

## Original Research Article

# Perception of students towards cadaveric dissection in a tertiary care teaching institution

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### ABSTRACT

**Background:** Anatomy is widely acknowledged as being among the most significant element of medical education and the study of anatomy through the dissected cadaver is observed as the essential feature of medical courses. Anatomy teaching has certainly the longest history of any component of formalised medical education. While the history of dissection has been well studied, less attention has been paid to the use of the living body involved in anatomy teaching. Dissection has thus been imbibed into medical education such that it has become almost indispensable part of medical courses.

**Methods:** A total of hundred newly admitted first year medical students' reaction to the first day entry into the dissection hall and towards cadaveric dissection was assessed by using a set of questions. The questionnaire was given to the students just a few weeks after they began attending their dissection class.

**Results:** Most of the students reported of bad odor of the cadaver (84%) and watering of eyes (79%) on their first day entry into the dissection hall. 94% of the students were determined, interested, and ready to study anatomy with cadaveric dissection. Majority of the students considered dissection as the best tool to study anatomy. 100% of the students have showed a sense of gratitude to the people and/or the relatives who had donated their bodies.

**Conclusions:** Cadaveric dissection is an indispensable teaching tool to study gross anatomy, and undergraduate curriculum should incorporate dissection as majority of the students are interested and determined to study anatomy with cadaveric dissection.

**Keywords:** Cadaveric dissection, Questionnaire, Undergraduate curriculum

### INTRODUCTION

Cadaveric dissection has been the paradigm of anatomy teaching since the 16<sup>th</sup> and 17<sup>th</sup> centuries.<sup>1</sup> Anatomy, the study of the structures of the human body is one of the first, most basic and important subjects studied by medical students at the outset of their education career.<sup>2</sup> Anatomy teaching in medical colleges has been traditionally based around the use of human cadaveric

specimens taking the whole body specimens for complete dissection.<sup>3</sup> It has also been recognized as the most universal method, which is strongly supported and preferred over other methods, for professional training and skill development in becoming doctors.<sup>4,5</sup> In addition, the practice of cadaveric dissection helps students understand the three-dimensional anatomy and concept of biological variability. The students are able to visualize first hand actual structures of the human body

through dissection.<sup>6</sup> Owing to current arguments on balancing learning outcomes, difficulties related to the use of human cadaver, teaching methods and resources, many recent curricula in anatomy have suggested a shift towards greater use of alternative modalities of teaching involving cadaveric plastination, non-cadaveric models and computer-based imaging.<sup>7</sup>

The use of cadavers for dissection in anatomy learning has been identified by some experts as expensive, tedious and potentially hazardous. Although there is no consensus on its effect, working with cadavers, whether through active dissection or by examination of prosected specimens causes some amount of stress.<sup>8</sup> In medical colleges where cadaveric dissection mainly forms a part of preclinical teaching of anatomy, students are exposed to cadavers in the early stages of their training and this exposure induces both positive and unintended negative experiences in these students.<sup>9,10</sup> The emotional impact of such exposure on students and their ability to cope has been examined in some studies.<sup>11,12</sup>

The effects which have been described include the physical (smell, nausea, conjunctival irritation) and psychological (anxiety, stress, emotional trauma, depression) but available evidences suggest that adaptive mechanisms to overcome these effects are triggered soon afterwards in these students. Many studies conducted in different parts of the world have specified reaction of medical students to human cadaveric dissection by examining experiences retrospectively through structured questionnaires.<sup>13,14</sup> There has not been a study done in our institute to assess students' attitude towards anatomical dissection either retrospectively through recollection or by recording student's attitudes as they progressed through a dissecting room-based anatomy instruction.

This study was thus designed to record students' attitudes to human cadaveric dissection before and after exposure to dissection and compare baseline attitudes and changes followed after repeated experience. It also identifies student's preference towards other compensatory methods for anatomy learning.

## METHODS

A total of 100 newly admitted first year students at Indira Gandhi Medical College and Hospital, Shimla, Himachal Pradesh were included for the study. The student's reactions towards cadaveric dissection were analyzed by using a standard set of questions. The first questionnaire was given to the students a week before they started attending their dissection class and the second questionnaire was handed over three weeks after they started their cadaveric dissection. The data acquired from the questionnaire were assessed. Requisite explanation was provided to the students about the objective and relevance of the study before they filled the questionnaire.

## RESULTS

The response and attitude of the students transformed as the duration of contact increased. The student's interest and excitement increased towards the cadaveric dissection whereas the fear and depression decreased from 93% to 15% and, 35% to 07%, respectively. It was observed that formalin odor and eye watering were the chief symptoms experienced by the students.

**Table 1: Attitude of the students towards dissection.**

Factor	Questionnaire (1) before dissection	Questionnaire (2) after starting dissection
Fear	93%	15%
Excitement	68%	91%
Interest	64%	89%
Depression	35%	07%

Symptoms like nausea, vomiting, skin irritation, eye redness, were also revealed by some of the students. The odor of the formalin was the main cause for all of the above symptoms. More than 50% of the students said that it was the determination towards studying anatomy through cadaveric dissection which helped them to cope with the symptoms when they first entered the dissection hall.

**Table 2: The symptoms experienced by the students on entering the dissection hall.**

Symptoms	Percentage
Nausea	23
Vomiting	04
Formalin odor	84
Eye watering	79
Eye redness	24
Skin irritation	11
Syncope	00
No symptoms	06

Few of the students described that staying in groups, relaxing and advice from the teachers and seniors assisted them to deal with the above symptoms. Most of the students were prepared, eager and interested to learn anatomy through cadaveric dissection. The students reported that the UG curriculum should include the dissection method for teaching anatomy to the students.

All the students felt and expressed a sense of gratitude to the people and/or relatives who donated their bodies. It was observed that most of the students got the information about the skeleton through the school labs, textbooks, school trips of medical exhibition, models etc. The students had knowledge about personal safety measures like wearing gloves, cutting nails, using disinfectant soap after dissection and wearing mask, while handling the cadaver/dissected specimens.

**Table 3: Responses on attitude towards dissection among students.**

Questions	Yes	No
Are you prepared to study on the cadaver?	82%	18%
Are you curious to learn anatomy?	91%	09%
Are you interested to dissect?	76%	24%
Do you think it is important or helpful to have dissection in UG curriculum?	96%	04%
Have you ever seen a dead body before?	51%	49%
Do you have a sense of gratitude to people and/or relatives who donated their bodies?	100%	-

## DISCUSSION

Recently, relevance and importance of dissection has been under discussion at different universities. Because of high cost of cadavers and time limitation, some medical colleges in Europe and US have given up dissection and switched over to cadaver less anatomy. However, some continue cadaver-oriented anatomy to teach basic fundamental principles of human body through dissection.<sup>4</sup> The present study endeavored to assess students' attitudes to human cadaveric dissection before and after exposure to dissection in order to see changes after repeated exposure. The students get a vivid idea of anatomy from cadaveric dissection. The previous literature described that there are varied responses of the students' attitude towards cadaveric dissection. The results explained that fear decreased while interest and excitement of the students towards dissection increased over a period of time, the same response has been observed in many of the studies that fear and nausea decreased while the interest and excitement of the students towards dissection increased.<sup>15</sup> Some of the studies showed that the factors which made the dissection more stressful for the students were the chemical odor and eye irritation. The present study also corroborated this fact that formalin odor and eye watering emerged as the main symptoms observed by the students while symptoms like nausea, vomiting, giddiness, skin irritation, and eye redness were also reported but less frequently. Majority of the students were geared up and quite desirous to study anatomy on cadavers. Some of the studies also correlate with this observation that the respondents were eager and prepared to study gross anatomy on cadavers.<sup>16,17</sup>

More than 50% of students had prior experience with the dead bodies and all the students had a sense of gratitude to the people who have donated the dead bodies. This is in relation with other studies done in Kenya where the respondents had sympathy and gratitude towards the people for donating the bodies. The first exposure to the students about the skeleton was through text books, some

gathered information through skeletons kept in their school lab, some learnt about it through school exhibition and few familiarized with it through models present in the school. The students had the knowledge about the hygiene that they needed to observe while handling cadavers in the dissection hall.<sup>18,19</sup>

## CONCLUSION

To conclude, the present study shows that in majority of the students fear and nausea had decreased while interest and excitement increased on subsequent exposure to dissection. It also showed that chemical odor and eye irritations were the chief factors which created discomfort in the dissection room even though anatomical dissection by itself was not considered as a stress factor as compared to other such factors. Thus, teachers are advised to adequately prepare students mentally and emotionally before the start of the dissection session for an exciting and stress free anatomy learning through dissection. Most of the students were keen to study anatomy with dissection method. The students upheld that UG curriculum should have dissection for learning anatomy.

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## REFERENCES

- Richardson R. Death, Dissection and the Destitute. London:Penguin; 1988.
- Rajkumari A, Singh Y. Body donation and its relevance in anatomy learning: a review. J Anat Soc India. 2007;56:1-6.
- Cahill KC, Ettarh RR. Attitudes to anatomy dissection in an Irish medical school. Clin Anat. 2009;22(3):386-91.
- McLachlan JC, Bligh J, Bradley P, Searle J. Teaching anatomy without cadavers. Med Educ. 2004;38(4):418-24.
- Azer SA, Eizenberg N. Do we need dissection in an integrated problem-based learning medical course? Perceptions of first- and second-year students. Surg Radiol Anat. 2007;29(2):173-80.
- Korf H-W, Wicht H, Snipes RL, Timmermans JP, Paulsen F, Rune G, Baumgart-Vogt E. The dissection course - necessary and indispensable for teaching anatomy to medical students. Ann Anat. 2008;190(1):16-22.
- Winkelmann A. Anatomical dissection as a teaching method in medical school: a review of the evidence. Med Educ. 2007;41(1):15-22.
- Kerby J, Shukur ZN, Shalhoub J. The relationships between learning outcomes and methods of teaching anatomy as perceived by medical students. Clin Anat. 2011;24(4):489-97.
- Aziz MA, McKenzie JC, Wilson JS, Cowie RJ, Ayeni SA, Dunn BK. The human cadaver in the age

- of biomedical informatics. *Anat Rec.* 2002;269(1):20-32.
10. Dinsmore CE, Daugherty S, Zeitz HJ. Student responses to the gross anatomy laboratory in a medical curriculum. *Clin Ana.* 2001;14(3):231-6.
  11. Horne DJ, Tiller JW, Eizenberg N, Tashevskia M, Biddle N. Reactions of first-year medical students to their initial encounter with a cadaver in the dissecting room. *Acad Med.* 1990;65(10):645-6.
  12. Mc Garvey MA, Farrell T, Conroy RM, Kandiah S, Monkhouse WS. Dissection: a positive experience. *Clin Anat.* 2001;14(3):227-30.
  13. Bataineh ZM, Hijazi TA, Hijleh MFA. Attitudes and reactions of Jordanian medical students to the dissecting room. *Surg Radiol Anat.* 2006;28(4):416-21.
  14. Charlton R, Dovey SM, Jones DG, Blunt A. Effects of cadaver dissection on the attitudes of medical students. *Med Educ.* 1994;28(4):290-5.
  15. O'Carroll RE, Whiten S, Jackson D, Sinclair DW. Assessing the emotional impact of cadaver dissection on medical students. *Med Educ.* 2002;36(6):550-4.
  16. Evans EJ, Fitzgibbon GH. The dissecting room: Reactions of first year medical students. *Clin Anat.* 1992;5(4):311-20.
  17. Arora L, Sharma B. Assessment of role of dissection in anatomy teaching from the perspective of undergraduate students: A qualitative study. *Ibnosina J Med BS.* 2011;3(2):59-65.
  18. Arráez-Aybar L-A, Castaño-Collado G, Casado-Morales M-I. Dissection as a modulator of emotional attitudes and reactions of future health professionals. *Med Educ.* 2008;42(6):563-71.
  19. Houwink AP, Kurup AN, Kollars JP, Kral Kollars CA, Carmichael SW, Pawlina W. Help of third-year medical students decreases first-year medical students' negative psychological reactions on the first day of gross anatomy dissection. *Clin Anat.* 2004;17(4):328-33.

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