

# PERCEPTION TO DISSECTION AMONG UNDERGRADUATE STUDENTS IN A NIGERIAN MEDICAL SCHOOL

Ukwenya Victor<sup>1\*</sup>, Afolayan Olasunbo<sup>1</sup>, Halid Omobolaji<sup>2</sup>, Alese Olutayo<sup>1</sup>, Olajuyin Oyebanji<sup>1</sup>

<sup>1</sup>Department of Anatomy, College of Medicine, Ekiti State University, Ado-Ekiti, Nigeria

<sup>2</sup>Department of Mathematical Sciences, Faculty of Science, Ekiti State University, Ado-Ekiti, Nigeria

\* **Corresponding author:** Ukwenya Victor, Department of Anatomy, College of Medicine, Ekiti State University, Ado-Ekiti, Nigeria. Tel: +2347061007589. *E-mail:* [victorwyn@yahoo.com](mailto:victorwyn@yahoo.com).

## ABSTRACT

Cadaveric dissection has always been an integral part of undergraduate medical education. In recent times, this traditional method of anatomy education has either been relegated or replaced by other modes of teaching. We used a structured questionnaire with Likert-scale questions ranging from strongly agree to strongly disagree on the quality of the cadavers, state of the dissection room, emotional impact of dissection, anxiety, alternatives to dissection and supervision of dissection classes by lecturers. This study was carried out among 30 second- and 40 third-year medical students of the Department of Anatomy, College of Medicine, Ekiti State University, Ado-Ekiti, Nigeria. Majority of the students strongly disagree with the notion of the cadaver as frightening but also deemed the cadaver a stressor. Majority of the respondents (65.7%) agreed that the preservative used on the cadaver causes eye irritation. The quality of the cadaver used for dissection matters to a majority of the students and 51.4% considered the dissection room stressful. There was no overwhelming support for the replacement of dissection with computer assisted learning (CAL) multimedia while most favoured the combination of both methods. A good number of the students supported lecturer's supervision of dissection classes. The present findings demonstrate that though students find dissection stressful, they also find it very critical to the study of anatomy. There is need to establish a body bequest program in the department to facilitate the acquisition of cadavers. Traditional dissection should also be complemented with the use of CAL to promote students' comprehension.

**Keywords:** Cadaver, anatomy, body bequest, dissection

## INTRODUCTION

The dissection of cadavers has always been an integral part of undergraduate anatomy education. This is because it affords the student the opportunity to learn topographical structural anatomy in a practical way while at the same time setting the dynamics for future clinical encounters with surgery (Older, 2004). Moreover, learning anatomy via dissection is acclaimed to be invaluable in educational, professional, and personal development (Larkin and McAndrew, 2013).

However, of recent, the traditional anatomy education based on topographical structural anatomy taught by didactic lectures and complete dissection of the body with personal

tuition has either been marginalised (Dinsmore et al., 1999) or replaced by a multiple range of special study modules, problem-based workshops, computers, plastic models and many other teaching tools (Older, 2004). Reasons adduced for the replacement includes perception of the cadaver as a stressor which evokes strong emotional responses (Bockers et al., 2012; William et al., 2014), costs and ethical concerns (Robbins et al., 2009). There are also challenges associated with the sourcing, storage, and management of cadavers for the study of gross anatomy (Anyanwu, 2011).

The methods of teaching anatomy have undergone significant modifications over the years, from simple observation to dissection of cadavers and now to computer assisted learning (CAL) (Trelease, 2002) as well as the incorporation of problem based learning (PBL) that utilizes small focused student groups (Aziz et al., 2002). This has resulted in

reduced emphasis for dissection, with some universities even abandoning the dissection of cadaver altogether (Aziz et al., 2002). This study was aimed at investigating the attitudes of second- and third-year students in a new Nigerian university medical school towards dissection.

## MATERIALS AND METHODS

This study utilised a descriptive, cross-sectional questionnaire and was conducted amongst second and third year medical students of the Department of Anatomy, College of Medicine, Ekiti State University, Ado-Ekiti, Nigeria. The students totalled 73 in number, of which 70 completely filled the questionnaire.

Ethical approval was sought and obtained from the College Ethical Committee. All consenting students filled the questionnaires after consistent exposure to dissection classes and after due explanation of the objectives of the study. The questionnaire had two sections: (a) socio-demographic information and (b) a five-point Likert scale section ranging from strongly agree to strongly

disagree on supervision of dissection classes, state of the cadavers, state of the dissection room, emotional impact of dissection, anxiety and alternatives to dissection.

The explorative analyses used in this study aimed at answering two research questions: i). Do demographic characteristics have significant influence on learning among undergraduate medical students? ii). Do practical classes have significant effect on learning among undergraduate medical students?

Data was entered into SPSS version 16 for analysis. Descriptive statistics like means and frequencies were used to analyze the variables using Pearson chi-square with significant value at alpha level 0.05.

## RESULTS

Tale 1: Sociodemographic Profile of Respondents at the College of Medicine, Ekiti State University, Ado-Ekiti, Nigeria

S/N	Characteristics		Number and % of students
1	Gender	Male	42 (60%)
		Female	28 (40%)
2	Religion	Christian	40 (57.1%)
		Muslim	19 (27.1%)
		Others	11 (15.7%)
3	Marital Status	Married	22 (31.4%)
		Single	39 (55.7%)
		Divorced	9 (12.9%)
4	Employment Status	Strictly student	30 (42.9%)
		Civil servant	38 (54.29%)
		Unemployed	2 (2.9%)
5	Status in Family	First born	57 (81.43%)
		Second born	13 (18.57%)

Seventy (60% Male, 40% female) medical students with mean age 20.7 years  $\pm$  2.5years completed the questionnaires. Thirty

of these were second-year students while 40 were third-year students. With regards to the specific research question, the result ( $p=0.03$ )

indicates that demographic characteristics (background) have significant influence on learning outcome among undergraduate medical students.

Table 2 shows the attitudes of the students toward cadavers and dissection. With regards to the specific research question, from the result ( $p=0.02$ ) we concluded that practical classes have significant influence on learning among undergraduate medical students.

Majority of the students (48.6%) strongly disagree with the notion of the cadaver as frightening while only 4.3% of them strongly agree. However, majority of them (35.7%) strongly considered the cadaver a stressor, with another 34.3% in agreement. Majority of the respondents (65.7%) agreed that the preservative used on the cadaver causes eye irritation.

The state of the cadaver used for dissection matters to a majority of the students; 38.6%

strongly agree with this notion while another 48.6% were also in agreement.

25.7% of the respondents strongly agree, while another 51.4% agree with the notion that the dissection room is stressful. Most of the students do not find the cadaver nauseating (67.1% strongly disagreed) neither is there overwhelming support for the replacement of dissection with instructional methods such as computer assisted learning (CAL) multimedia with 25.7% in disagreement and 34.3% undecided. However, most of the students (35.7% strongly agree, 35.7% agree) favour the combination of dissection with instructional methods such as CAL multimedia.

A good number of the students (44.3%) considered lecturer's supervision of dissection classes essential for proper grasping of lessons from practical classes.

Table 2: Respondents Attitude towards Cadaver Dissection at the College of Medicine, Ekiti State University, Ado-Ekiti, Nigeria.

S/N	Particular of Question	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)
1	Do cadavers scare you?	3 (4.3%)	11(15.7%)	12(17.1%)	10(14.3%)	34(48.6%)
2	Do you consider the cadaver to be a stressor?	25 (35.7%)	24(34.3%)	16(22.9%)	5 (7.1%)	0 (0%)
3	Do you consider the quality of the cadaver for dissection very important?	27 (38.6%)	34(48.6%)	6 (8.6%)	3 (4.3%)	0 (0%)
4	Do cadavers nauseate you?	1 (1.4%)	2 (2.9%)	3 (4.3%)	17(24.3%)	47(67.1%)
5	Does cadaver preservatives cause you eye irritation?	16 (22.9%)	46 (65.7%)	2 (2.9%)	6 (8.6%)	0 (0%)
6	Do you find the dissection hall stressful?	18 (25.7%)	36(51.4%)	6 (8.6%)	10(14.3%)	0 (0%)
7	Do you consider dissection essential to the comprehension of anatomy?	57(80.95%)	3 (4.3%)	3 (4.3%)	3 (4.3%)	4 (5.7%)
8	Do you prefer prosection to dissection?	14 (20.0%)	15(21.4%)	16(22.9%)	13(18.6%)	12(17.1%)
9	Do you prefer the replacement of dissection with CAL multimedia,	10 (14.3%)	7 (10%)	24(34.3%)	18(25.7%)	11(15.7%)

	virtual dissection?					
10	Do you prefer the combination of dissection with CAL multimedia, virtual dissection?	25 (35.7%)	25(35.7%)	13(18.6%)	4 (5.7%)	3 (4.3%)
11	Do you consider lecturer's supervision of dissection classes essential?	31 (44.3%)	11(15.7%)	24(34.3%)	4 (5.7%)	0 (0%)

## DISCUSSION

Dissection of human cadaver has been a practice in medical education for long. However, many students find it difficult to cope with the sight of the cadaver. In this study, most of the students (48.6%) do not consider the cadaver to be scary. This is very significant because of perception to death and the dead in the traditional African setting. This is contrary to a study by Karau et al. (2014) which reported significant apprehension amongst students before and during dissection.

We found that a majority of the respondents consider the cadaver to be a stressor; this agrees with a study conducted by Bockers et al. (2012). Also, Cahill and Leonard (1997) reported that contact with the cadaver can be highly stressful for some. Students have also been reported to have suffered stress reactions, which impaired learning of anatomy (Jones, 1997).

While our respondents deem the cadaver as non-nauseating notionally, most of them consider the state of the cadaver used for dissection to be important. These suggest that the quality of the cadaver might be related to how the students would perceive the practice of dissection. Cadaver sourcing is a serious challenge for many Nigerian medical schools due to religion and the cultural sanctity accorded the dead in the society (Oswai, 2003; Ayoola, 2004). Furthermore, most Nigerian medical schools source cadaver from government hospitals, thus compounding the demand. These bodies are largely those unclaimed by the relatives of the deceased (Gaganta et al., 2012); and in many cases most of the cadavers are executed criminals (Anyanwu et al., 2011). The end result is a shortfall of bodies, both in terms of

quality and quantity, for the purpose of dissection.

According to 65.7% of our students, the preservatives used on the cadaver were irritative to the eyes. This, no doubt, would contribute to their perception of the cadaver as a stressor. The principal preservative being used on cadavers in most Nigerian universities is formalin. Not surprisingly, formalin has been implicated with some toxic effects on humans such as skin hypersensitization (Lutz, 1990), irritation of the mucus membrane and eyes (Chia et al., 1992; Tanaka 2003) and upper respiratory tract disorders (Kerns et al., 1993).

The students evinced their faith in the pivotal role of dissection in anatomy education with the majority of them concurring to the view that dissection is essential to their comprehension of anatomy. Similar trend was reported by Izunya et al. (2010).

On the preference of prosection to dissection, responses showed a slight advantage for traditional dissection over prosection. This aligns with the work of Winkelmann (2007) and is in agreement with previous studies, which have indicated students' preference for dissection over prosection (Parker, 2002; Rajkumari and Singh, 2007).

Again our results showed that the students were opposed to the replacement of traditional dissection with virtual dissection. A majority preferred the combination of both, which is in consonance with findings by Azer and Eizenberg (2007).

A majority of our respondents favoured lecturers' supervision of dissection classes. Izunya et al. (2010) reported a similar finding. Lecturers' participation in dissection will augment comprehension on the part of the

students and also enhance the lecturers' knowledge on cognate aspects of the course.

In conclusion this study shows that dissection classes have significant influence on learning outcomes among undergraduate medical students. The researchers are of the opinion that to mitigate challenges associated with the sourcing of cadavers, a body bequest program should be established by the department as is obtainable in other parts of the world (Akinola, 2011). This will facilitate a regular supply of bodies for teaching and

research. To counter perception of the cadaver as a stressor, the dissecting room should be made conducive, cadavers in good conditions should be provided, and healthy alternatives to formaldehyde should be used as preservatives. Moreover, the use of cadavers should be complemented with the use of CAL to promoted students' comprehension. The data from the present study form a baseline for future research into anatomical dissection as a teaching method.

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