



Original Research Article

Introducing syndicates as a teaching learning technique in first professional MBBS students

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ABSTRACT

Introduction: Interaction between the tutor and the pupils becomes the bedrock and keystone of active small group learning medical school sessions. These sessions have been corroborated to surpass didactic lectures in a large class at enhancing critical thought process thus carving out attitudes and values essential for a medical graduate. The core skills of questioning, listening, responding and explaining are better manifested in a small group discussion technique. Various facilitating technologies such as thinking time, buzz groups, syndicates etc impasse students to discuss and improve understanding. Syndicates is a novel peer group teaching learning tool which may help modifying students behavior and leads to enhanced grasping of content as compared to traditional methods.

Objectives: The Objective of the present study is to sensitize the faculty and introduce syndicates in the Department of Biochemistry, SGRDIMSAR, Sri Amritsar.

Materials and Methods: The present interventional study was conducted in the Department of Biochemistry, SGRDIMSAR, Amritsar after obtaining the prior approval of the institutional ethical committee. A total of 115 students were involved in the present study. The study was done in two different Batches (Batch A and Batch B) on two different occasions. They were divided into 3 groups (Each group having one Facilitator). To begin with the study the faculty was sensitized for Syndicate method of learning. At the end of the session, two students from each group compile and taught their topics to rest of the two batches on behalf of their group. A semi-structured feedback questionnaire including both open and closed ended questions was filled by the students. It was followed by Focus group discussion (FGD) of the Faculty. These were statistically analyzed to evaluate the perception of faculty and students for syndicate method of small group learning.

Results: After the conduction of Syndicates session, most of the students opined that these type of sessions help them understand better, learn better from their peers, gave laid back students a chance to present and wanted such sessions more frequently for various dry and difficult topics.

Conclusion: Syndicate groups can make learning experience more interesting; create many chances for creative exchange of ideas and lead to better retention of knowledge as compared to teacher oriented methods. Overall it was a satisfactory erudition for the first professional medical graduates.

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1. Introduction

Biochemistry, in the traditional system of medical education, was mainly taught by means of didactic lectures, tutorials and practical classes. Hence, the learning was teacher centered; with minimal active participation from the students thus the students lacked critical thinking. But in the present scenario, with innovative teaching learning

methods the system is changing to a student centered teaching–learning process.^{1,2}

Small group work enables the participants to gain a great deal from their fellows, in a type of communication which cannot take place in a lecture hall. It also increases the ability to work in professional practice, modifying member's behavior and making it more effective.^{3,4}

As a fact, any assembly of individuals is not a group until they talk, discuss and interact amongst themselves. In many sorts of group teaching like in

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the basic sciences the communication is primarily teacher oriented and never student directed. Syndicate teaching learning technique is a type of peer or near peer assisted method, comprising small groups of pupils engaging in semi independent groups in order to accomplish a set common motive.^{5,6} It aims at improving communication skills which are mandatory to enhance leadership qualities encompassing responsiveness, enhanced attention span and empathy. Good communication skills include 45% time of listening. This also aids them in becoming open minded to gather and assimilate others views apart from their own perception.^{7,8} This type of approach encourages medical graduates to develop cognitive psychology and forms a learning type which is "LEARNING FOR EVERYONE, BY EVERYONE AND ALMOST ABOUT ANYTHING". It also manifests itself by ones organization which is usually absent from pedagogical types of tutoring. It is a tutor less group in which the teacher only acts as a facilitator, Moderator or a summarizer.⁹

Syndicate small group peer learning encourage students to take more responsibility, become more self-motivated and essentially adopt a more independent attitude to their learning. In this method, the students are free to discuss among their peers and this interactions allow more active student participation that fosters both activation of prior knowledge, which ultimately assists in collecting and joining all the previously known facts, problem solving, and decision making. By its very nature, student-centered learning allows students to carve a niche having their own learning paths and places upon them the responsibility to actively participate in making their educational process a meaningful one.¹⁰

Syndicate and problem-based learning have many features in common and indeed students are likely to need to adopt an enquiring, problem-solving approach to collaboratively achieve the set task. Presentation of clinical material acts as the stimulus for learning enables students to understand the relevance of underlying scientific knowledge and principles in clinical practice.¹⁰

Many researchers have used syndicate technique of small group learning in clinical scenarios, but the use of this method of small group teaching is still not widely incorporated in Basic sciences curriculum. Despite the importance of learning in small groups in Biochemistry, there has been surprisingly little research on small group work other than in problem based learning (PBL). Thus the present study aims at introducing and finding the perception of students and faculty regarding syndicate teaching in Biochemistry classes.

2. Aim and Objectives

1. To sensitize faculty and students regarding Syndicate technique of small group teaching learning technique.

2. To introduce Syndicates as teaching learning technique in department of biochemistry.
3. To assess perception of faculty and students regarding Syndicate method.

3. Materials and Methods

The present, interventional study was conducted in the Department of Biochemistry, SGRDIMSAR, Amritsar after acquiring the prior approval of ethical committee of the institution. All the students of MBBS first professional Batch 2017-18 present on the day of execution of syndicates were enrolled in the present study.

To start with the study the faculty (Both from Department of Biochemistry and other departments) and students were sensitized for Syndicate method of learning. After sensitization and explaining the motive of the study, a semi-structured feedback questionnaire having both closed and open ended questions which was validated by ten faculty members. The study was conducted in two different Batches (Batch A and Batch B) on two different days. They were divided into 3 groups (Each group having one Facilitator). The topics were divided into subtopics allotted to each group. The session was conducted twice for two different topics:

1. Metabolism of Bilirubin and Liver Function tests
2. Lipoprotein metabolism.

The first session topic on Jaundice and Liver Function tests was split into three parts:

- A. Degradation of Bilirubin (Group A ; n=18)
- B. Types of Jaundice (Group B ; n=19)
- C. Liver Function tests (Group C ; n= 19)

Similarly, the second syndicate session topic on Lipoproteins was split into:

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- B. LDL and VLDL metabolism. (Group B ; n=19)
- C. HDL metabolism and Reverse Cholesterol Transport. (Group C ; n= 20)

Thus it was conducted on 115 students present on the day of conduction of the session. (Figure 1)

They were free to refer any notes, books or internet and had to summarize their discussion in about one hour. At the end of the session, two students from each group presented their topics on Flipcharts. The tutor acted as a facilitator and gave valuable comments and suggestions followed by active discussion of the much needed areas by the students. The feedback questionnaire was filled by the students after the session. This was followed by a Focus Group Discussion was conducted in 10 Faculty members (5 from same department who acted as facilitators; 1 from anatomy department; 1 from physiology; 1 from microbiology and 2 from SPM who acted as observers

during the syndicate session). These were statistically analyzed to evaluate the perception of faculty and students for syndicate method of small group learning.

4.1. Statistical analysis

The data derived from the feedback questionnaire was filled in excel sheet and was statistically analyzed using SPSS software version 17.0. Cronbach's alpha coefficient test was used to assess the reliability of the questionnaire collected from students. The value of Cronbach's alpha coefficient test was 0.84 thus representing that the questionnaire was good in content. The mean and standard deviation of the data was analyzed statistically. Descriptive analysis was performed for qualitative data and items generated were tabulated.

5. Results

Regarding perception of the students (Tables 1 and 2), 92.17% students agreed that syndicate class of small group technique helped in promoting better understanding as compared to didactic lecture. 98.04% students opined that teaching and being taught by peers' beneficial in enhancing the depth knowledge of the topic. The session of small group activity motivated them for learning and there is facilitation of interaction between students through syndicates. 92.17% students opined Syndicate learning helpful in promoting Self Directed learning in the student whereas 91.3% students felt that this teaching Learning tool made the regular part of the curriculum. The role of the teacher only as a Facilitator was justified by 92.17% students as they stated that role of facilitator was important in session. 94.78% students opined that syndicate learning can enhance the learning skills in normally laid back students in class. When asked about the sufficiency of time provided for preparing and presenting the session, 93.91% students felt that it was sufficient whereas rest thought that time constraints were there and they required more time.

The items generated from the responses to the open ended question in the student feedback questionnaire:

Q7. Should this teaching Learning tool be incorporated for other topics in Biochemistry?

Responses: 94 % students felt that this should be incorporated for other topics in Biochemistry and the topics suggested by them were:

1. Molecular Biology
2. Cycles & Regulations
3. Biological Oxidation
4. Carbohydrate Metabolism
5. Minerals
6. Protein Metabolism

Q11. Kindly give any other suggestions if you want to make the session better next time.

The following suggestions were given by the students to improve the session.

1. Groups should be smaller
2. Should be conducted more often
3. More Time should be provided.
4. There should be an option to choose ones group.
5. Refreshments should be provided.
6. More number of students should be given a chance to present.

Focus Group Discussion (FGD) Table 3 of the faculty was conducted with 10 Faculty members who acted as either Facilitators or observers in the syndicate session.

5.1. Shortcomings in this methodology

1. Teaching in basic subjects should not totally base on Syndicate method. So, for the complete knowledge of the subject Syndicates should be used in collaboration with other teaching learning methods.
2. Requirements of Logistics both in terms of Faculty members and rooms are more.
3. Time constraint is another constraint in syndicate method of small group teaching.

5.2. Suggestions to improve it

1. Syndicates should be followed or preceded by theory lecture.
2. Number of such sessions should be increased and one day should be allotted for Syndicates at the end of related topic in theory classes.
3. Groups should be smaller and if not possible subgroups should be formed.
4. As suggested by the students the topic can be informed a day prior which may enable them to prepare better.

6. Discussion

Engaging students in peer oriented student centered groups is an arduous task. According to some authors, novice method of syndicates may lead the less confident pupils to feel lost without a guide instead of having a meandering and meaningful exchange of views. Still other studies have concluded that this methodology can pave a new pathway and can make student a more confident self directed learner who takes responsibility of his own learning. A strong point in support of syndicate groups is that the lack of active teaching by the teacher, the groups can enable students to take more responsibility for their own learning. Whereas there is passive learning associated with traditional learning method. But, as Stenhouse (1971) observed, '...developing small group teaching depends as much on student training as on teacher training'.

Most of them have accepted peer learning methods emphasizing on the fact that apart from stimulating the core



Fig. 1:

Table 1: Perception of students regarding syndicate learning as a teaching learning tool in biochemistry

Question	Mean ± SD
Was today’s session of small group learning helpful in promoting better understanding as compared to didactic lecture?	4.29 ± 0.84
Was teaching and being taught by peers’ beneficial in enhancing In depth knowledge of the topic?	4.28 ± 0.80
Was Syndicate learning helpful in promoting Self Directed learning in the student?	4.23 ± 0.85
Will it be helpful to the students in future application of Knowledge?	4.28 ± 0.86
Will this method motivate the students to learn Biochemistry?	4.29 ± 0.88
Should this teaching Learning tool made the regular part of the curriculum?	4.24 ± 0.86
Was the role of a teacher as a Facilitator justified?	4.23 ± 0.86
Can Syndicate learning enhance the learning skills in normally laid back students in class?	4.31 ± 0.84
Was the time provided for preparing and presenting the session, sufficient?	4.30 ± 0.82

Likert scale used was: Strongly agree: 5, Agree: 4, Neither yes nor no: 3, Disagree: 2, Strongly disagree: 1; SD: Standard deviation

questioning and thinking areas, it even improves student reflection; an important aspect of self recognition and development. In the longer term they can aid the build out of communication competency with patients and colleagues. Preparation by both tutor and students, and openings and ending by the tutor are also important. Most important of all for the tutor is the meta-skill of knowing when to use a discussion skill. All the above discussion skills can facilitate thinking. In other words, discussion skills can develop discernment and reasoning domains.

Our study concluded that syndicate method of small group teaching helped students to learn better from their peers, become self motivated and accept responsibility of

their own learning in a tutor less setup. Similar finding were reported by Vidya K Lohe et al who found considerable learning and adoption of a more independent approach to their learning by syndicate method of teaching.⁹ In this method, a topic is split into sections and the group divided into teams. Each team works on a section of the topic and presents its views at a plenary. The tutor may act as a resource, co-ordinator and summariser. Few medical topics are linear, most are multi-factorial. Hence, the method requires detailed perusal and organisation. Similar findings were reported by McKeachie and Svincki.^{11,12} R A Mckerlie reported that their results demonstrate that syndicate learning helped students to accomplish course

Table 2: Perception of students regarding syndicate learning as a teaching learning tool in biochemistry (Percentage of students who agreed to the questions)

S. No.	Question	Agree (%) SA& A
1. 1.	Q1. Was today's session of small group learning helpful in promoting better understanding as compared to didactic lecture?	92.17
1. 2.	Q2. Was teaching and being taught by peers' beneficial in enhancing In depth knowledge of the topic?	98.04
1. 3.	Q3. Was Syndicate learning helpful in promoting Self Directed learning in the student?	92.17
1. 4.	Q4. Will it be helpful to the students in future application of Knowledge?	92.17
1. 5.	Q5. Will this method motivate the students to learn Biochemistry?	92.17
1. 6.	Q6. Should this teaching Learning tool made the regular part of the curriculum?	91.30
1. 7.	Q8. Was the role of a teacher as a Facilitator justified?	92.17
1. 8.	Q9. Can Syndicate learning enhance the learning skills in normally laid back students in class?	94.78
1. 9.	Q10. Was the time provided for preparing and presenting the session, sufficient?	93.91

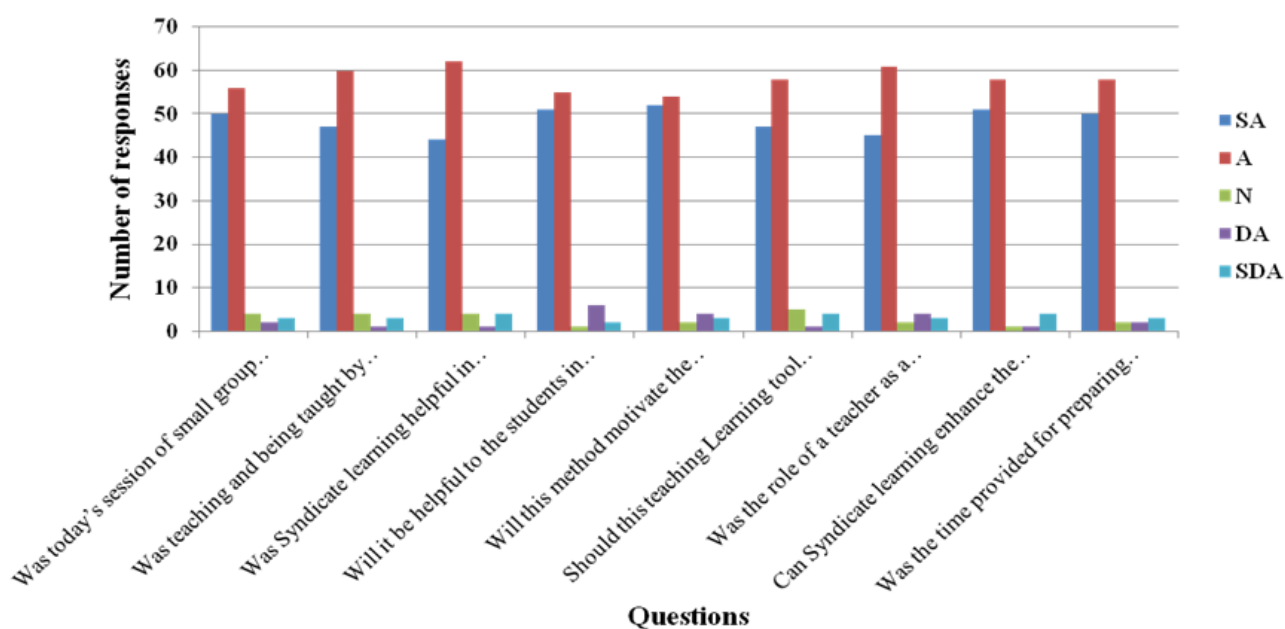
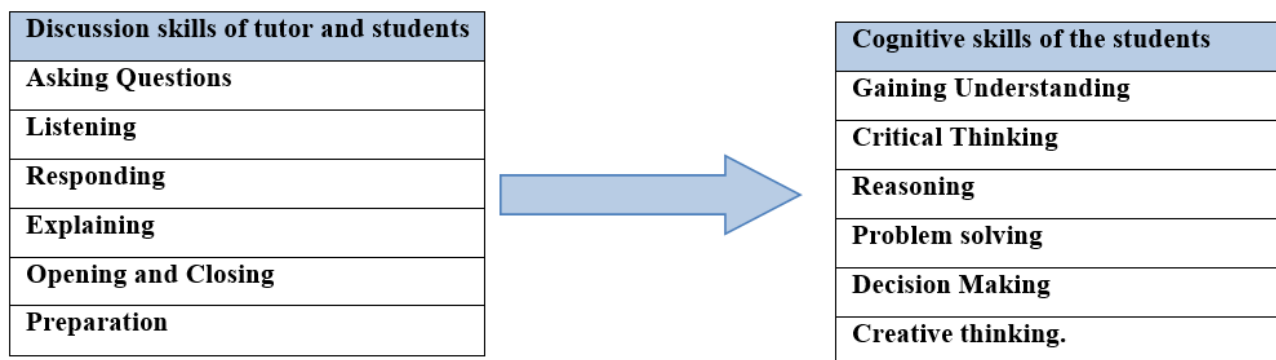
**Fig. 2:** Percentage of students who agreed to the questions

Table 3: Items identified through content analysis of faculty focused group discussion

S. No	Factor	Item
1.	Strengths Of Syndicate Small Group Discussion	The session was very Interactive. Students seemed very enthusiastic. New ideas were coming up i.e Innovative Normally Laid back students in the class were also participating. Learnt better from peers. As the presenter was from their group they were listening very carefully and imbibing more. They were self motivated and took the responsibility of their own learning.
2.	Weakness Of Syndicate Learning	Time Constraints were there. Presenters were less. Group was big. Requirement of Logistics in terms of Faculty and Rooms for conduction of Syndicates.
3.	Any suggestions to make it better?	Presenters should be more. Should be conducted more frequently. Time should be more. For some dry and difficult topics, can be preceded or followed by a didactic lecture. Can be conducted with a pre and post test to judge the level of understanding.
4.	Can it be conducted for other topics and departments?	Yes it can be conducted for some difficult topics after needs assessment of the students. Will be really helpful in the radiology department to understand the radiographic findings.
5.	Role of Facilitator	Was as required.

Can Lead To.....**Fig. 3:** Summarises the skills of discussion and thinking

objectives. However, in addition to this, tutor-less groups were rated more positively by students in comparison to more traditional group work with a tutor/facilitator as well as to other teaching methods such as lectures. They also reported learning more deeply by having to teach their peers and learn from them. These outcomes suggest syndicate learning groups can offer a valuable contribution to the undergraduate Indian medical curriculum.¹³

However, apart from these, tutor-less groups were ranked higher by the participants as compared to other traditional group methods including a tutor/facilitator as well as to

other current teaching methods such as lectures. It was effectively introduced in the Department of Biochemistry and the faculty from other departments was sensitized for the same.

7. Strengths

The session was very interactive and the students seemed very enthusiastic. It was perceived as a very innovative method and normally Laid back students in the class were also participating. The students learnt better from peers as

there was no inhibitions. They were self motivated and took the responsibility of their own learning.

8. Limitations

The time constraints was the major limitation of the study. Preparing and presenting the topic in three parts required time. The group was big and more students should have been given a chance to present. Requirement of Logistics in terms of Faculty and Rooms for conduction of Syndicates was another major drawback.

9. Conclusion

The current teaching styles and techniques foreground and highlight on the enhancement of students' clinical problem solving and enhancing critical thinking that will be helpful later on in medical practice. It also creates chances for active engagement of students for better understanding. The present study suggests that syndicate group is better than the traditional method and can become an appropriate method as an adjunctive instruction tool.

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None.

12. Conflict of interest

None.

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