

EFFECTIVENESS OF PRE AND POST EVALUATION METHOD OF TEACHING IN MEDICAL PROFESSION

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ABSTRACT

Background: Medical education is emerging with new compelling instructional tools and methods of teaching medical concepts, providing new learning possibilities for the faculty and student. Assessments could be invaluable; this helps teachers to identify the strengths and weaknesses of each student and it also helps to guide the next steps in instruction. Pre-evaluation is one of the techniques to improve students attention and cognitive skills to get the concepts more clearly when taught by the faculty.

Objective: The present study is taken up to learn the effect of pre and post-evaluation in understanding medical biochemistry by the students. **Methods:** A total of 100 first year MBBS students were involved in the study. MCQ questions were given to the students as prior to the class as pre-evaluation. Same MCQs was given to them after the class as post evaluation. After completion of the chapter students, perceptions were collected using a standard questionnaire. **Results:** The scores were high in post-assessment when compared to the pre-evaluation and were statistically significant $p < 0.0001$. Majority of the students strongly agreed that the use of the evaluation method was useful in medical education. **Conclusion:** Pre and Post- evaluation is one of the useful tools to improve the concentration and understanding of the concepts by the medical students, it is a different approach to make the didactic lectures more interesting. It improves the attention of students to learn the concepts with great ease.

Keywords: Evaluation, Biochemistry, Medical education.

INTRODUCTION

“Medical education is emerging with new compelling instructional tools and methods of teaching medical concepts, providing new learning possibilities for the faculty and student

(1). Assessments could be invaluable; this helps teachers to identify the strengths and weaknesses of each student and it also helps to guide the next steps in instruction. Many informal tools are

available for assessing the various components of reading and understanding the subjects enabling the concept-oriented learning. It is a learned fact that no single assessment will provide insight into all of the learning and reading-related skills that are required for students.

Biochemistry is the chemistry of life. It is the study of biological processes at the cellular and molecular level. Many students are with the opinion that, biochemistry is the most volatile and tedious subject, often found tough to read, understand and remember the concepts for a longer time.

The present study is taken up to inculcate the subject with concepts in the medical students. Pre-evaluation before teaching the topic, makes the student open up for the questions and put them on track enabling the student to think only about the subject for the next 45 mins. Pre-evaluation in one of the techniques to improvise students attention and cognitive skills to get the concepts more clearly when taught by the faculty. The present study is taken up to learn the effect of pre and post-evaluation in understanding medical biochemistry by the students.

MATERIALS AND METHODS

The study was conducted in the Department of Biochemistry for first MBBS students at Apollo Institute of Medical Sciences & Research. It's a questionnaire-based study. 100 first MBBS students participated in the study with consent. Each topic was framed with few MCQs specific to the topic that was delivered in that particular hour. It was given to the student as a pre-evaluation test. Later after the completion of the topic, the same MCQs paper was given and this was considered to be a post-evaluation test. After

the successful completion of the chapter, feedback was taken from the students wherein we used a standard validated feedback questionnaire.

Data analysis: The data was analyzed using SPSS 20.0 Student t-test was applied to observe the significance of the difference between the groups. A p value of <0.05 was considered to be statistically significant. Feedback collected from the students regarding the method of teaching and their opinion on pre and post-evaluation was given in percentage.

RESULTS: The scores were high in post-assessment (9.77 ± 0.591) when compared to the pre-evaluation (4.85 ± 0.434) and were statistically significant $p < 0.0001$.

Majority of the students strongly agreed that the use of the evaluation method was useful in medical education. 71% agreed that in understanding topics, evaluation session was very useful. 57% agreed that Evaluation motivated us for learning. 52% strongly agreed that evaluation questions were relevant to the topics discussed. 59% agreed that the evaluation increased our interest in Clinical Biochemistry. 52% agreed that the role of the facilitator was important in an evaluation session.

63% agreed that evaluation session was important in terms of the development of critical thinking. 63% agreed that the evaluation helped to link clinical knowledge with basic Biochemistry. 41% agreed that evaluation helped to interpret the laboratory results. 60% agreed that evaluation will help in diagnosis in future. 60% agreed that the evaluation along with lecture is better than only the lecture method.

Table 1: Perceptions of the students about pre and post evaluation method

| Q. no | Strongly agree | Agree | No Opinion | Disagree | Strongly Disagree |
|---|----------------|-------|------------|----------|-------------------|
| In understanding topics, evaluation session was very useful | 29% | 71% | 2% | 0% | 0% |
| Evaluation motivated us for learning | 29% | 57% | 11% | 0% | 0% |
| Evaluation questions were relevant to the topics discussed | 52% | 41% | 5% | 0% | 0% |
| The evaluation increased our interest in clinical Bio-chemistry | 17% | 59% | 19% | 0% | 0% |
| Role of facilitator was important in evaluation session | 29% | 52% | 14% | 2% | 3% |
| Evaluation session was important in terms of development of critical thinking | 20% | 63% | 17% | 3% | 0% |
| Evaluation helped to link clinical knowledge with basic Biochemistry | 20% | 63% | 14% | 0% | 0% |
| Evaluation helped to interpret the laboratory results | 9% | 41% | 22% | 10% | 0% |
| Evaluation will help in diagnosis in future | 19% | 60% | 19% | 2% | 0% |
| Evaluation along with lecture is better than only lecture method | 31% | 60% | 5% | 2% | 0% |

DISCUSSION:

Medical education is emerging with many technical tools to improvise the understanding and skills of the medical student making him/her strong with skills as well as concepts. Biochemistry is one of the tough rather very important subjects, the concepts have to be pertained throughout the carrier to deliver good patient care. In the present study, we used pre and post- evaluation method to nurture the understanding and thinking skills of the medical students. Earlier studies suggested and supported the implementation of the evaluation programs in medical education (2, 3). The method used was an evaluation of the student through MCQs. As it is learned that there are various methods like

problem-based learning (PBL), small group discussion, team-based learning (TBL), case-based learning (CBL), etc; for teaching and learning the concepts, one more efficient approach is MCQs which was used in the present study. This enabled us to learn whether the topic is delivered at the right level. Further to plan and restructure the future classes to meet the student needs. Moreover, it also helps to understand the student capability and their level of understanding the subject with which we can grade a student and plan which student needs individual support and extra effort in making the student computable. Many studies in the field of medical education had proved that a structured teaching environment with objectives or the questions placed before the students prior to the

lecture delivery. This encourages the student to thoughtfully articulate their opinions or differing points of view in the due course of learning and gaining knowledge, this includes an open discussion which also improves the student communication skills (4). In the present study, we observed improved scores which were statistically highly significant after the lecture (post analysis) proving that pre-evaluation dragged the concentration of the student to get the answers for the questions asked in the assessment. The feedback questionnaire was given to the students to get their opinion on pre and post-evaluation had given the following information. More than 60% of the students had an opinion that the evaluation method was very useful and better than the direct lecture method. Students expressed that the method motivated them to learn the concepts, it dragged their interest in clinical biochemistry topics, and the session helped them in developing critical thinking. It was also accepted that this method helped them to link clinical knowledge with basic biochemistry which further helps them to interpret the laboratory results and diagnosis. However, it was agreed by the students that the role of the facilitator is also important to get the concepts helping them to unlock the questions asked. For the successful results, the facilitator should choose relevant questions apt to the topic discussed (5). It was reported that the evaluation not only helps to improve the learning from teacher centered to student centered but also helps to evaluate the ability of the teachers in terms of student's satisfaction (6-9). It was reported that evaluation improves the academic performance also along with improving the thinking skills of the students (10, 11).

Limitations:

The study was conducted in only one medical college, in a single chapter and can give certain

explorative results when the same method is used for teaching complete medical biochemistry, irrespective of the teaching faculty.

CONCLUSION

Pre and Post- evaluation is one of the useful tools to improve the concentration and understanding of the concepts by the medical students, it is a different approach to make the didactic lectures more interesting. It improves the attention of students to learn the concepts with great ease.

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