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Original Research Article

Evaluation and perception of MBBS first year students regarding early clinical exposure

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ABSTRACT

Background: Evaluation and perception of MBBS first year students regarding early clinical exposure (ECE). The goals of ECE are to provide significance to basic sciences along with expansion of medical knowledge so as to establish the cognitive component of professional learning. Medical council of India has given new curriculum for MBBS for undergraduate medical education in which ECE is one of the reforms to improve quality of medical education.
Methods: The study was conducted in the department of physiology, Peoples college of medical science and research centre Bhopal. The study duration was one year, 150 students of MBBS first year were included in study. All didactic lecture on systems was delivered mainly on respiratory physiology. It was vertically integrated with department of medicine and is followed by hospital visit. During hospital visit students was divided in 6 groups of 25. Clinicians was exposing the students to the relevant patients and discuss important symptoms and examination/findings on the patients. To assess whether the skills gained through ECE helped the students in the physiology classes of clinical examination, OSCE (Objectively structured clinical examination) was arranged before and after the intervention.
Results: The post OSCE scores are better than pre OSCE scores. Perception of students toward ECE they have better understanding and retention of topic.
Conclusions: ECE is a good tool for teaching and learning for first year MBBS.

Keywords: ECE, OSCE, Basic sciences, Clinical medicine

INTRODUCTION

Early clinical exposure (ECE) act as bridge between pre-clinical disciplines and clinical disciplines. The goals of ECE are to provide significance to basic sciences along with expansion of medical knowledge to establish the cognitive component of professional learning. The challenge for health professions education is to look for ways to improve the quality of clinical education by comparing students' understanding and modifying practices of clinical education in new circumstances.[1] ECE is a teaching learning methodology, which fosters exposure of the medical students to the patients as early as the first year of medical college.[2] Medical council of India has ECE is one of the reforms to improve quality of medical education. Students will be able to learn the basic and clinical sciences by means of integrating learning activities, like early clinical contact, clinical skills, communication skills or task-based learning sessions. Through-out the globe many studies where done and outcome of studies shows that ECE session was motivating student, help in building their academics stronger, clinical as well as communication skills are improved so they become more confident in their studies.[3,4] Basically it helps students to overcome their pressure and anxiety to develop better insight into medical profession.[5]

Aim and objectives

Aim of the study was to integrate the knowledge of basic sciences with clinical medicine providing the context for application of their learning in practice.

Specific objectives

Objectives were to assess the skills acquired through ECE as an adjunct to routine clinical teaching, to collate the perception of students regarding utility of ECE and to integrate the knowledge of the basic science and clinical medicine through ECE.

METHODS

Study design

Longitudinal interventional study design was used.

Sample size

The 125 first year students were included in study.

Detailed method of data collection with inclusion and exclusion criteria

The study design is longitudinal interventional study. The study was conducted in the Department of Physiology, Peoples' College of Medical Science and Research Center Bhopal.

The study duration was one year January 2021 to January 2022. Study population include 150 students of MBBS first year. Informed verbal consent was obtained from the phase I MBBS. Orientation program on ECE was conducted for the students and faculty. The students not willing for participation were excluded from present study. Ethical approval information taken by institute-approval for research project IEC code no.-2020/53.

Proper instructions given to students before beginning of session medical council of India, ECE program use as a supplement to the traditional lectures in physiology.

First of all, didactic lecture on system were delivered mainly on module namely respiratory physiology, physiology lecture contain case-stimulated learning, patient-centre learning curriculum or problem-based learning than it was vertically integrated with department of medicine (clinician) and is followed by hospital visit to see patients. During hospital visit students were divided in 5 groups of 25 students. Under the supervision of a clinical faculty member. Clinicians expose the students to the relevant patients mainly from the system mentioned above and discuss important symptoms and elicit the related clinical examination/findings on the patients. To assess whether the skills gained through ECE helped the students in the physiology classes of clinical examination, OSCE will be arranged before and after the intervention.

Statistical analysis (plan)

All statistical analysis will be carried out using SPSS (version 20.0, SPSS institute Inc., Cary, North Carolina). Data are presented as mean±SD values. Statistical analysis was done using a dependent paired samples t test and repeated measured analysis will be performed among two unpaired groups. $P \leq 0.05$ will be considered statistically significant.

Data was collected which then categorized into quantitative and qualitative.

Quantitative data

OSCE-pre and post-test

Before starting the intervention, pre-test was given by arranging OSCE. Ten OSCE stations was created. After the intervention, post test was conducted on the same OSCE stations for study groups and scores of pre and post OSCE was analyze.

Perception (closed ended items)

Perception of ECE was recorded by taking feedback on 13 closed ended items on 5-point.

Likert scale (n=150) after completion of hospital visits.[3]

These 5 points are: 1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5= strongly agree.

The questionnaire was validated by 3 medical education unit and 2 physiology faculty of Peoples college of medical sciences and research center Bhopal.

Qualitative data

Perception (open ended items): Perception of ECE was recorded by taking feedback on two open ended items for first MBBS students.

RESULTS

When we compare post test score of the OSCE with pre-test score of OSCE we find drastic changes in student performance as well as they improve their scores. Phase I MBBS students after the ECE sessions, it was observed that with intervention students had performed better with mean of 8.1694 as compared to the pretest score of the students the mean is 4.000 This difference between the two values is statistically significant with $p<0.0001$.

Perception

One hundred twenty-five students 'perception with 5-point Likert scale in percent.

Table 1: Pre and post OSCE scores.

Paired samples statistics		Mean	N	SD	Std. error mean
Pair 1	Pre-test	4.0000	124	0.00000	0.00000
	Post-test	8.1694	124	0.96880	0.08700

Table 2: Feedback questionnaires for students.

Questionnaires	Items	Strongly disagree	Disagree	Neutral	Agree
ECE created interest in the subject/topics.	60	05	15	20	25
I had a better understanding of the topics by incorporation of ECE	70	05	10	15	25
It encouraged me to participate more in such type of teaching methods.	70	05	05	15	30
I found the proper integration of the knowledge between basic and clinical sciences	60	05	05	10	45
It was more useful in providing relevant subject material	80	00	10	05	30
It ensured proper utilization of resources (i.e., Clinical material)	80	00	10	05	30
This method will cause better retention of topics than lecture classes	90	00	02	10	23
ECE will help me in lifelong learning of the topics when integrated with applied aspects	90	00	00	10	25
ECE motivated me to study more on that specific topic	70	05	03	10	37
I am satisfied with the involvement and guidance of teacher in ECE	60	05	04	20	36
I would like to learn other topics with this intervention i.e., ECE	90	00	01	10	24
The overall rating of this instructional method	80	00	03	15	27
This method will help me in better recalling of the topics	80	02	03	10	30

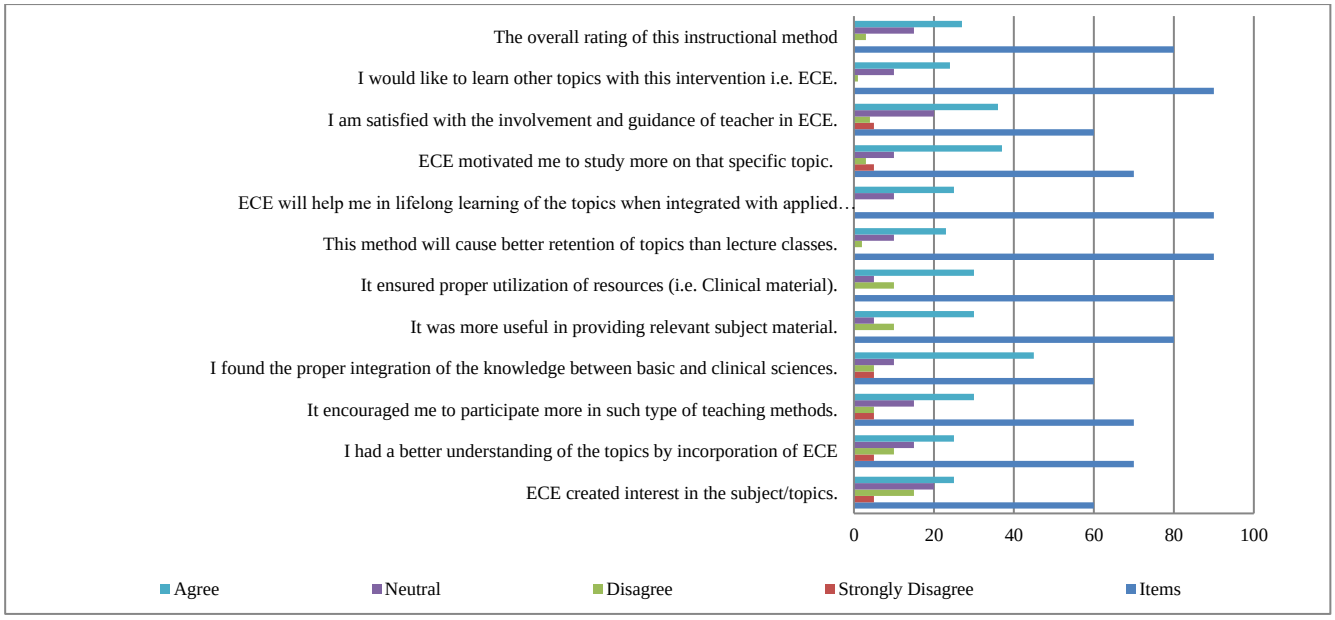

Figure 1: Close ended items on feedback from 1st year students.

It was for open-ended questions as their perceptions-Perception (open ended items)-1st year MBBS students.

Perception (open ended items)-1st year MBBS students-students were asked for open-ended questions as-

attributes that you like the most, suggestions that could be added (or deleted) for ECE to make learning more effective and experiences shared by students.

Table 3: Attributes that you like the most.

Category	Comments
Retention of knowledge	We are able to learn in better way
	Reading particular topic by seeing symptoms in patients is more easily to remember things.
Interest development	It creates interest in topic. Reading particular topic with more interest. It improves learning habits
Being a professional	This type of intervention gives me chance to understand real life cases and its management
	I started respecting my profession
	We are able to learn in better way

Table 4: Suggestions that could be added (or deleted) for ECE to make learning more effective.

S. no.	Suggestions
1	There must be more involvement of teachers in conducting ECE program. Less motivation and guidance from teachers, 60 students' comments
2	There may be proper utilization of resources for better retention of topics especially clinical resources-20 students
3	Increase the time duration during clinical visit. Lots of time wasted during relocation from lecture hall to clinical words-It's better to shift ward patients to lecture hall-25
4	We should make the seminars or project on ECE-10
5	Formative assessment should be there for ECE-10

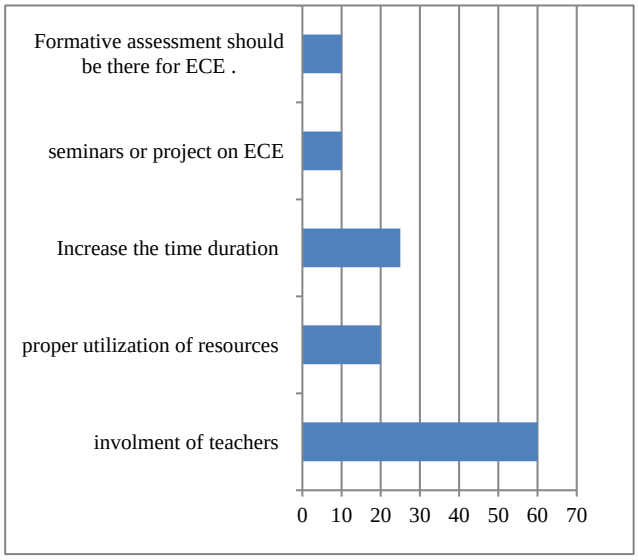

Figure 2: Suggetion of students to improve ECE to make learning more effective.

DISCUSSION

Traditionally medicine had been taught for ages by way of lectures and dissections to the students in the early pre-clinical years. But in recent years an increasing trend towards introduction of clinical scenario, to the freshly inducted medical students, in various forms, is being practiced throughout the world. ECE has been conceptualized to orient medical students towards actual clinical scenario and help them correlate them theoretical knowledge with real life situations in early years of MBBS courses. In the present study we explored the outcome of ECE in the context of basic science topics especially physiology in MBBS students and compared their performance. In our study we found that the ECE is an interesting method of teaching learning, created interest of students in the subject/topics, increased attention in the class, helped to understand the topic better and helped in correlating basic with clinical sciences. The findings of our study were in accordance with Sathish et al and Vyas et al where in their feedback on a 5-point Likert scale, 96.4% students gave an overall positive rating for the ECE. They also mentioned that after ECE sessions, the interest for their subjects increased.[6,7] However, the long-term impact of these programs is yet to be evaluated. OSCE stations were designed to assess cognitive, psychomotor as well as affective domains. Early clinical experience is not only an interesting and acceptable method for the 1st year students, but also has a strong formative influence that can be used to generate a socially responsive career orientation.[8]A number of studies have been undertaken exploring the efficacy of such early exposure to actual clinical scenario, but most often they have been qualitative or descriptive studies based on students' feedback.[9,10] However, their findings are corroborative in most of the cases as regards students' satisfaction and better acceptance. We also found positive response from the students in our study regarding ECE. The major outcome of our study was performance wise improvement of the students exposed to ECE than the conventionally taught group. Motivation is an important component in any teaching and learning method, which was also the highlight of our study in which the students were themselves motivated to study a topic. Majority of the students rated this method as excellent as they found a platform to boost their moral status and to feel the same once they themselves became doctors. These findings are in accordance with the study conducted by Chari et al in which the students were positive about ECE and were full of enthusiasm.[11] Increased motivation of the students with ECE was also seen in study conducted by Baheti et al.[12]

Warkar et al done ECE intervention to study module in endocrine physiology, which comprised traditional didactic lectures, supplemented with an ECE program in a hospital setting, a hospital visit to see patients .their results are similar to our results. The pre and post test results provide objective and informative means to learners performance and demonstrate effectiveness of

the educational intervention.[13] More obvious benefits of ECE include exposure to the health care system, instilling the qualities of a patient centered humanistic physician and increasing motivation for classroom learning.[14]

Limitation

Our study has several limitations. Due to COVID-19 we are not able to cover more systems, very few topics of single system was included, more systems should have been included for better interpretation. This study limited to only one medical institute so that we are not able to collect large data to see more effectiveness of our study and effect of ECE and more feedbacks from students.

CONCLUSION

ECE is a good tool for teaching and learning for first year MBBS students. It improve students' learning process. ECE may be an effective technique to supplement the traditional theoretical teaching to improve the performance of fresh medical entrants in basic science topic like physiology.

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