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Attitudes to Cadaver Dissection in a Nigerian Medical School

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Abstract: This study was conducted to determine the attitudes of first year preclinical students to cadaver dissection in the study of human anatomy. A pretested questionnaire with 18 statements was administered to 150 first year preclinical students of Ambrose Alli University, Ekpoma. For each question, the students were to choose one of the three possible responses: "yes", "no" or "undecided". However, out of the 150 students involved in the study, 104 (68 males and 36 females) responded correctly to the questionnaire and their answers were compiled and analysed. Comparatively, the results showed that 59% of the students found their first visit to the dissetion room exciting. 33% were upset at the beginning of the dissection while 64% were not. 57% did not show any anxiety and stress immediately before and during dissection, while 36% did. 54% were found mentally prepared for dissection and 76% agreed that dissection enhanced there thinking skills. 87% agreed that dissection provided the best method for learning anatomy as 78% agreed that cadaver dissection is ethically acceptable. Majority of the students (90%+) considered cadaver dissection as important and indespensible in the study of human anatomy and 95% reported that they prefer dissection with assistance from their teacher. From the results of the present study, one might confidently infer that cadaver dissection is still considered important and indispensable in the study of human anatomy.

Key words: Attitudes, cadaver dissection, Nigerian medical school, preclinical students

INTRODUCTION

Anatomy, the study of the structure of the human body is one of the first, most basic and yet one of the most important subjects studied by medical students when they begin their medical career (Rajkumari and Singh, 2007). The use human cadavers as a learning tool has been in practice for over five hundred years (Kemp and Wallace, 2000; Richardson, 1989; Sanner, 1997; Parker, 2002; Mclachian *et al*., 2004) and traditionally remains the pillar for the teaching and study of human anatomy (Jones, 1997; Ellis, 2001; Older, 2004; Azis *et al*., 2002; Prakash, 2007; Rajkumari and Singh, 2007; McGarvey *et al*., 2001 Parker, 2002; Mclachian *et al*., 2004; O'carroll *et al*., 2002; Snelling *et al*., 2003) with many virtues ascribed to it (Azis *et al*., 2002; Prakash, 2007). In fact, Andreas Vesalius (1514-1564) was the first medical student to dissect the cadaver and also continued with it even as a professor (Gayatri and Krishna, 2006).

In recent years however, there has been much controversy surrounding the ethics and effectiveness of using human tissue as a learning tool. Some studies have indicated that students learn anatomy as well by studying prosections as they do by traditional dissecting (Jones *et al*., 1998; Bernard 1972; Peppler *et al*., 1985; Nnodim *et al*., 1996), while at least one study reports some modest advantage for students performing traditional dissection over studying prosections as a means to learn anatomy (Yeager, 1981).

In particular, there has been concern that work on cadavers may have negative consequences for students that may outweigh the benefits of using a human body as a learning tool. Moreover, the use of cadavers for dissection has been identified by some as expensive, time-consuming and potentially hazardous. (Azis *et al*., 2002). It is for these reasons that dissection as a learning modality has been marginalised from medical curricula to the despair of some academics (Dinsmore *et al*., 2001; Jones, 1997; Cahill and Leonard, 1997). In the last 15-20 years, some universities have embraced other learning modalities. One of the most popular alternatives is Problem-Based Learning (PBL) developed at McMaster University in the late 1970s by Barrows and Tamblyn (1980). In some cases, institutions of higher learning have switched over to the use of virtual cadavers (Mclachian *et al*., 2004).

One other area of concern is the variety of emotional reactions and mixed feelings experienced by first year preclinical students when they encounter human cadavers for the first time in the dissection room (Rajkumari *et al*., 2008). Even before entering the anatomy dissecting laboratory, a student, at some level, knows that the first patient that he/she will care for is a dead one and experience considerable anxiety and stress (Bertman and Marks, 1985). Although there are some studies about the attitudes of first year preclinical students towards cadaver dissection in anatomy learning in the literatures (Rajkumari *et al*., 2008; Charlton *et al*., 1994; Horne *et al*., 1990), they cannot however, describe

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exactly, what the attitude of first year preclinical student's in Nigerian univeristies might be. Thus, the purpose of this study is to determine the attitude of first year preclinical students towards cadaver dissection in a typical Nigerian medical school.

MATERIALS AND METHODS

Type and place of study: This is a quantitative, investigatory study, carried out in the Department of Anatomy, College of Medicine of Ambrose Alli University, Ekpoma, Edo State, Nigeria.

Study population: 150 first year preclinical students of the College of Medicine, Ambrose Alli University, Ekpoma, Edo State, who took the compulsory discipline of Anatomy as part of their MBBS training programme in the 2008 - 2009 academic session, formed the population of this study.

Data Collection: All the 150 medical students participated in the study. The objectives of the study were explained to each student and a structured questionnaire containing 18 items was distributed to them after taking their informed consent. For each question, the student had to choose one of the three possible responses: "yes", "no" or "undecided". The questionnaire provided information about the first visit to a dissection room; emotional shock, feelings, 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; and the possible alternatives for replacing cadaver dissection by plastic models, computer assisted training programme and its importance and indispensability.

Data Analysis: The data were analyzed using the computer program SPSS Version 11.0 for the production of descriptive statistics in which the frequency of the replies was determined for each item of the questionnaire. The results were discussed in the light of available literatures.

RESULTS

Out of a total of 150 students, 113(75%) completed the questionnaire. 9 questionnaires were not properly completed and were excluded. Thus, 104(69%) questionnaires were analyzed. The mean age of of the students was 22.59+/-2.08 years (ranged between 19-30). Of the 104 students who properly answered, 68 (65%) were males and 36 (35%) were females. Their responses regarding attitudes towards cadaver dissection are given in Table 1.

DISCUSSION

An analysis of the questionnaire showed that a vast majority of the students (90%) considered cadaver dissection as important and indispensable in the study of human anatomy. Of course, it has been ascertained that the manual skills learnt in the dissection room are essential in almost every branch of the medical profession (Prakash *et al.*, 2007). Moreover, dissection has been considered as an essential requirement in learning gross anatomy particularly the three-dimensional aspect of human anatomy (Older, 2004) and has remained the universally recognizable step in becoming a doctor (Mclachian *et al.*, 2004), which puts undergraduates at the sharp end of medical education (Maguire, 1985).

On the preferred method of learning anatomy, it was observed that majority (84%) of the respondents agreed that dissection remains the best method of learning anatomy and this is consistent with the view held by many anatomists, although there is little hard evidence for this assertion (Cahill and Leonard, 1997). Expectedly, majority agreed that dissection enhanced their skill of thinking in a logical manner and this is as well, consistent with the findings by Weeks *et al.* (1995), Mutyala and Cahill (1996) and Rajkumari *et al.* (2008).

Furthermore, majority of the students (71%) agreed that actual hands on training on cadaver dissection gave better results than demonstration of prosected specimen, as it greatly enhances the understanding of the objectives of the course. This finding is consistent with the findings from previous studies conducted by Jones *et al.* (2001), Johnson (2002), Rajkumari and Singh (2007), Rajkumari *et al.* (2008), Parker (2002) and Mclachian *et al.* (2004), but at variance with certain arguments by Bernard (1972), Peppler *et al.* (1985), Nnodim *et al.* (1996), Jones *et al.* (1998) and Mclachian *et al.* (2004), against the use of cadaveric material in anatomy teaching.

Another interesting observation in the present study was that overwhelming majority (91%) stated that they prefer dissection with assistance of their teacher. This is in line with the report by Rajkumari, *et al.* (2008). However, the practice in our medical school and most medical schools in Nigeria, is that students do dissection using the approved dissecting manual without the assistance of their teacher. It is our opinion that this practice must change, as most students want to be assisted in their dissection. Perhaps, this may enhance their understanding of the course contents.

Concerning the reaction of students towards their first visist to the dissecting room, the present study showed that 59% of the students found their first visit exciting, while 57% suffered very little or no stress at all. In a related observation, 53% expressed emotional shock at initial exposure, while 44% did not show any emotional

Table 1: Respondant's responses on attitudes towards cadaver dissection

Item No.	Particulars of question	No. of yes responses (%)	No. of no responses & (%)	No. of undecided responses (%)
1.	Do you find your first visit to the dissection room exciting?	61(59)	39 (38)	4 (3)
2.	Are you upset at the beginning of dissection?	34 (33)	67 (64)	3 (3)
3.	Do you feel any emotional shock at initial exposure to cadaver?	55 (53)	46 (44)	3 (3)
4.	If so, whether the shock decreases gradually?	48 (47)	15 (14)	41 (39)
5.	Do you have any apprehension to handle the cadaver directly?	44 (35)	48 (46)	12 (19)
6.	Do you experience considerable anxiety and stress immediately before and during dissection?	36 (35)	59 (57)	9 (8)
7.	Do you prepare mentally for dissection of human cadaver?	54 (52)	47 (45)	3 (3)
8.	Do you ever think that the cadaver you dissected was once a living human being like you?	95 (91)	5 (5)	4 (4)
9.	If so, do you ever have any sympathy and respect for him/her?	86 (83)	12 (12)	6 (5)
10.	Do you think that you can do the dissection with assistance from your teacher?	95 (91)	6 (6)	3 (3)
11.	Do you have any prior experience of a dead human body before entering the dissection room?	51 (49)	52 (50)	1 (1)
12.	If so, whether the prior experience helps you in developing a better coping mechanism to adjust to cadaver dissection?	41 (39)	33 (32)	30 (29)
13	Do you think that dissection enhance the skill of thinking in a logical manner?	79 (76)	16 (15)	9 (9)
14	Do you think that dissection gives the best method for learning anatomy?	87 (84)	11 (11)	8 (5)
15.	Do you think that cadaver dissection for anatomical learning is ethically acceptable?	81 (78)	6 (6)	17 (17)
16.	Do you think that Cadaver dissection technique can be replaced by plastic models, computer assisted training programme etc. in the near future?	47 (45)	41 (39)	16 (16)
17.	Do you think that actual hands on training on cadaver dissection gives better results than demonstration of prosected Specimen?	74 (71)	41 (14)	16 (15)
18.	Do you think that cadaver dissection is still considered important and indispensable in Anatomy learning?	94 (90)	7 (7)	3 (3)

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; Jones, 1997; Finkelstein and Mathers, 1990; Evans and Fitzgibbon, 1992). According to Cahill and Leonard (1997), contact with cadaver can be highly stressful for some. Some authors (Dinsmore *et al*., 2001; O'Carroll *et al*., 2002; Vijayabhaskar *et al*., 2005, McGarvey *et al*., 2001) have demonstrated that first year pre-clinincal 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 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.

On the issue of apprehension towards initial exposure to cadaver, we observed that one-third (35%) of the students expressed apprehension to handle cadaver directly, while 46% did not. This is in line with the report by Abu-Hijleh *et al*. (1997) that 46% of their students experienced some level of fear before and during the initial dissection. Rajkumari *et al*. (2008) also, reported that about one-third (32.5%) of the students expressed apprehension to handle cadaver directly, whereas 53.75% did not.

On being upset at the beginning of dissection, one of our findings indicated that most of the students were not upset thereby supporting an earlier finding by

Rajkumari *et al.* (2008), but contradicts the finding by Nnodim (1996) who reported that over three-quarters of the students were upset at the beginning of dissection. In fact, it has been suggested that the factor of 'not being upset' is attributable to the students strong motivation, interest and desire to study medical courses at the beginning of their professional career (Rajkumari *et al.*, 2008).

On students mental preparedness to face cadaver dissection, our findings shows that 52% of the students were mentally prepared for dissection, while 45% were not and 49% had seen a dead body before, thus supporting the findings by Evans and Fitzgibbon (1992) who reported that majority of first year preclinical students felt themselves mentally prepared for the dissection room and about half had seen a dead body before. Similarly, our findings showed that 39% of the students who have had prior experience of dead body, developed a better coping mechanism towards cadaver dissection, while 32% could not express their views. In this regard, Charlton *et al.* (1994) and Horne *et al.* (1990) concluded that first year preclinical students rapidly developed a coping mechanism that enabled them to view cadaver dissection as an occupation. 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 (Parker, 2002). However, Horne *et al.* (1990) reported that students who had prior exposure to a dead human body appeared overly sensitized to the emotional aspects and wanted to be counselled by an anatomy department staff.

Generally, on the issue of replacing cadaver dissection with plastic models in the near future, majority of the students under study (47%) favoured such a replacement, while 41% did not. This is contrary to the report by Leong (1999), Parker (2002) and Mclachian *et al.* (2004). Specifically, Parker (2002) and Mclachian *et al.* (2004) reported that dissection gives students a better appreciation of the 3-dimensionality view of human anatomy, which is not possible with plastic models. Moreover, Azis *et al.* (2002) had stated earlier that the removal or attenuation of cadaver dissection is bound to impair the student's ability to apply the scientific method during diagnosis. In as much as the students favoured cadaver dissection as the best method of leraning anatomy, one can attribute their call for the replacement of cadaver dissection with plastic models to the relative difficulty in the procurement of cadavers considering the attention given to the burial rites of dead relatives in our society. The issue of voluntary body donation by individuals or families is alien to our society unlike it is in some other regions of the world.

On the other hand, we observed that 52% of the males believed that cadaver dissection can be replaced by plastic models and computer assisted trainning programme as opposed to 33% of the females. Contrary to this, some studies have shown that majority of females favour such a replacement (Kirkpatrick and Cuban, 1998; Whitley, 1997; Van Braak, 2004) and concluded that the difference in the pattern of answers regarding the replacement of cadavers (based on gender) may reflect gender differences in attitudes and computer use (Kirkpatrick and Cuban, 1998; Whitley, 1997; Van Braak, 2004) as well as gender differences in attitudes to the handling of cadavers.

CONCLUSION

In conclusion, the present study has shown that most students found their first visit to the dissection room exciting. Most students also think that dissection is indispensible and gives the best method for the study of human anatomy. In addition, overwhelming majority agreed that they would prefer to do dissection with the assistance of their teacher. Thus, we align with the views of other researchers that attention should be paid to student's first encounter with cadavers and offer them the opportunity to discuss their emotions. As Javadnia *et al.* (2006) had suggested, students should be advised to prepare mentally and emotionally before entering the dissection room so that they are emotionally involved and stimulated. Better preparation and debriefing for coping with dissection is required as there is some evidence to suggest that individuals can be 'inoculated' against the stressful effects of handling a dead body (McCarroll *et al.*, 1993). We also support the recommendations by some researchers that there is a need for the inclusion of courses on emotions and how to manage them in the medical curriculum (Marks *et al.*, 1997) as well as re-echo the suggestion that students should be gradually introduced into the experience so that it is not such an initial shock all at once (Arraez-Aybar *et al.*, 2004). Finally, we agree with Nnodim (1996) that a formal course on death and dying should begin at the pre-clinical level and extend into the clinical years.

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