Students' Perceptions about Current Use, Effectiveness and Barriers in Implementation of Interactive Learning at College Of Medicine, Northern Border University, Arar

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ABSTRACT

Objectives: *To understand the perceptions of medical students about the current use of interactive learning, its effectiveness and barriers in its implementation.* **Method:** *A cross-sectional study was carried out at the College of Medicine, Northern Border University, Arar, Kingdom of Saudi Arabia. Study participants were fifth and final year medical students. A semi-structured questionnaire was used to collect the information in relation to perceptions regarding the use of interactive learning, its effectiveness, and barriers. The questionnaire consisted of Likert scale ranking and close-ended questions. The student's response was analyzed by frequency analysis.* **Results:** *A total of 150 students participated in the study. The most frequently used methods for interactive learning at the College of Medicine were small group discussions (68%) and problem-based learning (56%). Educational games and online videos were used rarely. There was positive feedback regarding the effectiveness of interactive learning in generating interest in learning (84%) and understanding of subject (85%). 80% of the students also reported an improvement in exam scores as a result of interactive learning. The main barriers reported to adoption of interactive learning were inadequate class time (70%), faculty is accustomed to traditional lectures (66%) and lack of trained faculty members (40%).* **Conclusion:** *The data suggest despite barriers interactive teaching is being frequently and effectively used at the College of Medicine, Northern Border University, Arar. It is suggested more interactive learning techniques should be incorporated in the curriculum and barriers in adoption can be overcome by following faculty development programs and administrative support.*

Keywords: Interactive learning, Barrier, Students' perceptions, Problem based learning, Arar

INTRODUCTION

The basic aim of medical education is to improve the problem-solving skills of students and make them lifelong learners. The most effective methods for teaching undergraduate medical students are, therefore, constantly being sought by educators. The main teaching technique being utilized in most of the medical schools is traditional lectures. This method establishes an instructor-centered classroom setting in which students are passive listeners [1]. In recent era, the focus is more on a thought stimulating and student-centered approach [2]. That's why traditional lectures are substituted with interactive learning to promote student participation [3]. Interactive learning is the utilization of different methods that involve students in the process of learning [4]. These methods include group learning, problem-based learning, reading textbooks journal articles, videos, online learning, educational games, and activities. Various studies have shown that interactive learning is an effective method helping students to become self-directed learners [5]. Interactive learning has been shown to promote critical-thinking, problem-solving, and teamwork skills among students [4]. Recent research has shown that integration of traditional lecture and interactive learning produces beneficial results [6,7]. The integration has shown to enhance student alertness and involvement leading to improved performance. The interactive learning helps in easy assessment of student progress [8]. Students learn to work as a

group to accomplish a common goal. It has been shown to improve student scores and promotes deeper understanding of concepts [9].

Although interactive learning is a useful teaching strategy several drawbacks have been associated with its implementation. These include increased costs for the setup, increase number of faculty members, and increased level of stress on both students and staff [10]. The student-centered approach requires trained faculty members to create an environment in which students can learn effectively and efficiently [11]. It has been observed that the students are less likely to follow subjects in depth when there is excessive course content, little choice over study topics, and an assessment plan that leads to apprehension among students and acknowledges only reproduction of factual information [12]. On the other hand, learning strategies that motivate students to learn and participate actively in class make them learned professionals [11]. Evidence suggests that students' perception and approach to teaching strategies is also a crucial factor in determining the quality of learning outcomes [13]. As students are important stakeholders, so it is imperative to know the students' perspectives about interactive learning.

MATERIAL AND METHODS

The cross-sectional study was done on fifth and final year MBBS students studying at the College of Medicine, Northern Border University, Arar, from January 2019 to March 2019. A total of 150 male and female students were included in the study by using convenient sampling technique. At the beginning of study informed consent was taken from the students. The medical students at Northern Border University, Arar are being taught medical curriculum over a period of six years. In the first year they are taught medical terminology and study skills. In second and 3rd year they are introduced to basic sciences which are being taught in an integrated curriculum. The preclinical and clinical classes start in fourth year. The teaching strategies being used currently include lectures, tutorials, small group discussions, ward rounds; clinical skill lab and problem-based learning sessions.

A preformed structured questionnaire was used to obtain the views and recommendations of the respondents. The final questionnaire was developed after a review of pertinent literature. The survey was voluntary and confidential. Any student who refused to participate in the study was excluded. The students were guided about the objectives of the study and each item in the questionnaire was clearly explained before the start of the study. The proposal of this study was reviewed and approved by the Deanship of Scientific Research at Northern Border University.

The survey consisted of 13 questions and required 20 minutes to complete. Students were asked to express their opinions about current use of six different interactive teaching methods (small group discussions, problem-based learning, bedside teaching, clinical skill lab, videos, educational games) on a five-point Likert scale as following: 1) never, 2) rarely, 3) sometimes, 4) often and 5) always. The survey also contained close-ended questions regarding student's perceptions about the effectiveness and barriers encountered in the implementation of interactive learning. The feedback was considered positive if more than 80% of students were in favor of it.

The following definition of interactive learning was provided for understanding of respondents: Interactive learning is a teaching method in which students are actively involved in the classroom. Students are accountable for their own learning through the use of problem-solving, group discussions, skill lab training, online videos, and educational games, etc.

Data Analysis

All the data was entered in Statistical Package for Social Sciences (SPSS) version 20. The data was analyzed and presented in the form of frequency and percentages.

RESULTS

One hundred fifty undergraduate medical students (male 63% and female 37%) participated in this study. The most commonly used interactive teaching methods as perceived by students were small group discussions (68%) and problem-based learning (56%). The use of educational games and online videos was rare as shown in Table 1.

Table 1 Distribution of students' responses in the Likert scale regarding the use of interactive learning in class

Teaching Methodology	Never n (%)	Rarely n (%)	Sometimes n (%)	Often n (%)	Always n (%)
Small group discussions	3 (2%)	6 (4%)	33 (22%)	102 (68%)	6 (4%)
Problem based learning	0 (0%)	3 (2%)	57 (38%)	84 (56%)	6 (4%)
Bedside teachings	3 (2%)	6 (4%)	60 (40%)	72 (48%)	9 (6%)
Clinical Skill lab	3 (2%)	15 (10%)	84 (56%)	45 (30%)	3 (2%)
Online Videos	102 (68%)	48 (32%)	0 (0%)	0 (0%)	0 (0%)
Educational games	96 (64%)	54 (36%)	0 (0%)	0 (0%)	0 (0%)

Table 2 shows students' perception of the effectiveness of interactive learning. There was positive response from students regarding effects of interactive learning on student's motivation, understanding of subject, clinical correlation, exam scores and retention of knowledge.

Table 2 Students' perception of the effectiveness of interactive learning

Statement	Students feedback	
	Yes (%)	No (%)
I feel motivated to study by interactive learning	84%	16%
It helped in better clinical correlation	88%	12%
It helped in better student-teacher interaction	80%	20%
It was helpful in the retention of knowledge	86%	14%
It leads to improved exam scores	80%	20%
It helped in the understanding of subject	85%	15%

Table 3 is showing the barriers identified by students in the implementation of interactive learning. Respondents were asked to select all of the reasons that applied. 70% of students suggested that insufficient class time hinders the adoption of interactive learning. Other important barriers reported by students were lack of trained faculty members (40%) and because faculty members were accustomed to traditional lectures (66%).

Table 3 Student perceived barriers in the implementation of interactive learning

Barriers	Response (%)
Faculty members do not see interactive learning as a useful tool	15%
Faculty members are accustomed to lecture-based methods	66%
Faculty members are not properly trained	40%
Insufficient class time	70%
Faculty members are unaware of the method	5%

DISCUSSION

The primary objective of medical schools is to promote the development of lifelong learning skills in medical students in order to efficiently interpret and evaluate innovative treatment modalities and recent advances in technology. There is ample evidence available that active learning encourages students to become life long-term learner but there is a reluctance to make this change from traditional lectures to active learning [14]. The evolution of interactive learning methodology which engages the learner in the process of learning requires use of various teaching methods to ensure success. In order to reform and innovate teaching methods feedback from students is crucial [15].

This study was planned to identify students' perceptions regarding current use, effectiveness and barriers in the implementation of interactive learning. The most commonly reported interactive learning methods were small group discussions and problem-solving. A study done in Saudi Arabia to explore the prevalence of active learning strategies in Middle East has also shown small group discussion and problem solving as commonly used methods. It is believed that this method is frequently used because it is less time consuming and requires no prior preparation [16]. The use of educational games and activities was reported to be minimum.

Students perceived positive effects of interactive learning on student motivation, clinical correlation, student-teacher interaction, exam performance and retention of information. This is in accordance with previous studies that showed better understanding and performance of students in interactive teaching style as compared to didactic lectures [17].

Although various interactive modalities are being utilized for purposeful engagement of students to make them effective learners but still there are certain barriers identified by students in implementation of interactive learning. According to students the main barrier that prevented implementation of interactive was insufficient class time. It has also been reported previously that more class time is required to implement interactive learning as compared to traditional lectures [16]. But research has shown that although lectures can be utilized to deliver a lot of content in short span of time they have limited potential for long term retention. It is recommended that the content should be given to students through online learning and interactive teaching methods should be used in class time [10].

The high comfort level of faculty with traditional lectures and lack of trained professionals to efficiently create and implement interactive learning were also important hurdles. It has also been suggested previously that interactive learning is not favored by professors who are habitual of taking lectures [18]. It is, therefore, required to train faculty members to include these methodologies in medical courses in order to optimize the learning process. The training program should be evaluated by faculty and student's feedback and assessment of the learning strategies. The healthcare education providers should also encourage the use of interactive learning approaches and overcome the difficulties that hinder the adoption of novel techniques in order to improve educational outcomes.

CONCLUSION

Despite the barriers and limited class time available for interactive learning, students perceived that an interactive learning approach is favorable for their success and can help to improve student engagement, motivation, and overall performance.

DECLARATIONS

Acknowledgment

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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