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ORIGINAL ARTICLE

TEACHING AND LEARNING METHODOLOGY IN MEDICAL EDUCATION: AN ANALYSIS-IN GSL MEDICAL COLLEGE, RAJAHMUNDRY, A. P.

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ABSTRACT: To study and analyze the controversial traditional didactic teacher-centered/subject-based teaching and learning approach & student-centered teaching and learning approach. And also to study and analyze the lecture teaching and learning method and problem based teaching and learning method besides large group teaching and learning method and small group teaching and learning method. **MATERIAL AND METHODS:** This was a descriptive cross-sectional study. 100 students out of 200 first M. B. B. S. class of G. S. L. Medical College, Rajahmundry were randomly selected for this study. Data collection tools included an 6-items questionnaire. The questions were 5 pointed ranging from extremely appropriate/possible to not appropriate/possible. **RESULTS:** The results showed that the students extremely preferred the teacher-centered teaching and learning approach (62%), lecture teaching and learning method (68%). Our results further revealed that small group teaching and learning method was extremely possible for discussion (81%), clarification of doubts (86%) and interaction with teacher (92%). **CONCLUSION:** It may be concluded from our results that the students more preferred teacher centered approach, lecture method and small group method. The teacher must be an exceptional person who inspires students and allows the students to discuss, ask questions for clarification of doubts and interact with him.

KEYWORDS: Teacher-centered approach, Student-centered approach, Lecture method, Problem-based method, Large group method, Small group method.

INTRODUCTION: Medical education is facing variety of challenges in the 21st century, and it is in the midst of major transformation.[1]

In teacher-centered education, students put all of their focus on the teacher. The teacher talks, while the students exclusively listen. The classroom remains orderly. Students are quiet, and the teacher retains full control of the classroom and its activities. Because the teacher directs all classroom activities, they don't have to worry that they will miss an important topic. Teachers are the main authority figure in this model. It is the primary role of teachers to pass knowledge and information onto their students.

Irby,[1] gave importance in his research article about not only teaching but also learning. Creating an environment in which students can learn effectively and efficiently becomes the new prerequisite, demanding not only that teachers are experts in their fields but also-and more importantly-that they understand how students learn.[2] Teaching learning process should proceed from the known to the unknown and simple to complex.

Teaching is not only a transfer of information from a teacher to the student, but also a two-way process of sharing thoughts and feelings. The teacher should be aware of the recent developments in medical education. Teaching is a process which facilitates learning by encouraging students to think, feel and do. The traditional role of the teacher has been to act as a source of

information and transmit this to the students. The teacher must interact with the students following suitable teaching methods to make the students well versed in the subject. Innovation in the present teaching methods is always necessary. The teacher should play a vital role for the all-round development in the subject through proper teaching methods. A teacher must be a model to the students.

Angelo et al.[3] in their handbook for college teachers, explained teaching without learning is just talking. Classroom assessment focuses the primary attention of teachers and students on observing and improving learning, rather than on observing and improving teaching. According to Samarakoon et al.[4] Teaching is considered as 'ever-evolving' processes especially in medical school. He further states that it needs to modernise continuously.

James et al,[5] defined learning style as 'the manner in which and the conditions under which learners most efficiently and effectively perceive, process, store, and recall what they are attempting to learn'. According to Kharb et al.[6] 'learning style' means as 'an individual's preferred method of gathering, processing, interpreting, organizing and analyzing information'[6]. According to Omorogiuwa et al.[7] Teaching and learning were the two sides of a coin. The best way to the quality of teaching is the 'amount of student learns'.

When a classroom operates with student-centered instruction, students and teachers share the focus. Instead of listening to the teacher exclusively, students and teachers interact equally. Group work is encouraged, and students learn to collaborate and communicate with one another. As per several studies[8,9] many terms have been linked with student-centered learning, such as flexible learning, experiential learning, and self-directed learning and therefore the slightly overused term 'student-centered learning' can mean different things to different people. In student-centered learning environment, the main focus is on knowledge sharing and when learning is used properly, it can become a lifelong learning process. In this way, the student looks for a solution to solve the problem without complete dependence on a teacher.

In the student-centered classroom, the cooperative learning method is used, in which students produce the questions. Teacher acts as a facilitator to students. This approach also leads to finding fundamental information and possible solutions of the questions including in the debate based on the inquiry.[10]

Wojtczak[11] defined lecture as an instruction or verbal discourse by a speaker before a large group of students. Wrown et al.[12] Stated that the main advantages of lecture were coverage of topics, simplification of difficult concept. Several studies[13,14,15,16] found that lecture was easy organization and effective and economical way of conveying information to large numbers of recipients. A good lecture is a text-book plus personality. Flexner. The traditional lecture approach or the content-oriented approach is still the core teaching method. Lecture is a careful presentation of facts with organized thoughts and ideas by a qualified person. To make the lecture a success, break up it with questions and discussion. The teacher does not just read from notes. Teacher's voice should be clear. The material covered is relevant. Lecturing is an analytical process. The purpose of the lecture is to teach the students important concepts and principles and gives stress on main points. The teacher has to present the aim and objectives in the beginning of the class. He should give small breaks between the main points. He should present summary before the end of the lesson and encourage the students to ask questions.

Boud et al,[17] described problem based learning as one of the most significant developments in professional education. It is generally understood to mean an instructional strategy in which students

identify issues raised by specific problems to help develop understanding about underlying concepts and principles. The focus is usually a written problem comprising "phenomena that need explanation".[18]

In the small group, the discussion will be informal and democratic and unstructured conversation. Student discovers his strength and weakness in comparison to fellow students. There is necessity of teacher student ratio. Inexperienced group is ineffective. Since student's aptitude varies widely, some may find the proceedings too fast or too slow. Group leader (Teacher) should have experience in leading group discussion, clarify the doubts and know each member of the group. Class sizes which are too large may prevent everyone from contributing to discussion.

Even though there are certain established studies, we have taken up this study in GSL Medical college, Rajahmundry, A. P; to know and establish whether this college students prefer teacher-centered teaching and learning approach or student- centered teaching and learning approach, lecture teaching and learning method or problem-based teaching and learning method, and large group or small group teaching and learning method.

MATERIAL AND METHODS: The present study was conducted in the Department of Biochemistry, G. S. L. Medical College, Rajahmundry, Andhra Pradesh. The present study was carried out during February, 2015.

Data collection tools included an 6-items questionnaire. The questions were 5 pointed ranging from extremely appropriate/possible to not appropriate/possible.

SUBJECTS: A total of 100 first year MBBS students were randomly selected out of total strength of 200 and invited to participate in this study. An informed consent was obtained from each participant after giving them full information about the study.

Great care has been taken to preserve the anonymity of survey participants. The participation is voluntary and no money or other incentives would be given to participants. The information they provide will not be divulged to others without their permission, and that their identities will not be disclosed to third parties.

Exclusion Criteria: The total strength of the students of first M. B. B. S. was 200. Selection was random and they were 100. Others were excluded from this study. They were also 100.

Inclusion Criteria: Of all the First year M. B. B. S. students 100 were randomly included in this study.

RESULTS: We have comparatively studied the teacher-centered/subject-centered teaching and learning approach (Table-1) and student-centered teaching and learning approach (Table-2). Lecture teaching and learning method (Table-3) has been taken up for comparative study on behalf of teacher-centered teaching and learning approach. Problem based teaching and learning method (Table-4) was taken up on behalf of student- centered teaching and learning approach. Both the methods were compared with each other. Large group (Table-5) and small group (Table-6) teaching and learning methods were taken up to know discussion in the classroom, clarification of doubts and interaction with the teacher were how far possible.

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	NUMBER OF RESPONDENTS	PERCENTAGE
Extremely appropriate	62	62%
More appropriate	20	20%
Moderately appropriate	15	15%
Less appropriate	03	03%
Not appropriate	NIL	NIL

Table 1: Teacher-Centered Teaching and Learning Approach

	NUMBER OF RESPONDENTS	PERCENTAGE
Extremely appropriate	46	46%
More appropriate	14	14%
Moderately appropriate	10	10%
Less appropriate	19	19%
Not appropriate	11	11%

Table 2: Student-Centered Teaching and Learning Approach

	NUMBER OF RESPONDENTS	PERCENTAGE
Extremely appropriate	68	68%
More appropriate	23	23%
Moderately appropriate	09	09%
Less appropriate	NIL	NIL
Not appropriate	NIL	NIL

Table 3: Lecture Teaching and Learning Method

	NUMBER OF RESPONDENTS	PERCENTAGE
Extremely appropriate	32	32%
More appropriate	14	14%
Moderately appropriate	18	18%
Less appropriate	21	21%
Not appropriate	15	15%

Table 4: Problem - Based Teaching and Learning Method

	DISCUSSION	CLARIFICATION OF DOUBTS	INTERACTION WITH TEACHER
Extremely possible	05 (5%)	09 (9%)	07 (7%)
More possible	07 (7%)	06 (6%)	05 (5%)
Moderately possible	19 (19%)	20 (20%)	16 (16%)
Less possible	32 (32%)	36 (36%)	37 (37%)
Not possible	37 (37%)	29 (29%)	35 (35%)

Table 5: Large Group Teaching and Learning Method with Number of Respondents and Percentage

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	DISCUSSION	CLARIFICATION OF DOUBTS	INTERACTION WITH TEACHER
Extremely possible	81 (81%)	86 (86%)	92 (92%)
More possible	11 (11%)	08 (8%)	05 (5%)
Moderately possible	08 (8%)	06 (6%)	03 (3%)
Less possible	NIL	NIL	NIL
Not possible	NIL	NIL	NIL

Table 6: Small Group Teaching and Learning Method with Number of Respondents and Percentage

Teacher-centered teaching and learning approach got the support of 97% students combined in extremely, more and moderately appropriate whereas student-centered teaching and learning approach got the support of 70% students in the above three items.

Lecture teaching and learning method got the preference of 100% students combined in extremely, more and moderately appropriate. Problem-based teaching and learning method got the preference of 64% combined in the three items.

Small group teaching and learning method got the preference of students 100% in all the discussion, clarification of doubts and interaction with the students combined extremely, more and moderately appropriate. Large group teaching and learning method secured the preference of 31%, 35% and 28%for discussion, clarification of doubts and interaction with the teacher respectively combined extremely, more and moderately appropriate.

DISCUSSION: Medical education is an important factor in the progress of any country. Across the world, increasing attention is being given to the quality of teaching and learning in the medical colleges. Teaching is the noblest profession of all. A doctor is treated as equivalent to god who serves and saves the lives of the people. So, suitable approaches, methods, techniques and skills in medical teaching and learning are essential to produce a good number of committed doctors who should have human and social outlook.

On the examination and analysis of our research results we found very interesting findings. Hundred students participated in this study. Teacher-centered teaching and learning approach got 62% preference for extremely appropriate, 20%-more appropriate, 15%- moderately appropriate, extremely and more appropriate combined got 82%. According to student-centered teaching and learning approach research results 46% students preferred extremely appropriate, 14%- more appropriate, 10%-moderately appropriate.

Anyhow, no approach was out rightly rejected by the students. They supported the both approaches. But most of them preferred teacher-centered teaching and learning approach more. The use of modern technology in education is not a passing trend but a powerful tool to supplement traditional teaching methods.

It should be the motto of a teacher to inculcate social service mind and human attitude among the medical students. A teacher must be an embodiment of knowledge and a model to the students. Teacher's explanations enable students to understand the content and forging connections between what is known and what is new. Good teaching methods are open to change for effective teaching in the light of evidence collected.

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Medical students as adult learners need to know why they should learn something. They must be motivated by the teacher. Ideally theory and practice should go together. It is very appropriate to say that the teacher is the foundation and the pillar of the building whereas the teaching and learning methodology is the structure of the building. Teaching was a skill that you were expected to possess or acquire. Effective teaching techniques are now a requirement for doctors, as highlighted by the General Medical Council.[19] A passionate teacher will be an asset to any medical department.

Guilbert,[20] in his Educational Handbook, observed that teacher would be successful when he accepts criticism of students. When students performed better and even more than expected, it was thought academic faculty was more effective and quality teaching was ensured according to Goe at al.[21]

Implementation of a student-centered method has the barriers such as confusion in the cases of implementation and lack of comfort with it. Since training design of student-centered classroom is more unpredictable than teacher-centered classrooms. Teachers need support in the design of classes. In addition, many students have little experience about the skills and knowledge needed to successful learning in the student-centered classroom.[10] Thus Blanchard et al. viewed that student-centered teaching and learning method was unpredictable than teacher-centered approach which confirmed our research findings.

Because students were talking, classrooms were often busy, noisy and chaotic. Teachers must attempt to manage all students' activities at once, which can be difficult when students are working on different stages of the same project. Because the teacher doesn't deliver instruction to all students at once, some students may miss important facts. Some students prefer to work alone. So group work can become problematic.

Although traditional medical education methods had produced thousands of well-known, efficient and successful doctors in both developed and developing countries there were increasing calls for fundamental changes in medical education to meet the needs of the community.

Out of the two methods-lecture teaching and learning method, and problem based teaching and learning method, most of the students preferred the first method significantly. Lecture teaching and learning method got 100% preference of the respondents combined extremely, more and moderately appropriate. Extremely and more appropriate together got the support of 91%.

Problem- based teaching and learning method secured 64% combined together extremely, more and moderately appropriate. According to different literature survey findings among the educational methods applied in undergraduate medical education, lecture was still a preferred and established part of learning experience.[22,13,12,23,24] Lecture is considered as one the oldest method of teaching and learning in all types of education including medical science. Further Medical Council of India has considered lecture as one of prime method of teaching as per Sarkar et al.[25]

Number of studies by several research scholars have confirmed our findings in the case of problem–based teaching and learning method. Several disadvantages have been identified in problem –based teaching and learning method including the costs for starting up and maintenance, [26] excessive demands on staff time,[27] increased stress on both students and staff,[26] relative in-efficiency,[28] reduced acquisition of knowledge of basic sciences,[29] and implementation difficulties when class sizes are large or where there is a broad lack of enthusiasm for the approach.[28]

Our findings showed that students very clearly opted to the small group teaching and learning method as the best method with regard to discussion in the class, asking questions for clarification of doubts and interaction with teacher. Our research results further showed that the students did not

encourage large group learning and teaching method wherein according to them discussion, clarification of doubts and interaction with the teacher were not so possible.

Several research studies confirmed our findings that small group teaching is an important component of undergraduate medical education; many medical schools around the world have adopted this strategy of teaching to make the classes more interactive and to give opportunities for students to take part in discussion,[30,31] Saleh et al. suggested the priority for improving the quality of teaching methods including strategies for teaching were introduction of small groups in all years of the study.[24] They also confirmed that there was a considerable problem of having a large number of students in the lecture hall.[24] The problem of large number of students reported in Iran study.[32]

Students in our research study preferred more teacher-centered teaching and learning approach, lecture teaching and learning method and small group teaching and learning method.

CONCLUSION: Most of the students in our college are giving maximum importance to teacher–centered teaching and learning approach, lecture teaching and learning method and small group teaching and learning method. The other approach and teaching learning methods which are under study except large group teaching and learning method got support up to some extent which can also be used as and when necessary. Teacher should be given suitable training in the teaching and learning skills and techniques.

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