



## EFFECTIVENESS OF SMALL GROUP TEACHING OVER DIDACTIC LECTURE IN MEDICAL UNDERGRADUATE TEACHING: A RANDOMIZED COMPARATIVE STUDY

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### ABSTRACT

**Background:** Teaching has got a very important role not only at school level but also in higher education as it can help in generating effective professionals. Conventionally, teaching of undergraduate students is done with didactic lectures and practical classes. These are more of passive teaching learning methods. In the present study, we have introduced small group discussion as one of the teaching-learning method and compared its effectiveness over didactic lecture. We also assessed the perception of students towards small group discussions. **Methodology:** 126 students belonging to 3rd semester were included in the present study. Two topics of pharmacology (Skeletal muscle relaxants and Local Anaesthetics), which are usually covered in 4 lectures were chosen. A set of 20 MCQs were prepared by a teacher not involved in the study on skeletal muscle relaxants and local anaesthetics and the MCQs were given as the pre-test to all the students. Students were then divided randomly in two batches of 63 students each. For 1st batch didactic lecture of 45 min duration was taken and for 2nd batch same topic was taught by small group discussion for two days in 45 min session each. Permission for the same was taken from the Head of the Department. Subsequently cross over was done and now 1<sup>st</sup> batch was taught 2nd topic by small group discussion for two days in 45 min session each and 2nd batch was taught the same topic by didactic lecture. The same set of 20 MCQs were given as the post-test to all the students to assess the performance after the didactic lectures and small group discussions. **Findings:** There is a highly statistically significant improvement in the post test score in comparison to pre test scores in students taught by small group discussion. There is a highly statistically significant improvement in the post test score in comparison to pre test scores in students taught by didactic lecture. There is a highly statistically significant improvement in post test scores of students taught by small group discussion in comparison to didactic lecture. Most students strongly agree that they have found small group discussion interesting, improved their learning, encourages them to be active learner. **Conclusion:** There was statistically significant improvement in students' performance when taught by small group discussion in comparison to didactic lectures.

### KEYWORDS :

#### INTRODUCTION

Teaching has got a very important role not only at school level but also in higher education as it can help in generating effective professionals. The effectiveness of teaching depends upon how much has been received by the students. There are different methods of teaching - lectures, tutorials, CMEs, seminars, videotapes, case studies, small group discussions, etc.<sup>[1]</sup>

Conventionally, teaching of undergraduate students in pharmacology is done with didactic lectures and practical classes. These are more of passive teaching learning methods. They lack the development of problem solving or reasoning skills in students. Students are hardly involved in the teaching learning process<sup>[2]</sup> Small group teaching has been the highlight of medical education over past many years.

It improves the retention of knowledge communication skills, team-based learning and help enhancing critical thinking<sup>[3]</sup> During small group teaching processes like group discussion, interactions between learners enhance learning. Small group teaching can take on a variety of different tasks such as problem solving, role play, discussions, brain storming and debate.<sup>[4]</sup> Research has demonstrated that group discussion promotes greater synthesis and retention of materials.<sup>[5]</sup>

A study by Padmavati Majhi, Renu Sulakhe states that Inclusion of small group discussions into the present curriculum of medical education can help in retaining interest and knowledge among the medical students. It can also help the students in improving their interpersonal communication skills which will finally be helpful in their future as professionals.<sup>[6]</sup> A study by Chetana P Hadimani states that In order to overcome the limitations of only lectures in a basic science subject, inclusion of an active teaching-learning SGD session facilitated students in better understanding of the subject, ability to apply biochemical principles to clinical cases and development of communication skills.<sup>[7]</sup>

Another study by Kashmir Singh, Rashmi Katyal et al concludes that the educational effectiveness of small group teaching as compared to didactic lecture was statistically significant and the perception of students and faculties was in favour of it.<sup>[8]</sup>

The teaching of undergraduate students in pharmacology in my medical college is done with didactic lectures and practical classes. Therefore, in the present study, we have introduced small group

discussion as one of the teaching learning method and compared its effectiveness over didactic lecture. We also assessed the perception of students towards small group discussions.

#### AIMS AND OBJECTIVES

- To compare the effectiveness of small group teaching by group discussion over didactic lectures
- To assess the perception of students towards small group teaching over didactic lectures

#### METHODOLOGY

The present study was carried out in the department of Pharmacology, Mahatma Gandhi Medical College and hospital, Jaipur. Due Approval was obtained from Institutional Ethical Committee before undertaking the present study.

126 students belonging to 3<sup>rd</sup> semester were included in the present study. The purpose, aims and objectives were explained and informed consent was obtained from each and every student. Two topics of pharmacology (Skeletal muscle relaxants and Local Anaesthetics), which are usually covered in 4 lectures were chosen. A set of 20 MCQs were prepared by a teacher not involved in the study on skeletal muscle relaxants and local anaesthetics and the MCQs were given as the pre test to all the students. Students were then divided randomly in two batches of 63 students each. For 1<sup>st</sup> batch didactic lecture of 45 min duration was taken and for 2<sup>nd</sup> batch same topic was taught by small group discussion for two days in 45 min session each. Permission for the same was taken from the Head of the Department. Subsequently cross over was done and now 1<sup>st</sup> batch was taught 2<sup>nd</sup> topic by small group discussion for two days in 45 min session each and 2<sup>nd</sup> batch was taught the same topic by didactic lecture.

A sensitization class was conducted for the students as well as facilitators to explain how small group discussion is done. The students were grouped into 8 groups with 8 students in each group. A facilitator (MSc students of Department of Pharmacology) will be provided for each group. The session was started with the facilitator starting the discussion and providing clear objectives. The students were then asked to interact with each other on the problem given to them and questions to be discussed regarding the topic. The facilitator was allowed only to facilitate the learning process and control the discussion.

The same set of 20 MCQs were given as the post-test to all the students

to assess the performance after the didactic lectures and small group discussions.

The data was entered in Microsoft Office Excel worksheet. The mean and standard deviation of the scores in pre-test as well as post-test after didactic lectures and small group discussion was calculated. Paired t test was used to compare the pre test and post test scores after small group discussion and didactic lectures. Unpaired t test was used to compare the post test scores of small group discussion and didactic lectures.

Feedback was taken from the students as well as faculty members regarding the preference of teaching learning method. This data was analysed using likert scale (Strongly agree, agree, neutral, disagree and strongly disagree).

**RESULTS**

Table 1 shows the pre and post test scores of students taught by small group discussion. The mean pre-test score is 8.563 while mean post test score 14.595. On applying paired t test, p value is < 0.001. Thus, there was a highly statistically significant improvement in the post test score in comparison to pre test scores in students taught by small group discussion.

**Table 1: Pre And Post Test Scores Of Students Taught By Small Group Discussion**

Scores	Number of students	Mean	Standard deviation	p value
Pre test score	126	8.563	2.657	0.000
Post test score	126	14.595	2.277	

The pre and post test scores of students taught by didactic lecture is shown in Table 2. The mean pre-test score is 8.563 while mean post-test score 13.261. On applying paired t test, p value is < 0.001. Thus, there was a highly statistically significant improvement in the post test score in comparison to pre test scores in students taught by didactic lecture.

**Table 2: Pre And Post Test Scores Of Students Taught By Didactic Lecture**

Scores	Number of students	Mean	Standard deviation	p value
Pre test score	126	8.563	2.657	0.000
Post test score	126	13.261	1.889	

In table 3, post test scores of the students taught by small group discussion and didactic lecture was compared. The mean post test score of students taught by small group discussion is 14.595 with standard deviation of 2.277, while mean post test score of students taught by didactic lecture is 13.261 with standard deviation of 1.889. On applying unpaired, p value comes out to be < 0.001, thus there was a highly statistically significant improvement in post test scores of students taught by small group discussion in comparison to didactic lecture.

**Table 3: Post Test Scores Of Students Taught By Small Group Discussion And Didactic Lecture**

Post test scores	Number of students	Mean	Standard deviation	p value
Small group discussion	126	14.595	2.277	0.000
Didactic lecture	126	13.261	1.889	

Table 4 shows the perception of students towards small group discussion. 63.9% students strongly agree while 19.84% students agree that they have found small group discussion interesting. 76.19% students strongly agree while 15.07% students agree that focussing on common medical problems has made the course more relevant. 82.53% students strongly agree while 14.28% students agree that working in groups means learning from one another. 89.68% students strongly agree while 10.31% students agree that they have understood the applied aspect of the course better. 64.28% students strongly agree while 20.63% students agree that group discussion is an important stimulus for learning activities. 84.12% students strongly agree while 14.28% students agree that small group discussion has cleared their

doubts better than conventional methods. 91.26% students strongly agree while 8.73% students agree that small group discussion encourages them to be active learner. 69.84% students strongly agree while 24.60% students agree that learning objectives were more clear after small group discussion. 86.50% students strongly agree while 12.69% students agree that in small group discussion, long term learning is emphasized over short term learning. 92.06% students strongly agree while 7.93% students agree that small group discussion has improved their communication skills.

**Table 4: Distribution According To Perception Of Students Towards Small Group Discussion**

S. N.	Statements	Strongly disagree n(%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly agree n (%)
1.	I have found small group discussion interesting	0	2 (1.58)	19 (15.07)	25 (19.84)	80 (63.49)
2.	I have found that focusing the course on common medical problems has made the course more relevant to my interest	0	0	11 (8.73)	19 (15.07)	96 (76.19)
3.	Working in groups means learning from one another	0	0	4 (3.17)	18 (14.28)	104 (82.53)
4.	I have understood the applied aspects of the course better than if it had been taught in the conventional way	0	0	0	13 (10.31)	113 (89.68)
5.	The group discussion is an important stimulus for my learning activities during my self- study.	0	6 (4.76)	13 (10.31)	26 (20.63)	81 (64.28)
6.	I am able to clear my doubts better.	0	0	2 (1.58)	18 (14.28)	106 (84.12)
7.	The teaching encourages me to be an active learner	0	0	0	11 (8.73)	115 (91.26)
8.	I am clear about the learning objectives of the course	0	0	7 (5.55)	31 (24.60)	88 (69.84)
9.	Long term learning is emphasized over short term	0	0	1 (0.79)	16 (12.69)	109 (86.50)
10.	This activity improved my communication skills	0	0	0	10 (7.93)	116 (92.06)

**DISCUSSION:**

In the present study, 126 undergraduate medical students were first divided into 2 groups. First group was taught two topics of Pharmacology (skeletal muscle relaxants and local anesthetic) by small group discussion and the other group was taught by didactic lecture. Then cross over was done and first group was taught by didactic lecture while other group was taught by small group discussion.

In the study, the mean pre test score of students taught by small group discussion was 8.563 while mean post test score 14.595. There was a highly statistically significant improvement in the post test score in comparison to pre test scores in students taught by small group discussion. Similarly, there was a highly statistically significant improvement in the post test score in comparison to pre test scores in students taught by didactic lecture. The mean pre test score is 8.563 while mean post test score 13.261. A similar study conducted by Kashmir Singh, Rashmi Katyal et al showed that there is a statistically significant improvement in the post test scores in comparison to pre test scores in students taught by both small group tutorial teaching as well as didactic lectures.<sup>[8]</sup>

When post test scores of students taught by small group discussion

were compared with those taught by didactic lecture, there was a highly statistically significant improvement in post test scores of students taught by small group discussion in comparison to didactic lecture. Thus, it clearly states that there is significant improvement in the performance of students taught by small group discussion than those with didactic lectures. Similar results were seen in a study by Padmavati Majhi and Renu Sulakhe which showed that there was a statistically significant difference between mean scores of students taught by small group discussion than those taught by didactic lecture.<sup>[6]</sup> A similar study conducted by Kashmir Singh, Rashmi Katyal et al showed that when pre and post test score difference of small group tutorial teaching and didactic lectures were compared, the difference was significantly higher with small group tutorial teaching in comparison to didactic lectures.<sup>[8]</sup> A study done by Sudheendra Kulkarni and Chandrakanth Chillarge also showed significant improvement in the students' performance following small group discussion.<sup>[9]</sup>

In the present study, most students strongly agree/ agree that they have found small group discussion interesting, improved their learning, encourages them to be active learner. Most students strongly agree/ agree that focussing on common medical problems has made the course more relevant, they have understood the applied aspect of the course better. Most students strongly agree/ agree that that in small group discussion, long term learning is emphasized over short term learning and it has improved their communication skills. Similar study by Padmavati Majhi and Renu Sulakhe showed that small group discussion is a more active way of learning which motivate self learning and helps students in developing interaction skills.<sup>[6]</sup> A study by Chetana P Hadimani also showed that most students strongly agreed that small group discussion helps in better understanding of the subject, facilitate active learning, promote clinical reasoning and communication skills.<sup>[7]</sup> Similar results were seen in a study by Kashmir Singh, Rashmi Katyal et al which showed that small group tutorial teaching was agreed upon by the students to be more effective.<sup>[8]</sup> A study by Nachal Annamalai et al showed that 70% students opined that small group discussion were interactive, friendly, innovative, built interaction between teacher and students. Small group discussion increased their thought process and helped them in better communication.<sup>[10]</sup>

### CONCLUSION:

The present study concludes that there is a significant improvement in the students' performance when taught by small group discussion in comparison to didactic lectures. Small group discussion is interesting, improves the students learning and encourages them to be active learner. Focussing on common medical problems has made the course more relevant, they have understood the applied aspect of the course better. In small group discussion, long term learning is emphasized over short term learning and it has improved their communication skills. Thus, small group discussion can be added as a regular teaching learning method along with didactic lectures and practical classes to improve the students performance and for the better understanding of the subject.

### Implication:

The study helped the students to understand practical application of the topic. This made Pharmacology more interesting and helped in better application of the knowledge in clinical practice.

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