



# Introduction to cadavers - A student's perspective

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## Abstract

**Background:** Dissection of the dead human body has been central to medical education since Renaissance. First year medical students normally experience a variety of emotional reactions and mixed feelings, when they encounter human cadavers for the first time.

**Aim:** In order to assess the impact of anxiety and physical symptoms from the experience of dissection room, a questionnaire was prepared which provide an insight into the difference in attitudes and dissection hall experience of the male and female medical students.

**Material and methods:** Total 181 students were given a questionnaire within 3-4 days of the start of dissection in the dissection hall. The students were asked to answer in either 'Yes' or 'No' option.

**Observation:** No statistical significant difference was found between the responses of male and female students except regarding the previous exposure to dead body, which was more in males and statistically significant ( $p < 0.05$ ). Difficulty in consuming food and shivering of hands were more common in males in comparison to females.

**Conclusion:** A better teacher – student interaction, pre-education sessions will help in improving the attitudes of students towards cadaveric dissection, which will in turn offer a stable mental status for medicos to handle higher levels of stress in their clinical career, thereby reducing the drop-out rates.

## Key words

Dissection, Cadaver, Medical students, Questionnaire, Pre-education sessions.

## Introduction

Dissection of the dead human body has been central to medical education since Renaissance [1, 2]. Indeed, the Greek roots of the word anatomy indicate cutting up [2], so many

anatomists are adamant that dissection is the best way to anatomy learning [1, 2]. Anatomical knowledge remains a cornerstone of medicine and related professions in spite of reductions in the importance, time committed to, and status of anatomical education in modern



curricula [3]. Dissection brings the students to the closest and most comprehensive encounter with human mortality. It helps in developing a spatial and tactile appreciation for the fabric of the human body. Cadaver Dissection has been called the “sharp-end” of medical education. Dissection has also been labeled as the “royal road” and cadaver as the “first patient” [4].

Dissection of a human body during an anatomy course raises for first-year medical students questions about invasion of privacy, cadaver sources, dying and death [5]. First year medical students normally experience a variety of emotional reactions and mixed feelings, when they encounter human cadavers for the first time [6]. A medical student reports that: “the first cut through the skin (of a cadaver) is really bad, but when you get down there and it begins to look like the anatomy book and it doesn't look like a human being anymore, it's not so bad” [7].

There are varying responses as regards students' attitudes and views towards cadaver dissection. The present study was conducted to explore further insights into these areas in North Indian students. In order to assess the impact of anxiety and physical symptoms from the experience of dissection room, we prepared questionnaire which provide an insight into the difference in attitudes and dissection hall experience of the male and female medical students.

### Material and methods

The present study was conducted on 181 first professional medical students at Pt. B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, India in 2014-2015. The students were informed about the study and their consent was duly taken. Any chance of participant bias was eliminated by clearly explaining to all participants the objective of

the study while obtaining their written informed consent. All the 181 students were given a questionnaire within 3-4 days of the start of dissection in the dissection hall. The questionnaire contained information regarding age, gender and address and questions regarding previous exposure to information about human anatomy and positive and negative feelings related to cadaveric dissection. The students were asked to answer in either 'Yes' or 'No' option.

**Statistical Analysis:** Comparison of categorical variables was tested using Chi-square test and p-value < 0.05 was considered significant.

### Results

All the 181 students completed the questionnaire. From the questionnaire, following observations were made.

- The results of questionnaire showed males (n=104, 57.46%) and females (n=77, 42.54%), with a mean age of 18.32 years.
- 169 students (93.37%) found dissection enjoyable/ fascinating/ interesting, out of which 97 were males (93.27%) and 72 were females (93.51%). (**Table - 1**)
- 177 students (97.79%) thought that dissection enhances the skill of thinking in a logical manner, out of which 101 were males (97.11%) and 76 were females (98.7%). (**Table - 1**)
- 177 students (97.79%) thought that dissection is an important part of undergraduate (UG) Medical Curriculum, out of which 102 were males (98.08%) and 75 were females (97.4%). (**Table - 1**)
- 176 students (97.24%) felt a sense of gratitude to people who donated their bodies, out of which 99 were males

- (95.19%) and 77 were females (100%). (Table - 1)
- 80 students (44.2%) experienced the formalin odor after their first encounter with the cadaver even when away from college, out of which 46 were males (44.23%) and 34 were females (44.16%). (Table - 1)
  - 159 students (87.84%) felt hesitant in dissecting the cadaver without gloves, out of which 87 were males (83.65%) and 72 were females (93.51%). (Table - 1)
  - 84 students (46.41%) had seen a dead body before, out of which 62 were males (59.62%) and 22 were females (28.57%). (Table - 1)
  - No statistical significant difference was found between the responses of male and female students except regarding the previous exposure to dead body, which was more in males and statistically significant ( $p < 0.05$ ).
  - 27.62% of the students were having no previous exposure to information on human anatomy, whereas, previous exposure was by school trips to exhibitions and museums in 4.97% students (Males= 4.8%, Females= 5.19%), by seeing models and skeletons in 51.38% students (Males= 44.23%, Females= 61.04%) and by reading books in 29.28% students (Males= 28.85%, Females= 29.87%). (Table - 2, Graph - 1)
  - Dissection causes very less influence on routine activities, like horrifying dreams in 3.87% (Males= 1.92%, Females= 6.49%), difficulty in consuming food in 8.84% (Males= 9.62%, Females= 7.8%), nausea in 6.63% (Males= 4.8%, Females= 9.1%), dizziness in 3.31% (Males= 1.92%, Females= 5.19%), shivering of hands in 2.76% (Males= 4.8%, Females= 0%), fright in 2.76%

(Males= 1.92%, Females= 3.9%), sleep disturbances in 6.1% (Males= 4.8%, Females= 7.8%) and lack of concentration in 2.2% (Males= 0%, Females= 5.19%) of the total students. Difficulty in consuming food and shivering of hands were more common in males in comparison to females. (Table - 3, Graph - 2)

## Discussion

Cadaver based anatomical education is a prerequisite for optimal training and is necessary for establishing the primary of the patient, apprehension of the multidimensional body, anatomical variability, learning the basic language of medicine and touch – mediated perception of the cadaver/patient. It is common to find that students are anxious about dissecting a human being. Horne, et al. pointed out that “to dissect a cadaver is not simply a neutral, technical exercise but raises questions about the relationship between human biology and psychology. It allowed the discussion of difficult topics such as human dignity, mortality, grief and how to deal with emotions experienced by both patients and doctors” [8].

In the present study, 93.37% of the total students found dissection interesting. Dubhashi, et al. found dissection interesting in 80% of the students [9].

In the present study, 97.79% of the total students thought that dissection enhances the skill of thinking in a logical manner and it is an important part of UG Medical Curriculum. This is in accordance with that reported by Agnihotri and Sagoo [10]. Dubhashi, et al. found dissection an important part of Medical curriculum in 67% of the students [9].

In the present study, 97.24% of the total



students felt a sense of gratitude to people who donated their bodies. Dubhashi, et al. found this sense of gratitude in just 8% of the students [9], whereas Agnihotri and Sagoo found it in 70% of the students [10].

In the present study, 44.2% of the total students experienced the formalin odor after their first encounter with the cadaver even when away from college. Dubhashi, et al. found this experience of formalin odor in 71% of the students [9], whereas Agnihotri and Sagoo reported the same in 66.66% of the students [10].

In the present study, 87.84% of the total students were hesitant in dissecting the cadaver without gloves. Dubhashi, et al. found this hesitancy in 40% of the students [9], whereas Agnihotri and Sagoo reported the same in 46.66% of the students [10].

In the present study, 46.41% of the total students had seen a dead body before. Horne, et al. reported that although 62% had prior exposure to a dead body but it was necessary to greater preparation for the dissection experience by discussion with anatomy staff [8]. Agnihotri and Sagoo found it in 34.66% of the students [10].

In the present study, 27.62% of the students were having no previous exposure to information on human anatomy, whereas, previous exposure was by school trips to exhibitions and museums in 4.97% students, by seeing models and skeletons in 51.38% students and by reading books in 29.28% students. Dubhashi, et al. reported in their study that most of the students had previous exposure to information on the human anatomy, out of which, 70% by school trips to exhibitions and museums, 40% by seeing skeletons and 52% by models [9].

In the present study, it was noted that dissection causes very less influence on routine activities, like horrifying dreams in 3.87%, difficulty in consuming food in 8.84%, nausea in 6.63%, dizziness in 3.31%, shivering of hands in 2.76%, fright in 2.76%, sleep disturbances in 6.1% and lack of concentration in 2.2% of the total students. Dubhashi, et al. reported horrifying dreams in 45%, difficulty in consuming food in 38%, shivering of hands in 8%, fright in 30% and sleep disturbances in 84% students [9]. Agnihotri and Sagoo reported nausea in 30%, dizziness in 2%, fright in 30.6% and lack of concentration in 40% students [10]. Finkelstein and Mathers found that approximately 5% of the students reported marked disturbances including nightmares, intrusive visual images, insomnia, depression, and learning impairments [11].

Attitudes towards dissection were also influenced by gender. Agnihotri and Sagoo reported that females were more apprehensive before entering the dissection hall in comparison to males and female: male symptom ratio in dissection hall was 1.96:1 (nearly 2 times) [10]. Anxiety in female students associated with dissection had also been reported by Mitchell, et al. [12]. In our study, we found that females were more symptomatic than males, except difficulty in consuming food and shivering of hands, which were more frequent in males. No statistical significant difference was noted between the symptoms in males and females.

Tschernig, et al. reported that emotional issues during human dissection should not be neglected but addressed repeatedly. The authors feel that more attention should be paid to the first encounter with cadavers and students should be offered the opportunity to discuss their emotions. The students should be advised to prepare mentally and emotionally before entering the dissection room so that they



are emotionally involved and stimulated [13]. It has even been suggested that a formal course on death and dying should begin pre-clinically and extended into clinical years [14].

### Conclusion

A better teacher – student interaction, pre-education sessions will help in improving the attitudes of students towards cadaveric dissection, which will in turn offer a stable mental status for medicos to handle higher levels of stress in their clinical career, thereby reducing the drop-out rates. Let us remember, “It is the dead who teach the living”.

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**Table – 1:** Questionnaire and student responses.

Question	Total No. of 'Yes' responses (%)		Total No. of 'No' responses (%)	
	Males (%)	Females (%)	Males (%)	Females (%)
Do you find dissection enjoyable/ fascinating/ interesting?	169 (93.37%)		12 (6.63%)	
	97 (93.27%)	72 (93.51%)	7 (6.73%)	5 (6.49%)
Do you think that dissection enhances the skill of thinking in a logical manner?	177 (97.79%)		4 (2.2%)	
	101 (97.11%)	76 (98.7%)	3 (2.88%)	1 (1.3%)
Do you feel anatomy dissection an important part of UG Medical Curriculum?	177 (97.79%)		4 (2.2%)	
	102 (98.08%)	75 (97.4%)	2 (1.92%)	2 (2.6%)
Do you feel any sense of gratitude to people who donated their bodies?	176 (97.24%)		5 (2.76%)	
	99 (95.19%)	77 (100%)	5 (4.8%)	0 (0%)
Did you experience the formalin odor after your first encounter with the cadaver even when away from college?	80 (44.2%)		101 (55.8%)	
	46 (44.23%)	34 (44.16%)	58 (55.77%)	43 (55.84%)
Did you feel any hesitancy in dissecting the cadaver without gloves?	159 (87.84%)		22 (12.15%)	
	87 (83.65%)	72 (93.51%)	17 (16.35%)	5 (6.49%)
Have you ever seen a dead body before?	84 (46.41%)		97 (53.59%)	
	62 (59.62%)	22 (28.57%)	42 (40.38%)	55 (71.43%)

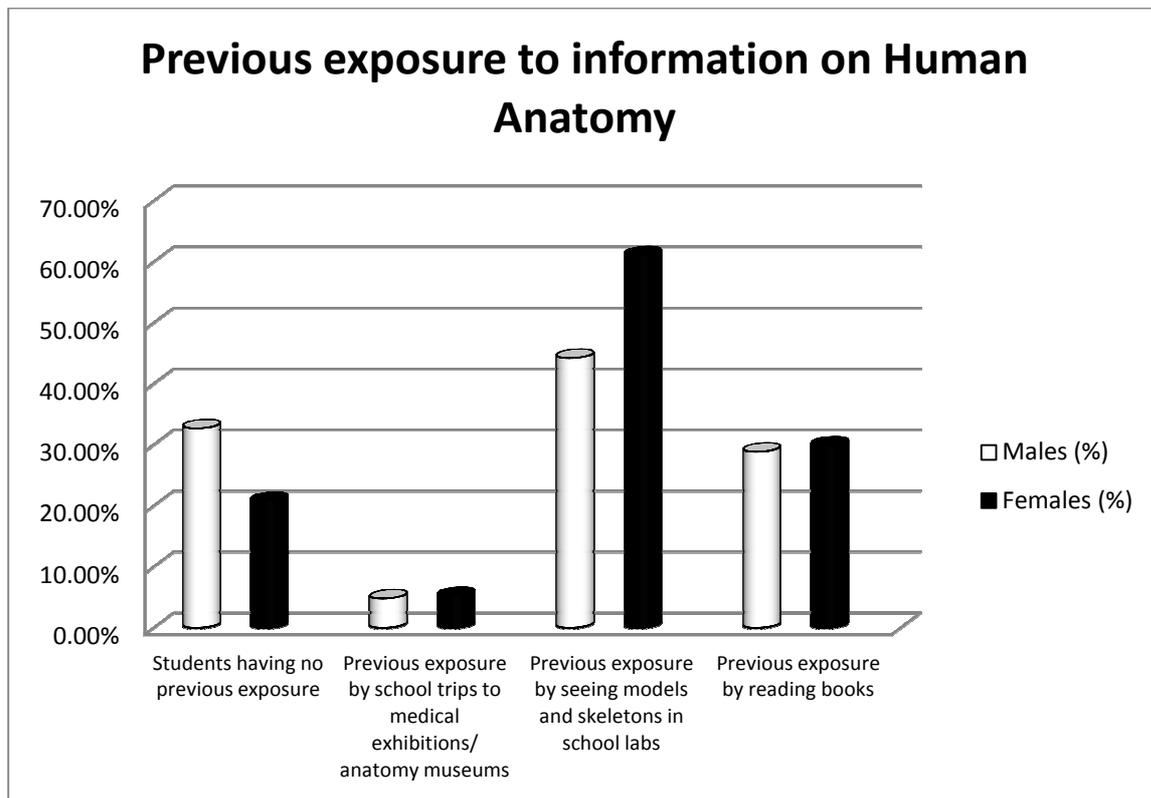
**Table – 2:** Previous exposure to information on Human Anatomy.

	Total (%)	Males (%)	Females (%)
Students having no previous exposure	50 (27.62%)	34 (32.69%)	16 (20.78%)
Previous exposure by school trips to medical exhibitions/ anatomy museums	9 (4.97%)	5 (4.8%)	4 (5.19%)
Previous exposure by seeing models and skeletons in school labs	93 (51.38%)	46 (44.23%)	47 (61.04%)
Previous exposure by reading books	53 (29.28%)	30 (28.85%)	23 (29.87%)

**Table – 3:** Influence on routine activities due to dissection.

	Total (%)	Males (%)	Females (%)
No influence on routine activities	140 (77.35%)	82 (78.85%)	58 (75.32%)
Horrifying dreams	7 (3.87%)	2 (1.92%)	5 (6.49%)
Difficulty in consuming food	16 (8.84%)	10 (9.62%)	6 (7.8%)
Nausea	12 (6.63%)	5 (4.8%)	7 (9.1%)
Dizziness	6 (3.31%)	2 (1.92%)	4 (5.19%)
Shivering of hands	5 (2.76%)	5 (4.8%)	0 (0%)
Fright	5 (2.76%)	2 (1.92%)	3 (3.9%)
Sleep disturbances	11 (6.1%)	5 (4.8%)	6 (7.8%)
Lack of concentration	4 (2.2%)	0 (0%)	4 (5.19%)

**Graph – 1:** Previous exposure to information on Human Anatomy.



**Graph – 2:** Influence on routine activities due to dissection.

