

A comparative study of two small group teaching methods - tutorials and seminar - as a supplement to lecture classes for 1st year MBBS students

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ABSTRACT

Background: Medical schools in India are changing their educational programs and teaching strategies to ensure that students have active responsibility for their learning process and are prepared for lifelong, self-directed learning. Small group teaching (SGT) is one such tool which helps to make learning process student-centered. In this study, we have assessed the effectiveness of SGTs as a supplement to didactic lecture (DL). **Objective:** The objective of the study was to compare the effectiveness of tutorials versus seminar as a supplement to lecture class. **Materials and Methods:** In Department of Physiology, SVIMS, Sri Padmavathi Medical College for Women, a DL class on a topic was taken for 150 1st year MBBS students which were followed by tutorials for one half of students and seminar for other half of students on the same topic. It was done for two topics. An assessment was done each at the end of DL, tutorials, and seminar. Students were also asked to fill a feedback questionnaire about the SGTs on a Likert scale. **Results:** Tutorials showed statistically significant increase in scores in both the topics (6.955 ± 1.83 , $P = -0.012$ and 6.65 ± 1.78 , $P = 0.006$) whereas seminar showed statistically significant increase in only the first topic as compared to DL (6.84 ± 1.77 , $P = 0.013$ and 6.27 ± 2.09 , $P = 0.25$). There was no significant difference in scores between tutorials and seminar. Likert scale showed positive feedback about SGTs and students wanted more such sessions. **Conclusions:** Since there was a positive response from students regarding SGTs as a supplement to DL, we would like to adopt a mixed approach with SGT as a component of the overall course to ensure knowledge acquisition and retention by the students.


KEY WORDS: Small Group Teaching; Tutorials; Seminar

INTRODUCTION

Medical education in India has for long been teacher centered rather than student centered. Of late, there has been a change in this approach where medical educationists are highlighting the need to adopt measures which are student-centered. Undergraduate medical education needs ongoing improvement to meet the changing demands of

medical practice.^[1] Medical schools are also changing their educational programs and teaching strategies, at national and international levels, to ensure that students have active responsibility for their learning process and are prepared for life-long, self-directed learning.^[2] Small group teaching (SGT) is considered as one of the tools which help in making learning process student-centered.^[3]

In a SGT, students are encouraged to talk, think, and share their views. Communication is at the heart of SGT.^[4] Student-centered learning involves active involvement of students in the learning process and requires them to take responsibility for their own learning. SGT encourages students to think deeply and broaden their understanding of the chosen topic. Students taught in this way retain more material for longer periods of time.^[1] Furthermore, this approach helps

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the students to become independent and self-reliant in their learning, efficient, and more responsive to the needs of fast-changing field of medicine. In the long run, it helps in the development of intellectual understanding, professional abilities, communication skills, personal and professional growth, and development of group working skills.^[5] Research suggests that students learn best when they are actively involved in the process and SGT is an important element of the active learning process.^[6] SGT methods such as tutorials, seminars, and problem-based learning have been the highlight in medical education since the past few years.^[7]

Although there has been an increase in the use of SGT methods in medical schools of India, little is known about students' perception and its effectiveness in student learning. Furthermore, in studies related to SGT in India, the results regarding students' perception and students' learning have been inconsistent.

In Physiology Department of Sri Padmavathi Medical College for Women (SPMC [W]), SVIMS, the faculty introduced 2 SGT methods for 1st year MBBS students and assessed their effectiveness in student learning process both with respect to knowledge assessment and student perception.

The two methods of SGT were tutorials and seminar.

Aim

The aim of the study was to assess the effectiveness of SGT methods as a supplement to lecture classes.

Objectives

The objectives were as follows:

1. To conduct two types of SGT methods, i.e., tutorial and seminar for 1st year MBBS students as a supplement to lecture class.
2. To compare the effectiveness of tutorials versus seminar as a supplement to lecture class.

MATERIALS AND METHODS

Following the research committee and Institutional Ethics Committee approvals, the research work was carried out in the Department of Physiology, SVIMS, SPMC (W). Informed consent was taken from all the students. A didactic lecture (DL) class was taken for all 150 students of 1st year MBBS students (2017–2018) on a particular topic. This was followed by a tutorial class for one half of the students and seminar for other half of students on the same topic after a gap of 1 week. The students were divided into three batches of 50 each. On day 1 tutorial was taken for 25 and seminar for the other 25 in batch 1. Each tutorial and seminar batch was further divided into three small groups of 9, 8, and 8. Hence, a total of 6 batches were formed. The same pattern was continued on day 2 and day 3 for batches 2 and 3, respectively.

In tutorials, the room was set up in a way to encourage active participation. Students were made to sit in a circle of which the tutor (facilitator) was a part. Initially, ice-breaking session was conducted where students talked to another student for 5 min and introduced her. Tutors also introduced themselves. Ground rules were told.

Key questions for the session were identified in advance by the faculty to guide the session in the right direction. After each question, sufficient time was given for students to think and respond. Other students could ask questions about the same topic or give their response which may be different from the previous response. All the responses were valued.

Questions progressed from lower order to higher order which made them think deeper.

To involve quiet students buzz group strategy was used where a pair of students discussed a given topic and then shared their viewpoint with the whole group. In this way, all students participated. The conclusion of the session included students summarizing the key points.

Seminar: Students were given the topics 1 week before the presentation. Each group selected their presenter and informed the faculty 2 days before the seminar. On the day of the seminar, a presenter from each group presented the topic in the presence of facilitator. Facilitator guided the discussion by asking a few key questions and allowing the students to give their viewpoint after each presentation.^[4]

An assessment was done each at the end of a lecture class, at the end of tutorials and at the end of the seminar. The performances were compared. The questions were selected from a common pool of questions prepared by the faculty.

For better conduction of tutorials and seminar, a sensitization session was conducted before the conduction of actual tutorials and seminar.

The students were also asked to fill the feedback questionnaire which contained questions relating to the development of their communication skills, group working skills, and intellectual ability. A Likert scale was used to rate each assessment [Table 1].^[8,9]

Statistical Analysis

Student performance was assessed using a 10 point scale. The mean scores of the students attending DLs were computed on two topics. Similar assessment was done for seminar and tutorial groups. These means were compared with the means of the DL class using one sample *t*-test. Two samples (unpaired) *t*-test was used to compare the mean scores between the seminar and tutorial group. The information about the opinions on the teaching methods was obtained using Likert

Table 1: Likert’s scale

Items	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Got a better grasp of key points of the topic					
Developed greater ability to present information					
Developed the ability to speak better in public					
Session has encouraged independent study					
Fostered peer interactions and the ability to work in teams					
Improved student-teacher relationships					
We would like to have more SGT classes					

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Table 2: One sample *t*-test comparing seminar score and tutorial score with that of DL for topics A and B

Category	Mean±SD	P value
Topic A		
DL	5.89±1.86	–
Seminar	6.84±1.77	0.013
Tutorials	6.955±1.83	0.012
Topic B		
DL	5.91±1.87	–
Seminar	6.27±2.09	0.25
Tutorials	6.65±1.78	0.006

DL: Didactic lecture, SD: Standard deviation

Table 3: Two sample *t*-test comparing tutorials versus seminar for Topics A and B

Category	Mean±SD	P value
Topic A		
Seminar	6.84±1.77	0.829
Tutorial	6.955±1.83	
Topic B		
Seminar	6.27±2.09	0.347
Tutorial	6.65±1.78	

scale and summarized using count and percentage of those who either said “agree” or “strongly agree” and compared using *Z* test for proportions (<http://www.socscistatistics.com/tests/ztest/Default2.aspx>). *P* < 0.05 was considered as significant.

RESULTS

DL classes were taken for the entire 1st year MBBS batch on two topics (Topic A and Topic B). This was followed by a tutorial class for one half of students and seminar for other half of students on both the topics.

Mean scores following DL sessions were 5.89 ± 1.86 for Topic A and 5.91 ± 1.87 for Topic B. There was statistically significant increase in scores after seminar (6.84 ± 1.77, *P* = 0.013) and after tutorials (6.955 ± 1.83, *P* = 0.012)

as compared to DL for Topic A. For Topic B, there was statistically significant increase in scores after tutorials as compared to DL (6.65 ± 1.78, *P* = 0.006) and no statistically significant difference in scores between after seminar and after DL (6.27 ± 2.09, *P* = 0.25) [Table 2]. There was no statistically significant difference between the scores of seminar and tutorials for Topics A (*P* = 0.829) and B (*P* = 0.347) [Table 3].

On Likert’s scale, most of the students gave positive feedback about SGT sessions. There was no statistically significant difference in perception between seminar and tutorials. Most of the participants were of the view that more such small group sessions should be conducted [Table 4].

DISCUSSION

In the present study, we found better performance in assessment after SGT sessions. Although tutorials showed statistically significant improvement in performance in both the topics, seminar showed statistically significant improvement in only the first topic. The reason could be the guarantee of anonymity which made students less serious about their performance. There was no statistically significant difference between tutorials and seminar with respect to performance.

Likert’s scale which assessed the perception of students about SGT showed positive feedback. There was no statistically significant difference in perception between tutorials and seminars. Students also wanted more such SGT sessions which they felt improved their ability to present information, ability to speak better in public, independent study, team working skills and peer interactions, and student-teacher relationship and also helped them to get a better grasp of key points of the topic.

In a study conducted in a teaching hospital in Gangtok, to assess the impact of SGT, all forms of SGT received positive feedback from students and students felt SGT as a comprehensive tool for in-depth student-teacher interaction and also felt that it enhanced their learning experience.^[10] In another study, where SGT was conducted as a supplement to

Table 4: Comparison of question wise perception between seminar and tutorials

Questions	Percentage of students who chose to agree or strongly agree (%)		P value
	Seminar	Tutorials	
Got a better grasp of key points of topic	95.89	98.57	0.332
Developed greater ability to present information	93.15	85.71	0.147
Developed the ability to speak better in public	87.67	88.57	0.865
Session has encouraged independent study	83.56	78.57	0.447
Fostered peer interactions and ability to work in teams	90.41	80	0.078
Improved student teacher relationships	94.52	92.85	0.682
We would like to have more SGT classes	93.15	98.57	0.105

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DL, it was found that students gave positive feedback about SGT sessions.^[7] However, in the above-mentioned studies, knowledge assessment of students was not done. In one of the studies where SGT was used as a teaching method, it was found that there was a statistically significant difference in student performance between DL and SGT.^[11] There are a few studies which have shown better results following DL rather than SGTs as students expressed concerns regarding uncertainty on the accuracy of knowledge acquired, long duration of the sessions, inadequate focus, nonuniformity, and heavy workload. Some students have also found SGTs more stressful.^[12-14] In this study, we have conducted SGT as a supplement to DL classes. SGT as a supplement has shown to improve student performance. Furthermore, there was no statistically significant difference between tutorials and seminar with regard to student perception and performance.

SGTs have many advantages like they promote deeper understanding of a topic which leads to better retention, promote active learning where students take up the responsibility of their own learning, facilitate higher order of thinking and development of ideas, team working abilities, communication skills, and problem-solving abilities. SGTs also address a greater variety of learning styles (visual, auditory, read/write, and kinesthetic).^[15]

However, SGTs are not without disadvantages as some students hesitate to express themselves, requires more space and faculty, at times too much of discussions could be uninteresting and irrelevant. Few problems such as inexperience of students as well as faculty leading to apprehension due to deviation from the familiar method, unwillingness of students to take responsibility of their own learning, lack of resources such as number of faculty and infrastructure act as a barrier for smooth conduction of SGTs. Effectiveness of SGT also depends on the teaching method adopted in small groups. SGTs can go a long way in making the learning process student-centered.^[15,16]

In the present study, we conducted SGTs as a supplement to DL classes and found that SGTs improved student performance and also students got a better grasp of the topic.

We also found that there was no difference between two methods of SGTs, i.e. tutorials and seminar with respect to student performance and perception. Limitation of this study is that cross over could not be done.

CONCLUSIONS

SGTs are a very useful tool in the undergraduate medical curriculum. Each SGT method has its strengths and weaknesses and so a method selected should match the objectives and staff expertise. The success of SGT depends on better preparation, an organization of resources and orientation of students and teachers.

As we have received positive response from students regarding SGTs, we would like to include it in our curriculum using student feedback as a tool to even out challenges and problems encountered with SGTs and also modifying the method to suit the needs of students for a particular topic. A mixed approach with SGT as a component of the overall course will help in ensuring knowledge acquisition and retention by the students.

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