

## EFFECTIVENESS OF FISH BOWL METHOD IN TEACHING CLINICAL BIO-CHEMISTRY FOR 1ST YEAR MEDICAL STUDENTS

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### ABSTRACT

Medical education is introducing different innovative methods of teaching to make learning easy, reproducible and can be implemented in a conceptual way. There are well established traditional methods of teaching yet many methods like problem-based learning, team-based learning, case-based learning, small group learning, flipped-class room learning, etc; are being introduced, practiced and are further modified according to the requirements for the quality outcomes. The present study was undertaken to observe the effectiveness of fish bowl method in teaching the clinical Bio-Chemistry. The study included a total of 100 participants who were studying first year MBBS at Apollo Institute of Medical Sciences and Research. Apparently healthy, willing participants were included in the study. Unwilling participants were excluded from the study. Majority of students showed positive attitude in the implementation of fishbowl method in teaching the clinical biochemistry. The study results support the implementation of fishbowl method in the medical curriculum to teach the clinical concepts in most efficient way. The study also recommends further detailed studies in this area.

**Keywords:** Fish bowl method, medical education, Biochemistry.

### **INTRODUCTION:**

Medical education is introducing different innovative methods of teaching to make learning easy, reproducible and can be implemented in a conceptual way. There are well established traditional methods of teaching yet many methods like problem-based learning, team-based learning, case-based learning, small group learning, flipped- class room learning, etc; are being introduced, practiced and are further modified according to the requirements for the quality outcomes (1). This clearly states that there was a need to upgrade and fill up the gaps experienced in traditional teacher-centered teaching method (2). As teaching and learning is a two way process wherein the content should be delivered to the student in the

right way and the student develops confidence in communication, grip on the subject, improvises his/her analytical thinking and much confidently delivers the same. Student-centered learning facilitates both the students and the teacher to share the focus, encourages team work, communication and collaboration is also learnt (3). In student-centered method, the teacher acts as a facilitator and student will be focused in gaining the knowledge through cooperative learning, through discussion and enhances self-directed learning. The learning approach using seminars is non-effective as the presenter or the participant will deliver the content learnt and other students remain passive. The innovation is always

necessary in the field of medicine in leaning as well as teaching as learning is a never ending process. In the present study we have used fish bowl technique as a learning tool (4). It is proven to be a novel method of group discussions offering much better benefits of small group discussion. Fish bowl method is a good conversational approach, enhances the communication skills of students for an elaborative discussion from simple to complex and also limiting the content of discussion by fencing and framing the method by pre-posted questions (5). All this process is taken up under the observation of the facilitator. The present study was undertaken to observe the effectiveness of fish bowl method in teaching the clinical Bio-Chemistry.

## **METHOD & MATERIALS**

This study was done in department of Biochemistry at Apollo Medical College in January 2019. It's a combination of lecture followed by discussion using fish bowl technique. The topic of discussion is a case study based on Diabetes Mellitus and its effect on Carbohydrate Metabolism. In the first half, 30minutes lecture was delivered to 100 students on Diabetes Mellitus and its effects on Carbohydrate Metabolism. After the lecture, students were briefed about the rules of Fish Bowl technique. 100 students were divided into 5 groups (20 per group). These 20 students were allowed to be seated in two consecutive circles (inner and outer circle) with 10 students in each circle. The first group of 10 students (Group A) in the inner circle was given a copy of case study to be discussed for 10 minutes, based on the lecture delivered. The detailed case study is also provided with questions to be discussed, this is ensure the uniformity of discussion, problem analysis among all the five groups and to make the students discussion confined to the given topic. While the students in the outer circle (Group B) were provided with a tally/comment sheet and were instructed to observe the students sitting in the inner circle and grade them. This observation is of one-to-one basis that is an individual in the outer ring observes the inner ring student. The students in the outer circle are called 'Fish Watchers', they observe the discussion, copy notes, grade them in silence. These sheets were handed over to the instructor. Each participant was graded according to the level of

participation in the panel discussion and also answering the question appropriately with evidence. A tally of points earned by each panel member for oral contributions to discussion, logical contentions and passages read in support of points, furtherance of discussion, etc. Criteria for grading was : The point of view expressed was relevant to the question, appropriate evidence was quoted when expressing their view, Ability to further discussion among panel members, Adherence to topic (13). The circles were flipped to outer to inner and vice versa and the same method of discussion and evaluation was performed accordingly as mentioned above. End the session all the group members were allowed to gather for the summarization and concluding the topic. One representative from each group was made to present the summary and conclude the discussion. Each panel discussion per round (circle) was for 10 minutes and presentation for 5 minutes. The total time allotted for the Fish Bowl was 30 minutes. Finally the students were provided with a feedback form to express their opinion on fish Bowl technique and choice of teaching and learning methods.

### **Study design: Observational study**

**Study setting:** The present study was conducted at Department of Bio-chemistry, at Apollo Medical Collage, Hyderabad.

**Study participants:** The study included a total of 100 participants who were studying first year MBBS at Apollo Institute of Medical Sciences and Research. Apparently healthy, willing participants were included in the study. Unwilling participants were excluded from the study.

**Fish bowl method:** The method was aimed to enhance the student's analytical thinking, improvising the reasoning skills, better communication skills and above and all to achieve the concept oriented learning in a student-centric manner. The students were divided into 5 groups each consisting of 20 students. A clinical case related to Diabetes Mellitus was given to the students to discuss in fish bowl method as mentioned in the literature (6, 7).

## ETHICAL CONSIDERATION

The study was approved by institutional ethical committee of Apollo Institute of Medical Sciences and Research.

**Data analysis:** Data was analyzed by SPSS 20.0. Data was expressed as percentage.

## RESULTS

Data was presented in table no 1 to table no 3. Table no 1 presents the participant's observation on the activities followed in discussing of the topic. Table 2 presents the feedback of the participants regarding fishbowl.

**Table 1: Participant's observation on the activities followed in discussing of the topic**

S. No	Participants observation	Activities followed in discussing of the topic in percentage (%)
1	Answered questions with evidence	91.76%
2	Asked questions that were grounded	91.76%
3	Asked a clarifying question to help with understanding	90.58%
4	Used an example from personal experience to make a connection to or support a claim	47%
5	Expressed agreement with another's view and verbalized why	94.11%
6	Expressed disagreement with another's view and verbalized why	74.11%
7	Listened actively and respectfully to other students' ideas	94.11%
8	Seemed open to ideas that conflicted with his or her own	88.23%
9	Summarized all the views	82.35%
10	Was leading the team	71.76%

Data was presented as percentage

**Table 2: Feedback of the participants regarding fishbowl**

S. No	Feedback	Lecture Alone	Lecture with Fish Bowl Discussion	Mixed opinion
1	Which method stimulated interest?	16.47%	81.17%	2.36%
2	Which method was able to retain more information?	23.52%	75.29%	1.91%
3	Student satisfaction was more with which method?	18.82%	78.82%	2.36%
4	Which method is better?	15.29%	80.00%	4.71%

Data was presented as percentage

## DISCUSSION

The present study was undertaken to observe the effectiveness of fishbowl method in teaching clinical biochemistry. Majority of students showed positive attitude in the implementation of fishbowl method in teaching the clinical biochemistry. Teaching the medical subject is challenging tasks as it is said that perception of theory is depicted as 'ivory tower' which is irreverent to practice. Theoretical knowledge can help to fetch good scores in the theory exams but the student fails to give satisfactory outcomes practically. Hence the innovations in medical education is required to provide good concept oriented skills, in improvising the communication skills, in enhancing the better understanding of the problem, clear approach to the problem analysis, diagnosis and management.

In the present scenario it is recommended to follow student-centric method of teaching (6). In this the teacher should be a facilitator or a mentor and learning should be independent and self-directed. This is achieved by small group teaching methods in various ways. One such approach is learning through fish-bowl (7, 8). It is configured as inner group discussion on a topic or case while the outer group plays a observers role like patterns of discussion, themes, soundness of arguments, behavior in approach, reasoning skills, etc; are assessed by giving a checklist to retrieve feedback from the observers group on its functioning (9). Further these roles are reversed wherein observers group gets flipped into discussion group and vice versa and evaluation is done according to the checklist given. In the present study fish-bowl technique is used in learning diabetes mellitus (10). This is practiced to establish an effective learning ability by providing comfortable and safe expressing environment to the learners (11). In the present study students had expressed their willingness to adopt this method of learning and they expressed that this method of learning enabled them to understand the problem in diagnosing and management, provided clear concepts that can be retrieved later at bedside or at practice with better management procedures on discussion. This method triggers the internal motivation of the learners and helps them to diagnose their own needs, enable the

student in mutual planning of relevant method and encourage the student to formulate their own self-learning objectives, support and evaluate self-learning skills by stimulating and enhancing the critical thinking ability (12). The study results support earlier studies as we have observed similar results.

Conclusion: The study results support the implementation of fishbowl method in the medical curriculum to teach the clinical concepts in most efficient way. The study also recommends further detailed studies in this area.

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