

## **Evaluation of the Emotional Impact of Cadaver Dissection in Medical Students at the Entry Level**

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**Abstract:** Teaching anatomy is based on cadaver dissection. Working with cadavers through active dissection constitutes a potential stressor in medical education. To reduce the anxiety level by mentally preparing the student before going to the dissection hall, two questionnaires were distributed among 140 first year medical students. The pre-dissection questionnaire comprised of questions relating to demographics and the first encounter with a cadaver. Then all the students were randomly divided into two groups. One group was counseled psychologically prior to dissection and the other group had no such preparation. After the first dissection class all the students were surveyed by a questionnaire which included physical and cognitive symptoms of anxiety, resulting from exposure to the dissection hall at the first visit. There was a significant difference  $p < 0.05$  in the rate of anxiety between study and control group in the initial visit. The initial preparation of the student by psychological priming reduces the stress levels, so that the study group experienced less emotional effects during dissection when compared to the control group in relation to exposure to cadavers.

**Key Words:** cadaver dissection, emotional impact, medical students

The anatomy dissection hall represents a significant emotional challenge to many medical students, in that it may be the student's first intimate experience with illness and even death. Further, the anatomy dissection hall may be compared to subsequent clinical encounters because it asks that the student concentration and data collection and simultaneously deal with disturbing thoughts and feelings. Those involved in anatomy instruction are in a unique position to help impart desirable values to young physicians as they adjust to the stresses (Turney, 2007). Contact with the

cadaver can be highly stressful for some students. It becomes a necessity to prime them emotionally and prepare them to face the cadaver and this holds particularly true to the students expressing negative emotions. Human dissection provides a unique opportunity for sensitizing the medical students to many complex issues that they will encounter in their career. The dissection of cadaver allows the discussion of difficult topics such as human digestion, mortality, grief and methods to deal with the emotions (Lempp, 2005).

Anatomical dissection is a time honored part of medical education. It plays an important role in shaping the medical students attitudes to life and death. Traditionally, learning anatomy has been dissection-based. Dissection has become synonymous with traditional courses

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and has come to be regarded as the antithesis of problem-based learning (PBL). Students have a high regard for dissection as a learning resource in the anatomy course. Dissection allows appreciation of 3-D Anatomy based on the sense of touch unlike any other teaching facility (Arraez, 2008)

Historically, anatomy has been taught predominantly in the first undergraduate year. Dissection of the cadaver is part and parcel of the first year curriculum in medical colleges and it has an important role to play in undergraduate medical education. Entering for the first time into the Anatomy dissection hall and facing the cadaver for the first time represents a significant emotional challenge to many first year medical students. There are many virtual models of dissection getting developed by the use of computers, but till date the physical process of handling dissection of the cadaver holds the perfect way to learn human anatomy, with knowledge to appreciate the organization of the human body.

The evoked emotions, often suppressed with varied success are heightened by the fear and uneasiness each person experiences when dissecting the body of a human being, the emotions can interfere with the educational task (Chatlton, 1994).

Moreover anatomists are often the first teachers in the curriculum who need to be aware of ethical problems. More attention should be paid to the first encounter with the cadaver and students should be offered the opportunity to discuss their emotions (Mc Garvey, 2001). Therefore in order to assess the impact of anxiety and physical symptoms from the experience of dissection room, questionnaires were prepared to analyze whether emotional stress can be diminished and to observe changes regarding feeling and attitude in control and study groups.

The aim of the present study was to evaluate the emotional impact of cadaver

dissection in the first year medical students and to identify the curricular design to alleviate the level of anxiety in them by psychologically priming the students before they enter the dissection hall.

### Materials and Methods

An experimental study was conducted among 140 first year medical students of a private medical college in Chennai after obtaining their informed consent. The questionnaires were administered at two instances. The first questionnaire was given to each student before visiting the dissecting room for the first time which comprised questions relating to demographic information of the respondents, previous exposure to dead bodies and varying degree of fear or stress responses. The Students were randomly divided into two groups, Group A the counseled (n=70) and Group B the un counseled (n=70) groups.

The group A was psychologically primed by a clinical psychologist during an interactive lecture for coping with dissection and students were provided with the necessary information regarding the source of cadaver and the processing of fixation, legal arrangements including the reception, disposal and burial of cadaver. The advantages of using dissection for better appreciation of the three dimensional view of the human body and understanding of normal variations was explained to the counseled group. However the students in group B had no much preparation by a clinical psychologist. After the first exposure to cadaver both groups were surveyed by the second questionnaire (Table I) which measures the cognitive, physiological and motor symptoms like nausea, dizziness, weakness and restlessness and cognitive symptoms such as lack of concentration, and symptoms of anxiety.

### Observations

Out of the 150 students, 140 had volunteered to participate and completed the questionnaires while 10 students abstained

from the study. The age of the students ranged from 18 – 22 years. In both the groups males were more than females (Table II). Although more number 26(38%) of group B students have seen a cadaver before the first exposure to the dissection hall, the level of fear or stress with regards to the cadaver is almost the same in both the groups (Table III). However more number of

students, 40(58%) in the group A felt happy to enter the dissection hall than the group B 28(40%). The feeling of unpleasantness is more in the group B students 17(25%) compared to the group A students 15(22%). There was a significant difference  $p < 0.05$  in the rate of anxiety experienced by the students between the two groups in the initial visit to the dissection hall. (Table IV).

Table 1 Questionnaire to measure the level of physical symptoms suffered by students in dissection hall

Encircle the number that reflects the severity of your symptoms  
0 to 3 (Likert scale); 0 = No symptoms; 1 = Mild; 2 = Moderate; 3 = severe

Symptom	Likert Scale grade			
Nausea	0	1	2	3
Dizziness	0	1	2	3
Weakness	0	1	2	3
Fear	0	1	2	3
Restlessness	0	1	2	3
Sweating	0	1	2	3
Difficulty in Breathing	0	1	2	3
Tremors	0	1	2	3

Table 2 Demographic Variable of the Study Population

	Age	Counseled Group A	Un counseled Group B
Age	18 – 22	70	70
Sex	Male	54 (77%)	49 (70%)
	Female	16 (23%)	21 (30%)

Table 3 Results for the questionnaire filled prior to entering the dissection hall

Question		Counseled group	Un Counseled group
Q 1. Have you ever seen a cadaver before?	Yes	22(32%)	26(38%)
	No	48(68%)	44(62%)
Q 2. Have you ever had any fear or stress till now, with regard to the cadaver?	Yes	64(91%)	65(92%)
	No	6(9%)	5(8%)
Q 3. How do you feel, now that you need to enter the dissection room for the first time?	Happy	40(58%)	28(40%)
	Unhappy	15(22%)	17(25%)
	No Feeling	14(20%)	25(35%)

Table 4 Results of the level of Physical Symptoms suffered by students in Dissection Hall  
0 to 3 (Likert scale); 0 = No symptoms; 1 = Mild; 2 = Moderate; 3 = severe

Symptom	Group – A (Counseled)		Group – B (Un counseled)	
	Number	Percentage	Number	Percentage
Nausea	18	26%	25	36%
Dizziness	2	3%	10	15%
Weakness	18	26%	17	25%
Fear	21	30%	26	38%
Restlessness	13	18%	15	22%
Lack of Concentration	22	32%	29	41%

## Discussion

Stressful reactions are observed in the first year medical students who face a cadaver for the first time in the dissecting room. Students learn rapidly to develop a coping mechanism that enables them to depersonalize cadaver dissection (Aletta et al, 2004).

Even as more number (26) of group B students have already seen a cadaver before (38%) when compared to the group A students 22 (32%), an unhappy emotional state was observable in more number of group B students 17 (25%) when compared to the group A students 15 (22%). Similar results were observed by Izunya *et al* (2010) in Nigeria, which showed that 59% of un counseled students found their first visit exciting, while 57% suffered every little or no stress at all. In another study 53% un counseled students expressed emotional shock at initial exposure, while 44% un counseled did not show any emotional shock. 35% experienced anxiety and stress whereas 57% did not show any anxiety and stress immediately before and during dissection. These phenomena have been widely reported as several studies suggest that some students suffer stress reactions, which significantly impair their learning of anatomy (Horne et al., 1990; Finkelstein and Mathers, 1990; Evans and Fitzgibbon, 1992). Moreover, a happy emotional state was present in 40 (58%) of the group A students when compared to very little of 28 (40%) in the group B students.

Considering the cognitive, physiological and motor symptoms we were able to observe that more number of group B students developed nausea 25 (36%) when compared to the group A students 18 (26%). Similarly more number of group B students 10 (15%) developed dizziness compared to group A students 2 (3%). A similar pattern of results with more symptoms of fear 26 (38%), restless 15 (22%), lack of concentration 29 (41%) were

notable in the group B compared to group A 21 (30%), 13 (18%), 22 (32%) respectively. Regarding apprehension towards initial exposure to cadaver, Izunya et al (2010) observed that one-third (35%) of the un counseled students expressed apprehension to handle cadaver directly, while 46% did not. Rajkumari et al. (2008) also, reported that about one-third (32.5%) of the un counseled students expressed apprehension to handle cadaver directly, whereas 53.75% did not.

Some authors (O'Carroll *et al.*, 2002; Vijayabhaskar *et al.*, 2005, McGarvey *et al.*, 2001) have demonstrated that first year pre-clinical students do 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. Rajkumari *et al.*, (2008) reported that Most of the first year medical students found their first visit to the anatomy dissection room exciting and suffered very little or no stress at all on their first visit.

To acquire better educational results, mental preparation was applied for the group A of medical students. The results to the questionnaires demonstrated that psychological priming prepare mentally and emotionally before entering dissection theatre so that working in the dissection hall. The mental preparation is a useful method for reducing anxiety. This finding supports that psychological priming helps to gain better advantage of dissection. The students need to prepare mentally and emotionally before entering dissection theatre, so that they are emotionally involved and stimulated.

## Conclusion

Organizing an orientation program by a clinical psychologist along with an anatomist and small group discussions with faculty members would encourage expression of reactions and emotions by the students at the entry level to the first year

medical profession. There is a need for improving both the preparation for coping with dissection and the follow-up opportunities for dealing with professional and ethical issues raised during human dissection. Working with cadavers can create a strongly negative experience in some students and it warrants special curricular attention.

Despite curriculum changes, the undergraduate medical student's first encounter with a human corpse will still be in anatomy. Considering the fact that there is an association between severe psychological stress and post-traumatic stress disorder, the results of this study suggest a need for improving both the preparation for coping with dissection and the follow-up opportunities for dealing with professional and emotional issues raised during human dissection.

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