

Effectiveness of Interactive Small Group Discussion as a Novel Teaching Learning Method for Slow Learners in Physiology

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Abstract: Background: Despite the known beneficial effects of small group teaching learning the original concept of small group deviate with regard to set-up and group size. Due to disproportionate ratio of teacher and student's in small group discussions (SGD) most of the tutorials end up in to lectures and students are passive listeners. Involvement of students is effective method of teaching – learning and promotes problem solving, critical thinking, communication skills, teamwork, self- directed learning and retention of information. This study aims to examine the effectiveness of the interactive SGD for slow learners in Physiology. Methodology: Consented 56 students, scored less than 40% in internal assessment (IA) were involved in this study. Physiological systems considered as a one module and were divided into sub-units and learning objectives were formed. In the beginning of the SGD a pre -test was conducted. Students were divided into groups. Interactive inter- group discussions were conducted for focused groups. After the completion of all modules, assessment was conducted and score was compared with the first internal assessment score. Result: The result was reflected in improved performance with the interactive SGD, with Mean score of first IA (79.00 ± 17.20) and that of mean score of assessment taken after SGD (106.75 ± 23.74) with $p < 0.05$. Conclusion: Interactive SGD, help students to analyze, synthesize, integrate and apply in real world problems. This develops students as lifelong learners and enables them to solve a new problem with confidence, which helps them in their future. [Neha KNJIRM 2017; 8(5):49-52]

Key Words: Interactive, Small group discussion, slow learners, Physiology

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Introduction: In India, medical teaching is traditional type and teacher student ratio and other rules and regulations have to follow according to the medical council of India¹. Subjects like Anatomy, Physiology and Biochemistry are taught during first year of MBBS course. Teaching is in the form of lectures for the large group, practicals as hands on training and tutorials for small groups. Colleges which enroll 150 to 200 students every year, due to practical reasons and for convenience students are divided into three batches for tutorials and practical. Despite the known beneficial effects of small group teaching -learning the original concept of small group deviate with regard to set-up and group size. Due to 50 to 60 students in each batch and disproportionate teacher and student's ratio ², most of the time of in small group teaching like tutorials end up into lectures by multiple educators³ and students are passive listeners. Literatures suggest that small group teaching with involvement of students is effective method of teaching – learning⁴ and promotes greater synthesis and retention of information⁵. Active teaching learning strategies are stimuli for learning, enabling students to understand the relevance of underlying scientific knowledge and principles in clinical practice⁶. It focuses on application of basic knowledge to solve complex real-world problems and improves learner's

problem solving, critical thinking, communication skills, teamwork, independent responsibility for learning and sharing information and fosters many of essential concepts^{7,8,9,10}.

Considering the above mentioned facts this study aims to examine the effectiveness of the interactive small group discussions conducted by a single teacher as a facilitator among the first year medical students as a part of remedial measures for slow learners in Physiology.

Objective: To evaluate the effectiveness of interactive small group discussion among the slow learners of first year medical students in Physiology

Methods: The study was explained to the first year medical students admitted during the year 2013-14 batch of KLE University's J. N. Medical College, Belagavi after the ethical clearance obtained from the institutional ethics committee and consented students who scored less than 50% in first internal assessment (IA) were involved in this study.

Physiological systems covered till first IA was considered as modules. Each module is further divided

into 2 to 6 sub-units. Learning objectives were formed for each sub-unit. A week prior to a small group session, students enrolled were provided the details of learning objectives, study material containing the reference books and clinical case scenarios related to the topic covered in sub modules and important questions from previous university examinations related to sub unit of the module. In addition to this students acquired information from lectures and other sources.

In the beginning of the small group discussion (SGD) a test was conducted for the group in the form of Multiple Chose Questions (MCQs) from concerned sub-units. Score was given immediately by the facilitator who monitors the performance of a student.

Students were divided into groups, each containing eight students. These groups were discussed with questions from important aspect of lectures, clinical cases and from the previous year's University examinations. All groups worked on the same questions by group discussion. In each SGD students recalled, analyzed, and applied their previous knowledge and arrived at the final answer. The deficiencies in understanding were covered and clear understanding was accomplished by discussions amongst peers in the group. During the group discussion, a facilitator observed the group discussions. Faculty clarified any concept their doubts if any the student had.

Facilitator selected student from the groups randomly for the presentation of cases and to answer questions. An inter-group discussion on the presentation followed the reflection. Controversy, uncertainty and respectful debate on possible solutions occurred in the discussions. All cases and questions given were discussed during the session. The role of the facilitator was to answer additional questions raised or address various issues that arise during the discussion.

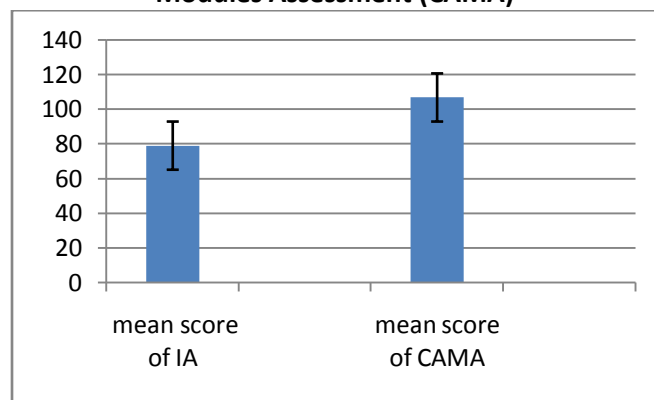
One session was conducted for three hours, which included 15 minutes for MCQ test, two to two and half hours (depending upon the sub module) for discussion and presentation among the groups on questions allotted and presentation of cases and another 15minutes for post-test and 15 to 20 minutes for feedback from the facilitator. After the completion of

all modules, assessment (CAMA) was conducted with the same pattern as in the first IA.

Statistical analysis: Mean scores of CAMA and first IA were compared using paired 't' test.

Result: Mean score of 56 first year MBBS students who scored less than 50% in first IA was 79.00 ± 17.20 and that of mean score of assessment taken after completion of all modules (CAMA) was 106.75 ± 23.74 . There was statistically significant improvement in performance of students with CAMA, p value <0.05 . Hence analysis of the result reflected in improved performance with the interactive SGD.

Fig 1: Comparison of first (IA) and Completion of All Modules Assessment (CAMA)



*p<0.05

Discussion: It was observed that there was statistically significant improvement in the performance of students with inclusion of interactive SGD.

In the present study design pre-class preparation maximizes the student centered and self-directed learning. It facilitates deeper discussion during the class time. In pre-class preparation, a "real-world problem" in the form of case-scenario prior to the actual session that promotes learning^{11,12,13}. Tests conducted before actual starting of SGD are designed to hold learners accountable for preparation for SGD and also allow peer-to-peer teaching-learning⁸ in areas of deficiency. It also provides an additional opportunity to process and learn basic facts and concepts¹¹. This incorporates the idea within the team communication which enhances their learning. The knowledge and critical thinking skills of the students who are not adequately prepared is enhanced due to their peers' knowledge that are well prepared. The effectiveness of application depends on student's

preparedness. If a student does not know the basic concepts, they cannot apply them. Real-world case scenarios simulate students to critically think, analyze and synthesize the information to come out with the final solution for the problem^{14,15}. Thus SGDs improve the problem solving skill of the individual. Development of critical thinking is essential in medical profession as no two patient situations are same. Questions are an integral part of the teaching that assist student to apply their knowledge and develop critical thinking skills¹⁶. Questions asked were used to challenge the students' thinking and application of the concepts and to facilitate the development of problem solving and critical thinking skills. Cognitive coverage of the course objective occurred due to random questioning that increases student engagement, understanding and preparation for the subject and better attention of the student in the task, students remain alert and involved during the entire session. This encompasses accountability and student's confidence has increased.

Students working on same task, controversy, uncertainty and respectful debate on possible solutions in the discussions foster in depth assimilation of the concepts¹¹. A good application task challenges a team to make a number of evaluations, decisions and judgments to arrive at a final answer. Students get practice to apply knowledge in safe environment and can apply in future profession as a clinician.

Students always remain in their assigned teams for the duration of the course and progressively, become more effective in helping members and apply course content. Learning in group exposes students to multiple point of view and ideas and provide additional insights from each other. Discussion as a group allows deeper learning, better retention and improves performance¹⁷. This collaboration and interaction with peers during preclinical curriculum will teach practical interpersonal communication skills¹⁸ and develop team work skill that in turn helps them in their clinical years. Students require applying most appropriate knowledge, before coming to the final right conclusion. Students engaged in finding out why an answer is correct by self-learning and discussion with peers and faculty. Thus students develop and demonstrate reading, teaching, negotiation skills and these activities enhance long-

term learning, mastery over the course material and long-term retention^{8,15,18}.

The end-of-the-modules assessment was conducted which was composed of MCQ and SEQ that test the knowledge and application of the physiology course and also help students in recalling, integrating the subject material and help in retention of knowledge.

Knowledge is acquired through three criteria: modality, frequency and duration²⁴. In this SGD, students were exposed to different modes, reading (in preparation before actual SGD), writing (pre SGD test and end module test in the form of SEQ) and verbal activities (class discussion, presentation). The frequency and duration were in the form of repetitions in reading, discussions exposure to SEQs. Repeated assessment and recall have been shown to increase long-term retention of the material.

Our findings as learning in small groups is an effective method were concordant with the previous studies^{20,21,23,23,24}.

Conclusion: This type of interactive SGD can be conducted for a large number of students by single teacher as a facilitator. By conducting such type of interactive SGD, student gets into the habit of gathering the information, they can analyze, synthesize, integrate and apply in different problems. This develops students as lifelong learners and enables them to solve a new problem with confidence, which helps them in their future.

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