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Perception & Impact of Cadaveric Dissection as A Learning Tool for Undergraduate Medical Students

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ABSTRACT

Introduction: For Centuries, the cadaveric dissection is the main learning tool and it is said to be an essential component to the anatomy understanding. It is believed that a conscientious knowledge of human body structures & organs are a base for a successful medical practitioner and also it improves the surgical skills as well. Technological advancements in the past few years, have raised a question whether cadaveric dissection can be replaced by newer & advance methods of teaching.

Objectives: The objective of the present study was to evaluate the Perception & Impact of Cadaveric Dissection as a Learning Tool for Undergraduate Medical Students.

Materials & Methods: This study was conducted on the 150 first year medical students of School of Medical Sciences & Research, Sharda University. To evaluate the impact of cadaveric dissection Pre-test & Post test have been done in the form of Google form. The responses have been recorded and analyzed.

Results: Through our study we concluded that the ancient method of learning Anatomy- Cadaveric Dissection- is still as relevant today. It visibly improves the students' knowledge and imparts important lessons that will help them as future practitioners. The students also agree that the practice is beneficial and irreplaceable.

Keywords: *Anatomy, Cadaver, Dissection, Impact, Perception*

1. INTRODUCTION

For centuries, dissection of the human body has been perceived as an indispensable mode of learning anatomy for medical students. It has survived cultural barriers, scientific progress and change in curriculum [1]. Such is its importance in medical education that the first dissection performed in India by Madhusudan Gupta in 1836 was celebrated by firing a fifty-round salute from the guns of Calcutta Fort William [2]. Technological advancements in the past decades however, have raised the question whether the practice can be replaced with newer, more innovative and clinically relevant methods of learning human anatomy such as 3D models, radiological images and simulations.

There are anatomists who believe the practice is a rite of passage in every medical student's life and that there are multiple lessons one can learn only through dissection. It provides knowledge about the spatial arrangement of the contents of the human body and how the different organs are correlated [3]. Students get to experience the textures of various tissues, nerves and vessels, something that is not possible through 3D models [4]. Apart from reinforcing anatomical knowledge, dissection provides a foundation for clinical experience by teaching the students practical skills such as use of basic surgical instruments. Additionally, it allows them to work in groups and provides an opportunity for teamwork [5]. It increases their interest and paves way for self-directed learning. Performing dissection also provides crucial lessons of empathy, compassion and respect for others [4]. The Oath Taking Ceremony is when medical students are first exposed to death in their professional career and the 'silent mentor' teaches them the importance of body and organ donation [6]. The excitement felt by medical students during anatomical dissection sessions is unlike any other and the dissection hall is where they first realise that their education and career path is unique[7]. This realization motivates students to work hard and appreciate their profession.

Despite its advantages, critics believe that dissection is a primitive learning tool and has more sentimental value than educational value. It is a time consuming process and burdens an already vast syllabus [8]. It is not an ideal method for

learning about anatomy of the nervous system and lymphatic system as well as surface anatomy. Most bodies procured for dissection belong to elderly persons with pathological conditions and differ from normal appearance [9]. Moreover, the cost of maintaining a dissection laboratory, procuring cadavers and employing skilled professionals is high [4].

The present study has been taken to evaluate the relevance of cadaveric dissection in the present CBME curriculum by analysing the perception of medical students and impact of dissection on their test scores

2. AIMS & OBJECTIVES OF THE STUDY

Aim: To Evaluate the perception & impact of Cadaveric Dissection as a learning tool for MBBS Students

Objectives:

1. To study the perceptions of first year medical undergraduates towards learning of human anatomy through cadaveric dissection
2. To study the impact of cadaveric dissection on reinforcing their knowledge of human anatomy

3. METHODOLOGY

Setting

The study was conducted in the Department of Anatomy at School of Medical Sciences and Research, Sharda University, Greater Noida, Uttar Pradesh. For the First year of MBBS, Department of Anatomy teaches anatomy using didactic lectures, Small group discussion (SGD) classes as well as Self directed learning (SDL) sessions in accordance with the Competency Based Undergraduate Curriculum for the Indian Medical Graduate implemented by the NMC in 2018. Students are divided into groups of 25 each and dissection is conducted under the guidance of the anatomy faculty. The various competencies are tested in written examinations as well as viva voce.

Study Protocol

After taking approval from the Institute's research & ethical committee, the study was taken up as a cross-sectional mixed method study. The subjects included all 150 first year MBBS students of School of Medical Sciences and Research, Sharda University studying anatomy as a core subject.

All the students first underwent learning through didactic lectures. After completion of a topic through didactic lectures, a small group discussion have been done and after 1 day a Multiple choice questions (MCQs) based test on the same topic was conducted as Pre test in the form of Google form, which have 20 MCQs questions related to the same topic and test scores were recorded anonymously.

The students then performed cadaveric dissection of the part covered in the lectures previously. After completion of dissection, the students took an MCQs test again and their test scores were recorded and compared and analysed with their previous test scores.

Students' perceptions regarding cadaveric dissection were also recorded and analysed using a pre-validated Likert-style questionnaire [4].

IMPLICATIONS

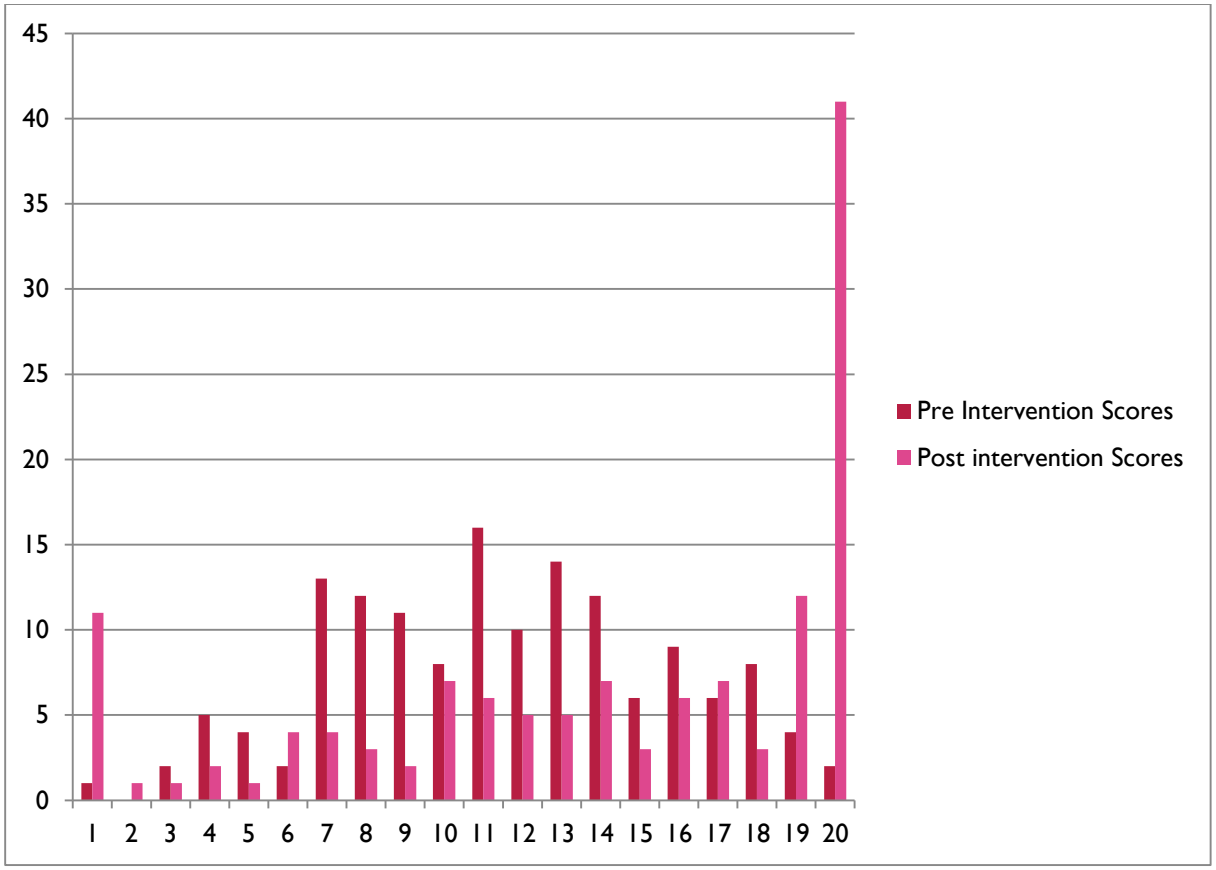
The proposed research aims to determine whether there was any increment in the students' understanding of gross anatomy by performing guided cadaveric dissection. The practice constitutes a significant portion of their academic year. By assessing the test scores as well as the influence of the practice on the subjects' development as medical undergraduates, changes can be suggested in the current curriculum depending on the results.

4. RESULTS

Responses were collected from 150 students. The mean score of students in the MCQs Pre- test after completion of didactic lectures was 10.79 out of 20. The mean score of students in the MCQs Post- test given after performing dissection was 14.1 out of 20.

A comparison of student responses showed enhanced scores post dissection sessions (Fig 1). A correlation was found between cadaveric dissection and increase in academic performance ($p=0.00$). Upon studying the perceptions of students on cadaveric dissection it was found that most of the students sought the practice to deepen their understanding of the subject. Most explained dissection as an irreplaceable practice that encouraged them to learn and helped increase their knowledge and interest in the subject.

Despite the disadvantage in terms of smell, physical work and time consumption, most students felt the practice couldn't be replaced by Small group discussions, lectures, pre-dissected specimens or computer programs (Fig 2).


45
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Pre Intervention Scores
Post intervention Scores

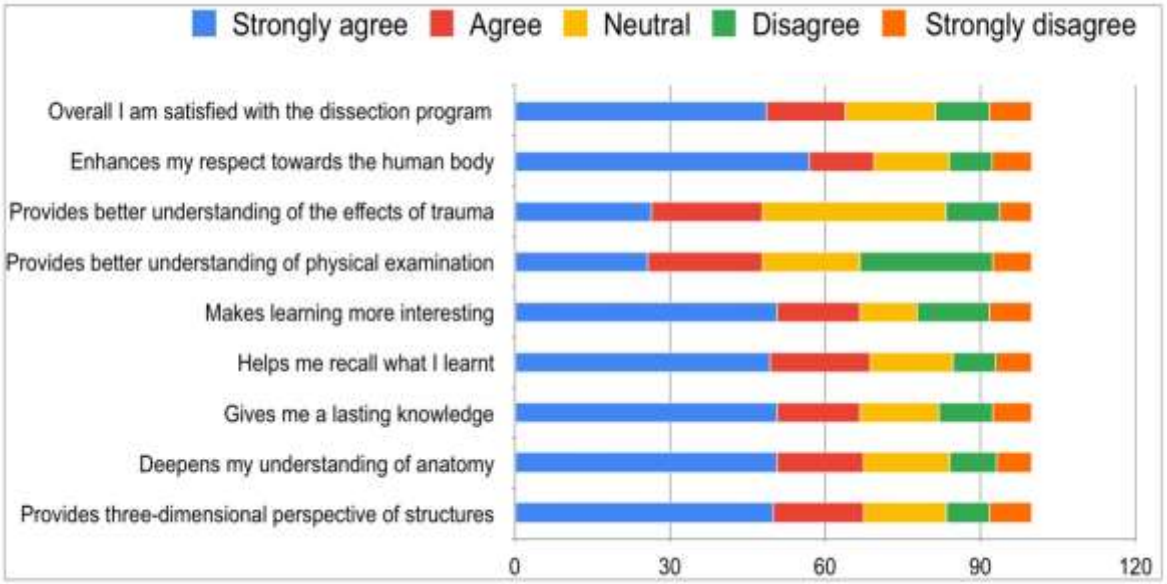
Strongly agree
Agree
Neutral
Disagree
Strongly disagree
Overall I am satisfied with the dissection program
Enhances my respect towards the human body
Provides better understanding of the effects of trauma
Provides better understanding of physical examination
Makes learning more interesting
Helps me recall what I learnt
Gives me a lasting knowledge
Deepens my understanding of anatomy
Provides three-dimensional perspective of structures
0
30
60
90
120

Figure 1

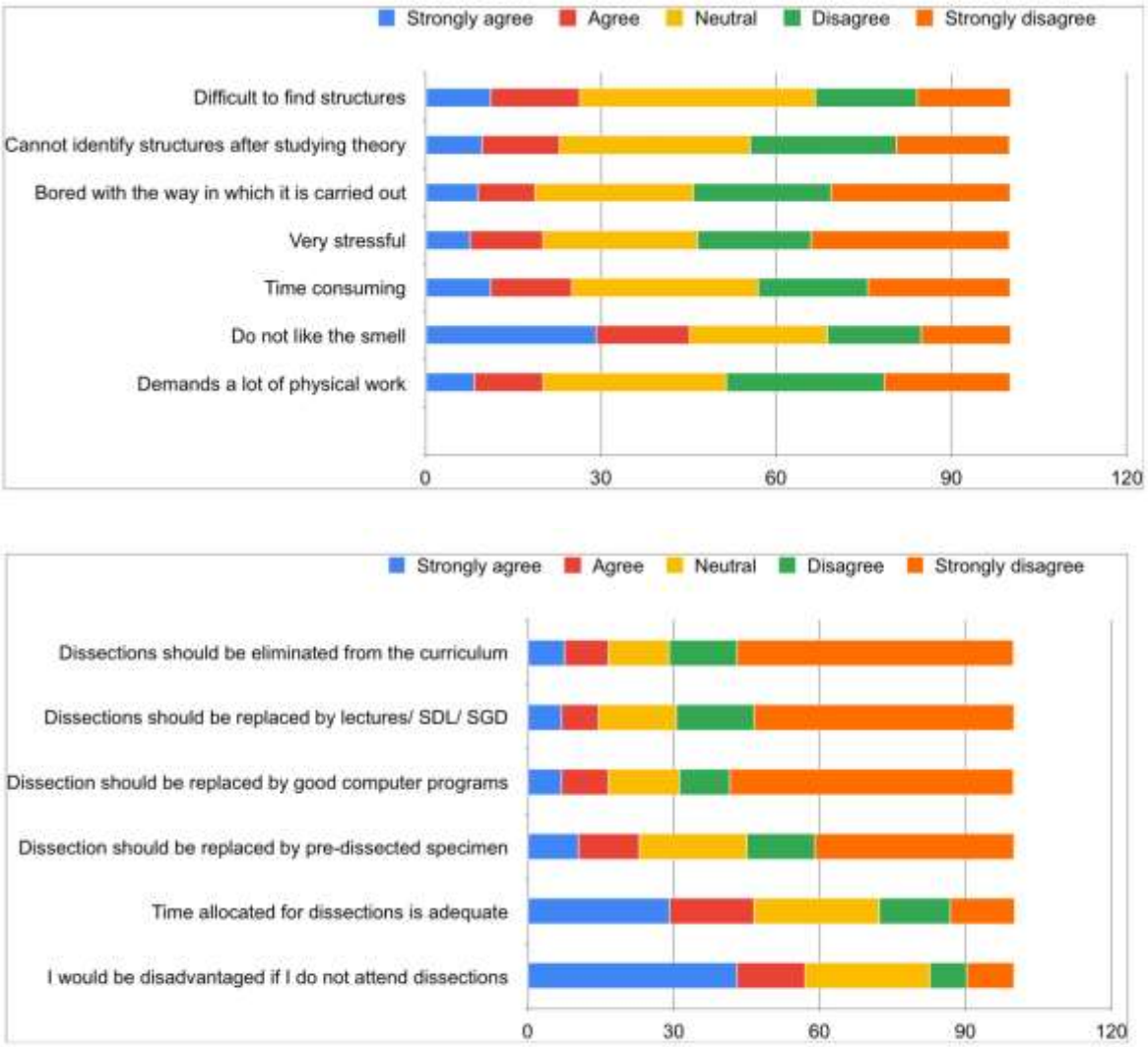

Figure 2

5. DISCUSSION

In early days of medical education, the study of gross anatomy was based on cadaveric dissection to such an extent that it was almost revered as 'the very essence of Anatomy.' This was so because back then, it was the only method of understanding the 3-dimensional structure of the human body [10]. The advent of newer technology and unique methods of understanding the structure of the human body added to the costs of procuring cadavers and maintaining a dissection lab called for assessment of actual academic benefits as well as overall development lessons imparted by the 'silent teacher.'

Through the MCQ test conducted before and after dissection, we came to the conclusion that the practice contributed to better academic performance as students scored higher in the post-dissection test. This further strengthens results obtained by similar studies which also showed significant improvement in test scores after dissection [11,12,13].

The perceptions of students on the dissection program were mostly positive. The responses taken from the students explained that the dissection of cadaver enabled them to recall their lessons, increase their understanding, give them lasting knowledge and helped them see the structures in a 3-dimensional perspective.

Students felt that dissection also enhanced their attitude and ethics as a doctor and also improved their respect towards the human body.

As per the responses received the study also explained that in the comparison of didactic lectures, cadaveric dissection improve their knowledge of subject and increase the remembrance and recall of topic more.

As according to the previous study of Gunwant Chaudhary et al.[13] also explained that their participants (97.5%) have responded as dissection to be an integral part of the curriculum.

Dubhashi et. al.[14] explained in his study that 67% students of their study responded as dissection should be an integral part of their MBBS curriculum. The observation of the present study closely coincides with the above study.

According to the previous study by Khan AN et. al.[15], Mishra P et. al.[16] and Agnihotri & Sagoo et. al.[17] also explained that more than 80% students agreed that dissection is important for the understanding of the subject.

The disadvantage of the cadaver dissection which was observed is that formalin is used for the embalming of the dead body, which have a peculiar smell during the dissection. Around 29% students reported that they don't like the smell of formalin and this data is similar to the data received by Hemlatha NR et. al [18] who reported 24% students complained of Nausea because of the smell of cadaver.

In our study we observed that around 69% students are not in favour of computer programme or newer technology which is similar to the study by Rajeh NA et. al. [19]

70% of the students in the present study believed that cadaveric dissection gives them a long lasting knowledge and also deepens their understanding of anatomy. This result is closely related to the study conducted by Agnihotri & sago et. al. [17] and by Saha N. Et. al. [20]

So most students felt that dissections shouldn't be discontinued or replaced with computed programs, lectures or SGD sessions.

Thus, through our study we concluded that the ancient method of learning Anatomy- Cadaveric Dissection- is still as relevant today. It visibly improves the students' knowledge and imparts important lessons that will help them as future practitioners. The students also agree that the practice is beneficial and irreplaceable

REFERENCES

[1] Elizondo-Omaña RE, Guzmán-López S, García-Rodríguez Mde L. Dissection as a teaching tool: past, present, and future. Anat Rec B New Anat. 2005 Jul;285(1):11-5. doi: 10.1002/ar.b.20070. PMID: 16032753.

[2] Bhattacharya, Jayanta. (2011). The first dissection controversy: Introduction to anatomical education in Bengal and British India. Current science. 101. 1227-1232.

[3] Granger NA. Dissection laboratory is vital to medical gross anatomy education. Anat Rec B New Anat. 2004 Nov;281(1):6-8. doi: 10.1002/ar.b.20039. PMID: 15558779.

[4] Dissabandara, Lakal & Nirthanan, S Niru & Khoo, Tien & Tedman, Raymond. (2015). Role of cadaveric dissections in modern medical curricula: A study on student perceptions. Anatomy & cell biology. 48. 205-12. 10.5115/acb.2015.48.3.205.

[5] Topp KS. Prosection vs. dissection, the debate continues: rebuttal to Granger. Anat Rec B New Anat. 2004 Nov;281(1):12-4. doi: 10.1002/ar.b.20037. PMID: 15558780.

[6] Pawlina W, Lachman N. Dissection in learning and teaching gross anatomy: rebuttal to McLachlan. Anat Rec B New Anat. 2004 Nov;281(1):9-11. doi: 10.1002/ar.b.20038. PMID: 15558788.

[7] Asante EA, Maalman RS, Ali MA, Donkor YO, Korpisah JK. Perception and Attitude of Medical Students towards Cadaveric Dissection in Anatomical Science Education. Ethiop J Health Sci. 2021 Jul;31(4):867-874. doi: 10.4314/ejhs.v31i4.22. PMID: 34703187; PMCID: PMC8512940.

[8] Monkhouse WS, Farrell TB. Tomorrow's doctors: today's mistakes? Clin Anat. 1999;12(2):131-4. doi: 10.1002/(SICI)1098-2353(1999)12:2<131::AID-CA9>3.0.CO;2-L. PMID: 10089040.

[9] Parker LM. Anatomical dissection: why are we cutting it out? Dissection in undergraduate teaching. ANZ J Surg. 2002 Dec;72(12):910-2.

[10] Sawant SP, Rizvi S. The evolution of human anatomy in India. MOJ Anat & Physiol. 2017;4(2):285–289. DOI: 10.15406/mojap.2017.04.00132

[11] Ramsey-Stewart G, Burgess AW, Hill DA. Back to the future: teaching anatomy by whole-body dissection. Med J Aust. 2010 Dec 6-20;193(11-12):668-71. doi: 10.5694/j.1326-5377.2010.tb04099.x. PMID: 21143056.

[12] Anyanwu, Emeka & Ugochukwu, Anthony. (2010). Impact of the use of cadaver on student's ability to pass examination. Anatomy (International Journal of Experimental and Clinical Anatomy). 4. 10.2399/ana.09.022.

[13] Chaudhari G, Sonawane M, Singel TC. Importance of the human cadaveric dissection for learning anatomy by the first year MBBS students – An observational study. Indian J Clin Anat Physiol 2020;7(2):177-181.

[14] Dubhashi S, Dubhashi U, Singh A, Trinath T. Medical students react to cadaveric dissections. Rec Res Sci Tech. 2011;3(1):135–8.

[15] Khan AN, Baig S, Zian S. Importance off cadaveric dissection in learning gross anatomy. Pak J Med Dent. 2014;3(4):31–5.

[16] Mishra P, Ksheersagar DD, Mishra D. Attitude of first year medical students towards dissection. J Cont Med A Dent. 2015;3(1):45–9.

[17] Agnihotri G, Sagoo MS. Reactions of first year Indian medical students to the dissection hall experience. NJIRM. 2010;1(4):4–9.

[18] Hemalath NR, Samaga MP. Acute symptoms experienced by medical students on first exposure to formalin in dissection hall. IJSRE. 2015;3(4):3205–9.

[19] Rajeh NA, Badroun LE, Alqarni AK, Alzhrani BA, Alallah SB, Almghrabi SA, et al. Cadaver dissection: A positive experience among Saudi female medical students. J Taibah Univ Med Sci. 2017;12(3):268–72.

[20] Saha N, Chaudhuri S, Mm S. Attitude of first year medical students in dissection hall. IOSR-JDMS. 2015;14(5):74–8.

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