



PERCEPTION OF MEDICAL STUDENTS OF UTTARA KANNADA ABOUT THE TEACHING METHODOLOGIES AND CLINICAL IMPORTANCE OF MEDICAL MICROBIOLOGY

Medical Microbiology

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ABSTRACT

Background: Medical microbiology is a subject studied in 2nd year of MBBS. The knowledge and application of the subject plays a major role in diagnosis and clinical management of infectious diseases. The clinical posting also starts in the same year and students start to apply what is taught in the subject clinically. Hence, an attempt is made to know how students perceive the subject in terms of its clinical importance, understanding of the subject and methods they prefer for better understanding and application. **Materials And Method:** The study was conducted on all 150 2nd year MBBS medical students of our college (Karwar Institute Of Medical Sciences), who completed their microbiology syllabus. Informed consent was obtained by all the students where, only 130 gave the consent and participated in the study. A structured questionnaire with 17 questions was shared as Google form. The students were asked to answer it and the results were analysed. **Result:** Response of the students was positive to questions regarding understanding the subject, planning of the classes, record material, intergation of subjects and staff efforts. In teaching methodologies, Case based learning (CBL) was preferred the most followed by lecture sessions. In lecture, 47.5% have preferred chalk and talk against only 11.7% preference to power point presentation. Most have preferred showing videos, culture and biochemical reactions whenever possible in practical sessions. 54.2% of them have opined that the subject has helped them in clinical postings and 99.2% of them have agreed that knowledge of microbiology is very important to become a good clinician. **Conclusion:** With change in time, there is a need to know how student perceive our subject and methodology of teaching. Though the clinical importance of the subject is well appreciated and majority of them have a positive response to the methods followed, there is always a chance to improve. Methods like case based learning, case videos are the most sorted ones with still preference to chalk and board teaching in didactic lectures. In a medical college where time is largely invested on teaching students, understanding their preferences, and modifying accordingly is essential time and again.

KEYWORDS

Perception, Microbiology, case based learning

INTRODUCTION

Medical microbiology, a subject taught in phase 2 (2nd year) of MBBS has a major role in clinical management of infectious disease. In this subject, students learn about various disease causing microorganisms, antimicrobial resistance, antimicrobial stewardship, hospital acquired infections and its control. Clinically, when patients visit the hospital, conceptual knowledge of the subject is essential for clinical correlation and application¹. If this is not understood by the students, the purpose of the teaching this subject is not met². The teaching is done according to the new CBME curriculum. Though all efforts will be put to make students understand the topic, effectiveness of conventional teaching depends on teachers skill and passion. Students will also have varied opinion, their own difficulty and preferences in teaching learning methods.³ With this importance of the subject, this study is taken up to determine students perception about the importance of the subject in their medical education and their preferences in teaching learning methodologies.

MATERIALS AND METHODS

It is a cross-sectional, questionnaire based study conducted on all 150, 2nd year MBBS medical students who completed their microbiology syllabus. Informed consent was obtained by all the students. Only 120 students gave their consent and participated in the study. A structured questionnaire was shared with them as Google form, where all the questions were made compulsory.

The questionnaire shared to the participants and the options provided is given in table 1.

Table 1: Study questionnaire

Sl No	QUESTIONS	OPTIONS
1.	Why do you think Microbiology is important to be studied?	a. Interesting subject b. It's knowledge helps in clinical posting c. MCQ exam will help in pre pg exam d. Integrated teaching improves understanding

2.	Which is the preferred teaching learning method according to you?	a. Lecture b. Small group discussion c. Self directed learning d. AETCOM e. DOAP/Practicals f. OSPE g. Case based learning
3.	Which is the preferred way for conducting lecture sessions according to you?	a. Chalk and talk b. PPT c. ore of videos whenever possible d. Interactive session e. Notes given at the end of class
4.	Were lectures conducted helpful to you? Yes or No? If No, why?	a. Yes b. No
5.	Your opinion about topics covered in a single lecture session	a. Exactly as required b. Too many topics in one class c. Too less topics in one class
6.	Comment on DOAP/Practical sessions conducted	a. Very helpful and interesting b. Helpful but not interesting c. Satisfactory d. Neither helpful nor interesting
7.	How can practical sessions be improved?	a. Bench teachers compulsorily engaging their students after demonstration b. Biochemical reactions/culture plate with growth/specimen pertaining o the case being displayed for discussion c. More number of revisions to be conducted d. Records correction should be upto date

8.	How can case based learning in DOAP/practical sessions be made more effective?	a. Discussion of case showing case related pictures b. Discussion of case showing case based videos wherever possible c. Differential diagnosis of case discussed by dividing the class into groups d. By reminding students to come prepared with the case
9.	Was Microbiology topics completed in time in each block and as a whole?*	c. Yes d. No
10.	How should the timetable be planned for your maximum benefit?	a. System wise b. Organism wise
11.	How do you grade faculty teaching in this subject ?(Grade from 1-5, 1 being the lowest and 5 being the highest) *	a. 1 b. 2 c. 3 d. 4 e. 5
12.	Knowledge of Microbiology and infection control is very essential to be become a good clinician*	a. strongly disagree b. disagree c. neutral d. agree e. strongly agree
13.	Explanation and preparation of study materials like record, log book, DOAP/practical hand outs , PPTs by the faculty was (grade from 1-5, 1 being the lowest and 5 the highest)	a. 1 b. 2 c. 3 d. 4 e. 5
14.	Syllabus of Microbiology is too vast to be covered in 1 year*	a. Can be covered efficiently if planned well b. Cannot be covered efficiently however well planned
15.	Assessment of students in practical was *	a. Satisfactory b. Should be more liberal c. Should be more strict
16.	At the end of the academic year, do you know the differences between bacteria, virus, fungus and parasites? Can you correctly place any given microorganism under its respective category?*	a. Yes b. No
17.	Suggestions to improve the training of the subsequent batches *	

RESULTS

Response of the students was positive to questions regarding understanding the lectures (96.3%),practical sessions (70%), completion of syllabus(98.3%),faculty teaching(85.9%),explanation and preparation of study materials like record and log book(81.7%).

For questions regarding teaching methodologies, Case based learning was preferred(41.7%) the most followed by lecture sessions(35%). In lecture, 47.5% have preferred chalk and talk against only 11.7% preference to power point presentation. Most have preferred showing cultures and biochemical reactions in practical sessions (60.8%) and (42.5%) have suggested showing videos in clinical case based practical sessions.

Regarding perception of importance of Microbiology, 54.2% of them have opined that the subject has helped them in clinical postings, 22.5% have responded saying it's an interesting subject. 99.2% of them have agreed that knowledge of microbiology is very important to become a good clinician .

Some questions which were designed to clear our own doubts were: topics covered in a single session, which was opined as exactly as required by 60.8% and too many topics in a single class by 37.5%. Regarding planning the timetable, 78.3% opined systemwise and

21.7% organismwise. Opinion about the syllabus was asked where only 12.5% opined it was too vast while others said it can be covered if efficiently planned.Majority were satisfied by their assessment in exams(87.5%) and 97.5% were confident that they know classification of microorganisms and examples for the same.

For the question to suggest the ways to improve delivery of the subject, various suggestions were received, where most of them suggested to include more interactive, case based teaching sessions.

The response of the students is depicted in charts 1 and 2. The questions and options should be referred in table 1.

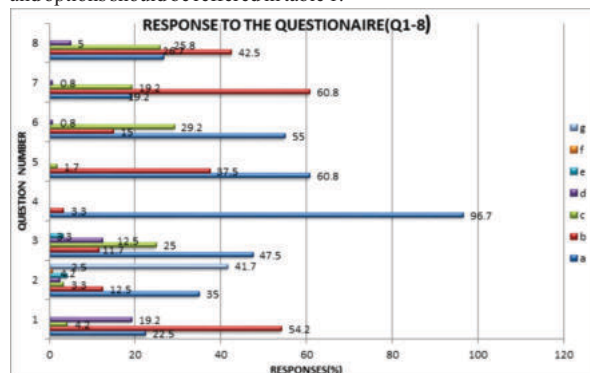


Chart 1: Response to the students to questions 1-8

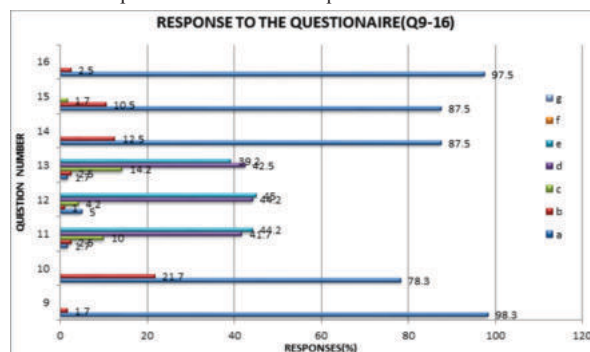


Chart 2: Response of students to questions 9-16

DISCUSSION

Medical education aims at imparting knowledge for practical application. Various techniques in simulating environment is essential for making the concepts clear to the students. Traditional teaching methods has to be supplemented with newer approaches to make the subject interesting and to understand its importance.

In our study, questions were targeted on how students find the teaching methodologies, faculty efforts, perception of importance of the subject in clinical application. Few questions like time table based on systemwise or organism wise, topics dealt in a single class, assessment in practicals were included as we were also trying to find the best way (solution)for the problems faced while designing them.

99.2% of the participants have agreed that knowledge of the subject is essential to become a good clinician. A similar response was seen in study by Okokon Ita Ita et al¹, where, 96% of their participants had opined the same, which is also in line with study by singh et al²,and Namaei MH et al⁶..

As that of other studies,³ students preferred chalk and talk over powerpoint presentation but added with videos and pictures.

There was greater preference to case based learning which was the result with various other studies like that of Anita singhal⁷, where most of the students suggested CBL and also, post test score of group taught with CBL sessions was significantly higher to the group taught with didactic lectures. Similar was the opinion in various other studies where students showed more inclination towards newer methods like CBL^(8,9,10,11,12,13,14), interactive quiz¹⁵, and interactive tutorial sessions¹⁶ which makes them to get actively involved, increases their interaction with teachers and helps in clinical application of the subject.

CONCLUSION

With the newer advances in medical microbiology, where there is growing importance to newer concepts like antimicrobial resistance, HICC, Antimicrobial stewardship, there is a greater need for the students to understand the fundamental concepts, its retention and application clinically. To achieve this, the need and expectations of the students should be understood by the teachers which helps to change the methodology of teaching the curriculum, to make students to get actively involve, apply and understand the importance of the subject clinically.

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Conflict Of Interest

The authors declare that there is no conflict of interest.

Authors' Contributions

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Data Availability

All datasets generated or analyzed during this study are included in the manuscript.

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