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Perceptions Of Mbbs Students Regarding The Effectiveness Of Small Group Discussions Versus Large Group Lectures In Human Gross Anatomy: A Cross-Sectional Study At Gomal Medical College, D.I. Khan"

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ABSTRACT

Background : The purpose of the study aims to assess and compare the perceptions of MBBS students regarding the effectiveness of small group discussions versus traditional large group lectures in the subject of Human Gross Anatomy. The findings are intended to provide valuable insights into the suitability and impact of these teaching methodologies in our specific educational setting.

Study Design: A Cross sectional study.

Setting And Durtion : Department of Anatomy department Gomal Medical College MTI DIK in Jan- July 2025.

Materials & methods: Census based cross sectional study conducted on students of 1st year & 2nd year MBBS students in anatomy department Gomal Medical College MTI DIK in July 2025. Students were properly exposed to both formats of teaching i.e SGD & LGF. Study design was census based cross sectional study. Data was collected from the students by the questionnaire (Likert scale based).

Results: data was analysed by using SPSS version 23 and was expressed in frequencies & percentages. Students clearly favor small group discussions over traditional lectures and self-directed learning, particularly appreciating the integration of interactive tools such as the Anatomage table and plastinated models.

Keywords: *anatomic, models, SGD, LGF, teaching methodology, gross anatomy.*

1. INTRODUCTION

Anatomy is one of the basic subjects taught when a student got admission in medical school[1]. A deep understanding of anatomy with clear concepts is necessary, especially for those students who are joining the field of surgery in future [2].Teaching of anatomy have been centered around dissection for centuries. Many generations of medical students have started their career by the dissection of cadavers[3].The instruction of human anatomy, much like any academic discipline, demands ongoing evaluation and refinement to identify the most effective teaching strategies and resources. In recent years, there has been a noticeable decline in conventional cadaver-centered anatomy education, with a growing preference for integrated or

system-based curricular models[2].In the modern era of technological advancement and artificial intelligence, traditional didactic lectures and classical cadaveric dissection methods are reduced—or even replaced by student-centered teaching methodologies such as small group discussions[4]. These approaches foster active learning, enhance student engagement, encourage deeper understanding of anatomical concepts, critical thinking, self-directed learning and team work ability. Medical undergraduates for the last many years, have been taught basic medical subjects & introductory clinical knowledge in routine large group formats. Although LGF remain common approach due to logistical ease, SGD promotes active learning, critical thinking & better retention of knowledge. [4,5]

Although substantial international research has been conducted on the effectiveness of small group discussions (SGDs) in medical education, there is a noticeable gap in literature within our local context—particularly in government medical colleges such as Gomal Medical College, D.I. Khan. Therefore, this study aims to assess and compare the perceptions of MBBS students regarding the effectiveness of small group discussions versus traditional large group lectures in the subject of Human Gross Anatomy. The findings are intended to provide valuable insights into the suitability and impact of these teaching methodologies in our specific educational setting.

2. MATERIALS AND METHODS

This study was conducted in the anatomy department Gomal Medical College, Dera Ismail Khan, Pakistan. Ethical review committee GMC D.I.Khan, Pakistan has given the ethical approval for the study (NO. 286/GJMS/JC).

As the data was collected from all 1st and 2nd year MBBS students (N= 200) enrolled at Gomal Medical College, Dera Ismail Khan, during the academic year [2024-2025] who have received anatomy instructions through both SGD & LGF. The study design was census based cross sectional analysis. After the informed consent Structured, pre-validated questionnaire (Likert-scale based) was given to students. Demographic variables of age & gender was taken in 1st part of questionnaire. 2nd part of questionnaire regarding perception of the students is given in table 1.

3. DATA ANALYSIS:

Data was analysed by using IBM SPSS (version 23). Frequency & percentages were calculated of each response category.

4. RESULTS & DISCUSSION:

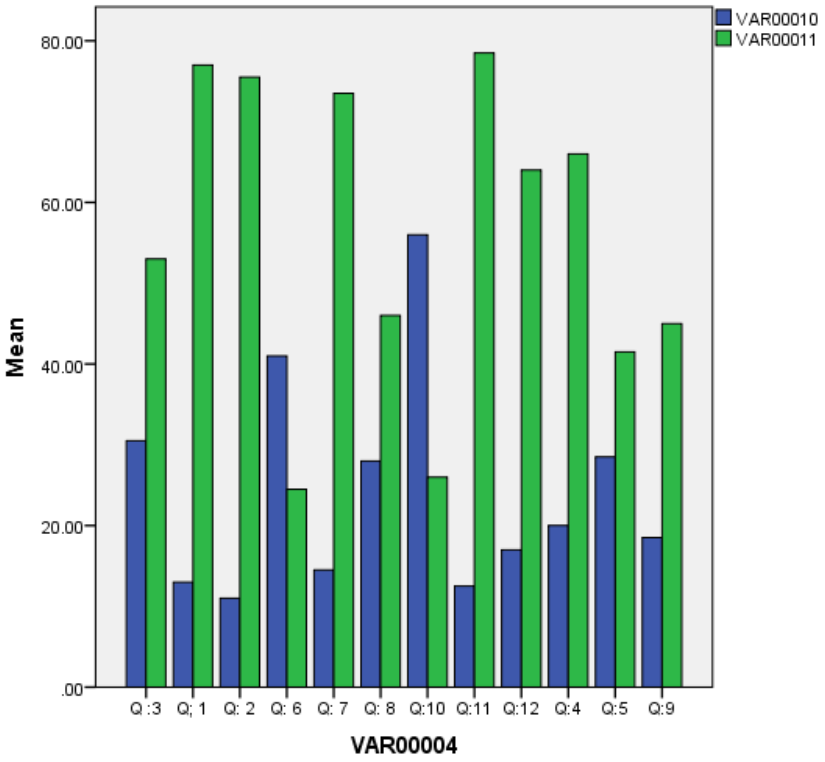
Understanding students' perceptions of different instructional strategies is essential for developing effective anatomy education. This study aimed to evaluate the effectiveness of small group discussions (SGDs) compared to large group lectures and other teaching methodologies in the subject of human anatomy, as perceived by 1st and 2nd year MBBS students at Gomal Medical College. Using a 5-point Likert scale, students responded to a structured questionnaire consisting of 12 items that addressed key aspects of anatomy learning—ranging from comprehension of learning objectives to the utility of lab sessions, assessment systems, dissection, and teaching aids. The responses, summarized in Table 1 and illustrated through bar graphs, provide insightful reflections on how current teaching methods support or hinder their understanding and engagement with gross anatomy. The following discussion interprets these findings in light of existing literature and aims to identify areas for pedagogical improvement.

Table 1 Questionnaire[9]:

S.No:	Questions	Response percentage				
		1	2	3	4	5
1	Do you find that the anatomy learning objectives are understood better in lab than in lecture sessions?	8.0	5.0	10.5	33.5	43.5
2	Does the current lab format (structured small-group learning) help you in the study of anatomy?	6.0	5.0	13.5	53.0	22.5
3	Do you prefer the current structured small-group lab learning to ''free roaming'' during the lab session? (''Free roaming'' was the previous lab format, in which there was no lab demonstration and learning in the lab was entirely self-directed.	8.0	22.5	17.5	28.0	24.0

4	Do you prefer learning in a small group (e.g., the small group that you are in in the gross anatomy sessions) to learning by yourself in the gross anatomy lab?	10.0	10.0	13.5	32.0	34.5
5	Do you think that the time allotted for the lab demonstration and the stations is Optimal (increasing the time for each station means less time for the lab demonstration.)	11.0	17.5	30.0	30.5	11.0
6	Do you want to see more stations in one lab session (SGD), which may mean less time spent at each station (because the lab demonstration will take longer and there are more stations to rotate through)?	13.0	28.0	34.5	15.5	9.0
7	Do you find that the various materials used in the GA lab (such as plastinated specimens, CT/MRI, models/diagrams, live subjects, etc.) are helpful?	7.5	7.0	12.0	40.0	33.5
8	Does the assessment system (i.e., examinations) accurately test your knowledge?	13.5	14.5	26.5	30.5	15.5
9	Are your resource persons (professors and teaching assistants) providing helpful assistance at the stations?	7.5	11.0	26.5	39.5	15.5
10	Our present system does not include dissection. One of the reasons for this is to provide you with an extra 5 to 6 hr per week of study time to achieve your study objectives. Do you agree that this arrangement (i.e., without dissection) helps with your time management (allowing you to spend more time on other aspects of the study of anatomy)?	27.0	29.5	17.5	20.0	6.0
11	Do you think that the skill of dissection could have strengthened your anatomy knowledge	6.0	6.5	9.5	26.5	52.0
12	Do your lab sessions help you to strengthen your problem-solving skills?	7.5	9.5	19.0	44.5	19.5

1 =strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 =agree, 5 = strongly agree.



Graph 1:

Variable 1: strongly disagree & disagree

Variable 2: strongly agree & agree

The responses of the 1st & 2nd year MBBS students to the questionnaire are summarized in table 1. In this analysis, responses of *strongly agree & agree* were combined, as were *disagree & strongly disagree*, to allow for a more meaningful interpretation of the student's perception.For Question 1, 77% of students agreed that the learning objectives of anatomy are better understood through small group discussions (SGDs) compared to large group lectures. This strong preference highlights the effectiveness of SGDs in promoting deeper conceptual understanding. One possible explanation is the incorporation of 3D learning aids—such as the Anatomage table and plastinated models—which likely enhanced students' spatial understanding of human anatomy. These findings are in line with previous studies[9], which emphasized the role of interactive and visual learning tools in improving anatomy education.

In response to Questions 2 and 4, 75.5% and 64.5% of students, respectively, agreed that SGDs significantly enhanced their understanding of gross anatomy. However, 11% (Q2) and 20% (Q4) of students expressed disagreement, which may reflect variations in individual learning preferences, group dynamics, or the quality of facilitation during the discussions [9].Question 3 explored students' preferences between SGDs and self-directed learning (SDL). Here, 52.5% preferred SGDs, while 30.5% disagreed, and 17.5% remained neutral. Although SDL encourages independence and exploration, several students reported challenges in identifying the most relevant models or slides on their own. They noted that resource persons are often better equipped to guide them toward materials that best align with specific learning objectives. Furthermore, limited availability or prior usage of models by other students may have hindered the effectiveness of SDL [9].Question 5 assessed whether students perceived the time allocated to lab demonstrations and station rotations as optimal. The responses were mixed, with 41.5% agreeing, 28.5% disagreeing, and 30% remaining neutral. This indicates a need for re-evaluating the balance between demonstration and station time. Effective time management in lab settings is critical, as inadequate time at each station may hinder students' ability to process and retain information [2].Question 6 investigated students' willingness to have more stations during lab sessions, even if it meant spending less time at each. A majority (41%) opposed this idea, indicating a preference for spending more time engaging with fewer, high-quality stations. These findings align with previous research suggesting that active engagement and adequate time with each learning tool are essential for meaningful learning in anatomy education [10].In Question 7, 73.5% of students agreed that the use of varied teaching aids such as plastinated specimens, anatomage table, anatomical models, and diagrams significantly enhanced their understanding of gross anatomy. The positive response supports current educational trends that emphasize the use of multimodal learning resources to cater to diverse learning styles and improve spatial understanding [2,3].Question 8 revealed that only 46% of students agreed that the current assessment system accurately reflects their knowledge, while 28% disagreed and 26.5% remained neutral. This reflects concerns about

the alignment between learning outcomes and assessment tools. Studies have shown that assessments in anatomy should test both theoretical understanding and practical application to truly reflect students' competence [11, 12] .

Question 9 highlighted that 55% of students found resource persons (faculty and teaching assistants) to be helpful during lab sessions& SGD. Faculty guidance during practical sessions plays a vital role in reinforcing key concepts, clarifying doubts, and encouraging clinical correlations [13].A notable finding from Question 10 was that a majority (56.5%) of students disagreed that excluding dissection from the curriculum—ostensibly to provide additional study time—was beneficial. This suggests that the time gained does not compensate for the educational value lost. The majority of students believe that hands-on dissection offers an irreplaceable, tactile experience crucial for understanding the complexity of human anatomy [14].This was further reinforced by Question 11, where 78.5% of students agreed that the skill of dissection would have strengthened their anatomical knowledge. This is consistent with longstanding findings in medical education, which affirm that dissection aids in developing manual dexterity, spatial reasoning, and respect for the human body—skills essential for future clinical practice [14]. Another study revealed that the trend now is to encourage students to dissect only certain parts. Shortage of cadavers & specimen ha been replaced by modern tools like smart boards & 3-D anatomage table [15].Finally, Question 12 revealed that 64% of students agreed that lab sessions improved their problem-solving skills. The anatomy lab is not only a place for content acquisition but also a space where critical thinking and diagnostic reasoning can be nurtured through case-based learning and clinical scenario integration [15] .The findings from this study provide valuable insights into the strengths and limitations of current anatomy teaching methodologies. Students clearly favor small group discussions over traditional lectures and self-directed learning, particularly appreciating the integration of interactive tools such as the Anatomage table and plastinated models. While students value faculty support and multimodal resources, concerns remain about the adequacy of current assessment methods and the removal of cadaveric dissection from the curriculum. These results highlight the need for a balanced approach that combines modern teaching aids with traditional methods, faculty engagement, and well-aligned assessment strategies. Incorporating students into future curriculum development can help create a more effective, engaging, and clinically relevant anatomy education experience.

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Authors Contributions

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Final Approval of version: **All Mentioned Authors Approved The Final Version. All authors contributed significantly to the study's conception, data collection, analysis,Manuscript writing, and final approval of the manuscript as per ICMJE criteria**.

REFERENCES

[1] 1.Crosby J. Learning in small group: AMEE Medical Education Booklet No 8. Med Teach. 1996;19:189–2002. [Google Scholar]

[2] Estai M, Bunt S. Best teaching practices in anatomy education: A critical review. Ann Anat. 2016 Nov;208:151-157. doi: 10.1016/j.aanat.2016.02.010. Epub 2016 Mar 17. PMID: 26996541.

[3] Patel, S., Mauro, D., Fenn, J. et al. Is dissection the only way to learn anatomy? Thoughts from students at a non-dissecting based medical school. Perspect Med Educ 4, 259–260 (2015). https://doi.org/10.1007/s40037-015-0206-8

[4] Haider, A.K., Rehman, J. & Ali, S.K. Comparative study of the effect of two small group discussion teaching methods (Tutorial vs Jigsaw) on academic motivation and achievement of undergraduate dental students – a preliminary study. BMC Med Educ 25, 660 (2025). https://doi.org/10.1186/s12909-025-07244-1

[5] Tricio J, Montt J, Orsini C, Gracia B, Pampin F, Quinteros C, et al. Student experiences of two small group learning-teaching formats: Seminar and fishbowl. Eur J Dent Educ. 2019;23(2):151–8.https://doi.org/10.1111/eje.12414.

[6] Zubair Amin, Khoo Hoon Eng. Basics in Medical Education, World Scientific, Singapore, 2006: 115-116. Singapore: World Scientific; 2006. pp. 115–116. [Google Scholar]

[7] Meo SA. Basic steps in establishing effective small group teaching sessions in medical schools. Pak J Med Sci.

2013 Jul;29(4):1071-6. doi: 10.12669/pjms.294.3609. PMID: 24353692; PMCID: PMC3817785.

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[9] Chan LK, Ganguly PK. Evaluation of small-group teaching in human gross anatomy in a Caribbean medical school. Anat Sci Educ. 2008 Jan;1(1):19-22. doi: 10.1002/ase.8. PMID: 19177374.

[10] Turney BW. Anatomy in a modern medical curriculum. Ann R Coll Surg Engl. 2007 Mar;89(2):104-7. doi: 10.1308/003588407X168244. PMID: 17346399; PMCID: PMC1964553.

[11] Johnson EO, Charchanti AV, Troupis TG. Modernization of an anatomy class: From conceptualization to implementation. A case for integrated multimodal-multidisciplinary teaching. Anat Sci Educ. 2012 Nov-Dec;5(6):354-66. doi: 10.1002/ase.1296. Epub 2012 Jun 21. PMID: 22730175.

[12] Mohanraj PS, Das A, Rajendran V, Gopal N, Saravanan K, Balan Y. Evaluating the Effectiveness of Online Assessments and Their Parameters as Predictors of Academic Performance in Undergraduate Medical Education. Cureus. 2024 Jun 11;16(6):e62129. doi: 10.7759/cureus.62129. PMID: 38993421; PMCID: PMC11238035.

[13] Lachman, Nirusha & Christensen, Kevin & Pawlina, Wojciech. (2012). Anatomy teaching assistants: Facilitating teaching skills for medical students through apprenticeship and mentoring. Medical teacher. 35. 10.3109/0142159X.2012.714880.

[14] Dissabandara LO, Nirthanan SN, Khoo TK, Tedman R. Role of cadaveric dissections in modern medical curricula: a study on student perceptions. Anat Cell Biol. 2015 Sep;48(3):205-12. doi: 10.5115/acb.2015.48.3.205. Epub 2015 Sep 22. PMID: 26417481; PMCID: PMC4582164.

[15] Abegunasekara, N. & Gopal, Uma B. (2023). RECENT TRENDS AND TEACHING METHODS OF ANATOMY. JETIR. 2023 Jan; 10. 120-129.