

**ATTITUDE AND EMOTIONAL REACTIONS OF FIRST YEAR MEDICAL STUDENTS TOWARDS CADAVER DISSECTION**Sivaraman S<sup>1</sup>, Bharathi Prabakaran N. S<sup>2</sup>, Ismail M<sup>3</sup>, Thirumalaikolundu Subramanian P<sup>4</sup>**HOW TO CITE THIS ARTICLE:**

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**ABSTRACT: INTRODUCTION:** Cadaver dissection is mandatory for medical education. The cadaver dissection develops the knowledge and skill of the students regarding human anatomy to understand and fulfill the requirement of medical education. **AIM:** This study was conducted with objective of observing attitude and emotional reactions of first year Medical students to the dissecting cadavers. **MATERIALS AND METHOD:** The attitude and view of students on cadaver dissection was assessed by a modified structured pretested Questionnaire. Also the emotional reactions at the time of doing dissection were assessed by a standard questionnaire ALE (Appraisal of Life Events) scale. **RESULTS:** Of the 141 participants, 49% were female and 51% were Male. The attitude and emotional status of students varied in cadaver dissection and even among sex. Altogether 83.68% had experienced the excitement, 85.82% sympathized for the cadaver. However, 92.90% expressed confidence over cadaver dissection and 98.57 % answered cadaver dissection was the best method for Medical Education to understand human anatomy. **CONCLUSION:** Majority of Medical students viewed Cadaver dissection was the best method for medical education to understand Human anatomy. They do not report their first exposure to cadaver dissection as an aversive experience. Instead, as per ALE (Appraisal of Life Events) scale, they found it to be a positive and a challenging life event.

**KEYWORDS:** cadaver, Appraisal of Life Events.

**INTRODUCTION:** Cadaver dissection has been a regular feature in medical education in anatomy learning since the Renaissance.<sup>1</sup> A sound knowledge in human anatomy prepares the medical undergraduate for their future training in the clinical disciplines. The manual skills learnt in the dissection room are essential in almost every branch of the medical education.<sup>2</sup> It helps in developing a spatial and tactile appreciation for the fabric of the human body that cannot be achieved by computerized learning material alone.<sup>3</sup>

During dissection, students are able to visualize firsthand actual knowledge of structures of the human body.<sup>4</sup> On the other hand the virgin exposure create a variety of emotional reactions and mixed feelings among the first year preclinical students when they encounter human cadavers for the first time in the dissection room.<sup>5</sup> Even before entering the anatomy dissecting laboratory, a student, at some level, knows that the first patient that he/she will care for being a dead one and experience considerable anxiety and stress.<sup>6</sup>

Altogether only few studies have been done about the attitudes of first year preclinical students towards cadaver dissection in anatomy learning in the literatures.<sup>5</sup> The previous studies doesn't exactly describe, what was the magnitude of attitude and emotional outcome of the first year preclinical student's in the dissection hall when they enter first. Thus, the rationale of this study was to measure the attitude and emotional outcome of first year preclinical students towards cadaver dissection in a tertiary teaching Medical college at Trichy, Tamilnadu.

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**MATERIALS AND METHODS:** The present study was conducted at the Anatomy Department of Chennai Medical college hospital and research centre at Irungalur, Trichy district in Tamilnadu, India.

The ethical clearance certificate was obtained from the Institutional ethical committee to conduct this study. The subjects included in the study were the first year preclinical medical students after one week of exposure to cadaver dissection.

A semi-structured questionnaire for collecting information on sociodemographic profile was used. A structured questionnaire used in previous study<sup>5</sup> was used for evaluation of attitude of the students to dissecting cadaver was filled by the students with omission of few questions which appeared out of focus in this study.

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.

Questions on possible alternatives for replacing cadaver dissection by plastic models, computer assisted training programme and its importance and indispensability were removed as they were not the objectives of this study.

Also Appraisal of Life Events (ALE) Scale<sup>7</sup> situational version containing 16 items for evaluation of emotional reaction at the time of dissecting cadaver were filled by the student. In order to analyze the threat, Challenge and loss, the components of questionnaire were grouped and analyzed.

Altogether 141 out of 150 students who were willing to participate in the study were suitably chosen for the study. Students were explained about the objectives of the study and obtained informed consent.

As per scoring system of ALE (Appraisal of Life Events) scale for threat the intensity grading 1, 2, 4, 5 and 14 were grouped and 3, 6, 7, 8, 12, and 13 were grouped for challenge, 9, 10, 11 and 16 were grouped to assess the loss. The data were computed in the SPSS V.21, analyzed and results discussed in the light of available literatures.

**Inclusion Criteria:** First year medical students who were exposed to cadaver dissection were included in this study.

**Exclusion Criteria:** Those who did not give consent were excluded from the study

**RESULTS:** All the 141 students who gave consent completed the questionnaire. The mean age of the students was 17.5 ± 1.5 years. Of the 141 students who answered, 72(51%) were males and 69 (49%) were females. Among them 87%, students were Non-Vegetarian while remaining 13% were vegetarian by their dietary habit. The results are summarized below

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SL. NO.	QUESTIONS	Yes	No	Uncertain
1	Do you find your first visit to the dissection room exiting?	118 (83.68)	23 (16.32)	0
2	Are you upset at the beginning of dissection?	20 (14.19)	118 (83.68)	3 (2.13)
3	Do you feel any emotional shock at initial exposure to cadaver?	30 (21.27)	109 (77.30)	2 (1.43)
4	If so, whether the shock decreases gradually?	40 (28.36)	99 (70.21)	2 (1.43)
5	Do you have any apprehension to handle the cadaver directly?	40 (28.36)	99 (70.21)	2 (1.43)
6	Do you experience considerable anxiety and stress immediately before and during dissection?	39 (27.65)	100 (70.92)	2 (1.43)
7	Do you prepare mentally for dissection of human cadaver?	102 (72.35)	39 (27.65)	0
8	Do you ever think that the cadaver you dissected was once a living human being like you?	120 (85.11)	21 (14.89)	0
9	If so, do you ever have any sympathy and respect for him/her?	121 (85.82)	20 (14.18)	0
10	Do you think that you can do the dissection with assistance from your teacher?	131 (92.90)	10 (7.10)	0
11	Do you have any prior experience of a dead human body before entering the dissection room?	22 (15.61)	119 (84.39)	0
12	If so, whether the prior experience helps you in developing a better coping mechanism to adjust to cadaver dissection?	22 (15.61)	119 (84.39)	0
13	Do you think that the dissection gives you a best method for learning anatomy?	139 (98.57)	2 (1.43)	0
14	Do you think that cadaver dissection is still considered important and indispensable in anatomy learning?	137 (97.16)	4 (2.84)	0

Table 1: Attitude and Views of Students on Cadaver dissection

**Figures in the Parenthesis Denotes Percentage:** The attitude and views on cadaver dissection varies among the students.

The students experienced excitement [83.68 %] during the first visit to dissection room but most of the students not upset, had emotional shock, apprehension, anxiety even though they were not mentally prepared for dissection.

The findings showed that 85.11 % of the students were well aware of that the cadaver was once like anyone and had sympathy over it (85.82%). Of the total 141 students 131 [92.90%] had

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confidence of dissecting cadaver with the assistance of faculty even though without prior experience of viewing a cadaver and 98.57% of the students ascertained dissection was the best method of learning anatomy (Table – 1).

SL. NO.	COMPONENT Grading	NO. OF STUDENTS RESPONDED FOR INTENSITY GRADING											
		0	%	1	%	2	%	3	%	4	%	5	%
1	Threatening	84	59.52	23	16.3	16	11.3	10	7.09	3	2.12	5	3.54
2	Fearful	94	66.6	25	17.7	12	8.5	7	4.9	0	0	3	2.12
3	Enjoyable	15	10.63	13	9.2	22	15.6	21	14.8	16	11.34	54	38.29
4	Worrying	80	56.73	28	19.8	16	11.34	10	7.09	4	2.83	3	2.12
5	Hostile	72	51.76	24	17.02	18	12.76	14	7.7	5	2.83	8	2.12
6	Challenging	2	1.41	7	4.9	8	5.67	22	15.6	27	19.1	75	53.19
7	Stimulating	9	6.38	11	7.8	14	7.7	31	21.9	20	14.1	56	39.7
8	Exhilarating	36	25.53	29	20.56	18	12.8	34	24.11	8	5.67	16	11.34
9	Painful	87	61.70	22	15.6	15	10.63	8	5.67	4	2.83	5	3.54
10	Depressing	86	60.99	21	14.89	16	11.30	10	7.09	5	3.54	3	2.12
11	Pitiful	62	48.97	17	12.05	23	16.31	15	10.6	13	9.21	11	7.8
12	Informative	7	4.9	4	2.83	3	2.12	11	7.8	24	17.02	92	65.24
13	Exciting	12	8.5	10	7.09	12	8.5	26	18.43	11	7.8	70	49.64
14	Frightening	80	56.73	24	19.02	14	9.9	11	7.8	6	4.2	6	4.2
15	Terrifying	74	52.48	27	19.14	9	6.38	17	12.05	7	4.9	7	4.9
16	Intolerable	73	51.77	34	24.11	17	12.05	6	4.2	3	2.12	8	5.67

Table 2: Appraisal of Life Events (ALE)

0-5 grades and analyzed. The cadaver dissection was challenging for 53.19% of students whereas informative and exiting was 65.24% and 49.64% respectively. Table 2.

The components of Table 2 were grouped to assess the Threat, Challenge, and Loss and presented in the Table 3.

SL. NO	COMPONENT GRADE	INTENSITY GRADING											
		0	%	1	%	2	%	3	%	4	%	5	%
1	THREAT	80.67	57.2	25.17	17.85	14.17	10.0	11.5	8.15	4.16	2.9	5.33	3.9
2	CHALLENGE	13.5	9.57	12.33	8.74	12.83	9.10	24.17	17.14	17.67	12.53	60.5	42.92
3	LOSS	77	54.61	23.5	16.67	17.75	12.59	9.75	6.91	6.25	4.42	6.75	4.8

Table 3: Threat, Challenge and loss among students during cadaver dissection

Majority of the students did not feel threat (80.67%) and loss (77%). But on the contrary 72.59% had felt cadaver dissection was a challenge under grade 3, 4 and 5 Table 3.

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Table 4: Sexwise differences in intensity grading in Cadaver dissection:

		Threat						Total	Asymp. Sig [2Sided]
Grade		0	1	2	3	4	5		
SEX	Male	41	6	12	3	2	1	65	.031
	Female	43	17	4	7	1	4	76	
Total		84	23	16	10	3	5	141	

		Challenge						Total	Asymp. Sig [2Sided]
Grade		0	1	2	3	4	5		
SEX	Male	0	4	1	8	18	34	65	.049
	Female	2	3	7	14	9	41	76	
Total		2	7	8	22	27	75	141	

		Exhilarating						Total	Asymp. Sig [2Sided]
Grade		0	1	2	3	4	5		
SEX	Male	12	8	9	20	4	12	65	
	Female	24	21	9	14	4	4	76	.015
Total		36	29	18	34	8	16	141	

		Terrifying						Total	Asymp. Sig [2Sided]
Grade		0	1	2	3	4	5		
SEX	Male	28	10	4	14	5	4	65	
	Female	46	17	5	3	2	3	76	.015
Total		74	27	9	17	7	7	141	

While analyzing sex wise difference in intensity grading, the differences in threat, Challenge, Exhilarating and terrifying were found to be statistically significant [ $p < .05$ ]. Other intensity grading was not significant between male and female. Table 4.

**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.<sup>3</sup> A literature review reveals that there are varying responses as regards their attitudes and views towards cadaver dissection as well as their experience of emotional reactions. The present study was conducted to explore further insights into these areas.

In terms of Sociodemographic profile mean age, sex distributions are comparable with the previous similar studies. About half of the students in this study have arrived from urban areas, while the remaining students arrived from semi urban and rural area distributed almost equally. The majority (87%) of the students were Non-Vegetarian. To our knowledge this aspect, i.e. the dietary pattern of the students were not studied in relation with attitude & emotional reaction towards dissecting cadaver in previous studies

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In this study, 83.68% found that their first visit to the dissecting room exciting. In the present study, 98.57% of the students were of the view that dissection provided the best method for learning anatomy, 85.11% agreed that the cadavers they dissected were once human beings like them, 85.82% had sympathy and respect for the cadavers and 92.90% expressed that they could do dissection with assistance from their teachers. These findings are consistent with earlier studies by Johnson JH, et al<sup>8</sup> Cahil DR et al.<sup>9</sup>

In Previous studies by Finkelstein, P et al,<sup>10</sup> Evans EJ, et al<sup>11</sup> majority of students reported that the initial exposure to a dead body caused an emotional shock to the students. On the contrary in this present study only 21.27% expressed emotional shock at initial exposure.

Unlike in the majority of studies only about 27.65% experienced anxiety and stress, whereas 70.92% did not show any anxiety and stress immediately before and during dissection

Dinsmore CE et al,<sup>12</sup> O'Carroll RE, et al<sup>13</sup> Vijayabhaskar P<sup>14</sup> 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<sup>14</sup> 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<sup>14</sup> This finding is supported by the present study that 84% of the students found their first visit exciting.

Abu-Hijleh et al<sup>15</sup> 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.<sup>16</sup> The present study showed that about 28.36% of the students expressed apprehension to handle cadavers directly and while 70.21% did not show any apprehension.

Nnodim et al<sup>16</sup> reported that over three-quarters of the students were upset at the beginning of dissection. Whereas in the present study that about 84% of the patients were not upset and the rest 16% were upset at the beginning of the dissection.

Evans and Fitzgibbon et al<sup>11</sup> reported that the 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. In the present study, 72.35% were mentally prepared for dissection.

Dinsmore CE et al<sup>12</sup> and Charlton R, et al<sup>14</sup> concluded that medical students rapidly developed a coping mechanism, which enabled them to view cadaver dissection as an occupation. Horne et al<sup>18</sup> 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, 15.61 % reported that prior experience of dead body helped them in developing a better coping mechanism towards cadaver dissection.

In the present study Majority of the students face cadaver dissection as a Challenging event than perceived that as Threat or Loss. This is consistent with previous studies by O'Carroll RE, et al<sup>13</sup> and Dempster M et al.<sup>20</sup>

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.

**CONCLUSION:** The present study showed that majority students (84%) found their first visit to the dissection room exciting. The study also highlights that dissection gives the best method for learning

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anatomy. Tschernig et al<sup>19</sup> reported that the 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.<sup>6</sup> Nnodim<sup>16</sup> 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. The results indicate that Medical students do not report their first exposure to cadaver dissection as an aversive experience. Instead, as per ALE (Appraisal of Life Events) scale, they found it to be a positive and a challenging life event.

### STRENGTH:

- Study was conducted in first year students who are doing dissection.
- Adequate Sample size.
- Good cooperation from the students.
- Not a funded study.

### LIMITATIONS:

- This is a single centered study.
- Presence of already existing psychiatric illness, family history of psychiatric illness, substance use history was not considered.

### RECOMMENDATION:

- A study on Emotional changes among medical students prior to exposure and after exposure to cadaver may throw still more lights in this area.

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