

Original article:

Attitudes and views of first year medical students towards cadaver dissection in anatomy learning

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Abstract:

The present study was conducted to evaluate the attitudes and views of first year medical students towards cadaver dissection in anatomy learning. A structured questionnaire containing 18 items was administered to 99 first year medical students. For each question, the student had to choose one of the three possible responses: "yes", "no" or "cannot say". Out of 99 students, 80 (48 males and 32 females) responded to the questionnaire. Majority students (82.50%) found their first visit to the dissection room exciting. Only 26.25% were upset whereas 63.75% not upset at the beginning of the dissection. 72.50% did not show any anxiety and stress

immediately before and during dissection, while 18.75% experienced anxiety and stress. 58.75% were found mentally prepared for dissection. 85% agreed that dissection enhanced their skill of thinking. 90% were of the view that dissection provided the best method for learning anatomy. 70% agreed that cadaver dissection is ethically acceptable. 26.25% reported that prior experience of dead body helped them in developing a better coping mechanism. An overwhelming majority (98.75%) considered the cadaver dissection as important and indispensable in anatomy learning.

Key Words: Attitudes, views, first year medical students, cadaver dissection, anatomy learning.

Introduction:

Cadaver dissection has been a regular feature in anatomy learning since the Renaissance^[1]. Andreas Vesalius (1514-1564) was the first medical student to dissect the cadaver and also continued with it even as a professor^[2]. The use of cadavers has been traditionally the chief pillar for anatomy learning and many virtues have been ascribed to it^[3]. The dissected cadaver remains the most powerful means of presenting and learning anatomy and serves as a dynamic basis for solving problems. The manual skills learnt in the dissection room are essential in almost every branch of the medical profession^[4]. Dissection of cadavers by the medical students are considered an essential

requirement in learning gross anatomy particularly the three-dimensional aspect of human anatomy. It is the most universal and universally recognizable step in becoming a doctor. Cadaver dissection and its value to anatomy education is a topic of much interest to anatomists and medical students. 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]. It helps in developing a spatial and tactile appreciation for the fabric of the human body that cannot be achieved by prosection or computerised learning aids alone^[2]. Dissection reinforces and elaborates knowledge that is acquired in lectures and tutorials. It brings the students to the closest and most comprehensive encounter with human mortality. Working in

the dissection room is often perceived as a good self-directed learning and team working as well. Anatomists consider dissection as instrumental for professional training and help developing professional skills^[6]. Dissection can impart anatomical knowledge as well as offer other relevant, positive learning opportunities to enhance the skills and attitudes of future doctors^[7]. Through cadaver dissection, students can discover the anatomy for themselves directly from the cadavers, which help them to remember it^[8].

Through dissection, students are able to visualize firsthand actual structures of the human body. Cadaver dissection has been called the “sharp end” of medical education^[9]. Dissection has also been labeled as the “royal road” and the cadaver as the “first patient”^[10]. Thai students see the cadavers as great teachers and thus attribute a social role and status to it^[11]. Prakash et al^[4] alludes to cadavers as “teachers in medical education”. He describes dissection as a “precious experience” not to be missed as cadaver dissection has other learning outcomes besides anatomical learning, such as fostering teamwork and respect for the human body, integration of knowledge from textbooks and didactic lectures with practice. Even before entering the anatomy laboratory, a student, at some level, knows that the first patient that he/she will care for is a dead one and experience considerable anxiety and stress^[5]. The present study was carried out to evaluate the attitudes and views of first year medical students towards cadaver dissection in anatomy learning and discuss various findings vis-à-vis the earlier reports available in the literature.

Materials and Methods:

The present study was conducted at the Anatomy Department, Regional Institute of Medical Sciences (RIMS), Imphal, Manipur, India. The subjects included in the study were the first year medical students of RIMS, Imphal during academic session, 2005-2006. Altogether 99 out of 100

students who were willing to participate in the study were suitably chosen for the study. Each student was explained the objectives of the study and a structured questionnaire containing 18 items were distributed after taking their informed consent. Those students who failed to submit the questionnaire even after 3rd attempt were excluded. For each question, the student had to choose one of the three possible responses: “yes”, “no” or “cannot say”.

The questionnaire provides information about the first visit to dissection room, emotional shock, feeling, anxiety and stress at initial exposure to cadaver, mental preparation before dissection, sympathy and respect for the cadaver, prior experience with a dead body before dissection and its impact on coping mechanism, possible alternatives for replacing cadaver dissection by plastic models, computer assisted training programme and its importance and indispensability. The data were then analyzed and results discussed in the light of available literatures.

Results:

Out of a total of 99 students, only 80 completed the questionnaire. The mean age of the students was 20.04 ± 1.67 years. Of the 80 students who answered, 48 (60%) were males and 32 (40%) were females.

Their responses regarding attitudes and views towards cadaver dissection are summarized in **Table-1** (given below references):

Discussion:

First year medical students normally experience a variety of emotional reactions and mixed feelings, when they encounter human cadavers for the first time in the dissection room. A perusal of the literatures reveals that there are varying responses as regards their attitudes and views towards cadaver dissection. The present study was conducted to explore further insights into these areas.

Our study showed that an overwhelming majority (98.75%) considered the cadaver dissection as important and indispensable in anatomy learning. Majority student (96.25%) agreed that actual hands on training on cadaver dissection gave better results than demonstration of prosected specimen and also enhanced learning and confidence in the subject matter. This finding is in consonance with the previous study conducted by Johnson^[12]. Many anatomists are adamant that dissection is the best way to learn anatomy although there is little hard evidence for this^[13]. In the present study, 90% of the students were of the view that dissection provided the best method for learning anatomy. 70% agreed that cadaver dissection is ethically acceptable. 93.75% agreed that the cadavers they dissected were once human beings like them and 83.75% had sympathy and respect for the cadavers. 70% expressed that they could do dissection with assistance from their teachers. Further, 85% agreed that dissection enhanced their skill of thinking in a logical manner. This finding is consistent with earlier studies^[14,15].

Previous studies^[16,17] reported that the initial exposure to a dead body caused emotional shock to the students. In the present study, 47.50% expressed emotional shock at initial exposure while 46.25% did not show any emotional shock. 18.75% experienced anxiety and stress whereas 72.50% did not show any anxiety and stress immediately before and during dissection. Some authors^[18,19,20] demonstrated that first year medical students did not report their first exposure to cadaver dissection as an aversive experience. Instead, they found it to be a positive, significant and challenging life event. Mc Garvey et al^[21] reported that most first year medical students (95%) found their first visit to the anatomy dissection room exciting and 80% suffered very little or no stress at all on their first visit^[21]. This finding is supported by the present study that 82.50% of the students found their first visit exciting.

Abu-Hijleh et al^[22] reported that 46% of their students experienced some level of fear before and during the initial dissection. One study demonstrated that about five percent reported marked disturbance including nightmares, intrusive visual images, insomnia, and depression and learning impairments^[16]. The present study showed that about one third of the students expressed apprehension to handle cadavers directly and while 53.75% did not show any apprehension. Nnodim^[23] reported that over three-quarters of the students were upset at the beginning of dissection while in the present study, only 26.25% were upset and the rest (63.75%) not upset at the beginning of the dissection. This could perhaps be attributed to their strong motivation, interest and desire to study medical course at the beginning of their professional career. Evans and Fitzgibbon^[17] reported that majority of first year students felt themselves mentally prepared for the dissection room and about half had seen a dead body before and these students were significantly more likely to feel mentally prepared. Yet in another study^[23], it was found that 81% of the students were mentally prepared. In the present study, 58.75% were mentally prepared for dissection while 28.75% not prepared and the rest 12.50% could not express their views.

Two studies^[18,24] concluded that medical students rapidly developed a coping mechanism, which enabled them to view cadaver dissection as an occupation. Horne et al^[25] reported that students who had prior exposure to a dead human body appeared overly sensitized to the emotional aspects and wanted more contact with anatomy department staff to discuss emotional aspects of human dissection. In the present study, 26.25% reported that prior experience of dead body helped them in developing a better coping mechanism towards cadaver dissection and 60% could not express their views. Majority could not decide because many of them (58.75%) did not have prior experience of dead human body. In one study, 87% gave a resounding "no"

response when they were asked whether dissection should be replaced by demonstrations in prosected specimens^[26]. In contrast to this finding, in the present study, only 28.75% gave negative response. This low negative response may be attributed to poor awareness of the students towards use of plastic models and computer assisted training programme in anatomy learning. One of the limitations of the present study is that there is a risk of collecting incomplete and wrong information using the questionnaire method. As the objective of the study was explained clearly to all participants while obtaining their informed consent, there is little chance of having any participant bias in the present study.

In conclusion, the present study showed that majority students (82.50%) found their first visit to the dissection room exciting. The study also highlights that dissection gives the best method for learning anatomy. Tschernig et al^[27] reported that emotional issues during human dissection should not be neglected, but addressed repeatedly. 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^[28]. Nnodim^[23] has suggested that a formal course on death and dying should begin pre-clinically and extended into the clinical years. Indeed, more investigations of the knowledge and attitudes of medical students regarding cadaver dissection are warranted. Despite reporting of varying responses in the available literature, it may be inferred that cadaver dissection is still considered important and indispensable in anatomy learning.

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Conflicts of interest: None.

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Table 1: The Questionnaire and responses of students:

Item No.	Particulars of Questions	Nos. of "Yes" responses (%)	Nos. of "No" responses (%)	Nos. of "Cannot say" responses (%)
1	Do you find your first visit to the dissection room exciting?	66 (82.50%)	8 (10%)	6 (7.50%)
2	Are you upset at the beginning of dissection?	21 (26.25%)	51 (63.75%)	8 (10%)
3	Do you feel any emotional shock at initial exposure to cadaver?	38 (47.50%)	37 (46.25%)	5 (6.25%)
4	If so, whether the shock decreases gradually?	38 (47.50%)	8 (10%)	34 (42.50%)
5	Do you have any apprehension to handle the cadaver directly?	26 (32.50%)	43 (53.75%)	11 (13.75%)
6	Do you experience considerable anxiety and stress immediately before and during dissection?	15 (18.75%)	58 (72.50%)	7 (8.75%)
7	Do you prepare mentally for dissection of human cadaver?	47 (58.75%)	23 (28.75%)	10 (12.50%)
8	Do you ever think that the cadaver you dissected was once a living human being like you?	75 (93.75%)	5 (6.25%)	0 (0%)
9	If so, do you ever have any sympathy and respect for him/her?	67 (83.75%)	3 (3.75%)	10 (12.50%)
10	Do you think that you can do the dissection with assistance from your teacher?	56 (70%)	14 (17.50%)	10 (12.50%)
11	Do you have any prior experience of a dead human body before entering the dissection room?	31 (38.75%)	47 (58.75%)	2 (2.50%)
12	If so, whether the prior experience helps you in developing a better coping mechanism to adjust to cadaver dissection?	21 (26.25%)	11 (13.75%)	48 (60%)
13	Do you think that dissection enhance the skill of thinking in a logical manner?	68 (85%)	2 (2.50%)	10 (12.50%)
14	Do you think that dissection gives the best method for learning anatomy?	72 (90%)	3 (3.75%)	5 (6.25%)
15	Do you think that cadaver dissection for anatomical learning is ethically acceptable?	56 (70%)	3 (3.75%)	21 (26.25%)
16	Do you think that Cadaver dissection technique can be replaced by plastic models, computer assisted training programme etc. in the near future?	15 (18.75%)	23 (28.75%)	42 (52.50%)
17	Do you think that actual hands on training on cadaver dissection gives better results than demonstration of prosected specimen?	77 (96.25%)	0 (0%)	3 (3.75%)
18	Do you think that cadaver dissection is still considered important and indispensable in anatomy learning?	79 (98.75%)	0 (0%)	1 (1.25%)