Original Article

Determination of year 1 undergraduate students' interest in the anatomy bachelor degree program

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Abstract

Introduction: Training of anatomists began in Nigeria in 1963, when the Faculty of Medicine of University of Ibadan approved a program of intercalated B.Sc anatomy simultaneously with B.Sc (medical science) in such disciplines as anatomy, physiology, chemical pathology and microbiology. Many Nigerian universities now offer degree programs in anatomy as a biomedical science. It is, however, important to investigate the interest of students who are being admitted to study anatomy as this would most likely affect their performances, motivation and commitment to making a career in anatomy. This investigation was designed to determine the newly admitted students' interest in anatomy B.Sc program in South-Western Nigerian Universities. **Materials and Methods:** A total of 209 newly admitted students (year 1) into the B.Sc/B.Tech Anatomy program in the six universities in South-Western Nigeria accredited to run the undergraduate program completed structured questionnaires. Data from the retrieved copies of the questionnaire were collated and analyzed using descriptive statistical methods primarily. Collated data were calculated in percentages for easy comparison, and interest of respondents was determined generally and taking gender into consideration. **Result and Discussion:** Results show that students had their interests in anatomy affected negatively by initial lack of knowledge of the course and lack of proper career counseling, yet, many students upon admission hoped to work with their skills and knowledge as Anatomists upon graduation. Efforts should be channeled toward proper pre-university career education and counseling relative to the anatomy.

Key words: Anatomy, bachelor program, interest, Nigeria, students

INTRODUCTION

Anatomy is currently studied in Nigerian universities as a basic medical science course. The subject of anatomy as a course of study has greatly advanced over several centuries from the study of the gross structures of the body to the molecular exploration of the ultra-structures of body cells and tissues as well as their functional mechanisms. Several fields have been introduced between the original gross anatomy and the modern subject of functional and molecular or "cutting edge" anatomy. The vast coverage of topics makes the course quite interesting, and at the same time challenging to students due to the voluminous course content. Traditionally, anatomy is basically the study of body structures.

Anatomy has been simply defined as the study of the structure of something and in this case human; it deals with the way parts of human from molecules to bones interact to form a functional whole (Desalu, 2013). This definition, though simplified and clear tends to limit Anatomy to being explorative. Moore and Dalley (2006)

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also described the anatomy as the setting or structure within which the events or functions of life take place. This definition is also clear and devoid of ambiguity. However, it presents Anatomy as an observational science - the study of "structural settings" of "life functions." It is, however, important to take note of the context within which the subject anatomy is being defined. The ancient stage of the anatomical science was basically explorative and observational; the modern is, however, advanced, solution-oriented and largely applied. Nevertheless, the original explorative and an observational content of the course remains a fundamental part of the subject upon which the quite advanced parts are being placed. Therefore, modern anatomy has been defined as the purposeful study and exploration of the human body to understand and appreciate its absolute nature and structure in the normal living condition in order to apply such knowledge to improving living conditions and solving problems in conditions of anomalies and diseases (Owolabi, 2011).

Historically, the development of Anatomy as a science started as early as 1600 BCE, the time of Edwin Smith Papyrus, which is the oldest known surgical treatise (Wilkins, 1992). The first recorded school of anatomy was in Alexandria between 300 BCE and 2nd century AD and the first use of human cadaver for anatomical research was later in the 4th century when Herophilus and Erasistratus gained permission to dissect live criminals in Alexandria (Shamsuddin, *et al*., 2009). The science of human anatomy got finalized and systematized in the 19th century, after which anatomists moved to histology and developmental biology of not only human but also animals.

In Nigeria, anatomy was first studied in 1930 as a course/subject in the medicine program of the Higher College, Yaba (Desalu, 2013). It is since then being taught as a basic medical science course in medical and health science programs in Nigerian universities and medical colleges. In the MBBS program, students must have an 18 h contact/week for 45 weeks with anatomy lectures, practical and tutorials in the course of their undergraduate medical training (MDCN, 2006). University of Ibadan in 1963 became the first Nigerian university to train undergraduates in anatomy when the Faculty of Medicine of the institution approved a program of intercalated B.Sc anatomy programs leading to the award of the B.Sc (Medical Science), bachelor degree. Similar programs were also approved for other courses including physiology, chemical pathology and microbiology (Desalu, 1974). Currently, many Nigerian universities offer undergraduate degrees in Anatomy, with some also offering postgraduate degrees (NUC, 2012). What is not usually taken into consideration, however, when admitting students into the program is their initial interest in Anatomy as a course of study and subsequently, making a career out of it. A previous investigation on motivation - a closely related topic-concluded that anatomy students' level of motivation relative to their course of study and making a career in anatomy was largely affected negatively by prior little knowledge of the course of study before admission as well as their perceived poor career prospect should they make a career out of anatomy (Owolabi *et al.,* 2013). Having examined motivation, it is equally important to examine the students' initial interest in the course of study. Currently, there is scarce literature on the subject particularly on the Nigerian system of medical education. Obviously, the medical school systems in Nigeria would need to formulate policies for sustainable, functional educational structures only if there is adequate information on the existing challenges. Problems associated with anatomy students' motivation or interest have been studied in other countries or institutions; Michigan is an example (Ameed *et al.,* 2015).

This investigation was designed to study the interests of candidates who were newly offered admission by the Joint Admission and Matriculation Board into the undergraduate Anatomy degree programs in the universities in South-Western Nigeria during the 2012/2013 academic year. It was aimed at determining whether these candidates had prior interest in Anatomy as a course of study leading to the awards of the bachelor (B.Sc or B.Tech) degree. This would provide vital information toward understanding certain challenges associated with career prospects and development, and professionalism relative to the course anatomy, especially in Nigeria.

MATERIALS AND METHODS

Subjects

A total number of 209 students completed structured questionnaires. This number represented over 90% of the target population of respondents that fall within the scope of the study. The respondents were newly admitted (year 1) students into the B.Sc/B.Tech Anatomy program in the six universities in South-Western Nigeria, accredited to run the undergraduate program (NUC, 2012). Requirements for voluntary participation were met especially in line with ethical demands. They understood the purpose of completing the questionnaires.

Instrumentation

Initial pilot study by the authors helped in collecting a list of questions that addressed students' interests in anatomy as a course of study. A structured questionnaire was developed following the guide provided by Rattray and Jones (2007); Sitzia *et al.,* (1997); Rattray *et al.,* (2004). Respondents' sociodemographic information, educational experience and career interests were adequately considered.

Procedure

Copies of the questionnaire were distributed to the respondents in each university by members of the research team; after observing that respondents have a good understanding of the research objectives and purpose through adequate orientation. Their cooperation and sincerity were solicited before responding to the questionnaire. They completed the questionnaire individually to have personal opinions on the subject matter. Completed questionnaires were retrieved from the respondents in all the six universities, and their responses were collated and analyzed using primarily suitable descriptive statistical methods.

Ethical Approval

Ethical approval was obtained from the Research Ethics committee of the College of Health Sciences of Osun State University, Nigeria. The investigation was conducted in accordance with the principles of the declaration of Helsinki (WMAGA, 2013) and also according to US Code of Federal Regulations, title 45, part 46, protection of human subject, revised January 15, 2009 (USCRF, 2009).

RESULTS

Demographic Characteristics of the Study Group

Collated data were calculated in percentages for standard presentation and ease of comparative analysis. There were more males (56%) than females (44%) among the respondents. Most respondents were single (96.7%), the age range being between 15 years and 35 years. Most respondents, however, fall between 16 and 25 years of age. Furthermore, most respondents belong to the Yoruba ethnic group (82.8%); others being Igbo (10.0%) and Hausa (7.2%) [Table 1 and Figure 2].

DISCUSSION

There were more males among the respondents that females [Figure 1b], the ratio of males to females being approximately 11:9. The modal age group was 16–20 [Figure 1a], showing that two-fifth respondents were within the age range of young Nigerians expected to be secondary school leavers and freshmen in the universities (UNESCO, 2006; NFME, 2006). More specifically, the Nigeria educational sector recommends that the minimum age for entry into higher institutions should be 16; the tertiary education age range being 18–22 years (UNESCO, 2006; NFME, 2006). The fact that most respondents were single without any one being divorced or widowed also suggests that the respondents largely have preference for the acquisition of a university degree before getting married. This was expected to have positive effects on their studies as it could reduce external interferences with studies as well as social responsibilities and distractions (Egwuatu and Umeora, 2007; Potokri, 2011; Toyin and Akporaro 2009).

More respondents-approximately 60%, indicated that they had good knowledge of anatomy as a course of study respondents while only 58% knew the objectives of studying Anatomy in the University. Only about half of them even had the course introduced to them formally. Therefore, a good percentage of students admitted to study anatomy were not formally and properly orientated and counseled with respect to the course and its objectives; little wonder only 64% had chosen to study anatomy originally. Others might have been offered anatomy in lieu of their original choice as indicated - 82% of those who did not originally chose to study anatomy had applied to study medicine and surgery but offered Anatomy instead. The rest had chosen other courses other than anatomy or medicine and surgery. Interestingly, only 56% of students who had been admitted to study anatomy agreed that it was an important course that was worth studying as a university degree and 2% less (54%) indicated they would want to obtain postgraduate degrees after the first degree. A much higher percentage of 72% stated that they would still work with their knowledge and degrees in anatomy.

It is important to mention that the percentages of students who had no initial interest or proper knowledge of

Table 1: Determination of Student's original interest in anatomy undergraduate degree program

	Yes %			No %		
	Male	Female	Total	Male	Female	Total
AKAC	32.5 (68)	27.8 (58)	60.3 (126)	23.4 (49)	16.3 (34)	39.7 (83)
KCO	29.2 (61)	28.7 (60)	57.9 (121)	26.8 (56)	15.3 (32)	42.1 (88)
AIC	13.4 (28)	11.0 (23)	24.4 (51)	42.6 (89)	33.1 (69)	75.6 (158)
KJP	11.0 (23)	5.7 (12)	16.7 (35)	45.0 (94)	38.3 (80)	83.3 (174)
IDSA	25.4 (53)	6 (15)	32.5 (68)	30.6 (64)	36.8 (77)	67.5 (141)
AOCC	21.5 (45)	9.1 (19)	30.6 (64)	34.4 (72)	34.9 (73)	69.4 (145)
AOLOCS						
MBBS	37.2 (54)	44.8 (65)	82.1 (119)			
Others	17.2 (25)	0.69 (01)	17.9 (26)			
AICS	42.1 (88)	13.9 (29)	56.0 (117)	13.9 (29)	30.1 (63)	44.0 (92)
DOHDA	40.2 (84)	13.9 (29)	54.1 (113)	15.8 (33)	30.1 (63)	45.9 (96)
IWAKS	43.1 (90)	29.7 (62)	72.7 (152)	11 (27)	14.4 (30)	27.3 (57)

AKAC - Adequate knowledge of anatomy as a course of study (did you understand what anatomy is?), KCO - Knowledge of career objectives (do you know why anatomy is studied in the universities?), AIC - Anatomy introduced by a career or school counselor (were you introduced to anatomy by a career counselor), KJP - Knowledge of job prospects (do you know where anatomy graduates work after graduation), IDSA - Initial desire to study anatomy (did you originally desire to study anatomy?), AOCC - Anatomy as the original choice of course of study (was anatomy your first choice of course?), AOLOCS - Anatomy offered in lieu of an original desired course of study (MBBS; others), AICS - Anatomy as an important course of study from Student's perspective (as a student of anatomy, are you convinced that anatomy is worthwhile?), DOHDA - Desire to obtain higher degree (s) in anatomy (do you intend to obtain higher degrees in anatomy after graduation?), IWAKS - Intention to work with acquired anatomical knowledge and skills (do you intend to work with acquired skills and knowledge of anatomy after graduation?)

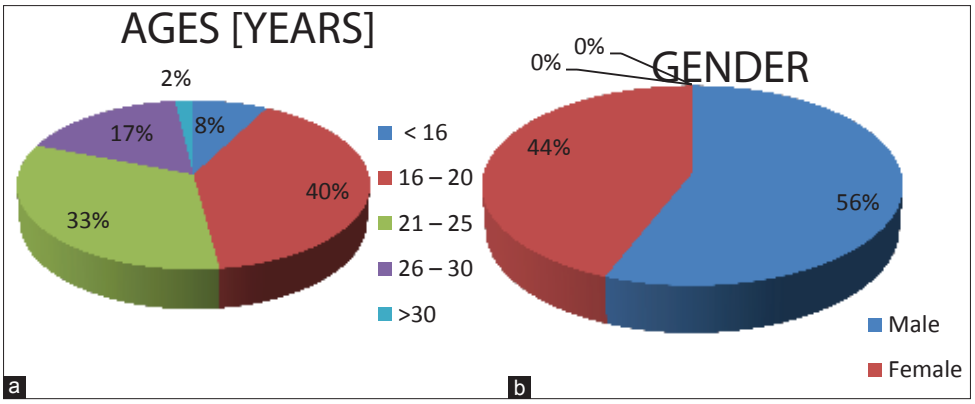

Figure 1: The age distribution of respondents in years (a) and genders (b)

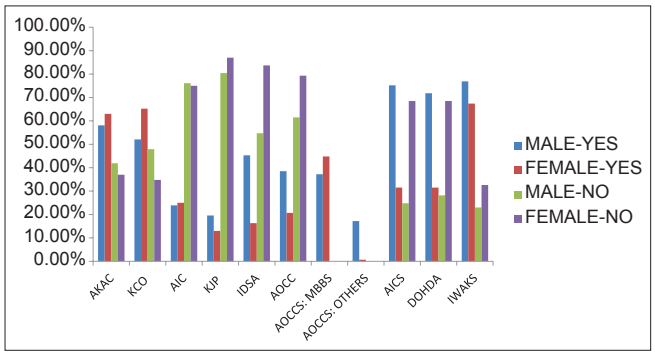

Figure 2: The percentage representation of the yes/no answers variations on the basis of gender in an attempt to compare possible differences of interest factors on the basis of gender. The percentages of each gender (of respondents) that answer yes or no to each question is illustrated against the question. Variations in the answers obtained for each question is observed on the basis of gender (AKAC: Adequate knowledge of anatomy as a course of study [did you understand what anatomy is?], KCO: Knowledge of career objectives [do you know why anatomy is studied in the universities?], AIC: Anatomy introduced by a career or school counselor [were you introduced to anatomy by a career counselor], KJP: Knowledge of job prospects [do you know where anatomy graduates work after graduation?], IDSA: Initial desire to study anatomy [did you originally desire to study anatomy?], AOLOCS-MBBS: Anatomy offered in lieu of an original desired course of study-MBBS, AOLOCS-OTHERS: Anatomy offered in lieu of an original desired course of study-OTHERS, AOCC: Anatomy as the original choice of course of study [was anatomy your first choice, of course?], AICS: Anatomy as an important course of study from students' perspective [as a student of anatomy, are you convinced that anatomy is worthwhile?], DOHDA: Desire to obtain higher degree(s) in anatomy [Do you intend to obtain higher degrees in Anatomy after graduation?], IWAKS: Intention to work with acquired anatomical knowledge and skills [do you intend to work with acquired skills and knowledge of anatomy after graduation?]

anatomy are high. The question should be asked about why students would be admitted for courses they were barely informed about. This problem obviously goes beyond the university: Secondary schools counselors, as well as parents, should have been involved, it is observed if their future decisions are consistent with their responses, these students would only work as anatomists or work with their acquired skills and knowledge simply because they had been offered the course to study by the university and as such would have graduated with degrees on the subject. There was not adequate pre-university interest in anatomy in many students admitted for the program. It is therefore important that the bodies involved in secondary school education and basic medical sciences education be more proactive about proper orientation of students about the several courses of study in Health science, especially Anatomy in order to guide and inform students when making choices of courses of study or when accepting offers of admission. Second, the results also show the roles that the universities play in determining the course of a career of admission seekers by virtue of offering some other courses in lieu of their original choices. As observed, several students might not pursue their original desired courses again. More effective career counseling could greatly help.

Some of the observations in this investigation are not far from what we observed in our previous study on motivation of anatomy students where 20.9% of students claimed to be properly introduced to anatomy before gaining admission (Owolabi *et al.,* 2013). The same study also showed that only 16.7% of respondents knew where anatomy students work after graduation and 11% of these were male students while 5.7% were female students, with a correlating relative proportion of more of the males (19.6% of all male students) being aware and less of the females (13.0% of all female students). The observation of 16.7% is much less than what we obtained in our previous study on motivation (Owolabi *et al.,* 2013) which showed that 29.1% of students knew up to three established places of work for an anatomist. This much difference could simply be explained with the fact that students in our previous investigation had had the privilege of knowing more about Anatomy the longer they stayed in school as students of anatomy.

The desire to study anatomy and making it a first choice, of course, are expected to go hand in hand. Our present study showed that 32.5% of respondents desired to study anatomy while just 30.6% of them eventually choose it as a first choice, of course. This little difference in the percentages could be explained when external and influential factors are taken into consideration. Though there is generally low interest in the study of anatomy

by these new students, relatively higher percentage of male students desired to study anatomy (45.3%) and eventually choose it as a first choice of course (38.5%). These are as against the proportions of female students of 16.3% (for desire to study anatomy) and 20.7% (for making anatomy a first choice, of course). The implication of these is that though about one-third of the respondents are interested primarily in anatomy, male students are relatively more interested than female students in terms of primary interest. The generally low primary interest in anatomy in this investigation involving new sets of students of anatomy is not different from what we obtained in our previous study on fresh, stale and graduating students combined (Owolabi *et al.,* 2013).

Similar to the above is the fact that 67.5% of the respondents did not desire to study anatomy while 69.45 did not make it a first choice, of course. These proportions, which are about two-third of the respondents, will be said to have a secondary interest in anatomy having accepted to study it when they were offered admission into anatomy programs. 54.7% of males and 83.7% of females secondarily desired to study anatomy while it became a second choice of course for 61.5% of males and 79.3% of female students, respectively. Majority of students in this category (82.1%) had loved to study medicine and surgery while just 12.4% of them had loved to study other courses. Of these students, more of the females (44.8%) had loved to study medicine and surgery as against 37.2% of male students.

We further investigated if being admitted to study anatomy will increase students' interest in the course. We got that 56% of the respondents were convinced that Anatomy is worthwhile to study while 44% were still not-convinced. This also showed male preponderance with 75.2% of male students being convinced and only 31.5% of female students were convinced. 54.1% of the respondents intend to obtain higher degrees in anatomy while 72.7% of them intend to work with the knowledge and skills they might acquire from studying anatomy. Similar male preponderance is also observed in responses to these two questions. 71.8% and 76.9% of male students intend to obtain higher degrees in anatomy and work with the knowledge and skills they might acquire from studying anatomy, respectively, while 31.5% and 67.4% of male students intend to obtain higher degrees and work with the knowledge and skills of anatomy.

The high percentage (67.4%) of female students who intend to work with the skills and knowledge of anatomy may not be unconnected with the fact that female succumb to the prevailing circumstances more easily. This could be argued from the point of view that less proportion of them (female students) desired to study anatomy (16.3% as against 45.3% of male students), choose anatomy as a first choice of course (20.7% as against 38.5% of male students), were convinced that anatomy is worthwhile to study despite the secondary interest (31.5% as against 75.2% of male students) and more of them did not intend to obtain higher degrees in anatomy after graduation (68.5% as against 28.2% of male students).

CONCLUSION

This present study revealed that the studied newly admitted students had their interests in anatomy affected negatively by lack of knowledge of the course as well as lack of proper career counseling, yet, many students upon admission hoped to work with their skills and knowledge as anatomists upon graduation. More efforts should be channeled toward proper pre-university career education and counseling relative to the anatomy.

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