Perception & Problems of 1ˢᵗ Professional MBBS Students Regarding Early Clinical Exposure In Tripura, North-East India

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Abstract:

Background: Implementation of early clinical exposure as teaching-learning methodology in new CBME (competency based medical education) curriculum helps the students to learn basic science subjects with ease & interest. The students get to know the relevance of studying basic science subjects as they are exposed in the clinical field to apply their basic knowledge in medical field. This study has been taken to find out the perceptions of the students to improve the quality of the classes with much more effort for their better understanding.

Methodology: This cross-sectional study was conducted among 97 first year medical students in classroom setting of Tripura Medical College, Agartala from November 2022 to June 2023. A pre-tested, semi-structured questionnaire was used to collect required information after their early clinical exposure sessions. The collected data was entered in SPSS 16.0, represented in proportions and $p < 0.05$ was considered as statistically significant.

Result: 95.9% students showed interest in this learning process. Majority (79.4%) of the students were motivated to attend more early clinical exposure classes in future as it increases their retention power. 83.5% students agreed to incorporate this learning process in their curriculum.

Conclusion: The students were very positive towards this teaching-learning methodology. This learning process not only breaks the monotony of traditional lectures but also reinforce the didactic lectures. With this, the students can correlate the basic science topics with clinical facts better. For better implementation of these classes, both the pre-clinical & clinical departments should be well coordinated.

Keywords: Curriculum, Early Clinical Exposure, Feedback, Students, Basic Science Subjects.

Introduction

Early clinical exposure is a newly introduced component in the CBME curriculum since 2019. Early Clinical Exposure (ECE) can be defined as a teaching learning process where the first year MBBS students are exposed to the clinical scenario or to the clinical field along with theoretical knowledge of basic science subjects [1]. According to previous traditional curriculum it was difficult for the students to understand the purpose of learning basic science subjects with interest. The first year MBBS students find difficulty in learning & understanding the pre-clinical subjects and relating the concepts clinically as they are not exposed to patients or community in first year. Earliest exposure to clinical scenario or patients or community is the

need of the hour [2]. ECE helps the students to understand the relevance of basic science topics and also to correlate the principles of basic theoretical knowledge in the clinical field. The students develop basic skills to communicate with the patient professionally. It also encourages the students to identify the problems of community & health care. Increasing use of early clinical exposure classes will make the basic science subjects interesting to enhance learning & to develop concepts of clinical application. As per GMR, 2019, total 90 hours were allotted for three preclinical subjects to be divided equally (30 hours for each dept). Currently, the ECE schedule has been reduced to 54 hours in which family adoption program has been incorpo-

rated. Twenty-seven (27) hours will be divided equally in 3 pre-clinical subjects and rest 27 hours will be included in family adoption program. Hence the study is aimed to make the ECE classes more convenient for better understanding of the students. With this background, this study was conducted to assess student's perception and problems faced by them during ECE hours (1st Professional MBBS students) in a teaching medical institute of Tripura, North-East India.

Materials & Method

This Institution based observational epidemiological study with cross-sectional design was conducted among 1st Professional MBBS students studying in Tripura Medical College and Dr. BRAM Teaching Hospital, Hapania under the Dept. of Anatomy and Dept. of Community Medicine for a period of 8 months from November 2022 to June 2023. This institute is situated at Hapania, Agartala in the West Tripura District, under Agartala Municipal Corporation.

Sample Size

The sample size calculation has been estimated based on formulae $(Z\alpha)^2pq/L^2$ Where, $Z\alpha$= standard normal deviate at a desired confidence level(95%); p= previous prevalence(50%); q=1-p;L= allowable error/precision(10%); (At 95% confidence level $Z\alpha$ value is 1.96). The sample size has been estimated to be 100.

Sampling Technique

Nonrandom sampling (Census method).

Inclusion Criteria

First professional MBBS Students (2021-22 batch) who were willing to participate in the study.

Exclusion Criteria

1. Students who were absent at the time of Interview.
2. Students who had not given consent.
3. Supplementary First year MBBS students (2020-21 batch) were excluded.

Study Tool

A pre-designed, pre-tested, semi-structured questionnaire was used to collect the required information. The questionnaire was prepared by the researchers after reviewing previous literature and in consultation with other faculties; covering participant's baseline characteristics, questions related to perception, attitude and different aspects of Early Clinical Exposure (ECE). It was pilot tested among 5 randomly selected medicos in presence of one researcher to address any difficulty while answering any terms in the questionnaire. The questionnaire was thus tested for clarity as well as time for response; finalization was done with modification by the researchers after this pre-testing. [1-4,5]

Data Collection

The methodology and purpose of this study was explained in detail to all participants, their confidentiality was assured and informed consent was taken in written from all participants, before participation in the study.

Using complete enumeration method and after discarding persons who fulfilled exclusion criteria as mentioned above, finally 97 medicos (overall response rate 97%) were included as study sample in their classroom settings. If the designated subjects were not available even after 2 contact sessions, they were considered as non-respondents.

Scoring

The dependent variable was 'Appropriate Attitude' or 'Inappropriate Attitude' and the independent variables were age and gender.

Attitude score

Total six (9) questions were asked to assess respondents' attitude about body donation. According to 5 points Likert scale, the responses were noted down with scores of individual items-- 1=strongly disagree, 2=disagree, 3=neutral, 4= agree, 5= strongly agree. Later, score below median value and above or equal to median value respectively were categorized as 'Inappropriate Attitude' or 'Appropriate Attitude' (median score 37).

Statistical Analysis

The collected data was entered in SPSS (Statistical Package for Social Sciences) version 16.0 software, data was checked for any duplicate entry and represented in frequency and percentages in the form of tables and diagrams.

Chi square test was applied to find out statistical association as required and p value less than 0.05 is taken as statistically significant.

Ethical Consideration

Ethical consideration has been taken from Institutional Ethical Committee.

Result

Table 1: Distribution of study participants according to their baseline characteristics: [n=97]

Characteristics	Frequency n (%)
Age groups	
18-20 years	80 (82.5)
21-23 years	17 (17.5)
Gender	
Male	51 (52.6)
Female	46 (47.4)
Total	97 (100.0)

Table 2A: Distribution of study participants according to their perception regarding ECE classes: [n=97]

Perceptions	Yes n (%)	No n (%)
Did you understand the concept of ECE classes?	95 (97.9)	2 (2.1)
Did all the components of the ECE emphasize about the topic?	87 (89.7)	10 (10.3)
Can you correlate basic science topic with clinical aspects or vice versa?	9 (12.9)	20 (28.6)
Do you enjoy the process of learning?	93 (95.9)	4 (4.1)

Table 2B: Distribution of study participants according to their perception regarding ECE classes [n=97]

Perceptions	Frequency n (%)
Which component of the program helps you to learn better?	
A. Introduction	2 (2.1)
B. Discussion	18 (18.6)
C. Clinical correlation	68 (70.1)
D. Interaction	9 (9.3)
Which of the following method of teaching is preferable to you?	
A. Traditional method	1 (1.0)
B. Lecture with pictures	27 (27.8)
C. Lecture with videos	57 (58.8)
D. Any other	12 (12.4)
What is the duration of ECE class?	
A. Too long	25(25.8)
B. Right amount of time	68(70.1)
C. Short	4(4.1)
Total	97 (100.0)

Table 3: Distribution of study participants according to their attitude regarding ECE classes [n=97]

Attitude items	Strongly disagree Frequency n (%)	Disagree Frequency n (%)	Neutral Frequency n (%)	Agree Frequency n (%)	Strongly agree Frequency n (%)
1. I develop interest in learning with ECE classes	1 (1.0)	0	7 (7.2)	59 (60.8)	30 (30.9)
2. I feel ECE classes are better than the traditional lecture classes	1 (1.0)	1 (1.0)	25 (25.8)	38 (39.2)	32 (33.0)
3. ECE classes help to acquire & improve your knowledge.	1 (1.0)	8 (8.2)	49 (50.5)	0	39 (40.2)
4. I feel ECE classes help to develop communication skills	3 (3.1)	9 (9.3)	25 (25.8)	40 (41.2)	20 (20.6)
5. I am motivated to attend more ECE classes	0	0	19 (19.6)	54 (55.7)	24 (24.7)
6. I found proper integration of the knowledge between basic and clinical sciences	0	5 (5.2)	17 (17.5)	48 (49.5)	27 (27.8)
7. ECE will help me in reten-	1 (1.0)	0	11 (11.3)	47 (1.0)	38 (39.2)

	tion of the topics for long					
8.	ECE encourages students to think critically about problems of health care	1 (1.0)	3 (3.1)	10 (10.3)	52 (53.6)	31 (32.0)
9.	The incorporation of ECE in teaching learning curriculum is useful	1 (1.0)	2 (2.1)	13 (13.4)	49 (50.5)	32 (33.0)

Student's attitude regarding ECE classes: Student's response was taken by questionnaire. According to 5 points Likert scale, the responses were noted down. 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree.

Table 4: Distribution of study participants according to their Attitude Score [n=97]

Attitude	Frequency n (%)
Appropriate Attitude ≥37	55 (56.7)
Inappropriate Attitude <37	42 (43.3)
Total	97 (100.0)

Table 5: Distribution of study participants according to the association between Attitude status and their baseline characteristics [n=97]

Baseline characteristics	Appropriate Attitude [>= 37]	Inappropriate Attitude [< 37]	p value, significance
Age groups			
18-20 years	42 (43.3)	38 (39.2)	3.281,
21-23 years	13 (13.4)	4 (4.1)	0.070
Gender			
Male	26 (26.8)	25 (25.8)	1.434,
Female	29 (29.9)	17 (17.5)	0.231
Enjoying the learning process			
Yes	55 (56.7)	38 (39.2)	5.463,
No	0	4 (4.1)	0.019
Total	55 (56.7)	42 (43.3)	

[% in this result table is represented out of Total number, n=97]

Table no. 1 showed that, Most of the study participants belong to 18-20 years age group (82.5%) followed by remaining in 21-23 years age group (17.5%). Mean age of the study participants were 19.11 ±1.48 years with minimum age of18 years and maximum of 23 years; median and mode values were 18.7 and 18 years respectively. Majority of the study participants were male (52.6%) and remaining 47.4% were female.

Table no. 2 showed that, Most of the students understood the concept (97.9%) and components (89.7%) of ECE classes; 95.9% students showed interest in this learning process. [Table No. 2A] From this table, it is also clearly seen that clinical correlation was the most answered (70.1%) component of ECE classes which really helped the students to learn the topic better. Most of the (58.8%) students preferred video assisted lectures. The duration of the class was found to be right amount of time according to 70.1% students.

Other comments written by the participants were

1. Both Online & offline video assisted lectures are preferable for clearing doubts.
2. Input of more diagrams, models was suggested by students

3. Practical demonstration with patient should be included for better understanding.[Table No. 2B]

From the Table no. 3, it was clearly seen that the attitude of the students towards ECE classes was quite positive. Maximum number of students showed interest in learning with ECE classes. The students felt that the program increased their motivation to study basic science topics. They were also encouraged to correlate the basic topics with clinical scenario. They strongly agreed to incorporate the ECE curriculum in teaching learning process as it would help them to retain the topic for long.

Table No. 4: More than half of the study participants had Appropriate Attitude (56.7%) and remaining 43.3% had inappropriate Attitude towards ECE classes.Meanattitude scoreof the study participants was 36.73 ± 4.45 with minimum value attained was 21 and maximum of 45; median and mode values were 37 and 38 respectively.

Table No. 5: Majority of the study participants belonging to 18-20 years (56.7%) and female (29.9%) had Appropriate Attitude towards ECE classes. On the other hand, 39.9% participants of

18-20 years age group and 17.5% female had inappropriate attitude. None of the association showed any statistical significance (p>0.05).

More than half of the study participants (56.7%) enjoying the learning process had appropriate attitude and only 4.1% not enjoying the learning process had inappropriate attitude towards ECE classes; this association was found statistically significant (p<0.05).

Discussion

Introduction to early clinical exposure at the beginning of MBBS professional course will help the students to understand the inter-relatedness of scientific, social, professional & interpersonal elements of medical education. The ultimatum for any teaching learning method is motivation in a very positive manner to study a topic [2]. The gradual improvement of the students with their knowledge, skill & attitude is the goal of any teaching learning methodology in medical education. To advance their knowledge & to facilitate the student's mind with active learning environment is the main role of a teacher [3].

Understanding the concept of ECE classes

In the present study, 97.9% students agreed that ECE helped them to understand the topic better. Rajya Lakshmi N.et.al.[1] mentioned in their study that 84.3% students understood the concept of ECE learning. The students understood the aim of ECE Classes. This traditional teaching learning process will give the background of the selected topics & will project them the clinical scenario related, thus breaking the monotony of traditional lecture, they will come to know why they need to study the basic science subject. Deolalikar S. et.al.[4] also mentioned that 80.85% students agreed in their study that ECE help them to understand the topic better. 72% students strongly agreed the contribution of ECE classes for better understanding of basic science subjects in a study by Rawekar A et.al [2].

Components of ECE Classes

ECE program deals with different components of the selected topic. The components are introduction, discussion, clinical correlation, interaction. The division of the selected topic into various contents make the topic easier for the students to understand & think critically. This chronology will help the students to retain the topic for long duration. In the current study, 89.7% students agreed that all the above mentioned components were emphasized during ECE hours. 70.1% students found clinical correlation to help them better to learn the topic in depth followed by discussion (18.6%) & interaction (9%). Clinical correlation & its relevance is an integral contributing factor to improve the retention power

of basic science knowledge. The students can relate the clinical conditions with their basic science knowledge. Interaction help them to become confident & independent to deal with any emergency. It will also enhance professional relationship.

Correlation of basic science topic with clinical condition

Basic science topics are volatile. Retention of the topics especially anatomy is very difficult for the newly joined first year MBBS students. Introduction to clinical case based pictures or videos/ patients create cinematic view relating to selected basic science ECE topic. Experiencing the clinical scenario, students understand the relevance of knowing basic science subjects to deal with the clinical field in future.

In the present study, from the student's perception it was observed that majority (92.8%) of the students could correlate the topics clinically. In Deolalikar S. et.al.[4], 51.5% students could identify this correlation. Teaching with clinical context help the students to think critically, to develop concept about the clinical manifestations & also to be aware of the importance of studying basic preclinical subjects.[4]

Enjoing the process of learning

95.9% students enjoyed this teaching learning process in the present study. When monotonous attitude of traditional lectures re integrated into a divided component based lectures with clinical scenario, then the study environment becomes very relaxing & enjoyable to attend, concentrate & to get involved in the teaching learning program. This perception was found statistically significant (p<0.05).

Method of teaching ECE

Majority of the students (58.8%) preferred the lectures showing clinical based videos to learn better followed by lectures with pictures (27.8%). Similar study by Kumar S [5]. also showed that 66% students observed videos to be more helpful during the session in their study. The students found case based videos more relevant to correlate with basic science topics clinically as compared to traditional didactic lectures. Deolalikar S. et.al [4]. also preferred case studies with videos to conduct ECE classes. Some authors [6] also demonstrated clinical facts showing videos help in better retention of the topic. Videos are quite informative and it also engages the students to concentrate.

Duration of ECE hour

In the present study, 70.1% students felt the duration of ECE class was perfect with the right amount of time. The time was just perfect to emphasize all the components of ECE class. Taking

class for long will bring monotony to the class, then it becomes boring to concentrate. 25.8% students felt the duration of classes was too long. This could be due to lack of interest in the class or they could not understand the importance of knowing the topic to correlate clinically. However, in ECE classes with patient interaction, 3 hours would have been utilised in sections and the time would have seemed perfect.

Table 6: Percentage of attitude items in previous studies and present study

Attitude items	Deolalikar S. et.al [4]		Rajya Lakshmi N. et. al. [1]		Rawekar A et. al. [2].		Present study	
	Agree Fre-quency n (%)	Strongly agree Fre-quency n (%)	Agree Fre-quency n (%)	Strongly agree Fre-quency n (%)	Agree Fre-quency n (%)	Strongly agree Fre-quency n (%)	Agree Fre-quency n (%)	Strongly agree Fre-quency n (%)
1. I develop interest in learning with ECE classes	54.39%	35.28%	43.8%	19.5%	12%	86%	59 (60.8)	30 (30.9)
2. I feel ECE class better than the traditional lecture classes	54.39%	35.28%	------	------	------	-------	38 (39.2)	32 (33.0)
3. ECE classes help to acquire & improve your knowledge.	-----	-----	62.2%	12.4%	18%	80%	0	39 (40.2)
4. I feel ECE classes help to develop communication skills	-----	------	33%	28.6%	-------	-------	40 (41.2)	20 (20.6)
5. I am motivated to attend more ECE classes	57.33%	17.64%	25.9%	29.2%	15%	84%	54 (55.7)	24 (24.7)
6. I found the proper integration of the	47.04%	42.63%	42.2%	17.3%	6%	93%	48 (49.5)	27 (27.8)

	knowledge between basic and clinical sciences							
7.	ECE will help me in retention of the topic for long	54.39%	29.4%	-----	------	10%	88%	47 (1.0)	38 (39.2)
8.	ECE encourages students to critically th0ink about problems of health care	26.5%	-----	32.4%	29.2%	12%	81%	52 (53.6)	31 (32.0)
9.	The incorporation of ECE in teaching learning curriculum is useful	36.75%	51.45%	93.5%	------	24%	72%	49 (50.5)	32 (33.0)

From the above mentioned table, it is observed that the percentage of each attitude items was quite similar in the present study as shown in previous studies. Higher percentage of students showed positivity in their feedback. The ECE sessions created interest among the students to understand & learn basic science topic breaking all the monotony of traditional lectures as they could correlate the topic with clinical scenario. In any teaching learning activity, active motivation to learn a particular topic is very important for the students. The various components of ECE program brought that urge among the students to think clinically. The students enjoyed the process as they could link the basic science topics with clinical problems. So it created sensitivity among them towards their future patients. The students clearly understood that ECE is an integrated approach between basic and clinical discipline [2]. The early clinical exposure encouraged the students not only to learn but also helped to bring positive attitude in their studies. It also made them think critically about their future patient care effectively [7]. Retaining the basic science topics for long duration used to be very hard for the first year MBBS students as their clinical postings used to be started from second year onwards. Presently, in CBME curriculum, incorporation of ECE classes using clinical images/ videos/ patients has brought a new era in medical education through which the first year students are well benefited in terms of their knowledge, developing skill, appropriate attitude to deal with patients and retention of the topics for long [8,9]. In a study by Chari S. et.al [10], it was mentioned that this ECE program helped the students to develop interest to learn, to improve communication skills and also to learn the topics in integrated manner.

ECE can be used as an effective tool for the beginners to enlighten their knowledge in medical education, to increase their skill & to emphasize the relevance of studying basic science topics in patient care. In view of student's perception, it is being planned to introduce more number of topics under ECE program.

Exposing the students to a particular patient during ECE hours would be more beneficial for the students in better understanding. The positivity in

student's feedback in turn will make the faculties to reinforce the affirmative nature of ECE and to find more ways to make the process more interesting for the students.

Conclusion

Early clinical exposure is an integral part in medical education to correlate the basic knowledge with clinical discipline. The students understand that the knowledge of basic science subjects isof utmost relevant not only in first year but in the field of daily clinical practice to diagnose & treat patient for lifelong.

Exposure to clinical field & community in the very early phase of their professional career not only encourages them to learn & develop skill, it also breaks the monotony of traditional teaching learning process. Earlier introduction to clinical topics or the scenario will help the students to upgrade their knowledge with skill.

Author Contributions

1. SD[1]: Concept and design of study, Review of the literature, Data Collection, Data analysis, manuscript writing, final approval of the version to be published.
2. SLC[2]: Review of the literature, Data collection, manuscript writing and final approval of the version to be published.
3. KN[3]: Review of the literature, critical revision of the manuscript for important intellectual content, final approval of the version to be published.
4. NK[4]: Concept and design of study, Data collection, Data analysis and interpretation of data, Critical revision of the manuscript for important intellectual content, final approval of the version to be published.

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