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RESEARCH ARTICLE

Student Perception on Small Group Discussion in Understanding Medical Physiology in a Newly Started Institution

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ABSTRACT

Background: Small group discussion [SGD] is a teaching-learning method being incorporated in medical education it enhances the personal, social and cognitive skills. SGD enhances acquisition, processing and retention of the medical knowledge in medical students. Here we compared the responses on SGD perception among two batches of first year medical students.

Methods: Two batches of first year MBBS students comprising 84 were recruited from, AIIMS, Guwahati. MBBS 2020 batch students [n=34] were in the group 1. MBBS 2021 batch students [n=50] were in the group 2. After overall SGD sessions, as a part of routine feedback, the students were asked to submit their feedback responses for the google form questionnaire about SGD perception shared to them. For the Group 1 students SGD was conducted in online mode. For the Group 2 students SGD was conducted in hybrid mode. The responses for the SGD questionnaire by the students was obtained using a close ended Likert scale. The results obtained were expressed as percentage and compared statistically by chi-square test between the groups.

Results: For "Ability to Clarify doubts", the responses were 50% Excellent, 41.18% Good by group 1 and 34% Excellent, 54% Good by group 2. For "Interaction between students and faculty", 55.88% as Excellent, 35.29% Good [group1] and 30% Excellent, 54% Good [group 2]. Regarding "Knowledge gained in the SGD with respect to answering in the exam", responses were 50% Excellent, 32.35% Good by group 1 students and 36% as Excellent, 38% Good by group 2 students. The feedback responses about SGD were fairly consistent among both the batches.

Conclusion: SGD is one of the effective teaching-learning methods in both online and offline mode. Majority of the students very willing to attend SGD since it will improve the academic performance, communication skills and inter-personal relationship between faculty and the student.

Keywords: Small Group discussion, Teaching-Learning Methods, Medical Education.

Introduction:

Undergraduate medical education is concerned with quality of teaching, that makes a huge difference in the learning outcomes. In the conventional large group lecture format, a great amount of information is transferred to a large group of students, within a short span of time [1]. However, this has some drawbacks. Small group discussion [SGD] is a teaching-learning method incorporated in medical education, as it enhances the personal, social and cognitive skills. Traditionally, the undergraduate students of MBBS are divided into small groups to carry out the practical, tutorial and bed side teaching in clinics [2].

These small groups function either independently or under the supervision of a facilitator, and usually consist of 8-12 members. In small-group discussion the teacher announces a topic or idea for group discussion among the participants and they usually conclude the discussion in the same session [1]. SGD is student centric, facilitates understanding concepts in physiology. SGD helps the students to enhance acquisition, processing and retention of the medical knowledge. National Medical Commission [NMC] also promotes increase in SGD teaching hours in competency based undergraduate MBBS curriculum for Indian Medical Graduates [2]. SGD actively engages students in the learning process and this can be widely used in place of traditional lectures to teach concepts of physiology in medical colleges. Teaching methodology has a great impact on the learning outcome. This SGD may be reflected in the immediate outcomes such as student satisfaction, improved test scores during formative and summative assessment, also application of principles learnt, in clinical practice thereby improving the healthcare system.

Small group teaching method develop the intellectual skills of the learners such as reasoning, problem solving. In addition, there is development of attitude and acquisition of interpersonal skills such as listening, speaking, arguing and group leadership [3]. Research has demonstrated that small group discussion results in greater synthesis and retention of learning materials and the SGD sessions have changed the role of a teacher from a lecturer to a facilitator responsible for the active learning by the students [4,5,6]. Further research is needed to assess the long-term educational outcomes of this innovative methodology and to try this out in other areas of the discipline as well. In this study an attempt has been made to assess student perception about SGD. Based upon feedback from students, teaching strategy can be planned effectively.

OBJECTIVES OF THE STUDY

- To assess the student perception about SGD while learning Physiology.
- To compare the perceptions on SGD between two subsequent batches.

Methods:

STUDY DESIGN

This was a retrospective comparative study conducted among first-year MBBS students at AIIMS Guwahati to evaluate perceptions of Small Group Discussion [SGD] sessions delivered through different modes. Study Participants: Feedback responses on SGD by 84 first-year MBBS students were included, Group 1 [n = 34]: MBBS 2020 batch [online SGD], Group 2 [n = 50]: MBBS 2021 batch [hybrid SGD].

Inclusion Criteria: First-year MBBS students from 2020 and 2021 batches. Students who participated in SGD sessions. Students who provided feedback. SGD Sessions Structure: SGD conducted in groups of 6–9 students per faculty. Duration: 4 hours per week.

Topics: Pre-notified topic in Physiology validated by the faculty was discussed uniformly in small groups for Multiple Choice Questions, Short Answer Questions, Explain Why, Physiological basis, Give reason, Applied aspects, Compare and contrast during SGD. Mode: Group 1: Fully online mode, Group 2: Hybrid mode [combination of online + in-person].

OUTCOME MEASURES: FEEDBACK TOOL

A pre-validated structured questionnaire was used including perception of learning, faculty interaction, preparedness and engagement.

Scoring: Close-ended responses using a Likert scale [Excellent, Good, Average, Below Average]

Data Collection: Feedback was collected online after completion of SGD sessions and responses were anonymized prior to analysis.

Statistical Analysis: Data expressed as percentage for categorical variables. Normality was assessed using the Shapiro–Wilk test. Between-group comparisons were performed using chi-square test. Effect size [Cohen's d] and 95% confidence intervals calculated wherever applicable. A p-value < 0.05 was considered statistically significant. Statistical analysis was performed using SPSS version 16.

Ethical Considerations: The study was approved by the Institutional Ethics Committee, AIIMS Guwahati. Confidentiality of data was maintained.

Results:

A total of 84 first-year MBBS students participated in the study: 34 from the 2020 batch [Group 1, online SGD] and 50 from the 2021 batch [Group 2, hybrid SGD]. After completion of all the SGD sessions, as a part of routine feedback, the students were asked to submit their feedback responses for the google form questionnaire about SGD perception shared to them online. Overall, student perceptions on small group discussions [SGDs] were positive across both the batches as shown in Table 1 and Table 2.

Table 1 presents the feedback from the 2020 batch [Group 1], who experienced small group discussions [SGDs] conducted entirely online. The majority of students rated faculty preparedness [53% Excellent, 44% Good] and faculty knowledge [65% Excellent] very positively. Similarly, 50% rated the faculty's ability to clarify doubts as Excellent, and 56% rated interaction with faculty as Excellent. Most students expressed a strong willingness to attend SGDs [85% either Very Willing or Willing], with 76% preferring periodic shuffling of faculty facilitators.

Table 2 summarizes responses from the 2021 batch [Group 2], who participated in SGDs through a hybrid mode. Here, faculty preparedness was rated Excellent by 40% and Good by 46%, while 42% rated faculty knowledge as Excellent. Interaction with faculty was rated Excellent by 30% and Good by 54%. A higher proportion [90%] indicated willingness to attend SGDs, with an equal proportion favouring faculty shuffle.

Table 3 compares the two batches statistically, showing significant differences for faculty preparedness [p=0.045], faculty knowledge [p=0.044], and interaction with faculty [p=0.044]. However, responses across most parameters were broadly consistent, indicating that students from both batches perceived SGDs favourable, regardless of whether they were conducted online or in a hybrid format. Even though, the responses for feedback questionnaire 1, 3 and 7 had p-values less than 0.05, indicating a statistically significant difference between the two batches: 1 [Preparedness of Faculty, $p = 0.045$], 3 [Faculty Knowledge, $p = 0.044$] and 7 [Interaction with Faculty, $p = 0.044$] respectively. After Holm–Bonferroni correction, the differences were not large enough to be statistically significant. There is no strong evidence to suggest that the two batches had significantly different experiences in the SGD responses. This suggests that student feedback has been fairly consistent across both batches, and any minor differences are likely due to natural variations rather than systematic issues.

Table 1: Feedback Responses of 2020 Batch Students [Group 1]:

	Feedback Questionnaire	Excellent	Good	Average	Below Average
1	How would you rate the Preparedness of your Faculty-in-charge for the Small Group Discussion?	18 [52.94%]	15 [44.12%]	Nil	1 [2.94%]
2	How would you self-rate your preparedness for the Small Group Discussion?	7 [20.59%]	18 [52.94%]	7 [20.59%]	2 [5.88%]
3	How would you rate the content of knowledge of the Faculty for the Small Group Discussion?	22 [64.71%]	11 [32.35%]	Nil	1 [2.94%]
4	How would you rate the ability to clarify doubts of the students by the Faculty for the Small Group Discussion?	17 [50%]	14 [41.18%]	2 [5.88%]	1 [2.94%]
5	How would you rate the knowledge gained in the Small Group Discussion with respect to answering the questions on the same topic in the Exam?	17 [50%]	11 [32.35%]	4 [11.76%]	2 [5.88%]
6	How would you rate the communication between students and faculty during the Small Group Discussion session?	16 [47.06%]	14 [41.18%]	2 [5.88%]	2 [5.88%]
7	How would you rate the interaction between students and faculty during the Small Group Discussion session?	19 [55.88%]	12 [35.29%]	2 [5.88%]	1 [2.94%]
8	How would you rate the experience of using Microsoft Teams Online platform for Small Group Discussion session?	12 [35.29%]	15 [44.12%]	6 [17.65%]	1 [2.94%]
9	Would you like to shuffle the Faculty-in-charge between the various groups for Small Group Discussion at regular intervals?	YES – 26 [76.47%]		NO – 8 [23.53%]	
10	How willing are you to attend the Small Group Discussion?	Very Willing – 11 [32.35%]	Willing – 18 [52.94%]	Not Willing – 5 [14.71%]	

Table 2: Feedback Responses of 2020 Batch Students [Group 2]:

Feedback Questionnaire		Excellent	Good	Average	Below Average
1	How would you rate the Preparedness of your Faculty-in-charge for the Small Group Discussion?	20 [40%]	23 [46%]	6 [12%]	1 [2%]
2	How would you self-rate your preparedness for the Small Group Discussion?	5 [10%]	21 [42%]	19 [38%]	5 [10%]
3	How would you rate the content of knowledge of the Faculty for the Small Group Discussion?	21 [42%]	24 [48%]	5 [10%]	Nil
4	How would you rate the ability to clarify doubts of the students by the Faculty for the Small Group Discussion?	17 [34%]	27 [54%]	6 [12%]	Nil
5	How would you rate the knowledge gained in the Small Group Discussion with respect to answering the questions on the same topic in the Exam?	18 [36%]	19 [38%]	12 [24%]	1 [2%]
6	How would you rate the communication between students and faculty during the Small Group Discussion session?	19 [38%]	23 [46%]	8 [16%]	Nil
7	How would you rate the interaction between students and faculty during the Small Group Discussion session?	15 [30%]	27 [54%]	8 [16%]	Nil
8	How would you rate the experience of using Microsoft Teams Online platform for Small Group Discussion session?	9 [18%]	21 [42%]	17 [34%]	3 [6%]
9	Would you like to shuffle the Faculty-in-charge between the various groups for Small Group Discussion at regular intervals?	YES – 45 [90%]		NO – 5 [10%]	
10	How willing are you to attend the Small Group Discussion?	Very Willing – 10 [20%]	Willing – 35 [70%]	Not Willing – 5 [10%]	

Table 3: Comparison of SGD perception between 2 batches:

Feedback Questionnaire	Description	Chi-Square [χ^2]	p-value	Significance [$p < 0.05$]
1	Preparedness of Faculty	7.54	0.045	**Yes**
2	Self-rated preparedness	4.50	0.212	No
3	Faculty knowledge	8.10	0.044	**Yes**
4	Faculty clarifying doubts	4.23	0.238	No
5	Knowledge gained for exams	3.58	0.311	No
6	Communication with faculty	5.19	0.159	No
7	Interaction with faculty	8.09	0.044	**Yes**
8	Experience with MS Teams	4.82	0.186	No
9	Faculty shuffle preference	1.89	0.169	No
10	Willingness to attend SGD	2.55	0.280	No

Discussion:

In this study a pre-notified topic validated by Physiology faculty was discussed uniformly for Multiple Choice Questions, Short Answer Questions, Explain Why, Physiological basis, Give reason, Compare and contrast, Applied aspects during SGD. This study is relevant in this era where we see a changing trend from traditional teacher-focused teaching-learning methods to more student-centered methods such as SGD. SGD show a definite advantage over lecture-based learning in improving the attention span of students, understanding the concepts in physiology, recall and demonstrate. Preparedness of both faculty & students is essential for conducting SGD effectively. Study by Lubna et al, majority of students found SGD facilitators enthusiastic about process with 13.4% strongly agreeing and 36.3% agreeing, 28% stayed neutral while 9.6% disagreed and 12.75% strongly disagreed [7]. In our study even though the response for Preparedness of Faculty indicated statistically significant difference between the two groups p-value 0.045 [$p<0.05$ Table 3]. The responses were 52.94% as Excellent & 44.12% as Good in group 1 [Table 1], 40% as Excellent & 46% as Good in group 2 [Table 2] for Preparedness of Faculty. In our study regarding "Ability to Clarify doubts" 50% Excellent, 41.18% Good by group 1 and 34% Excellent, 54% Good by group 2 indicating preparedness of students.

From the study Roshni A & Rahim A; 2020, SGD show a definite advantage over lecture-based learning in improving the attention span of students, understanding the principles of family medicine, and recall. The average marks of students who attended SGD was higher compared to those who attended lectures [8]. In contrast all our 84 students of group 1 and group 2 have passed first professional examination with good marks. In our study for "Knowledge gained in the SGD with respect to answering in the exam" 50% Excellent, 32.35% Good by group 1 [Table 1] and 36% as Excellent, 38% Good by group 2 [Table 2].

Benefits from small group sessions, majority [35.1%] agreed that activities taught lifelong learning, 8.7% strongly agreed, 27% remained neutral with 16.5% disagreeing and 12.75% strongly disagreeing. Most of the students opine that they strongly agree/agree SGD as a good teaching-learning method [7]. In our study in group 1 32.35% were very willing & 52.94% willing to attend SGD. In group 2 70% were willing & 20% were very willing to attend SGD since it is a good teaching-learning method. Our results are in corroboration with a study showing 52.41% response as SGD is good teaching-learning method [8].

Our students of group 1 [online] and group 2 [hybrid] have experienced Microsoft Teams Platform as a good domain 42% and 44.12% respectively for SGD [Table 1 & 2]. There was no statistically significant difference when compared to online and offline SGD teaching with p-value 0.186 [Table 3]. Several previous medical education research work shows that when the students were actively participating in the learning process, they had greater satisfaction levels [9,10,11,12]. Recently, we have observed several research works that are being undertaken in the field of innovative teaching-learning methodologies. Bahar-Özvaris et al. found students in small- group teaching formats gaining more knowledge between pre and post tests than students in a control group [13]. Ferreri and O'Connor reported small-group students' improvement as measured by grades at the end of the year [9]. By contrast, Fischer et al. and Haidet et al. reported no improvement in students' test scores after a change in the delivery format of the class [14,15].

Team-based learning actively engages students in the learning process [16], and SGD can be used in place of traditional lectures to teach key concepts of physiology in medical colleges effectively. Pertaining specifically to small group discussions, these studies suggest that transitioning SGD to virtual or blended formats during COVID-19 helped preserve interactive learning and peer engagement to some extent [17,18,19]. Online teaching enabled continued collaborative learning, flexibility, and wider participation through digital platforms [20,21,22]. However, limitations included reduced non-verbal communication, variable student participation, technological constraints, and challenges in maintaining group dynamics and facilitator effectiveness [23]. Overall, a blended SGD model combining in-person interaction with online support emerges as the most effective approach for sustaining engagement and learning outcomes [24].

Conclusion:

SGD is one of the effective teaching-learning methods in both online and offline mode. Impact of SGD makes huge difference in learning outcomes. Majority of the students were willing to attend SGD since it will improve the academic performance, communication skills and inter-personal relationship. Comparison of student feedback responses as shown in Table 1 & Table 2 has been fairly consistent across both batches. Based upon the feedback response, efficient teaching strategy can be planned.

Limitations

- Data collected from only 2 batches
- For group 1 SGD was conducted in online mode only
- Lesser number of students
- Duration of SGD was less

Further Study

Data analysis of all MBBS subjects from first year to final year after conducting more SGD sessions.

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Conflict of Interest: Nil

Source of Funding: None

Ethical Clearance: The Research and Institutional Ethics committee of AIIMS, Guwahati has approved this study vide registration number AIIMSG/IEC/M7/F199/2024 Dated: December 16, 2024.

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