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RESEARCH ARTICLE

PHYSICAL AND PSYCHOLOGICAL EFFECTS TOWARDS CADAVERIC DISSECTION AMONG FIRST YEAR MEDICAL STUDENTS

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ABSTRACT

The medical students are under constant stress as the academic course they are entering needs a lot of dedication and emotional involvement. Cadaver dissection is an emotionally charged issue. The effects are both physical and psychological. The emotions can interfere with the educational task. The present study was conducted to evaluate the physical and psychological effects among first year medical students towards cadaveric dissection and the impact on them. A predesigned questionnaire of 21 items including socio-demographic characteristics, physical & emotional reactions and mixed feelings, attitudes of students, was prepared & distributed among 100 first year medical students. All the participants (100%) had suffered from some physical and psychological symptoms after entering and leaving the dissection hall. All (100%) of them experienced some formalin odour with the symptoms after first encounter with cadaver in dissection hall. Nausea (40.0%) was the most common physical and fear (26.7%) was the most commonest psychological effects among the participants. All the participants had opined that cadaveric dissection was important in anatomy learning and for that all of them did not want to replace the cadaver dissection. The emotional issues and its impact on first year medical students should be paid due attention, so that students can prepare themselves to cope up with the physical and psychological reactions regarding cadaver dissection.

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INTRODUCTION

The cadaver dissection is the chief pillar of anatomy learning in medical education (Rajkumari *et al.*, 2008) The medical students are under constant stress as the academic course they are entering needs a lot of dedication and emotional involvement (Dubhashi *et al.*, 2011). The anatomy dissection hall representing a significant emotional challenge to many of the medical students (Turney, 2007). The exposure to cadavers in early stages of the training of medical students induces both positive and negative experiences leading to emotional impact of such exposure on them. The effects are both physical and psychological (Dinsmore *et al.*, 2001). The emotions often suppressed with varied success are heightened by fear and uneasiness.

The emotions can interfere with the educational task (Charlton *et al.*, 2008). Though the adaptive mechanism for coping with exposure are triggered soon afterwards in the students (Horne *et al.*, 1990), but the emotional importance of medical students is often ignored (Bertman *et al.*, 1985). The present study was conducted to evaluate the physical and psychological effects among first year medical students towards cadaveric dissection and the impact on them.

MATERIALS AND METHODS

After obtaining formal permission from Institutional Ethics Committee and consent from the participants, the study was conducted in the Tripura Medical College and Dr. BRAM Teaching Hospital, which is the second medical college of the state of Tripura, admitting 100 students every year in MBBS course. After initial exposure to cadavers in dissection hall for 7 days, a predesigned questionnaire of 21 items including

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socio-demographic characteristics, physical & emotional reactions and mixed feelings, attitudes of students, was prepared and distributed among 100 first year medical students of current batch. The questionnaire was based upon a review of literature and similar studies conducted elsewhere. For each question, the student had to choose one or more of the possible responses. Various emotional reactions and views among participated 45 students were collected and on analysis of the data, the result was discussed with available literatures.

RESULTS

Out of 100 students, 45 volunteered to participate in the present study. The age of the students ranged from 17 to 20 years. Their socio-demographic profile, physical and psychological responses in dissection hall, and responses on their attitude towards dissection were summarized in following tables.

Table 1. Socio-demographic characteristics of study respondents

S.No.	Characteristics	Number of students (n=45)	Percentage (%)	
1.	Gender	Male	26	57.8
		Female	19	42.2
2.	Religion	Hinduism	45	100
3.	Food habit	Vegetarian	0	0
		Non-vegetarian	45	100
4.	Occupation of father	Employed	39	86.7
		Unemployed	6	13.3
5.	Occupation of mother	Employed	23	51.1
		Unemployed	22	48.9

Table 2. Physical responses among the participants

S.No.	Physical symptoms	Number of respondents (n=45) with percentage (%)	Number of males (n=26) with percentage (%)	Number of females (n=19) with percentage (%)
1.	Nausea	18 (40.0)	12 (46.2)	6 (31.6)
2.	Dizziness	5 (11.1)	3 (11.5)	2 (10.5)
3.	Weakness	2 (4.4)	2 (7.7)	0
4.	Sweating	5 (11.1)	3 (11.5)	2 (10.5)
5.	Tremor	5 (11.1)	2 (7.7)	3 (15.8)
6.	Palpitation	5 (11.1)	2 (7.7)	3 (15.8)
7.	Lack of concentration	4 (8.9)	1 (3.8)	3 (15.8)
8.	Others	1 (2.2)	1 (3.8)	0

Table 3. Responses encountered with formalin in dissection hall

S.No.	Symptoms with formalin Odour	Number of respondents (n=45) with percentage (%)	Number of males (n=26) with percentage (%)	Number of females (n=19) with percentage (%)
1.	Lacrimation or watering of eye	36 (80.0)	20 (76.9)	16 (84.2)
2.	Eye soreness	4 (8.9)	4 (15.4)	0
3.	Eye fatigue	0	0	0
4.	Throat irritation	1 (2.2)	0	1 (5.3)
5.	Difficulty in breathing	0	0	0
6.	Skin problem	4 (8.9)	2 (7.7)	2 (10.5)
7.	Others	0	0	0

Table 4. Psychological responses among the participants

S.No.	Psychological symptoms	Number of respondents (n=45) with percentage (%)	Number of males (n=26) with percentage (%)	Number of females (n=19) with percentage (%)
1.	Restlessness	2 (4.4)	1 (3.8)	1 (5.3)
2.	Anxiety and stress	9 (20.0)	6 (23.1)	3 (15.8)
3.	Fear	12 (26.7)	7 (26.9)	5 (26.3)
4.	Recurrent thought of cadaver even when away from college	6 (13.3)	4 (15.4)	2 (10.5)
5.	Lack of concentration	1 (2.2)	1 (3.8)	0
6.	Stomach upset	2 (4.4)	1 (3.8)	1 (5.3)
7.	Difficulty in consuming non-vegetarian foods (post dissection period)	11 (24.4)	4 (15.4)	7 (36.8)
8.	Sleep disturbances	1 (2.2)	1 (3.8)	0
9.	Others	1 (2.2)	1 (3.8)	0

Table 5. Responses on reason for hesitancy in dissection of cadaver

S.No.	Reason for hesitancy	Number of respondents (n=45) with percentage (%)	Number of males (n=26) with percentage (%)	Number of females (n=19) with percentage (%)
1.	Religious factor	0	0	0
2.	Ethical factor	2 (4.4)	1 (3.84)	1 (5.26)
3.	Physical symptoms	2 (4.4)	0	2 (10.53)
4.	Formalin smell and symptoms	5 (11.2)	1 (3.84)	4 (21.05)
5.	Psychological symptoms	0	0	0

Table 6. Comparison of Physical & psychological responses reported in observations of other authors

S.No.	Particulars of questions	Present study	Saha <i>et al.</i> (%)	Agnihotri <i>et al.</i> (%)	Arora <i>et al.</i> (%)	Arraez Aybar <i>et al.</i> (%)	Naz <i>et al.</i> (%)	Mulu <i>et al.</i> (%)
1.	Nausea	40.0	8.1	32.33	3.87	3.3	-	0.7
2.	Dizziness	11.1	8.1	4.33	-	3.5	-	-
3.	Weakness	4.4	0	12.33	-	-	-	-
4.	Fear	26.7	1	33.67	4.16	-	-	12.2
5.	Restlessness	4.4	1	21.33	-	-	-	-
6.	Sweating	11.1	0	-	-	-	-	-
7.	Difficulty in breathing	0	7.1	-	-	5.2	16.2 (Asthma)	-
8.	Tremor	11.1	0	-	-	-	19.4	-
9.	Lack of concentration	8.9	2	44	-	-	-	-
10.	Difficulty in consuming non-vegeterian food	24.4	29.3	-	-	-	-	-
11.	Sleep disturbance	2.2	2	-	-	<1	7.4	-
12.	Others	2.2	-	-	-	-	-	-

(Percentage = %).

In the present study, 28.9% (13) participants had prior experienced of human dead body and 71.1 % (32) had no such experience with the dead body. But, 55.6% (25) of the participants opined that prior experience might have helped them to cope up with the environment in dissection hall. All the participants (100%) had suffered from some physical and psychological symptoms after entering and leaving the dissection hall. All (100%) of them experienced some formalin odour with the symptoms after first encounter with cadaver in dissection hall. All the participants (100%) had respect for the cadaver but among them 51.1% (33) participants opined that cadaver dissection was ethical and 80% (36) had no hesitancy in dissecting cadaver. 20% (9) of the participants had hesitancy in dissecting cadaver where the most common factor was found to be formalin smell and associated symptoms (11.2%). No significant changes were found in gender distribution. All the participants had opined that cadaveric dissection was important in anatomy learning and for that all of them did not want to replace the cadaver dissection with other procedures like prosected body, plastic specimen, models etc. though 86.7% (39) of them suggested for personal protective measures like gloves, goggles etc during dissection.

DISCUSSION

Various mixed physical and psychological effects were observed among the first year medical students towards cadaveric dissection. The data of the present study can be compared with observations reported by other authors.

Conclusion

Cadaver dissection is still considered important and indispensable in learning anatomy. Dissection has a formative value in the communicative, ethical and humanist approach to patient care (Tscherer *et al.*, 2000) The reactions of the students to the cadaver may be predictive future doctor-patient relationships (Shalev *et al.*, 1985) The emotional issues and its impact on first year medical students should be paid due attention. So, the students can prepare themselves to cope up with the physical and psychological reactions regarding cadaver dissection.

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