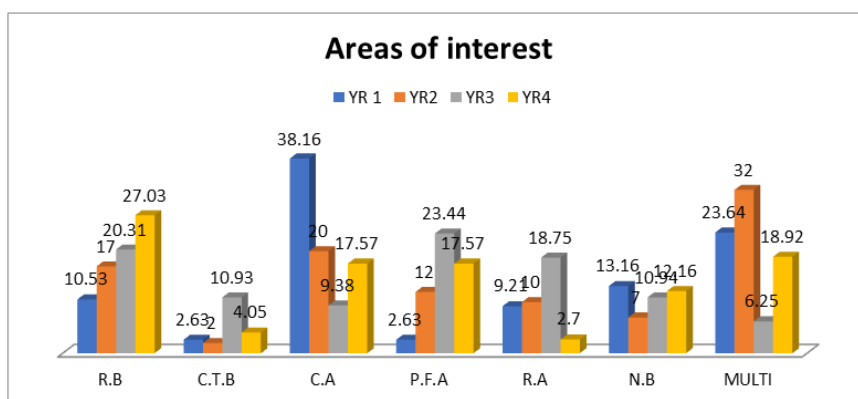


Fig-8: Showing areas of interest across the various class levels

DISCUSSIONS

The result of study have showed the choice of students for the various divisions of anatomy with the following findings: Clinical anatomy was seen to have the highest percentage of preference with 21.65% while the least preferred branch of anatomy was cell and tissue biology with 4.46%. Although some students were indecisive on the specific area of interest as such opted for more than one area and was labeled as multiple selections with 21.65%. Students' general awareness of the relevance of anatomy is consistent with results reported by Moxham and Plaisant [6].

Clinical Anatomy as the name implies is the aspect of Anatomy that is employed in the day to day medical practice in the clinics, hospitals and health facilities. It is not surprising to see this specialization has the highest frequency of interest amongst the students. It is obvious that the stimulating factor for opting for this area of anatomy is the hope for clinical exposure especially for the first year students. Although this fantasy reduces in some students as they advance in the classes where they focus more on what they could with the training they have already received in Anatomy than going to start all over in training for

medicine which can be pains-taking and grueling. The percentage of interest in the various classes or levels show that the first year students have the option for clinical anatomy than the other levels especially the third year students with the least percentage preference.

Neuroscience (Neurobiology) is one very trending area of Anatomy that is in focus worldwide and has attracted lots of funding in research. It is a very promising division of Anatomy of which breakthroughs in this area of research can earn someone a living for a lifetime. It is simply the study of the structure of the brain and its peculiar functions, disease conditions associated with the brain and possible solutions. According to the result of this study, option for career in Neurobiology (neuroscience) showed that the first year students had more interest in Neurobiology (neuroscience) with a frequency percentage of 13.16% while the least percentage frequency was found in the second year class with 7.0%. The mere fact that it is promising as have been portrayed by the anatomy teachers is enough to steer up desire in the young minds of the first year students who crave for greatness and success in career. Contrarily, the second year students do not toe the same line of thought, probably because they have looked beyond the sweetness of the

opportunities that abound into the challenges, complications and difficulties associated with studying neuroscience and decided for some other less complicated areas.

Cell and Tissue Biology had the least percentage preference with 4.46%. It suggests that the students have probably done a career analysis in cell and tissue biology with the available information considered the other areas to be much more convenient. The survey in the various classes indicated that the third year students showed more interest and had the highest percentage with 10.94% while the least percentage was recorded in the second year class with 2.0%.

Reproductive Biology had a total percentage preference of 18.47% which is considered the second highest preference. Interestingly, the fourth (final) year students had the highest percentage preference with 27.03% while the first year students had the least percentage with 10.53%. Looking at the preference percentage difference between the first and fourth (final) year students, one cannot but speculate that the difference could result from experience, exposure and volume of acquired between both categories. The first year students may have opted for a certain area from presumption and little knowledge of the prospects in the other divisions of Anatomy while the fourth year students may have made their choices from the peculiarity of the lectures received and consistent communication with a role model, mentorship or from research interest.

Radiologic Anatomy as the name implies is the study of anatomy using radiologic techniques. In this study, it received a total percentage preference of 9.87%. The third year students had more interest in Radiologic Anatomy with a frequency percentage of 18.75% while the least percentage frequency was found in the fourth year class with 2.70%. Radiologic Anatomy is pivotal in diagnostic medicine. It is the basis for understanding pathological conditions. When the normal radiologic anatomy of any organ or system is known, then the pathological anatomy is easily diagnosed.

Physical and Forensic Anatomy is made popular through the science fiction movies shown on television. It is chiefly involved in study of skeletal remains to aid crime investigation, ancestral study using fingerprints etc. It is not well developed in most African nations yet. The University of Port Harcourt has taken the giant step to explore this aspect of anatomy against all odds. Even though there is no legislation yet on the practice of Physical and Forensic Anatomy, this institution as has initiated training as the bill that will empower the practice is being deliberated in the Legislative Arm of the Government of Nigeria.

Multiple choices the result of the study showed that some students had interest in more than one areas of Anatomy. It indicates that these students were indecisive on the specific area probably because they equal preference for those areas of specialization. They had as much as 21.65% in the total pool of survey. This is to tell you how much awareness of these divisions of Anatomy they have.

The results of this study showed that students' perceptions indicated that a teaching approach in itself appears to be insufficient to ensure adequate learning of anatomy. Change and innovation in teaching and assessment are required to improve anatomy education and enhance their choice of preference in the divisions of Anatomy. This further reiterates the reports given by previous authors [14, 15, 4, 5].

The review of the Anatomy education curriculum into areas of specialization is one of the best things that have happened to anatomy teaching in the University of Port Harcourt, Nigeria. This has helped in delivering specialized training in Anatomy and also enhanced the prospect of Anatomy in the society as compared to what it was at the formative stage. It is obvious that one of the reasons the respondents in this study had relative easy in opting for these divisions of anatomy as preference areas is a result of the improved methods of teaching and the various means deployed to impact this knowledge with an attempt to steer up interest and desire in the students for this areas. This is consistent with the reports given by other authors in related subjects studied [16-23].

There is a popular slogan that says 'it is not what you say but how you say it' that matters. Importing the same slogan in the anatomy education modifies the slogan thus 'it is not what anatomy you teach but how you teach it'. The anatomy education and the curriculum is one subject that has been deliberated strongly in recent times in the developed nations of the world such as Australia, New Zealand and United States of America. The emphasis has been on the quality of knowledge imparted, who is qualified to teach it and the how to teach it [3, 24-26, 8-10]. If we choose not to address this issue, we risk producing a generation of health professionals—surgeons, radiologists, internists, nurses, dentists, physical therapists, pharmacists, and others—whose knowledge of human structure and function comes primarily from instructors who learned human anatomy just in time to teach today's lesson. This line of thought agrees with previous reports by other authors [27, 12, 13].

CONCLUSION

It is glaring that we are entering a time of paradigm shift aided by new understandings and new technologies as in all such times, views are held strongly and expressed emotionally. The University of

Port Harcourt has taken the bold step restructure her curriculum for Anatomy education to flow with the current tide in meeting specific needs by diversifying Anatomy into divisions such as clinical anatomy, cell and tissue biology, reproductive biology, radiologic anatomy, neuroscience, physical and forensic anthropology.

A mentorship approach should be introduced from the year one class to educate the students on the various divisions and early exposure to the laboratory and research. A spiral curriculum, an increased focus on understanding of subject matter, contextualized instruction and strategies to enhance transfer all seem to hold promise for increasing students' motivation, awareness of relevant areas of anatomy. This will enable them have knowledge and feelings of competence with regard to the learning of anatomy.

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Conflict of interest

We write to state that there is no conflict of interest.

Source of funding: Self-funding.

Author's contribution

We write to state that both authors have contributed significantly, and that all authors are in agreement with the contents of the manuscript. 'Author A' (Josiah S. Hart) designed the study and protocol, 'reviewed the design, protocol and examined the intellectual content and 'Author B' (David Lekpa) wrote the first draft of the manuscript, managed the literature search and managed the analyses of the study. All authors read and approved the final manuscript.

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