

Seminar as a method of teaching community medicine to under graduate medical students

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Abstract

Research Question: Whether Seminar method can serve as an alternative and innovative method to teach “Environmental Health” for undergraduate medical students.

Methods: Cross-sectional study was undertaken among 30 MBBS students in the Department of Community medicine, MAPIMS. The total students enrolled were divided into 3 groups and topics were assigned prior to the study. Pretest and Posttest was conducted to evaluate their performance and in addition feedback was elicited.

Results: The performance of the students by seminar method was encouraging with 85% of the students scoring more than 60% in post test. The average score in pretest and posttest was 29.63% and 78.52% respectively. The difference was statistically significant with p value < 0.05. The students appreciated the method as it was different from routine lectures, innovative, interesting, Motivated to read about the topic, improved the students presentation skills, communication skills and provoked interest in the topics taught, interactive, helped them to come prepared and scope for participation. They suggested to have more sessions like this for other topic as well.

Conclusion: Seminar method was successfully used to teach “Environment Health” to under graduate medical students.

Keywords: Seminar method, community medicine, medical students, pretest, posttest

Introduction

Learning is a complicated phenomenon as it involves complex mental activities such as critical thinking and ability to solve problems. The goal for the learning methodology personnel is to provide the developers with the best learning tools available, so that they in turn can have thorough understanding, knowledge and relevant skills for their career. The term "Best Evidence Medical Education" was coined to describe the implementation of methods and approaches to education based on the best available evidence^[1].

Lecturing is one of the primitive and the oldest method of teaching and currently it is the most conventional educational technique. Lecturing is still, the predominant form of teaching in health care professional education^[2]. The conventional lecturing method has failed to transfer concepts to students as effectively as active learning approaches. Therefore, it has been suggested that it is better to use the conventional lectures only for transferring data to students^[3]. Medical students need to learn the skills of problem solving and decision making in addition to receiving information and knowledge.

The Normative Model states that physical therapist professional education curricula should be “designed to foster active, self-directed learning”^[4]. In the opinion of many educators, central to the success of all health care professions education is the development of the autonomous learner who can acquire and integrate new information without the constant presence or supervision of an instructor^[5].

Active learning methods are supposed to leave students with a greater level of knowledge and better learning skills compared with students exposed to other forms of learning. Some investigators have reported that students working in groups were more likely to be able to generalize from specific observations, were superior at applying concepts to new

situations,^[6] and had a greater ability to critically analyze what they read and synthesize information from a variety of sources.^[7]

Students should be encouraged to learn by intellectual discovery and critical thinking. The quality of training and its impact on students is dependent on many factors including faculty, curriculum, pedagogical methods, teaching aids, facilities and the students themselves, who have their own experiences and expectations^[8].

Learning styles are actually "how" learners prefer to learn rather than "what" learners learn^[9]. There is a shift in pedagogy in medical education. Most educators agree that lectures are necessary as lectures are an efficient ways of delivering information. They are able to introduce new material or synthesize student's concepts and can be delivered through myriad of methods but most would agree that lectures should be limited in number^[10]. Active learning has been defined as the process of involving students in doing things and thinking about the things they are doing^[11]. Usually active learning involves 'small group learning'. Small group learning encourages deeper level of learning compared with lectures. In this form of teaching, the students are encouraged to be hands on and interactive by discussing and interpreting results.^[10] This type of student centered education involves placing the responsibility of learning on the students with the proper and adequate help of teachers^[12]. Student centered learning encourages active participation from the students and the results is that they tend to be learn more^[12]. Medical education can be assessed by several methods including feedback from students, evaluations, videotape review, workshops, seminars, microteaching etc.

According to The Medical Council of India, under “Regulations on Medical Education, 1997, there is scope for

trying innovative approaches. They had also observed that lectures alone are not generally adequate as a method of training and it is a poor method of transferring or acquiring information even less effective at skill development and in generating the appropriate attitudes. It recommends that every efforts should be made to encourage the use of active methods of teaching [13].

Community Medicine is taught across seven semesters in most of the MCI regulated Medical institutions, it is often seen that students start reading the subject only towards final year. To make the subject interesting, it is important to try out innovative methods for teaching and learning [14, 15] described in the literature. Hence to create interest in the subject the present study was undertaken to effectively use seminar to teach community medicine. In the present study, we wanted to investigate the role of seminar as a learning tool in medical education and to find out whether seminar can serve as an active learning method to undergraduate medical students. Assessment is an educational tool that serves multiple roles; for example, it can provide feedback to learners on areas of strength or weakness and it can provide the teacher insight into the effectiveness of a given approach [16].

The objective was 1) To increase the awareness and interest in the topic. 2) To increase their knowledge in the applied aspects of “Environmental Health” and 3) To enhance students participation in acquiring knowledge.

Materials and Methods

Place of study

This study was conducted among medical students in a private medical college.

Sample

The study was conducted among second year medical students who were posted in community medicine department. A total of 30 students who were in the second year of the medical education in 2014 participated in this study.

Procedure

The ‘Student led seminar’ is one where the students prepared and presented selected topics by researching from multiple sources with the help and guidance from the lecturers.

The seminar was conducted for MBBS students studying IInd year during the month of February, 2014 in the Department of Community Medicine, Melmaruvathur Adhi Parasakthi Institute of Medical Sciences and Research (MAPIMS) as an alternative to the usual lecture method. The topic was “Environmental Health”. The topic and schedule of the seminar was announced two weeks in advance. Instead of delivering lectures, students were encouraged to prepare seminars on topics of public health importance based on the guidelines provided by the facilitators. The Facilitators responsibility was to guide and supervise the students. They were given topics to prepare and they were required to find the source materials from internet as well as the library. The student led seminar presentations on the allotted topics were held. Seminars were used to help the students develop an interest in the subject matter and encourage them to search for facts and information as well as develop group work. They were expected to think critically and creatively to prepare presentations.

Totally, there were 30 students posted. They were four groups with 7 students in each group. One of the student from each group volunteered to present the topic. To evaluate the students performance pretest and post test evaluation was conducted for all the students. A set of five multiple choice questions was administered for evaluation of all the students using a overhead projector for the pretest and the same questions was repeated in post test. Each question carried 5 marks and time allotted was 2 and 1/2 minutes and the maximum marks was 25. The performance of the individual students was assessed by the cumulative total of answers obtained in pretest and post test.

Feedback was also elicited by asking questions like:

- 1) What are the factors which facilitated learning?
- 2) What are the factors which hindered learning?
- 3) Suggestions or comments to improve the sessions?

Ethics

The study was conducted ethically. Oral Informed consent from the respondents was obtained and confidentiality of the subjects was maintained.

Analysis

Data was analyzed using the Statistical Package using Microsoft Excel and SPSS version 18. Proportion, mean and standard deviation was determined as appropriate. Paired t-test was used to compare the mean scores obtained by pretest and posttest by seminar modes. A ‘p’ value of <0.05 was considered statistically significant.

Results

Out of 30 students enrolled for the block posting in the batch, 27 students attended the seminar. Hence the attendance rate was 90%.

Table 1 gives the evaluation of students by pretest and posttest. In Pretest, majority of the students 24 (88.9%) scored less than 40%. Another 3 students (11.1%) had scores between 41 – 60%. In the post test evaluation, 16 (59.3%) obtained 61 – 80%. 25.9% of them had scores between 81 – 100%. The remaining, 14.9% of them had scored between 41 – 60%. None of the students scored less than 40% in post test evaluation.

Table 1: Evaluation by pretest and post test marks

Pretest scores (%) range	Number of students (%)	Post-test scores (%) range	Number of students (%)
0 – 40	24 (88.9%)	0 – 40	-
41 – 60	3 (11.1%)	41 – 60	4 (14.9%)
61 – 80	-	61 – 80	16 (59.3%)
81 – 100	-	81 – 100	7 (25.9%)

Table 2 shows mean scores of pretest and posttest marks and percentages using seminar method. The pre-test and posttest mean score by seminar method was 2.96±1.16 and 7.85±1.06 respectively. Using a paired t- test, the differences between the pre and post-test scores for each group was statistically significant (< 0.0001). By seminar method the mean score of pre-test percentage was 29.63±11.59 and the post-test mean score percentages of the same group was 78.52±10.63. This difference was also statistically significant (< 0.0001). Hence, the overall performance was encouraging.

Table 2: Mean score of pre-test and post-test of two methods

Method	Group	N	Mean	Std. Deviation	t- test (Sig)
Seminar	Pretest marks	27	2.96	1.160	< 0.0001*
	Posttest marks	27	7.85	1.064	
Seminar	Pretest %	27	29.63	11.596	< 0.0001*
	Posttest %	27	78.52	10.635	

*p value of <0.05 was considered as significant

Table 3 gives the summary of feedback from the students regarding the seminar method. The responses were encouraging. They facilitated learning as they ensured active participation of the students, was interesting, interactive, innovative, informative, provoked interest in topic, motivated them to read the topic, helped them to come prepared, improved the presentation skills and communication skills,

different from routine classes, scope for active participation and inbuilt team work. Suggestions for improvement was to organize more seminars session for other topics.

Comparison of the pretest and posttest percentages is shown in a bar chart in Fig 1. In all the 27 participants there is a definite increase in posttest scores compared to the pretest scores.

Table 4: Details of feedback given by the students

Feedback	Responses
What factors facilitated learning?	Interesting, interactive, innovative, motivated to read the topic, improved the presentation skills, improved communication skills, provoked interest in topic, different from routine classes, helped them to come prepared, scope for active participation and inbuilt team work
What factors hindered learning?	Time consuming
Suggestions for improvement?	Seminar method to be used to teach other topics in community medicine.

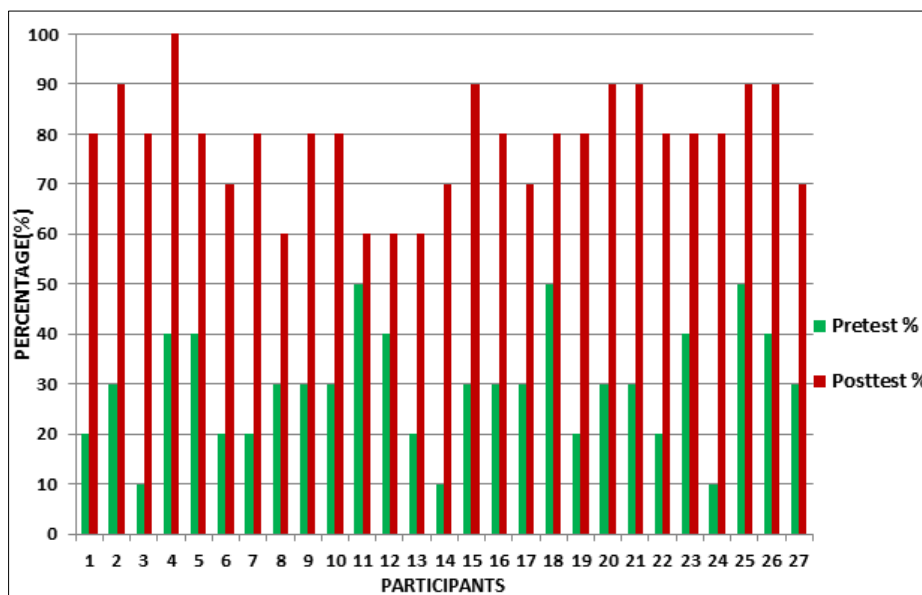


Fig 1: Comparison of pretest and posttest scores (%) of the participants

Discussion

The concept of ‘active learning’ is gaining much momentum, especially in the field of Medicine. Lectures alone are not generally adequate as a method of teaching and are a poor means of transferring and acquiring information, even less effective at skill development and in generating the appropriate attitudes. The typical lecture form of teaching lacks student and teacher interchange, it poorly encourages active learning and different learning styles.^[11, 17] Hence it is recommended that every effort should be made to encourage the use of active methods on firsthand experience. Newer methods like problem-based learning are being introduced based on the above said concept. It is already reported that group discussions have been employed successfully to teach majority of the topics in Community Medicine in the pre-clinical years.^[18] In a study from Michigan, USA, interactive video disc units

were used for teaching pathology laboratory cases. These units were extremely valuable supplemental tools for the students.^[19] Case based learning (CBL) with clinical problems as a source of stimulus concluded to be an effective tool by Jamkar and associates.^[20] Finley *et al.* used quiz format for learning about auscultation of heart sounds through computer based independent learning, which was compared with classroom teaching. Both CD-ROM and class room teaching methods were highly rated by the students.^[21] However, there are very few reports of using seminar as a method of teaching/ learning for undergraduate medical students. According to a report from Canada, lectures are an efficient way of delivering information but are not as effective as small group sessions when it comes to stimulating thinking, inspiring interest in the subject, teaching behavioral skills or changing attitudes.¹⁰ Small group learning encourages active learning and develops

communication and teamwork skills. It also develops problem solving skills, attitudes and the acquisition of interpersonal skills.¹⁰ Curry *et al.* also observed that motivation to read more about the topics increased in the seminar mode. Seminar mode also improved the student's presentation skills and helped them to develop better communication skills and provoked interest in the topics taught. Stimulation by classmates, knowledgeable, creative faculty and personal contact between students and instructors form a good and health learning environment. Majority of the students felt that the seminar mode played a bigger role in student interaction, student involvement, problem solving, team work and provoked interest. Students who learn by an interactive and hands method of learning are able to master their subjects, develop independence and become problem solvers, critical thinkers and lifelong learners.^[22] In a study conducted in India only 1.6% of the students wanted more student seminars while majority wanted more case studies, increase use of audio visual aids and the introduction of group discussions.^[23] In a study to compare student knowledge gained from CD ROM based lecture only, from attending small group seminars only and from a combination of both methodologies among second year medical students in the University of California showed that the change from pretest to posttest was greater for students who participated in combined modalities.^[24]

In the current study we wanted to increase the awareness and interest in the topic. By this method the students had an opportunity to gain deep insight in the topic by referring other sources like internet for preparation. Moreover it also helped them in building a healthy competitive spirit among the teams. This approach ensured greater participation of the students in teaching/ learning process. In addition, to evaluate the student's learning new teaching strategies should be scientifically investigated through questionnaire, student's comments and evaluation of assessment outcome.^[25] Once the deficiencies of teaching curriculum are identified, reinforcement can be applied by various methods which is the principle of value-added adult learning.

Conclusion

Seminar was used to teach "Environmental Health" to undergraduate medical students successfully. Active learning is a critical tool for facilitating learning in the classroom. Development of critical thinking and interpersonal skills along with communication is the key to efficient learning. The performance and participation of the students were very much encouraging. The students found the seminars to be very interesting and useful learning tool. Some of the students suggested to use these methods to teach other topics in community medicine as well. The findings of the study highlight the importance of using seminars as an additional tool to enhance collaborative learning and critical thinking among medical students.

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