Short Communication

HOW TO DECREASE THE EMOTIONAL IMPACT OF CADAVER DISSECTION IN MEDICAL STUDENTS

Fatemeh Javadnia[1], M. Hashemitabar[2], Syed R. Kalantarmahdavi[3], Nahid Khajehmougahi[4]

ABSTRACT

Background: Teaching of anatomy is based on cadaver dissection. Working with cadavers whether through active dissection or by examination of prosected specimens, constitutes a potential stressor in medical education.

Objective: To reduce the anxiety level by mentally preparing the student before going to the dissection hall.

Methods: Two questionnaires were distributed among 68 medical students. The pre-dissection questionnaire No.1 comprised questions relating to demographics and first encounter with a cadaver .Then all the students were randomly divided into experimental and control groups .The experimental group was prepared psychologically prior to dissection but the control group had no such preparation. After the first dissection class all the students were surveyed by questionnaire No.2 which included physical and cognitive symptoms of anxiety, resulting from exposure to the dissection room at the first visit and six weeks later.

Results: There was a significant difference $p<0.05$ in the rate of anxiety between experimental and control group in the initial visit. The difference in the rate of anxiety between the first exposure and six weeks later was significant in control group ($p<0.008$), while it was not significant in experimental group.

Conclusion: The initial preparation could relatively reduce the rate of stress, so that the experimental group experience less emotional effects during dissection compared to control group.

KEY WORDS: Emotional impact, Cadaver Dissection, Medical Students.

Pak J Med Sci April - June 2006 Vol. 22 No. 2 200 - 203

1. Dr. Fatemeh Javadnia
Head, Anatomical Sciences Department
2. Dr. M. Hashemitabar
Anatomy Department
3. Ms. Seyed R. Kalantarmahdavi
Anatomy Department
4. Ms. Nahid Khajehmougahi
Clinical Psychologist,
Psychiatry Department

1-4: School of Medicine,
Jundi Shapour University of Medical Sciences,
Ahwaz, IRAN.

Correspondence:

Dr. Fatemeh Javadnia
E-Mail: javadnia_f@yahoo.com

* Received for Publication: July 4, 2005
Accepted: November 2, 2005

INTRODUCTION

Dissection of the dead human body has been central to medical education since Renaissance.[1,2] Indeed, the Greek roots of the word anatomy indicate cutting up,[2] so many anatomists are adamant that dissection is the best way to anatomy learning.[1-4] Thai students see the cadavers as great teachers and thus attribute a social role and status to it.[5] Dyne and Thorndike described dissection as the most universal and universally recognizable step in becoming a doctor.[2] Despite recent change to organization of medical curricula, the use of dissection and dissected parts in the study of human anatomy remains important in anatomy education.[6] The anatomy dissection

Table-I: Percentages of Respondents to the Questionnaire No.1

		Experimental group N (%)	*Control group N (%)*
Age	17	01 (3.2)	03 (8.1)
	18-20	30 (96.8)	33 (89.2)
	21-22	0	01 (2.7)
Sex	Female	24 (77.4)	26 (70.3)
	Male	07 (22.6)	11 (29.7)
Have you ever had any fear or stress till now?	Yes	28 (90.3)	34 (91.9)
	No	03 (9.7)	03 (8.1)
Had ever seen a dead body before?	Yes	10 (32.3)	14 (37.8)
	No	21 (67.7)	23 (62.2)
How do you feel now, that, you want to enter the dissection room for the first time?	Pleasant	18 (58.1)	15 (40.5)
	Unpleasant	07 (22.6)	09 (24.4)
	Without any feeling	06 (19.3)	13 (35.1)
Do you feel stress now? that you want to enter the dissection room	Yes	13 (41.9)	15 (40.5)
	No	18 (58.1)	22 (59.5)

laboratory represent a significant emotional challenge to many medical students and even found symptoms suggestive of Post-Traumatic Stress Disorder (PTSD) in a few of students.[3,6,7] Contact with the cadaver can be highly stressful for some.[8] The majority of students expressed a negative experience, hence it is necessary to support them before initiation dissection.[9] There is further evidence which suggest that after a few days, the dramatic impact of cadaver dissection starts to diminish.[10] Nevertheless it is arguable that experience with dissection gives students a better appreciation of the 3-dimensionality view of human anatomy, something that is not possible with plastic models, and for better understanding of normal variation in human anatomy.[1,2] The emotional responses of students to the dissected body are more widely reported; several studies suggest that some students suffer stress reactions which significantly impair their learning of anatomy.[11,12] A medical student reports that: "the first cut through the skin (of a cadaver) is really bad, but when you get down there and it begins to look like the anatomy book and it doesn't look like a human being anymore, it's not so bad".[3,10] The students who have experience with the dead body will be better equipped to deal with issues surrounding death and more aware of medical uncertainty, which will make them better clinicians.[1] Previous studies showed that the course of gross anatomy has profound effects upon young medical students. As such in order to assess the impact of anxiety and physical symptoms from the experience of dissection room, we prepared questionnaires to see whether emotional stress can be diminished and observe changes in feeling and attitude in control and experimental groups.

METHODS

A quasi-experimental study was conducted on 90 first year medical students at Jundi Shapour University of Medical Sciences in 2003-2004. The questionnaires were filled out at three times. The questionnaire No.1 was given to each student before visiting the dissecting room, which comprised questions relating to demographic information of the respondents, any pervious exposure to dead bodies and varying degree of fear or stress responses. Students were randomly divided in two groups experimental (n=31) and control

Table-II: Level of Physical Symptoms Suffered by Students in Anatomy Room

Symptom	*Initial visit*		*6 weeks later*	
	Experimental N (%)	*Control N (%)*	*Experimental N (%)*	*Control N (%)*
Nausea	09 (29)	12 (33)	09 (29)	09 (25)
Dizziness	04 (2.9)	06 (16.2)	06 (19)	06 (16.6)
Weakness	08 (25.8)	08 (22)	06 (19)	04 (11.11)
Fear	10 (32)	14 (37.8)	05 (16.2)	06 (16.6)
Restlessness	06 (19)	09 (24)	07 (22.5)	05 (13.9)
Lack of concentration	12 (38.7)	18 (48.7)	11 (35.5)	06 (16.6)

(n=37) groups. The experimental group was mentally prepared for coping with dissection and was provided information regarding:

1. Source of cadavers and the processing of fixation, legal arrangements including: the reception disposal and burial of cadaver.
2. The advantages of using dissection for a better appreciation of the three dimensionally of human body and understanding of normal variations.

The students in control group had no much preparation. After the first exposure to cadaver both groups were surveyed by questionnaire No.2 which included physical symptoms like (nausea, dizziness, weakness and restlessness and cognitive) symptoms such as lack of concentration symptoms of anxiety based on Back anxiety in ventary (BAI). The students were asked to express their feeling / emotional responses in following manner in the first visit and after six weeks of exposures to dissecting room. Physical symptoms were reported as "Not at all / Vague / moderate / bad / very bad "and these gradations were assigned numerical values from 0 to 4. Stress was recorded on a numerical scale from 0 to 4, i.e. 0 represents "no stress" and 4 "very stressful.[4] *Statistical Analysis:* Comparison of categorical variables were tested using Chi-square and Fisher's Exact Test and in the case of paired data, the Willcoxon signed Ranks test were used. For comparing anxiety between experimental and control group Mann-Whitney test was used.

RESULTS

Out of 90 students only 68 completed the questionnaires. The uncompleted questionnaires were excluded from our study. The results of questionnaire No.1 showed male (n=18, 26.5%) and female (n=50, 73.5%), with a mean age of 18.5 years (Ranged Between 17-22). There was no statistically significant difference amongst the students of experimental and control group in: Having fear or stress previously, seeing a dead body before, having any pleasant feeling while you want to enter the dissection room for the first time and having stress for going to dissection room before initial cadaver dissection (Table-I).The results of questionnaire No.2 including the physical symptoms (Nausea, Dizziness, Weakness, Restlessness, Fear) and cognitive symptom (Lack of concentration) are shown in (Table-II). The lack of concentration value was significantly decreased in control group after six weeks ($p<0.05$) while there was no significant difference in lack of concentration in experimental group in first and after six weeks of exposure to cadaver. The anxiety arises from summation of all value (physical and cognitive symptoms) of all in (Table-II). The rate of anxiety between experimental and control group was significant ($p<0.01$) in the initial visit.

The difference in the rate of anxiety between initial visit and six weeks later was significant ($p<.008$) in control group, but there was no significant difference between experimental group in first visit and after six weeks of exposure to the cadaver. There was no statistically significant difference in the rate of anxiety between experimental and control group after six weeks.

DISCUSSION

Previous studies have demonstrated that there were some event among the First Year medical students in dissecting room which had a great impact on their education. Attitudes towards cadaver learning were explored from the statement 3 in questionnaire No.1. The students of both groups had an experience in seeing a dead body or bereaved before entrance to dissecting room. Our study demonstrated that 32.3% in experimental and 37.8% in control group had seen a dead body before (Table-I). This is in accordance with the studies of Horne et al and Nnodim who reported the stressful reactions in first year medical students who encounter with a cadaver for the first time in dissecting room. Horne et al reported that although 62% had had prior exposure to a dead body but it was necessary to greater preparation for the dissection experience by discussion with anatomy stuff.[11] Nnodim found that 40% of students had seen a dead body before and also found that female student were more likely to report distress caused by work in dissecting room.[15] Anxiety in female students associated with dissection have also been reported in other studies.[9,13,15] Nevertheless, it has been found that students rapidly develop a coping mechanism that enables them to depersonalize cadaver dissection.[10] To acquire better educational results, mental preparation was applied for experimental group of medical students. The results of questionnaires No.2 in first visit and after six weeks demonstrated that preparation of students enable them to adapt themselves as soon as they start working in the dissection hall in experimental group but the coping mechanism required at least six weeks for reduction of anxiety in non oriented control group .It seems that mental preparation is a useful method for reducing anxiety and it saves six weeks which is wasted due to anxiety, lack of concentration and other emotional events. This finding is also supported by other investigators.[6,11,13] for improving and gaining better advantages of dissection. We need to prepare mentally and emotionally the students before entering dissection room so that they are emotionally involved & stimulated.

ACKNOWLEDGEMENTS

To all the students who took part in this study. We also thank Mrs. Azadeh Saki who helped us prepare and complete the statistical analysis.

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