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RESEARCH ARTICLE
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CHALLENGES IN LEARNING ANATOMY BY FIRST YEAR BDS STUDENTS, ITS DIFFICULTIES AND ASSESSMENT METHODS PREFERRED BY THEM - A FEEDBACK STUDY

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ABSTRACT

Medical anatomy, a significant component of the first-year curriculum, must be taught at this time when students must acclimate to a whole new environment outside of school. At this moment, it is necessary to address several significant values and behaviours in the students.

Objective: The purpose of this study was to assess the difficulties first-year BDS students encountered in the key areas of anatomy as well as their opinions of certain suggested approaches to problem-solving.

Methodology: After obtaining permission from ethical approval committee of the institution, this research will be carried out on the students who have finished their first Prof exam. All students will be told not to put their names on the questionnaire to avoid any prejudice. The study will conduct by providing structured questionnaire via google form to 1st year students irrespective of their performances in Anatomy throughout the year

Results: Students were asked to select the area of anatomy that they found most challenging to study in the first questionnaire. The fact that 45 (60%) of students selected gross anatomy indicated that they had difficulty adjusting to and comprehending the subject. Students in embryology said that they could not follow the events 38 (50.6%) and 29 (38.7%) that they could not use the charts and models that were shown to them to apply their theoretical knowledge. , the majority of students 41 (54.6%) chose liked a mix of structured descriptive questions, short answer questions, and multiple-choice questions while followed by Mcq's 14 (18.7%).

Conclusion: The results of this study demonstrate how difficult it is for first-year BDS students to master anatomy, especially gross anatomy and embryology. To improve their comprehension and memory of anatomical ideas, students also preferred a mix of evaluation methods, including multiple-choice, short-answer, and structured descriptive questions

Keywords: Anatomy, Assessment, Feedback, BDS Students

INTRODUCTION

Since BDS is a professional course, first-year students are introduced to an entirely different teaching and learning environment when they enter dental institutions. Medical anatomy, a significant component of the first-year curriculum, must be taught at this time when students must acclimate to a whole new environment outside of school. At this moment, it is necessary to address several significant values and behaviours in the students as well as maintaining secrecy when handling cadavers.[1] In addition to teaching students' skills and information, anatomists must also help them acquire the proper mindset so they can handle their difficulties in a professional manner. A competent anatomy demonstration must be able to withstand the demands of the constantly evolving medical curriculum to prepare students for clinics and help them establish appropriate behaviour.[2]

According to PMDC rules, senior faculty members often outline the instructional approaches that are suggested for first-year students.[3] To improve teaching methods in first-year topics, it is imperative that we consider the opinions and frequent feedback of the students both during and after they finish their first-year exams.[4] It is impossible to completely ignore the student's perspective, and this can greatly help us innovate clinical anatomy teaching and learning approaches.[5] The first BDS course on anatomy covers a wide range of topics and subfields, requiring the student to have a thorough understanding of gross anatomy, histology, embryology, and, to a lesser degree, surface and radiological anatomy.[6] New students in these anatomy subdivisions encounter several issues when they first enrol in medical and dentistry schools.[7]

Without a doubt, the foundation of teaching and understanding gross anatomy is the display and discussion of cadaveric specimens.[8] Most of the first-year BDS students who get oral feedback find anatomy didactic courses dull and find it extremely challenging to focus and comprehend the material. The use of cadavers in medical and dentistry education is a topic of ongoing discussion, as is the viability of teaching anatomy without them.[9] It is controversial to substitute other methods of teaching gross anatomy, such as using dissection films and multimedia tools sparingly, for exposing students to cadavers, while many studies do favour cadaveric dissection during the first year of BDS.[10]

The purpose of this study was to assess the difficulties first-year BDS students encountered in the key areas of anatomy as well as their opinions of certain suggested approaches to problem-solving.

METHODOLOGY

After obtaining permission from ethical approval committee of the institution, this research will be carried out on the students who have finished their first Prof exam. All students will be told not to put their names on the questionnaire to avoid any prejudice. The study will conduct by providing structured questionnaire via google form to 1st year students irrespective of their performances in Anatomy throughout the year. Two sets of validated questionnaires will be provided to the students via google form, the first set will have 7 multiple choice questions, the second set of questions will be of closed end type, requiring either positive or negative responses. Data was entered and analysed using SPSS 29. Descriptive statistics was carried out to calculate mean and standard deviation for age and assessment score. Chi square test was used to compare means of numerical data.

RESULTS

Students were asked to select the area of anatomy that they found most challenging to study in the first questionnaire. The fact that 45 (60%) of students selected gross anatomy indicated that they had difficulty adjusting to and comprehending the subject. Students in embryology said that they could not follow the events 38 (50.6%) and 29 (38.7%) that they could not use the charts and models that were shown to them to apply their theoretical knowledge. Students preferred monthly evaluations 34 (45.3%) and assessments at the conclusion of each region 8 (10.7%), according to an examination of assessment methods and intervals. Theoretically, the majority of students 41 (54.6%) chose liked a mix of structured descriptive questions, short answer questions, and multiple-choice questions while followed by Mcq's 14 (18.7%) as seen in Table 1.

S #	Questions	Sub-questions (Choose only one)	N (%)
1.	"Divisions of anatomy which you faced most difficulties"	Gross Anatomy	45 (60)
		Histology	8 (10.7)
		Embryology	13 (17.3)
		All the above	9 (12)
2.	"Problems faced in Gross Anatomy by you"	Disinterest	2 (2.7)
		Inability to identify specimen	66 (61.3)
		Inability to correlate theory with specimens	15 (20)
		Inability to recall	12 (16)
3.	"Problems faced in histology by you"	Disinterest	16 (21.3)
		Inability to identify slides	41 (54.7)
		Inability to comprehend	18 (24)
4.	"Problems faced in embryology"	Disinterest	8 (10.7)
		Inability to follow the sequence of events	38 (50.6)
		Inability to correlate theory knowledge in identifying charts and models	29 (38.7)
5.	"Evaluation method for theory which you feel is most appropriate"	Structured descriptive question	6 (8)
		Short answer questions	14 (18.7)
		MCQ's	14 (18.7)
		Combination of the above	41 (54.6)
6.	"Evaluation method for practical's which you feel is most Appropriate"	Spotters and discussion of specimens	10 (13.3)
		Spotters and discussion of histology	19 (25.4)
		both above	46 (61.3)
7.	"Interval of assessment"	Weekly	18 (24)
		Biweekly	15 (20)
		Monthly	34 (45.3)
		At the end of the region.	8 (10.7)

Table 1: Anatomy and subdivisions problems faced by BDS 1st year

Students were asked to respond YES or NO to a series of suggested teaching and learning strategies for anatomy in order to raise their standards and, thus, assist them in resolving their issues. Students clearly favored quizzes, topic seminars, and written tests at the conclusion of each area above all other corrective measures 59 (78.7%), as seen in Fig. 1.

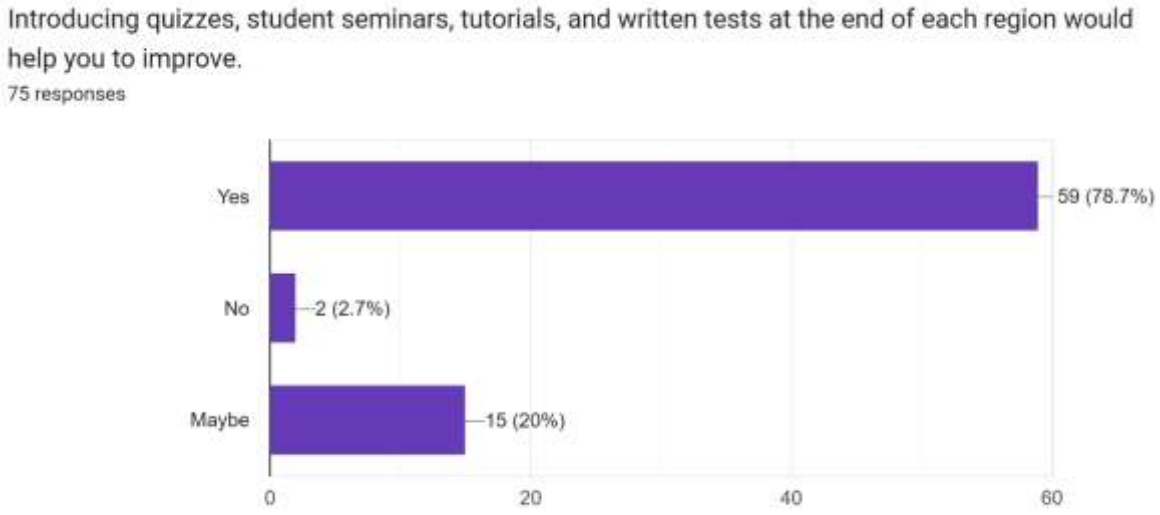
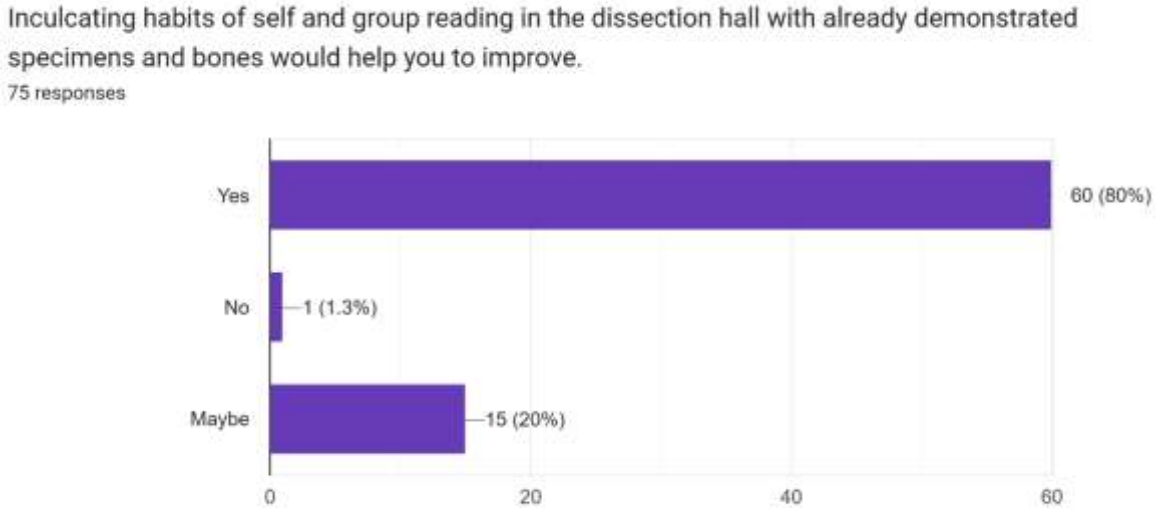
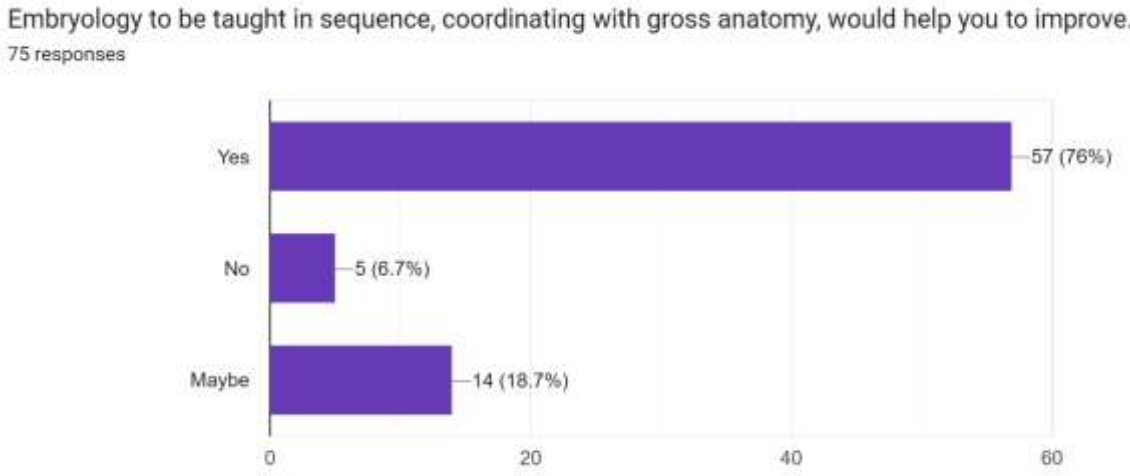


Fig 1

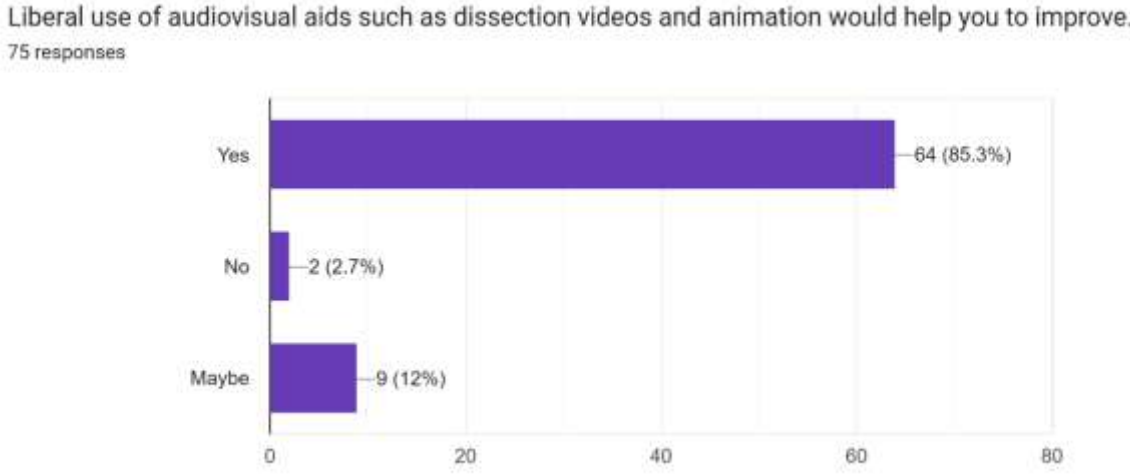
As with group conversations 60 (80%), students preferred reading on their own and talking with their classmates about previously displayed fossils and bones in the dissection hall (fig 2).



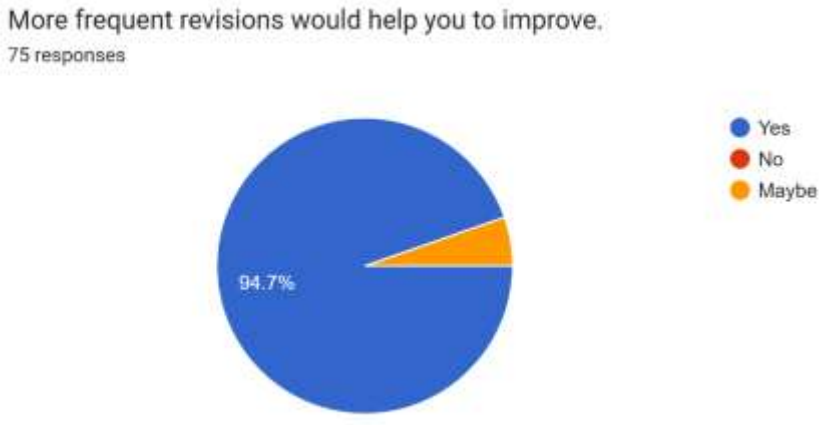
In order to link development with structure, they preferred that embryology be taught in conjunction with gross anatomy 57 (76%). Figure 3



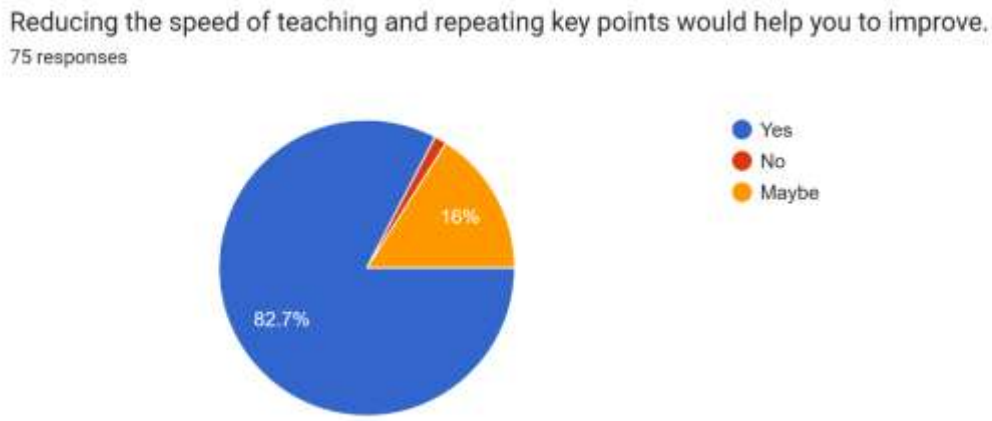
Additionally, 64 (85.3%) of the students suggested that animation and audiovisual aids be used often. [Figure 4]



They 71 (94.7%) also requested further revisions and repeated emphasis on important aspects by facilitators since they could not remember the slides in histology and the spotters in gross anatomy (Fig 5).



Students' performance will be improved by slowing down instruction and repetition, according to the viewpoint. [Figure 6]



DISCUSSION

Today, there are significant and revolutionary developments taking place in medical education. The conventional methods of teaching anatomy are experiencing difficulties due to the emergence of creative teaching strategies, such as the use of the internet, electronic media, educational films, conferences, and continuing medical education. Addressing the actual needs of the students, evaluating their difficulties in studying anatomy, and offering solutions to the issues are urgently needed.[11] This study has addressed the students' perceptions of their indifference and hesitancy to read a specific subdivision of anatomy. Too much emphasis has been placed on the cause of the lack of interest. This study was carried out while maintaining all of the conventional teaching techniques, such as theoretical didactic lectures for gross, embryology, and histology, as well as discussions and slide demonstrations of histology.

Teaching and learning by cadaveric dissection and display is the most effective way to educate in the dissection hall, according to research by Dietrich et al (2025).[12] Cadaveric dissection is a useful method for accomplishing significant learning goals in the subject of anatomy, according to the study of Cheng et al (2024).[13] In order to boost their confidence and proficiency, students in the current study also want to go over previously shown cadaveric specimens and bones several times in the dissecting hall. According to our current study a theoretical evaluation approach, 41 (54.7%) of the students in this survey favored a mix of descriptive questions, short answers, and multiple-choice questions, additional time, rearranging and reorganizing lectures, employing additional visual aids, and adding easily remembered tables and summaries are all ways to solve issues with learning anatomy. While according to Liao et al (2024),[14] students thought that multiple-choice questions were the most effective kind of evaluation. In contrast, just 19.6% of students agreed with multiple choice questions with true/false questions in HadaviBavili et al (2024) study,[15] whereas 55.03% of students preferred descriptive and short essay questions with multiple choice questions as an examination design. Famous Chinese saying “Students will only retain 20% of what they read, 30% of what they hear, 40% of what they see, 50% of what they say, and 60% of what they do, it is crucial to stress. For information they say, hear, see, and do, this average rises to 90%.” The current study's participants favored slower instruction and a focus on important ideas near the conclusion of lectures. Students firmly believed that more frequent revisions would aid in their retention of the subject's theoretical and practical components similar to Ramakrishna (2025)study,[16] students believed that contextualized instruction improved motivation and that repeated study of the material increased retention of information more than rigorous testing.

Due to the double-blind nature of this study, there was no correlation between student performance and replies, and students were instructed to keep their identities private on the surveys. Because

student replies provide an overall perspective of the teaching approaches currently used or planned in the anatomy department, performance-based bias was avoided in this study. Since the replies were not examined in light of the students' performance, this may be viewed as a disadvantage.

CONCLUSION

The results of this study demonstrate how difficult it is for first-year BDS students to master anatomy, especially gross anatomy and embryology. Two of the biggest obstacles were the inability to apply theoretical information to real-world application and the challenge of remembering anatomical specifics. Interactive teaching strategies, such as cadaveric dissection, audiovisual assistance, and structured revisions, were preferred by the students. In order to improve their comprehension and memory of anatomical ideas, students also preferred a mix of evaluation methods, including multiple-choice, short-answer, and structured descriptive questions.

RECOMMENDATION

Adopting student-centered teaching practices is essential to improving learning outcomes. Digital tools, animations, and regular evaluations are used to reinforce important ideas. Furthermore, fostering a livelier learning atmosphere through debates, tests, and peer interactions may greatly improve students' motivation and understanding. The long-term effects of these treatments on student performance and confidence in clinical applications should be investigated in future studies. Teachers may improve their teaching strategies to better assist first-year BDS students in their anatomy instruction and, eventually, increase their preparedness for clinical practice by recognizing and resolving these challenges.

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