

MEDICAL STUDENTS' ATTITUDE TOWARDS ANATOMY DISSECTION: A STUDY FROM NEPAL

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ABSTRACT:

INTRODUCTION:

Among medical education institutions worldwide, the time allotted for anatomy instruction has decreased without any reasonable time optimization suggestions. In addition, the utility of cadaver dissection has long been debated.

MATERIAL & METHODS:

This study was conducted to determine the attitudes of preclinical students to cadaver dissection in the study of human anatomy. A collection of questionnaire was introduced to 290 preclinical students, including both MBBS and BDS of Universal College of Medical Sciences, Nepal. For each question, the students were to choose one of the three possible responses: "yes", "no" or "undecided". Out of the 290 students (162 female and 128 male) involved in the study.

RESULTS:

Fifty five percentage said they were curious, 41% experience of anatomy dissection hall was interesting, 3% said it was enjoyable and remaining 1% said it was boring. An analysis of the questionnaire showed that a vast majority of the students (93%) considered cadaver dissection as important and indispensable in the study of human anatomy. on the issue of replacing cadaver dissection with plastic models in the near future, majority of the students under study (73%) didn't favored such a replacement, while 24% did. In the present study, 29% of students mentioned there was not enough chances of dissection for every individual students and 40% of students said the time allocated for dissection classes was not enough.

CONCLUSION:

From the results of the present study, one might confidently infer that cadaver dissection is still considered important and indispensable in the study of human anatomy.

KEY WORDS: Attitude, Cadaver dissection, Universal College of Medical Sciences

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INTRODUCTION:

Anatomy, the study of the structure of the human body, is the first most basic and one of the most important subjects studied by medical students and para medical students when they first began their medical carrier¹. The use of human cadavers as a learning tool has been in practice for over 500 years^{2,3} and traditionally remains as a pillar for teaching and studying human anatomy^{4,5}. In fact andreas Vesalius was the first medical student and contributed to it even as professor⁶. Cadaveric dissection is an emotionally charged issue⁷. Although the morality of dissection for advancement of medical science is widely accepted, the emotion impact on medical student is often ignored. Cadaver dissection has been called the "sharp-end" of medical education⁸. Dissection has also been labeled as 'royal road' and cadaver as the 'first patient'⁹.

Nevertheless, the time devoted to dissection has steadily declined worldwide¹⁰. For example, in the United States, marked reduction in anatomy teaching hours has been noted since 1939^{11,12}. Australian universities decreased anatomy education time by 80% because of the implementation of a problem-base graduate program¹³. Such reductions are justified in some ways. First, the biomedical knowledge that students are required to acquire from their preclinical curriculum has drastically increased. In addition, new disciplines such as the patient-doctor relationship, bioinformatics, and others, have been included in the curriculum without a corresponding extension of the total instruction time, resulting in a decrease in time devoted to anatomy¹⁴. Another important factor is medical education's paradigm shift towards integrated, student-centered, and clinical competency-accentuated approaches represented by "Tomorrow's Doctors"^{15,16}. These curricular reforms have resulted in a reduction of not only the time allocated to gross anatomy education, but also, necessarily, its content¹⁷.

Another point of contention concerning anatomy education is hands-on cadaver dissection¹⁸. While many have insisted on its importance and even indispensability¹⁹, others have denied this claim²⁰. In fact, hands-on dissection has frequently been replaced, at least in part, by other types of materials such as prosected materials, models, plastinated specimens, medical imaging, and computer generated images¹⁰. In some extreme cases, cadaver dissection has been completely abandoned. The overall danger of this de-emphasis of anatomy education in medical programs is that students are less-than adequately prepared to fulfill their later-appointed roles as doctors^{21,22}.

Worldwide trends in medical education have influenced Nepal medical education for decades by the introduction of an integrated curriculum, implementation of problem based

learning, early exposure to clinics, and so²³. These reforms have changed basic science education including anatomy. However, the changes that have actually occurred and students' perceptions of them have not yet been assessed. In the present study, we evaluated students' responses to a survey on anatomy education including cadaver dissection to determine whether the allotted time for instruction is appropriate and whether the cadaver dissection laboratory is perceived to be meaningful.

MATERIAL & METHODS:**Type and place of study:**

This is a quantitative, Investigatory study, carried out in the Department of Anatomy, Universal College of Medical Sciences, Bhairahawa, Nepal.

Study population:

Total 290 students of first and second year MBBS and BDS (pre-clinical) in year 2016-2017, formed the population of this study.

Data Collection:

All the 290 medical students participated in the study. The objectives of the study were explained to each student and a structured questionnaire containing 20 items was distributed to them after taking their informed consent. For each question, the student had to choose one of the three possible responses: "yes", "no" or "undecided". The questionnaire provided information about the first visit to a dissection room; emotional shock, feelings, anxiety and stress at initial exposure to cadaver; mental preparation before dissection; time and chances for individual students and the possible alternatives for replacing cadaver dissection by plastic models, computer assisted training programme and its importance and indispensability.

The Ethical Clearance was obtained from Institutional Review Committee of UCMS vide their letter no. UCMS/IRC/071/17 dated 2nd June 2017.

Data Analysis:

The data were analyzed using the computer program SPSS Version 11.0 for the production of descriptive statistics in which the frequency of the replies was determined for each item of the questionnaire.

RESULTS:

The present study included 290 students (including MBBS and BDS) with average age of 19.91 years (ranged between 19-

23). Out of 290 students 56 % students were females and 44% students were males. Fifty five percentage said they were curious, 41% experience of anatomy dissection hall was interesting, 3% said it was enjoyable and remaining 1% said it was boring, as shown in Figure 1.



Figure 1. Showing the experiences of students.

The responses regarding attitudes towards cadaver dissection are given in Table 1

S.No		YES	NO	UNDECIDED
1	Do you think that dissection is one of the best method for learning anatomy?	93%	5%	2%
2	Do you think cadaveric dissection technique can be replaced by plastic models, computer assisted programmes in near future?	23%	73%	4%
3	Do you think learning skill of dissection will help you in your future medical carrier?	98%	2%	-
4	Do you think it is necessary for the teacher to prepare students mentally prior dissection classes?	88%	12%	-
5	Is there enough chances of dissection for every individual students in your group?	27%	71%	2
6	Is the time allocated for dissection classes enough?	60%	40%	
7	Do you have Proper ventilation/sanitation facilities in your dissection hall?	90%	10%	

Table 1. Showing responses of the students towards cadaver dissection.

DISCUSSION:

An analysis of the questionnaire showed that a vast majority of the students (93%) considered cadaver dissection as important and indispensable in the study of human anatomy and this is consistent with the view held by many anatomists. This finding is in consonance with the study conducted by Johnson et al, 2002²⁴ and A.M. Izunya et al 2010²⁵. Ninety eight percent Students also mentioned that dissection enhanced their skill of thinking in a logical manner and will help them in future career. This finding is consistent with studies conducted by Weeks et al²⁶, 1995 and Mutyala et al²⁷, 1996.

Of course, it has been ascertained that the manual skills learnt in the dissection room are essential in almost every branch of the medical profession⁵. Another benefit of cadaver dissection is that it can be a platform for learning several various attributes of professionalism, among which are leadership skills^{28,29}. Moreover, dissection has been considered as an essential requirement in learning gross anatomy particularly the three-dimensional aspect of human anatomy¹⁷ and has remained the universally recognizable step in becoming a doctor³⁰, which puts undergraduates at the sharp end of medical education³¹.

Generally, on the issue of replacing cadaver dissection with plastic models in the near future, majority of the students under study (73%) didn't favour such a replacement, while 24% did. This is contrary to the report by A.M. Izunya(2010)²⁵. Whereas the results found by Leong (1999)³¹, Parker (2002)⁴ and Mclachianet al²⁰ (2004) was in favour. Specifically, Parker (2002)⁴ and Mclachianet al²⁰(2004) reported that dissection gives students a better appreciation of the 3-dimensionality view of human anatomy, which is not possible with plastic models. Moreover, Aziset al. (2002)³² had stated earlier that the removal or attenuation of cadaver dissection is bound to impair the student's ability to apply the scientific method during diagnosis.

On the other hand, we observed that 37% of the Males and 31% of females believed that cadaver dissection can be replaced by plastic models and computer assisted training programme, showing no gender difference in attitude towards replacement. Contrary to this, some studies have shown that majority of females favour such a replacement^{33,34, 35} and concluded that the difference in the pattern of answers regarding the replacement of cadavers (based on gender) may reflect gender differences in attitudes and computer use as well as gender differences in attitudes to the handling of cadavers. On students mental preparedness to face cadaver dissection, our findings shows that 80% of the students stated it is necessary for teacher to prepare students mentally prior to dissection classes, while 20% said it was not necessary, thus supporting the findings by Evans and Fitzgibbon³⁶ (1992) who reported that majority of preclinical students felt themselves mentally prepared for the dissection room and properly counseled by an anatomy department staff.

Studies conducted by Dinsmore³⁷ et al.,2001 and Charlton³⁸ et al.,1994, concluded that medical students rapidly developed a copying mechanism, which enabled them to view the cadaveric dissection as an occupation. In the present study, 38% students did not approach the faculty out of fear. A teacher must be strict to the extent of maintaining class discipline, but if this is to the extent of not being approachable

for help, then necessary steps must be taken to improve communication.

In the present study, 29% of students mentioned there was not enough chances of dissection for every individual students and 40% of students said the time allocated for dissection classes was not enough. Nevertheless, the time devoted to gross anatomy education has steadily declined worldwide³⁹. For example American and Australian universities decreased anatomy education time by 80% because of the implementation of a problem-based graduate program¹³. Such reductions are justified in some ways. First, the biomedical knowledge that students are required to acquire from their preclinical curriculum has drastically increased¹⁵. In addition, new disciplines such as the patient-doctor relationship, bioinformatics, and others, have been included in the curriculum without a corresponding extension of the total instruction time, resulting in a decrease in time devoted to anatomy. Another important factor is medical education's paradigm shift towards integrated, student-centered, and clinical competency-accentuated approaches represented by "Tomorrow's Doctors"¹⁶. These curricular reforms have resulted in a reduction of not only the time allocated to gross anatomy education, but also, necessarily, its content¹⁷.

The usefulness of cadaver dissection to anatomy education has long been debated. While some authors argue that the dissection laboratory is indispensable for anatomy education Gragner¹⁸, Azis³², others note possible disadvantages of dissection compared to other tools such as prosection^{40,41}. The issue of voluntary body donation by individuals or families is alien to our society unlike it is in some other regions of the world.

CONCLUSION:

In conclusion, the present study has shown that most students found their first visit to the dissection room exciting. Most students also think that dissection is indispensable and gives the best method for the study of human anatomy. Interestingly, a study conducted by the Ulm University Faculty of Medicine found that >70% of the students perceived the dissection course to be "very important"; furthermore, they ranked anatomy as the most important preclinical subject, both before and after a 16-week dissection course⁴². Therefore, we may regard dissection as the primary tool for laboratory work in anatomy education, whereas other tools such as prosected specimens and computer-aided multimedia can be supplementary, particularly for complicated 3-dimensional structures, to enhance understanding⁴³. In such a case, supplemental tools would be sufficient for self-learning and

do not necessarily have to be utilized during curricular hours. Another benefit of cadaver dissection is that it can be a platform for learning several various attributes of professionalism, among which are leadership skills^{28,29}. Cadaver dissection can be considered ideal in this regard, particularly because it is introduced early in students' medical education and is conducted in small-group settings. Furthermore, expert knowledge of anatomy is essential in the present day, particularly for surgeons, because of the development of various surgical techniques and emergence of more sophisticated imaging technologies²¹. It is suggested, we should redefine the core content of anatomy education to make it more clinically oriented. Doing so, we believe, can deliver anatomical knowledge to students more effectively, save instruction time, and most importantly, enhance the clinical relevance of anatomy education. Clinical relevancy can also be implemented in the dissection laboratory, for example, laparoscopy⁴⁴, basic clinical procedures⁴⁵, or surgical procedures⁴⁶ on cadavers. These approaches triggered student interest, made anatomy easy to understand, and resulted in higher test scores. We should utilize the dissection laboratory as a tool for fostering professionalism. To this end, a well-structured approach will be required. Let us remember, "It is the dead who teach the living".

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