

**ORIGINAL ARTICLE****REACTION OF MEDICAL STUDENTS TO EXPERIENCES IN DISSECTION ROOM****Dereje Getachew****ABSTRACT**

**BACKGROUND:** *As preclinical medical students start and/or enter the course, they go through the anatomy curriculum, which involves interaction with cadavers and cadaveric material. The objective of this study was to determine the reactions of preclinical medical students from year two and year three to the dissecting room.*

**METHODS:** *Questionnaire was distributed to all second and third year medical students. The questionnaire was designed with the objective of identifying specific patterns of attitudes held and problems faced by the students in their first exposure to the human cadaver. The results are analyzed statistically using the SPSS 16.0 software and  $P < 0.05$  was considered statistically significant.*

**RESULTS:** *The commonest symptoms experienced were loss of appetite (43.29% year 2 and 34.86 % third year students). The commonest cause of their symptoms was studied and the result shows that it was the smell of the dissection room, as reported by 67.01% of year two students; and 54.12% for year 3 students.*

**CONCLUSION:** *The present study findings show that smell of the dissection room, touch and fear of cadaver were the commonest cause of their symptoms experienced while study in dissection room for the majority of students. Thus, instructors are should give awareness raising education before the commencement of the dissection session to the students both mentally and emotionally ready to do their work enthusiastically and confidently. Moreover, it is necessary to make the laboratory tidy for the students so that they develop a love for the dissection room.*

**KEY WORDS:** *Anatomy, dissecting room, preclinical students, student reactions, stress, learning methods*

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**INTRODUCTION**

The teaching of gross anatomy has, for centuries, relied on the dissection of human cadavers (1). Dissection of human body is incorporated as methods of instruction for anatomy course in medical school of most countries including Ethiopia. Study on human body is almost universally accepted method of education. However, over the last many years attention has been drawn to the traumatic effects of the dissection on some students and the implications of such trauma on subsequent education and practice(2). Previous research shows that work

with cadaver is not only distressing, but also rewarding(3). In many researches, aspects of dissection that medical students face are reported to include revulsion at the sight and smell of the cadavers, shock at confronting death, desecration and dismemberment, violation of cultural taboos, dehumanization and invasion of privacy. In the last three decades, anatomists have done research on medical students' reactions, both physiological and emotional, to cadaver dissection. Most of this researches have been carried out overseas particularly in English speaking countries (4). The aim of this study was to investigate the reactions of preclinical medical students at year

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two and year three studying at the Hawassa University College of medicine and Health Sciences, to the anatomy dissection room. To find solution: and to compare the findings with the findings of similar studies carried out in Australia, Nigeria, America, Ireland, United Kingdom and Oman (5-9).

There are two best techniques to study human anatomy: observation and visualization(10). For this reason, practical session is highly important. Anatomy is a visual science because it is structural. Anatomical dissection is a stepping stone to understanding the subject matter. Precise dissection of cadaver and examination of dissected specimens are among the major methods of learning anatomy. The anatomy dissection room is also the right place where medical students begin the first step to transfer from laypersons to physicians. Studies done in America on the anatomy room experience have reported that 5% of students suffer from symptoms suggestive of Post-traumatic Stress Disorders (PTSD) (11). Another study by Penny found that some American students have strong reactions to dissection, and advised that they be adequately prepared for the experience (12). Reports from Britain suggested that such serious distress is rare and the majority of medical students find initial cadaver dissection a significant and challenging life event (13). Studies done in Ireland also showed that 80% of students suffered very little or no stress on the first visit to the dissection room (9). Conversely, a study of Arab students in Sultan Qaboos University, Muscat, in Oman, found that few of them experienced little level of fear prior and during the first visit of dissecting room practical classes (6).

The medical program in Hawassa University, College of Medicine and Health Sciences, is divided into three phases. Phase 1 consists of the first two years of the program, during which students are taught relevant basic medical sciences (preclinical I and II). Phase 2 involves developing clinical skills (clinical I and II), while in phase 3, students undergo clinical clerkship in the various clinical disciplines-internship program. Second year students (preclinical I) are taught anatomy parallel with dissection of cadaver in separate rooms. The college has medium size dissection room for student practice. The teaching of Anatomy is given parallel with the other basic

medical sciences including histology and embryology, but follows regional approach. In Ethiopia, getting cadaver is somehow difficult to obtain for anatomy dissection; hence, limited specimens are used in gross anatomy practical sessions.

## METHODS

Anatomical dissection is a conventional method of learning anatomy for second year preclinical students at Hawassa University, College of Medicine and Health Sciences, School of Medicine, 2011/12. They have three medium-size dissecting rooms in which students of every year used to practice. Every year, the intake of medical students has been almost double of previous year. Almost, on average, each year around 110 medical students attend the lab.

The post-dissection questionnaire also aimed at documenting a student's retrospective self-assessment of the dissection experience, including the physiological and psychological reactions experienced during first exposure to dissection room and after it. The sample size of about 211 students was enrolled in the study, which is the whole group. The list of the students was collected from Registrar Office School of Medicine.

Questionnaire was distributed to all second and third year medical students; only 206 were returned the questionnaire. Of the total students who filled the questionnaires, 97 were year two, and 109 were year three students since September of the academic year 2011-2012 GC.

Enough explanation was given to the students about the main objective and the specific purpose of the research. After the purpose of the study was explained for them, verbal consent was obtained and the subjects' names were not recorded. The data were collected using standard questionnaire prepared in English. The questionnaire was administered by the principal investigator for both sections in the class room at the same time to all students.

At the time of administering the questionnaire, students in year two had completed first semester course of gross anatomy practical sessions, while those in year three had completed the entire program. The questionnaire was designed with the objective of identifying specific

patterns of attitudinal change and problems faced by the students during their first exposure to the human cadaver. The questionnaire was designed to collect socio-demographic part like age of respondents, their sex, their country of origin, symptoms suffered on first entry to the dissecting room, duration of the symptoms, causes of the symptoms and coping strategies. Rate of stress level in dissection room and other stresses on a numerical scale were also taken. Other questionnaire collected: learning methods, desire/interest to study medicine, and mental preparedness to study cadaver at the beginning of the course. Data were analyzed statistically using

the SPSS 16.0 software and the findings were discussed in comparison with other findings.  $P < 0.05$  was considered statistically significant.

## RESULTS

The response rate was 83.50% ( $81/97 \times 100$ ) for year two students and 77.98% ( $85/109 \times 100$ ) for year three students. All of the students were Ethiopian. The respondents were 71 males and 10 females from year two, and 54 males and 31 females from year three. The modal age for year two students was 20 years old while it was 21 years old for year three (Table 1).

**Table 1:** Students' profiles and response rates

		Year 2 (N=97)	Year 3 (N=109)
Modal age ( mean)		20 (97.2%)	21 (90%)
Response Rate		81 (83.50%)	85 (77.98%)
Sex	Male	71 (73.19%)	54 (49.54%)
	Female	10 (10.30%)	31 (28.44%)
Nationality (Ethiopian)		81 (83.50%)	85 (77.98%)

Almost 19.58% of year two and 28.44% of year three students felt no symptom on first entry into the dissecting room. The commonest symptoms were also loss of appetite 43.29% for second year and 34.86% for third year students.  $P < 0.0001$  was statistically significant for both year 2 and year 3 students. T- Difference = 0.091 does not

show significant. For the remaining students, the commonest symptoms were dizziness (34.02%) and nausea (34.02%) for second and third year students respectively. Other symptoms reported were breathlessness, irritation of the eye, skin irritation, and one female student expressed having felt sympathetic for the cadaver (Table 2).

**Table 2:** Symptoms experienced on first entry into the dissecting room

Symptoms	Year 2				Year 3			
	Number of Respondents	M	F	%	Number of Respondents	M	F	%
Fainting	7	7	0	7.21	1	1	0	0.91
Dizziness	33	27	6	34.02	17	14	3	15.59
Nausea	33	30	3	34.02	29	25	4	26.60
Vomiting	2	2	0	2.06	3	3	0	2.75
Palpitations	11	10	1	11.34	20	17	3	18.34
Sweating	25	21	4	25.77	19	15	4	17.43
Loss of appetite	42	40	2	43.29	38	30	8	34.86
Insomnia	13	13	0	13.40	6	6	0	5.50
No symptoms	19	16	3	19.58	31	14	17	28.44
Others	17	16	1	17.52	6	5	1	5.50

The commonest cause of their symptoms was the smell of the dissection room, as reported by 67.01% of second year and 54.12% third year students respectively.  $P < 0.0701$  is not quite statistically significant for year 2, while  $p <$

0.0115 is statistically significant for year 3 students. The findings also show that touch and fear were 31.19% and 31.19% for year two and year three students respectively (Table 3).

Table 3: Cause of symptoms

Cause of symptoms	Year 2				Year 3			
	Number	M	F	%	Number	M	F	%
Smell	65	58	7	67.01	59	52	17	54.12
Sight	33	26	7	34.02	29	22	7	26.60
Touch	33	27	6	34.0	34	27	7	31.19
Fear of infection	35	34	1	36.08	34	25	9	31.19
Looking at certain parts of the cadaver	28	24	4	28.86	22	16	6	20.18
Touching certain parts of the cadaver	19	16	3	17.43	29	25	4	26.60
Others	17	17		15.59	8	7	1	7.33

The mechanism of focusing on task was the main coping strategy used by 62.88% of the year two students and 44.95% of year three students.  $P < 0.0259$  is statistically significant for year 2 while  $p < 0.0001$  is extremely statistically significant for year 3. Moreover, for 58.76% of second year students and 35.77% of third year students,

staying in a group was the coping mechanism used (Table 4). Duration of the symptoms were studied and results show that 28.86% of year two students and 22.93% of year three students had symptoms only on the first visit, while 11.34% of year two students and 4.58% of year three students had prolonged symptoms up to the time of the study.

Table 4: Coping mechanisms used by the students

Strategies	Year 2				Year 3			
	Number	M	F	%	Number	M	F	%
Focusing on task	61	53	8	62.88	49	36	13	44.95
Praying	29	27	2	29.89	23	17	6	21.10
Relaxation	53	48	5	54.63	31	22	9	28.44
Staying in a group	57	50	7	58.76	39	27	9	35.77
Advice from lecturers	36	34	2	37.11	30	24	30	27.52
Others	11	11	0	11.34	5	3	2	4.58

Table 5 shows that stress rating on a numerical scale was about 59.79% for year two students while it was 44.95% of year three students who found the anatomy dissection room very stressful. However, in comparison, examinations were much more stressful, according to 78.35% of year two students and 71.55% of year three students.

Preferences of their learning methods were also studied. This study found that a round 70.10% of year two students were prefer textbooks and 58.71% of year three students were prefer practical sessions as one of their best learning methods.

**Table 5:** Stress rating on a numerical scale

Stress		0	or no	1	2	3	%
		stress					
Anatomy room	Year 2	21		36	13	9	59.79
	Year 3	32		28	13	8	44.95
Examinations	Year 2	3		26	35	15	78.35
	Year 3	3		23	29	26	71.55
Workload	Year 2	6		15	39	18	74.22
	Year 3	6		20	23	28	65.13
New environment	Year 2	13		33	20	10	64.94
	Year 3	19		34	14	14	56.88
Others	Year 2	6					
	Year 3	3					

Table 6 shows that the majority of students considered that they were mentally ready to study in the dissecting room at the commencement of their studies (56.70% year two and 62.38 % year three students).

**Table 6:** Mental preparedness to study cadaver

Options	Year 2		Year 3	
	Number	%	Number	%
Yes	55	56.70	68	62.38
No	9	9.27	9	8.25
Not answer	17	17.52	7	6.42

Correlation /association (cor.coef.) between second year and third year students regarding the symptoms experienced on first entry into the dissecting room is 0.779. This shows that there is a strong positive relationship between the two groups. The correlation /association (cor.coef.) is 0.918 between second year and third year students about the causes of symptoms. This shows that there is a strong positive relationship between the two groups. The correlation/association (cor.coef.) is 0.944 about the coping mechanisms used between year 2 and year 3 students. Again, this shows that there is a strong positive relationship between the two groups. So, the findings show that there is a basic similarity between the two batches in terms of their experience in the dissection room and the way they try to resolve the problem.

## DISCUSSION

The response rate was 83.50 % (81/97) for year two students and 77.98 % (85/109) for year three students. Out of these, 73.19% were males and

10.30% was females for year two students; 49.54% were males and 28.44% were females for year three students (the respondent were 71 males and 10 females from year 2, and 54 male and 31 females from year 3). All of the students were Ethiopians. The present study results show that 19.58% of year 2 students and 28.44% of year 3 students felt no symptom on first entry into the dissecting room. For the majority of the students, both in year two and year three, loss of appetite was one of the commonest symptoms. Other temporary symptoms like dizziness (34.02%) and nausea (34.02%) students were experienced by second and third year students respective. However, Horne at al. (5) reported that 30% of Australian students showed physical symptoms on first exposure to cadavers in the dissecting room. Moreover, the study on Arab medical students in Sultan Qaboos University in Muscat, Oman, showed that 46% of their students experienced some levels of fear before and during the initial dissecting room practical session (6). Other symptoms reported were breathlessness, irritation of the eye, skin irritation, and one female student also indicated that she felt sympathetic for the cadaver. The commonest cause of their symptoms was studied. The smell of the dissection room was the common cause of symptoms as reported by 67.01% of year two students. Touch and fear was the common cause of symptoms as reported by 31.19% of year three students. This study in line with other such as with Arab students which was 91% (6). As recommendation it needs to improve tidy of the dissecting room.

Regarding the extent of symptoms, about 28.86% of year 2 student and 22.93% of year 3 students had symptoms only on the first visit, while 11.34% of year 2 students and 4.58% of year 3 students had symptoms prolonged up to the time of

the study. This was very high when compared with other studies. In Malaysia, a study showed that 4.3% of year 1 students and 9.1% of year 2 students found the dissecting room a most stressful place while the majority rated the stress level as “mild” and “moderate”. Among the 11 students who rated the anatomy room a most stressful place, only one student reported prolonged symptoms persisting to the time of the questionnaire-based study. The rest of the students stated that they had no symptoms at all on first entry into the dissecting room (8).

The main coping mechanism used by the students was studied and the result showed that focusing on task was the main coping strategy used in 62.88% of the year 2 students and 44.95% of year 3 students. Moreover, for 58.76% of second year and 35.77% of third year students; staying in a group was the coping mechanism used too. In comparison, the most frequent method of coping with such fears amongst our students was relaxation (48.6% in year 1 and 44.4% in year 2 students) in Malaysia. The most frequent method of coping in Arab students was rationalization (65%), while relaxation used by 39% (6). Despite, Australian students coping mechanism was discussion with fellow students, friends and family (5).

Stress rate showed that 59.79% of year 2 students and 44.95% of year 3 students found the anatomy dissection room very stressful. However, in comparison, examinations were much more stressed, according to 78.35% of year 2 students and 71.55% of year 3 students. This study found that a round 70.10% of year two students were prefer textbooks and 58.71% of year three students were prefer practical sessions as one of their best learning methods.

The majority of the students had great desire to study medicine. The majority of the students considered that they were mentally ready to study in the dissecting room at the commencement of their studies (56.70% in year 2 and 62.38% in year 3). But, still it needs to do more in order to make the students to love dissection room and to be best medical profession.

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