

## IMPORTANCE OF EARLY CLINICAL EXPOSURE IN UNDERSTANDING PHYSIOLOGY

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### Abstract

**Background:** The present study aimed to study the importance of early clinical exposure in understanding Physiology. **Materials and Methods:** In a cross sectional study in a medical college in Western Odisha, 200 first year MBBS students were randomly selected. The data was collected by giving multiple choice pre-test and post-test questions. Post session feedback from students was collected by a questionnaire based on Likert scale. **Result:** There was a significant increase in multiple choice post-test score when compared to multiple choice pre-test score. Most of students (77.5%; 27% strongly agree and 49.5% agree) were of the opinion that ECE was more interesting than traditional didactic lectures. **Conclusion:** ECE can impart a sense of responsibility in the students and encourages them with self- directed learning. But ECE can be time consuming and should be planned properly before execution.

## INTRODUCTION

A good understanding of Physiology in first year of MBBS is essential for the foundation of Pathology and General Medicine. Due to teacher centered didactic lectures, students face difficulty in retention and application of concepts in Physiology. So, most students cannot perform well in studies.

Early clinical exposure (ECE) is a learning method which expose medical students to the patients in the first year of medical college itself.<sup>[1]</sup> This helps medical students to reduce stress and also motivate them to increase their confidence level.<sup>[2]</sup> It further helps in gaining of social, emotional and professional satisfaction.<sup>[3]</sup>

## MATERIALS AND METHODS

The study was a cross sectional study. This study was approved by Institutional Ethics Committee. The students of first year MBBS batch comprising two hundred students were selected for the study. Even though attending ECE was compulsory as per NMC norms, participation in this study was optional. Informed written consent was obtained from the subjects after explaining the details of study.

The duration of ECE was 32 weeks with two hours per week. The ECE sessions were conducted from February to September 2021.

The participating students were randomly divided into two groups of 100 students each: Group A (ECE exposed group) and Group B (Conventional didactic teaching exposed group).

A multiple choice pre-test was given to all the study participants after conducting conventional didactic lecture by the Physiology faculty. Then group A was exposed to ECE by sending to Blood Bank, General Medicine, Neurology, Nephrology, Gynecology or ENT department.

A multiple choice post-test was given to all the study participants after giving ECE intervention to the group A.

A validated questionnaire was used to collect feedback from students [Table 1].

### Statistical Analysis

Tables and graphs were made using Microsoft word. Six close ended questions based on five-point Likert scale and two open ended questions were recorded to know the perception of students about ECE. All the questions in students feedback was analyzed with percentage.

## RESULTS

Two hundred subjects had submitted the answers to pre and post- test questionnaire. For all the ECE modules, there was a significant increase in multiple choice post-test score when compared to multiple choice pre-test score [Table 3].

**Table 1: Students feedback (Based on 5 point Likert Scale for Serial Number 1 to 6)**

Sr No.	Question	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	ECE arouse interest					
2	ECE helped to understand more					
3	ECE motivated to read more					
4	ECE helped to remember more					
5	ECE increased attention in class					
6	ECE imparts clinical context					
7	Enlist three good points about it					
8	Give three improvements for it					

**Table 2: Module list with topics covered**

Sl. No.	Module	Topic
1	Visit to Blood Bank	Blood groups, cross matching, blood transfusion.
2	Myocardial infarction	Coronary circulation, clinical features and biochemical tests in myocardial infarction.
3	Nerve conduction velocity and EMG	Principle, procedure, calculation.
4	Dialysis unit	Principle, types, indications, advantages and disadvantages of dialysis.
5	CVA	Examination of motor system, reflexes.
6	Contraception	Methods for male and female. Advantages and disadvantages.
7	EEG	Normal EEG rhythm, procedure, uses.
8	Audiometry	Parts of audiometer, procedure, recording and significance.
9	Anaemia	Definition, pathophysiology, sites to look for pallor, management.

**Table 3: Pre-test and Post-test scores**

ECE Module (Maximum score = 20)	Study Group A (n = 100)		Control Group B (n = 100)	
	Pre-test score (Mean±SD)	Post-test score (Mean±SD)	Pre-test score (Mean±SD)	Post-test score (Mean±SD)
Visit to Blood Bank	8.64±3.24	13.18±3.30	9.28±5.38	10.68±2.70
Myocardial infarction	12.58±3.54	14.7±2.72	12.32±2.94	13.24±2.52
Nerve conduction velocity and EMG	11.48±2.44	14.66±2.64	12.38±2.36	12.56±2.28
Dialysis unit	8.58±2.30	12.06±3.02	9.44±2.69	10.24±2.42
CVA	9.03±2.37	13.72±3.10	8.76±2.56	9.05±2.35
Contraception	8.16±1.42	14.26±2.56	9.42±1.86	9.78±2.74
EEG	10.36±3.16	16.04±3.06	10.68±2.86	11.14±3.08
Audiometry	8.06±2.94	14.59±2.96	7.56±2.84	8.12±2.07
Anaemia	9.04±2.72	14.50±2.67	9.45±2.44	9.68±2.94

n: Number of subjects. P<0.05 was considered to be significant, SD: Standard deviation

The student feedback was taken by a questionnaire of six items based on five-point Likert scale after the ECE. These five points consisted of:

1-Strongly disagree, 2-Disagree, 3- Neither agree nor disagree, 4-Agree and 5-Strongly agree.

The questionnaire contained six close ended questions and two open ended questions [Table 1].

Most of students (77.5%; 27% strongly agree and 49.5% agree) were of the opinion that ECE was more interesting than traditional didactic lectures. Majority of students (72.5%; 28.5% strongly agree and 44% agree) thought that ECE helped to understand the topic better and motivated to read more. Many students (81%; 35% strongly agree and 46% agree) felt that ECE helped them to remember more than traditional lectures. Most of the students (79%; 32.5% strongly agree and 46.5% agree) thought that ECE increased the attention in class. More than half of students (55%; 22% strongly agree and 33% agree) were of the opinion that ECE helped in imparting the clinical context.

When students were asked to give opinion for improvement of ECE, they told that they needed more ECE classes (32%), more interaction with patients (20%) and more clinical departments should be included (48%).

## DISCUSSION

In traditional lecture method of teaching, only theoretical aspects are covered in first year of MBBS. In this teacher centred didactic method of teaching, students are not actively engaged in learning. It is followed by exposure to clinics from second year onwards. Regulatory bodies of medical education have clearly stated that medical education needs to be geared to train professionals capable of providing holistic care to patients with compassion.<sup>[4]</sup> The aim of ECE is to give importance to basic sciences and to expand medical knowledge.

The ECE improves the level of thinking and helps in application, analysis, synthesis and evaluation.<sup>[5]</sup>

Most students agreed that ECE was more interesting, motivating and improving the retention. These findings are similar to those by other researchers.<sup>[5-7]</sup>

Proper training of staff is required for setting up objectives and topics of ECE.<sup>[8]</sup>

## CONCLUSION

ECE can be helpful for basic sciences like Physiology only if it is done along with traditional lecture method. Concepts in Physiology can be understood better in a clinical setup. The students have a feeling of being a doctor in first year itself. It helps to improve interaction with patients. ECE can impart a sense of responsibility in the students and encourages them with self- directed learning. ECE can be time consuming. Another difficulty encountered could be reduced availability of staff in clinical departments for taking ECE.

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