

STUDENTS PERCEPTION ON METHODS OF ANATOMY TEACHING AND ASSESSMENT

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ABSTRACT

Objectives: An opinion regarding curriculum, teaching methodology & assessment techniques in anatomy was taken from the first year MBBS students at People's College of Medical Science & Research Centre, Bhopal with specially designed questionnaire.

Materials and Method: Input from the students were collected from the 129 MBBS students of 2013-14 batch who completed first year MBBS. It was done by using a specially designed questionnaire comprising of points relating to the curriculum, teaching methodology and assessment techniques used at People's College of Medical Science and Research Centre, Bhopal for its effectiveness and capacity to meet specific objectives need.

Results: Majority of the students feel the curriculum can be taught in present one year duration. The best method of learning is the chalkboard and dissection hall teaching. Students agreed for multimedia teaching methods for better understanding. Majority students opined that the best method of assessment is part ending tests. Students favoured descriptive & short essay questions with MCQ as examination pattern. Use of visual aids is the best solutions for problems in histology and embryology. Students favoured teacher's notes as a best source of study material. Majority felt that class attendance and internal assessment both considered for allowing students to appear for university examination.

Conclusion: The study concluded that chalkboard teaching and dissection hall teaching would be the best approach for Anatomy teaching and learning and the best method of assessment is part ending tests.

KEY WORDS: Anatomy learning, Students view, Teaching Method, Multimedia.

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Access this Article online

Quick Response code



DOI: 10.16965/ijar.2015.161

Web site: International Journal of Anatomy and Research
ISSN 2321-4287
www.ijmhr.org/ijar.htm

Received: 18 Apr 2015 Accepted: 03 Jun 2015
Peer Review: 18 Apr 2015 Published (O): 30 Jun 2015
Revised: 11 May 2015 Published (P): 30 Jun 2015

INTRODUCTION

In the new unfamiliar environment of a medical college, first year students are exposed to a totally new scenario of teaching/learning process. They develop problems like difficulty in studying and understanding the pre-clinical subjects (especially Anatomy), problems related

to adjusting and adapting to the new college, dissection hall atmosphere and hostel life. As a result, learning becomes very unpleasant task leading to frustration, corroding of the morale and loss of self confidence of the students.

Anatomists who are also familiar with medical education are able to help students to improve

their knowledge, attitude and skills. They teach students how to encounter and deal with a cadaver as an alive human and students learn how to respect the cadavers and pay attention to their confidentiality. In other words, students encounter the cadaver as their first patient and they should work based on the professionalism [1,2]. A knowledgeable and skilful anatomist should represent a role model for perfect manner to the students [3].

The role of the faculty member in the modern concept of medical education is to facilitate the learning process. It is important to use multiple techniques in order to reach as many different types of learners as possible. It is observed that curriculum review, teaching methodology, evaluation at institutional level is done by the senior faculty members & by Medical council of India.

The students are usually never involved in the planning or revising of the curriculum. It is therefore necessary to know the views of the students while revising the curriculum and to know the best teaching methodology which will facilitate the learning process. It is also important to know the opinion of the students regarding the best assessment (formative and summative) techniques to measure their knowledge and skills.

The use of cadavers has been the chief pillar for learning anatomy [4]. However, the limited availability of cadavers, the difficulties imposed by the ethical issues for their use, among other arguments^[5], have lead to use of substitute such as prosection, anatomical models, artificial organs and audio-visual aids.

MATERIALS AND METHODS

Inputs were collected from the 129 MBBS students who had just passed their first year. It was done by using a specially designed questionnaire comprising of points relating to the present anatomy curriculum, teaching methodology and assessment techniques at People's College of Medical Science and Research Centre, Bhopal (MP). The students were briefed about the questionnaire & asked to respond freely and fearlessly. They were informed that the information furnished by them is for the

research and evaluation purpose only and will be kept confidential. The questionnaire was collected back from the students and analysis was done considering each question of the questionnaire.

RESULT AND OBSERVATIONS

An opinion was taken from the first year MBBS students at People's College of Medical Science and Research Centre, Bhopal regarding curriculum, teaching methodology & assessment techniques in anatomy with specially framed questionnaire.

Table 1: Anatomy Teaching Curriculum.

| Questions | Options | Number of students | % |
|--|--|--------------------|--------|
| 1. Duration of curriculum of Anatomy should be | a. Previous scheme of one and half year | 28 | 21.70% |
| | b. Present duration of one year | 84 | 65.11% |
| | c. Should be more than one and half year | 6 | 4.65% |
| | d. No idea | 11 | 8.52% |
| 2. Best Teaching method for Theory classes | a. Lecture | 31 | 24.03% |
| | b. Problem Based Learning | 28 | 21.70% |
| | c. Small Groups and Interactive media | 59 | 45.73% |
| | d. Interactive media | 11 | 8.52% |
| 3. Preferred Teaching for practicals | a. Dissection | 115 | 89.14% |
| | b. Prosection | 1 | 0.77% |
| | c. Educational videos | 6 | 4.65% |
| | d. Anatomical models | 7 | 5.42% |

Table 2: Showing Teaching Methodology.

| Questions | Options | Number of students | % |
|--|---|--------------------|--------|
| 1. Best source of study material | a. Teacher's notes | 63 | 48.83% |
| | b. Textbook | 47 | 36.43% |
| | c. Solved question papers | 9 | 6.97% |
| | d. Internet | 10 | 7.75% |
| 2. Best teaching methodology | a. Dissection hall teaching and Chalkboard teaching | 68 | 52.71% |
| | b. Dissection hall teaching and Multimedia | 44 | 34.10% |
| | c. Chalkboard teaching and Models | 9 | 6.97% |
| | d. Only Multimedia teaching | 8 | 6.20% |
| 3. Multimedia teaching methods | a. Relies on scientific content | 17 | 13.17% |
| | b. Does not causes lack of attention | 25 | 19.37% |
| | c. Not Boring | 17 | 13.17% |
| | d. All of the above | 70 | 54.25% |
| 4. Multimedia teaching methods depend on | a. Teaching methods (PPT, CDs and video clips) | 14 | 10.85% |
| | b. Skill of the lecturer | 19 | 14.72% |
| | c. Ability to imagine relationships | 34 | 26.35% |
| | d. All of the above | 62 | 48.06% |

Table 3: Showing problems in understanding Anatomy and their solutions.

| Questions | Options | Number of students | % |
|--|--|--------------------|--------|
| 1. Specific problems in understanding embryology | a. Inability to visualize | 26 | 20.15% |
| | b. Inability to comprehend sequence of events | 34 | 26.35% |
| | c. Inadequate time | 14 | 10.85% |
| | d. All of the above | 55 | 42.63% |
| 2. Problem in understanding Histology | a. Difficult confusing concepts | 14 | 10.85% |
| | b. Lack of audio-visual aids | 10 | 7.75% |
| | c. Insufficient time in lectures and practicals | 5 | 3.87% |
| | d. Difficult to identify structures on slide | 100 | 77.51% |
| 3. Best possible solution for problems in theory | a. More visual aids including dissection | 48 | 37.20% |
| | b. Additional time required for dissection and tutorial | 32 | 24.80% |
| | c. Students to study more/slow and repetitive reinforcement | 20 | 15.50% |
| | d. Clearer explanation in lectures/tutorial | 29 | 22.48% |
| 4 Best possible solution for problems in practicals | a. More visual aids including dissection | 67 | 51.93% |
| | b. Additional time required for dissection and tutorial | 48 | 37.20% |
| | c. Students to study more/slow and repetitive reinforcement | 6 | 4.56% |
| | d. Clearer explanation in lectures/tutorial | 8 | 6.20% |
| 5. Best possible solution for problems in Histology and embryology | a. More time/more lectures | 16 | 12.45% |
| | b. Use more visual aids including 3 D models | 62 | 48.06% |
| | c. Restructure lecture | 7 | 5.42% |
| | d. Simplify the information/give less details/make differences clear | 44 | 34.10% |
| 6. Theoretical anatomy classes more comprehensible when | a. Blackboard Teaching | 32 | 24.80% |
| | b. Multimedia teaching methods | 27 | 20.93% |
| | c. Teaching on dissection table | 54 | 41.86% |
| | d. Group discussion | 16 | 12.40% |
| 7. Practical anatomy classes more comprehensible when | a. Traditional Teaching | 25 | 19.37% |
| | b. Multimedia teaching methods | 18 | 13.95% |
| | c. Teaching with 3 D models | 46 | 35.65% |
| | d. Group discussion | 40 | 31% |

Table 4: Anatomy Teaching Assessment.

| Questions | Options | Number of students | % |
|---|---|--------------------|--------|
| 1. Pattern of Examination should include | a. Descriptive questions | 15 | 11.62% |
| | b. Short essay questions | 15 | 11.62% |
| | c. Multiple choice questions with true/false type | 28 | 21.70% |
| | d. All of the above | 71 | 55.03% |
| 2. Best assessment technique to measure knowledge in theory | a. A weekly test | 50 | 38.75% |
| | b. Part completion test | 61 | 47.28% |
| | c. Six monthly test | 11 | 8.52% |
| | d. Yearly exam | 7 | 5.42% |
| 3. Best assessment technique to measure skills in practicals | a. Viva on dissected body | 104 | 80.62% |
| | b. Viva on bones | 16 | 12.40% |
| | c. Viva on specimen | 3 | 2.32% |
| | d. Viva on models | 6 | 4.65% |
| 4. What should be the criteria for allowing students in examination | a. Attendance | 18 | 13.95% |
| | b. Performance at internal assessment | 38 | 29.45% |
| | c. Both | 40 | 31% |
| | d. No idea | 33 | 25.58% |

DISCUSSION

Extensive changes have taken place globally to improve the standards of education. The concept of medical education has changed as knowledge is no longer restricted to textbooks and lectures. Nowadays access to internet, electronic journals, educational videos and conferences are the newer concepts of teaching. To achieve goal, teaching and assessment methodologies have evolved. Assessment is an essential part of medical education. It gives evidences of how the students are learning and indicates teaching standards.

A medical curriculum develops in response to requirement of students, institution and communities. Student's feedback about the curriculum is a useful basis for modifying and improving medical education. Through feedback we can identify areas of strength and/or weakness of teaching methodology used so that steps can be taken to rectify deficiencies and to evolve the curriculum and achieve intended goal. The present study is important because majority

were satisfied with various aspects of lectures being delivered, explanatory lectures, relevance of displayed material and languages used.

According to S K Nagar, Ojaswini Malukar (2012) [6] 38.41 % students believed that previous scheme of one and half year was better, another 21.41% believed that the present duration of one year is not enough and 37.68% were in favour of present one year curriculum. In present study, majority of the students felt that the curriculum can be taught in present one year duration (65.11%) and 21.7% agreed for previous scheme of one & half year.

Rokade SA et al in 2013 [7] Reported that Majority of students (more than 2/3) expressed that the Chalk & Board method was more interesting than Power Point Presentation. In present study the best method for theory classes was teaching in small groups with interactive media (45.73%), followed by lecture (24.03%).

The best method of learning in the dissection hall was teaching on the cadavers (S K Nagar, Ojaswini Malukar in 2012) [6]. Cadaveric dissection is a favourable approach for achieving important learning objectives in the field of anatomy (Chapman SJ, Hakeem AR et al 2013)[8]. In present study, students preferred teaching for practicals in form of dissection hall teaching on the cadavers (89.14%).

The best form of assessment was Multiple choice questions with true/false type (Shoaib, Rafique, Hasaan Rafique in 2013) [9]. In present study, 55.03% of students favoured descriptive & short essay questions with Multiple choice questions as a pattern of examination and only 21.7% students agreed for multiple choice questions with true/false type questions.

In study by S K Nagar, Ojaswini Malukar in 2012[6] 70.80% students were in favour of weekly test. In present study, best assessment technique to measure knowledge in theory was part completion test (47.28%), followed by weekly test (38.75%).

Best assessment technique to measure skills in practicals should be viva on dissected body as per 80.62% of students, next viva on bones 12.4%.

According to Students possible solution for problems in gross anatomy practicals were tutorial utilizing more 3 D aids such as models,

computer programmes, videos and prepared specimen (70.5%), more time for particular topic, dissections and tutorials (33%), more studying on the part of the student with slow and repetitive reinforcement (14%) and important information be emphasized. Proposed solutions to problems were, scheduling of more lectures to provide additional time to better assimilate the work (13.5%) using more visual aids (photographs, slides, diagrams and 3 D models) (11.5%), restructuring of lectures(9%) and simplifying the information by including summaries or tables (B Karmer and J T Soley in 2002)[10]. In present study, 37.20% of students required more visual aids including dissection as a best possible solution for problems in theory, followed by 24.8% need additional time for dissection and tutorial.

In present study, 51.93% of students required more visual aids including dissection as a best possible solution for problems in practicals, followed by 37.2% students need additional time for dissection and tutorial.

Respondents indicated following reasons for the perceived problems in histology, difficult and confusing concepts (12%), badly structured lectures (18%) and insufficient time (10%)(B Karmer and J T Soley in 2002)[10]. In present study, majority students (77.51%) who faced problem in understanding Histology were having difficulty in identifying structures on slide.

64% students indicated that problems in understanding embryology stemmed from an inability to visualize, comprehend the sequence of events which characterise developmental process, particularly 3 D and inadequate time and sequence followed in lectures (B Karmer and J T Soley in 2002)[10]. In present study, students 42.63% faced specific problem in understanding embryology due to inability to visualize, inability to comprehend sequence of events and inadequate time.

The scheduling of more time and extra tutorials (11%) were suggested as possible solutions, the use of more visual aids (10%) and changing format of lectures by either converting them into small group tutorials and including physical specimen to demonstrate structural changes (10%) as possible solutions to problem in embryology (B Karmer and J T Soley in 2002)[10].

Proposed solutions to problems in histology were, scheduling of more lectures to provide additional time to better assimilate the work (13.5%) using more visual aids (photographs, slides, diagrams and 3 D models) (11.5%), restructuring of lectures (9%) and simplifying the information by including summaries or tables (B Karmer and J T Soley in 2002)[10]. In present study, according to 48.08% students best possible solutions for problems in histology and embryology was to use more visual aids including 3 D models, followed by simplifying the information/giving less details/making differences clear (34.1%).

Students find theoretical Anatomy classes more comprehensible when traditional teaching methods (blackboard or transparencies) are used (Abdulmonem Al-Hayani and Gamal S. Abd El-Aziz in 2008) [11]. In present study, 41.86% of students theoretical anatomy classes are more comprehensible when teaching on dissection table followed by blackboard teaching (24.8%).

Majority students find perception of practical Anatomy classes more comprehensible when traditional teaching methods are used (Abdulmonem Al-Hayani and Gamal S. Abd El-Aziz in 2008) [11]. In present study, variable opinion of the students about the Practical anatomy classes, they are more comprehensible when multimedia teaching methods (35.6%) followed by group discussion (31%).

In assessment of the multimedia-supported anatomy teaching, students satisfied for better perception of practical anatomy classes by multimedia-supported anatomy classes and they relied on scientific content of the multimedia presentations in the level of perception to anatomy (Abdulmonem Al-Hayani and Gamal S. Abd El-Aziz in 2008) [11]. In present study, majority 54.26% students preferred multimedia teaching methods as a best anatomy teaching methodology and it relies on scientific, does not cause lack of attention and is not boring.

Multimedia-supported teaching of anatomy classes was overall very successful and acceptable by the students. The use of multimedia-supported teaching will open new horizons to shift to more independent learning and integrative learning or even distance learning (Abdulmonem Al-Hayani and Gamal

S.Abd El-Aziz in 2008) [11]. In present study, 48.06% students agreed that multimedia teaching methods depends on teaching methods, skill of lecturer and ability to imagine relationship.

As for the teaching methodology majority of students feel that dissection hall teaching is the best method followed by slide projector /AV projection / Multimedia, conventional chalk & board methods (Gholamreza Hassanzadeh, Narges Hassanpoor in 2012) [12]. In present study, majority of students felt that dissection hall teaching and chalkboard teaching (52.71%) as a best methodology followed by dissection hall teaching and multimedia (34.1%). In present study, 48.83% students favoured teacher's notes as a best source of study material, followed by textbooks (36.43%). 55.7% students felt that class attendance and internal assessment should be both taken into consideration for allowing students to appear in university examination (Shoaib Rafique, Hasan Rafique in 2013) [9]. In present study, 31% students agreed for both class attendance and internal assessment for allowing students to appear in university examination and only 29.45% agreed for performance at internal assessment, 25.58% had no idea, only attendance as per 13.95% students.

SUMMARY AND CONCLUSION

An opinion regarding curriculum, teaching methodology & assessment techniques in anatomy was taken from the first year MBBS students at People's College of Medical Science and Research Centre, Bhopal with specially framed questionnaire. Majority of the students felt that the curriculum can be taught in present one year duration with present system of lecture, practical timetable. The best method of learning is the chalkboard teaching and dissection hall teaching. Students agreed for multimedia teaching methods as it relies on scientific content and able to understand better. Majority students opined that the best method of assessment to assess knowledge in theory is part ending tests. Majority of students favouring descriptive & short essay questions with Multiple choice questions as a pattern of examination. Majority students find best possible solutions for problems in histology and embryology was to use more

visual aids including 3 D models. Students favoured teacher's notes as a best source of study material, followed by textbooks. Majority students felt that class attendance and internal assessment should both be taken in to consideration for allowing students to sit in university examination. This study shows that the planning about the curriculum, teaching methodology & assessment techniques can be modified considering the opinion of the students to bring out the best in them and how teaching can address their contemporary learning needs. As courses become shorter and curriculum more crowded, the resources of teaching methods must maximize the effectiveness of Anatomy learning and most importantly to recall and apply anatomy knowledge in medical practice.

As we agree with the concept that "physicians with a thorough knowledge of anatomy limit the use of expensive technique of diagnosis" and improved education of doctors in basic of the anatomy could be the most effective approach to improved diagnosis, rather than use of new diagnostic methods. In the end, the two approaches cadavers and computers (used as symbols of practical and theoretical models) are best seen as complementary. We believe that computerization will begin to make enormous contributions to the learning of basic anatomy. Overall at this initial stage of medical profession computer assisted learning system offer flexibility, enabling students to choose the place, time, pace and process of learning, the use of computer rooms can also be useful in learning outside the classroom, such as the review of anatomical subject matter required by students in the later stages of the training in the health care area.

Conflicts of Interests: None

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How to cite this article:

Rashmi Jaiswal, Sameer Sathe, Vivekanand Gajbhiye, Rashmi Sathe. STUDENTS PERCEPTION ON METHODS OF ANATOMY TEACHING AND ASSESSMENT. *Int J Anat Res* 2015;3(2):1103-1108. DOI: 10.16965/ijar.2015.161