Attitude of Veterinary Students to Cadaveric Dissection in Teaching and Learning Veterinary Anatomy in the Caribbean

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Abstract

Teaching practical veterinary anatomy using animal cadavers poses many challenges. The aim of this study was to evaluate the attitude of veterinary students towards animal cadaver dissection as a learning and teaching tool for veterinary anatomy. The study sample comprised of 57 students who passed the veterinary anatomy courses at school of veterinary medicine at The University of the West Indies, Trinidad and Tobago. A questionnaire with 13 close-ended questions was prepared and distributed to the students. The results were collected and analyzed. The results showed that most of the students agreed about the importance of dissection of animal cadavers in teaching, learning and studying of veterinary anatomy. They preferred to dissect animal cadavers over the use of prosected specimens during practical sessions. As the former one allowed more hands on interaction with real structures and organs as well as the development of practical skills necessary for actual surgery. On the hand, most of the students disagreed with replacing the animal cadavers with plastic models or using computer assisted demonstrations. This study concluded that animal cadaveric dissection is an effective method of teaching in delivering veterinary anatomy knowledge and in developing surgical skills.

Keywords: Attitude, Cadaver, Dissection, Veterinary students

1. Introduction

Veterinary anatomy is taught to undergraduate veterinary students via theoretical and

practical sessions. Teaching of academic subjects such as anatomy requires an array of teaching methods to facilitate the various learning styles of students. Traditionally, practical veterinary anatomy is taught via dissection of animal cadavers and demonstrations using prosections. Internationally, animal cadavers are used as a learning tool for veterinary students to acquire knowledge and clinical skills (Woon, 2010), dissection elaborates and reinforces the theoretical knowledge and remains very important in learning anatomy (McLachlan, Bradley, & Searle, 2004; Bharadwaja & Aman, 2017). However, using cadavers in teaching anatomy is associated with particular challenges such as exposure to formalin, obtaining ethical approvals, sourcing of animal cadavers and storage of dissected specimens (Gummery, Cobb, Mossop, & Cobb, 2018). Also, dissection of cadavers is time consuming and potentially harmful (Dinsmore et al., 1999). Further, there is no evidence of the efficacy of cadaveric dissection on clinical practice or real life (Mclachlan, 2004), so much so, virtual dissection tables replaced cadaveric dissection in some institutions (Azis, Mckenzie, Wilson, Cowie, Ayeni, & Dunn, 2002). Additionally, multimedia devices make anatomy more pleasurable and prevents the killing of animals by dissection (Ozkadif & Eken, 2012). The purpose of the current study was to evaluate the veterinary students' attitude towards the dissection of animal cadavers for teaching and learning of veterinary gross anatomy.

2. Methods

The study was conducted with the use of a questionnaire, which comprised of 13 closed (yes/no) questions. It was administered to 57 veterinary students who had already completed and passed the veterinary anatomy courses at the School of Veterinary Medicine, Faculty of Medical Sciences, The University of the West Indies, Trinidad and Tobago. Students were selected randomly and they were informed about the purpose of the study. The students who repeated the course were excluded from the study. The students were given one week to answer the questions. The students in the sample were taught using the dissection of dog cadavers as well as previously dissected cadavers demonstrated by the lecturer. The cadavers that were used for dissection were obtained from the Trinidad and Tobago Society for the Prevention of Cruelty to Animals (TTSPCA) whenever they had animals with untreatable conditions. The data was collected from the questionnaire and analyzed using Microsoft Excel.

3. Results

The results of the survey indicated that 86% of veterinary students agreed that it is ethical to dissect animal cadavers. 67% of students performed dissection during lab session. Not all students were prepared for dissection via reading dissector. Majority of students indicated that dissection of animal cadavers in small groups allowed them to discuss and learn more. Almost whole student showed their preferred to dissect animal cadavers under lecturer assistance and supervision. 86% of veterinary students found that dissection of animal cadavers were exciting. Most of students reported that dissection of dog cadavers made them to understand and lean the veterinary anatomy easily and better as it animal them for actually seeing the structures. 79% of students mentioned that their preferability to dissect animal cadavers by themselves than prosected specimens. Moreover, the majority of students disagreed with replacing animal cadavers with plastic models and computer assisted demonstrations. Most of students wanted cadaveric dissection of animals to be continued in

the veterinary gross anatomy syllabus as it will help them in other courses of the veterinary program (Table 1 & Figure 1).

Table 1. Responses on attitude of veterinary students towards dissection of animal cadavers

| No.	Question	Yes	No
1	Is animal cadaver dissection ethically acceptable?	49 (86%)	8 (14%)
2	Did you perform cadaver dissection?	38 (67%)	19 (33%)
3	Did you spend time in reading dissection guide to understand dissection of cadavers?	32 (56%)	25 (44%)
4	Was learning in small groups and interacting with your peers during cadaver dissection more productive than independent study?	49(86%)	8 (14%)
5	Did you prefer to dissect with the assistance of your lecturer?	54 (95%)	3 (5%)
6	Did you find cadaver dissection exciting?	50 (86%)	7 (12%)
7	Did cadaver dissection make veterinary anatomy easier to learn, study and understand?	52 (91%)	5 (9%)
8	Did cadaver dissection by you give better results and understanding than demonstration on prosected specimens?	45 (79%)	12 (21%)
9	Do you think that cadaver dissection should be replaced by plastic models and computer assisted training?	15 (26%)	42 (74%)
10	Do you think that cadaver dissection is an important part of the DVM degree?	53 (93%)	4 (7%)
11	Is performing cadaver dissection and actually seeing the structures while you dissect help you learn anatomy better?	53 (93%)	4 (7%)
12	Do you think cadaver dissection should be continued in the anatomy syllabus?	55 (96%)	2 (4%)
13	Do you think cadaver dissection helps in learning other DVM subjects?	55 (96%)	2 (4%)
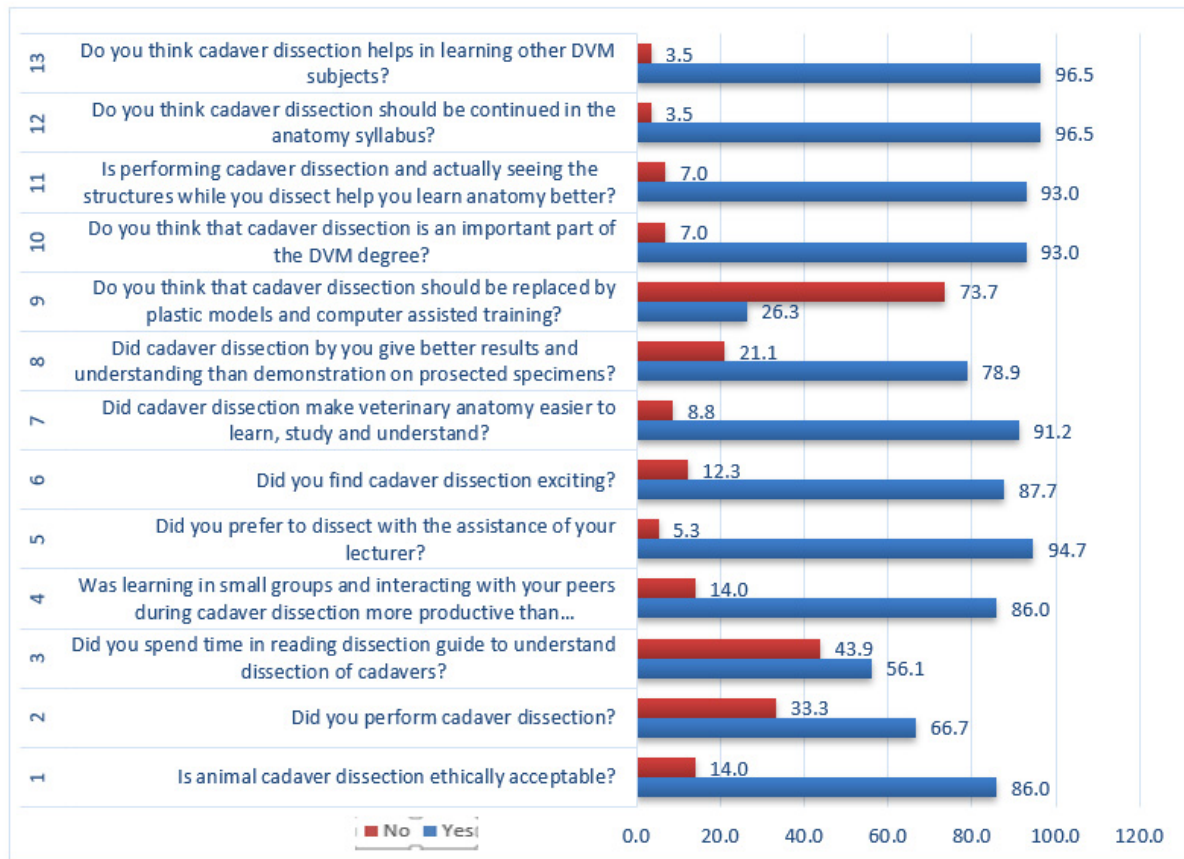
Figure 1. A graph showing the percentage of students' response to each question

4. Discussion

The current investigation as well as Bharadwaja and Aman (2017)) revealed that anatomy courses are special subjects that need to be studied using textbooks and cadaveric dissections.

Dissection of cadavers remains an effective method for basic anatomy teaching and it helps them to learn and understand anatomy deeply (Entwistle & Tait, 1995; Wyk & Rennie, 2015; Prabodha, Nanayakkara, Ilayperuma, Samarawickrama, & Johnson, 2016; Bhimalli, Virupaxi, Pattanshetti, & Siddibhavi, 2017; Küçükaslan, Erdoğan, & Bulut, 2019).

Another interesting observation in the current study is that the majority of students preferred to dissect animal cadavers rather than look on at a demonstration on a prosected specimen; a similar result was obtained by Izunya, Oaikhena, and Nwaopara (2010). Students who preferred to dissect by themselves indicated that dissection of animal cadavers allowed them to better understand and recall, as well as to enhance their practical skills. While, students who preferred pre-dissected specimens indicated that it was clear and save time so that they would better utilize their time studying the specimens and they could be as a guide for dissection. However, the current result is contrary to that of Nnodim (1990) and Dinsmore (1999).

The current study as well as Prabodha, Nanayakkara, Ilayperuma, Samarawickrama and Johnson (2016) showed that students benefited in learning anatomy by working together in a small groups and interacting with peers during dissection than independent dissection.

The current study as well as Sharma, Subedi and Pandit (2017) showed that majority of the students under study disagree about replacement of cadaveric dissection by plastic models and computer assisted training. On the other hand, students who agreed to replace the animal cadavers by new technology and did not dissect animal cadavers indicated that plastinated models are more ethical and distinguishable; in addition they disagreed about the idea of killing animals for teaching purposes. Moreover, the computer assisted learning can enhance cadaveric dissection rather than its replacement (Rao, Swamy, & Thomas, 2018).

The present investigation as well as Rajkumari and Singh (2007) and Izunya, Oaikhena, and Nwaopara (2010) reported that that students preferred dissection of cadavers under supervision of the lecturer, so as to avoid dissection errors.

The present results as well as Rao, Swamy and Thomas (2018) and Gummery, Cobb, Mossop and Cobb (2018) stated that dissection of cadavers allowed students to gain basic skills of surgery such as handling of surgical instruments.

The current study as well as Ganguly, Kawareti and Gedam (2018) suggested that animal cadavers should be obtained from humane and ethical sources such as animals that died from natural causes or euthanized due to unrecoverable injuries.

5. Conclusion

Dissection of animal cadavers remains the pillar and an integral part of veterinary anatomy teaching and learning by anatomists and veterinary students. Learning of veterinary anatomy was more conductive by dissection of animal cadavers in small groups and under lecturer supervision. Plastination and computer training programs cannot completely replace traditional dissection of animals. Therefore dissection of animal cadavers should be continued in the veterinary anatomy syllabus once ethical approval is given.

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