Early Clinical Exposure – Insights from Preclinical Medical Students

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Abstract –

Introduction - The paradigm shift in undergraduate medical training towards competency-based medical education (CBME) has prompted the widespread implementation of Early Clinical Exposure (ECE) modules across medical colleges. Our institute, in alignment with this transformative approach, has incorporated ECE into the curriculum. This study aims to assess students' perceptions of ECE modules, shedding light on the program's benefits and providing insights for refining future modules based on student feedback.

Objectives – To implement ECE program in Physiology curriculum for phase 1 MBBS students and to assess student's perception towards ECE module.

Methods – A Physiology-specific ECE module was introduced to first-year MBBS students. Subsequently, a validated feedback questionnaire was distributed to students via a Google Form. Data were analysed in percentage form and presented using bar charts generated with Excel software.

Result – The study received responses from 89 students, who overwhelmingly expressed positive views on the ECE module. Students reported increased attention in class, improved retention of the topic, and heightened interest. Furthermore, they acknowledged a boost in confidence levels regarding the covered topics in the ECE module.

Conclusion – The findings suggest that ECE significantly contributes to students' comprehension of topics and underscores the importance of basic science subjects. Additionally, ECE facilitates the correlation of clinical and preclinical subjects, providing a holistic perspective on medical education.

Key words – Early Clinical Exposure (ECE), Competency-Based Medical Education (CBME) curriculum, Phase 1 MBBS students, Physiology.

Introduction –

In India, it has been seen that most of the students join medical colleges with a aim and hope to serve the mankind by reliving them for their sufferings from various diseases, along with the hope of getting a bright future for themselves. But in the traditional curriculum, the students are mainly engaged in many hours long theory lecture classes and laboratory teaching without any exposure to the clinical setup, which douses their enthusiasm. Moreover, preclinical subject like Physiology is basically based on imagination of the concept by reading the books only unlike clinical subjects where clinical exposure is there. So, students can correlate the concept with practical implications and find clinical subjects interesting. Due to lack of adequate

clinical exposure, students fail to understand the clinical correlation of the topic and tends to loss interest for the preclinical subjects. But preclinical subjects are considered as the pillars of medical curriculum, so proper understanding of these subjects in first year of medical curriculum is very much important for future progress. The changes in the college life from school life, large class, large content covered in short time, tough competitions are few other challenges faced by first year students (1, 2). All these circumstances are sufficient to break the zeal of the students to study in their preclinical year and land up in failure to understand the relevance of basic sciences in the clinical setting.

To tackle these concerns, in 2019, the medical curriculum has been changed into Competency Based with the introduction of foundation course; AETCOM, and Early clinical exposure (3, 4). If effectively implemented, early clinical exposure is considered to have the potential to motivate the students to learn, better understanding and longer retention of the topic (5)

In our institute also Early clinical exposure (ECE) has been implemented. With this background knowledge, this study was designed to know the perception of the students towards the introduction of ECE in preclinical departments, shedding light on the program's benefits and providing insights for refining future modules based on student feedback.

Objectives – To implement ECE program in Physiology curriculum for phase 1 MBBS students and to assess student's perception towards ECE module.

Methodology –

This study was undertaken in 2022 at the Department of Physiology, Gauhati Medical College, Guwahati, Assam, with the objective of examining first-year medical students' perceptions of early clinical exposure (ECE) in their undergraduate medical education.

Study Design and Participants - A cross-sectional design was chosen for this study to collect quantitative data, enabling a detailed exploration of students' perspectives. The study population included first-year MBBS students, with a total of 89 participants.

Data Collection - Data were collected after taking approval from Institutional Ethical Committee. A classroom setting ECE module on the topic Parkinson disease were prepared and delivered through case scenario, laboratory reports, pictures and basic treatment protocol. Quantitative data were gathered from the students through a structured feedback questionnaire, which underwent validation prior to distribution. The questionnaire was disseminated via Google Forms, ensuring ease of access and convenience for the participants. It comprised items that assessed students' perceptions of ECE, its benefits, and suggestions for enhancing its implementation. Questionnaire also contained questions on 5 point Linkert scale (strongly agree=5 points, agree=4 points, neutral=3 points, disagree=2 points, and strongly disagree=1 point) for assessment of self-efficacy on the topic before and after the session. Student's identity was not asked in any form in the questionnaire so that they can respond in the feedback form in an non threaten way.

Data Analysis - The data were analysed in terms of percentages. The results were depicted using bar charts generated with Excel software, facilitating a clear and concise presentation of the findings.

Results –

In this study, total 89 preclinical medical students responded in the feedback questionnaire, out of which 33 were female and 56 were male. In the questionnaire, 8 questions were given in the 5-point Likert scale where students responded positively agreeing that ECE is beneficial and it improves their knowledge, understanding, attention and retention of the topic. In the questionnaire 6 questions were given for self – efficacy assessment where students need to assess their own knowledge before and after the ECE class and mark from 0 to 5 with 0 as poor and 5 excellent. Most of the students responded positively agreeing that ECE helped them in establishing clinical correlation, helped them in understanding the importance of lab investigations, improves clinical problem solving and diagnostic skill and increased their confidence level. These are showing in the fig 1 and fig 2.

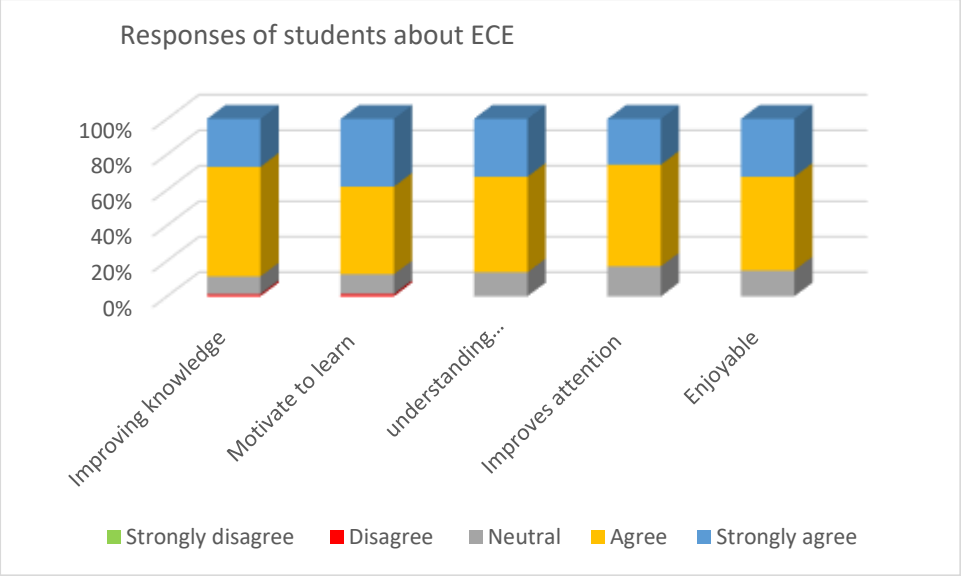

Fig 1 – Perception of the students about ECE

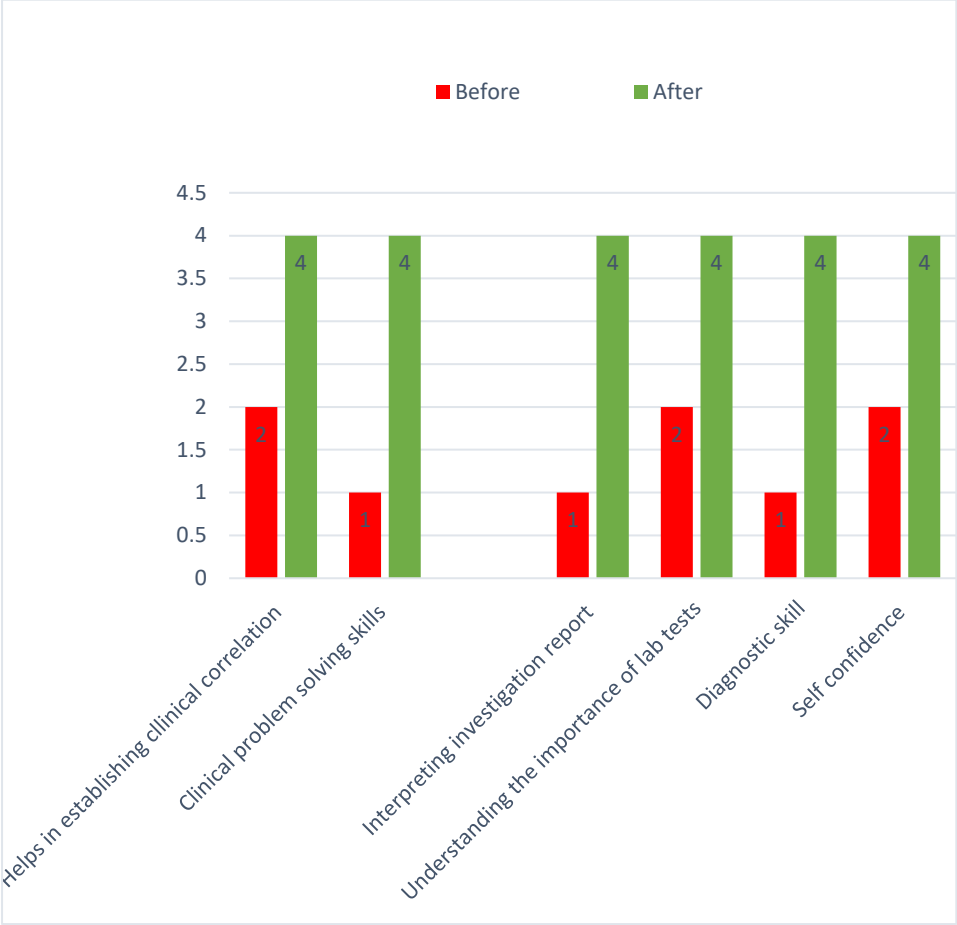

Fig 2 student's self - efficacy assessment before and after the ECE session

Regarding the perceived barriers or suggestions for better implementation of ECE module, students commonly perceived that real life case presentation would make the session more interesting and fruitful, more case scenarios could be included, hands out of the PPT or study materials should be provided before the session, prior information about the session etc.

Discussion –

The current study, which was designed to assessed the attitudes of preclinical undergraduate medical students at Gauhati Medical College, Guwahati, Assam, found that the implementation of the ECE program in the first year is both engaging and beneficial for the students. The overall feedback indicated a high level of satisfaction with the program as students acknowledged that ECE helped them in improving their knowledge on that particular topic, helped in clinical correlation, also in understanding the importance of basic science in clinical case solving. These findings highlight the importance of integrating basic science education with clinical training early in medical education. This approach enhances the relevance of learning for students, providing them with insights into the psychological aspects of various diseases. It also boosts students' self-awareness and satisfaction with their curriculum. Early clinical exposure can motivate students, reduce the anxiety associated with patient interactions, and foster a greater sense of empathy towards patients, as noted in a previous study by Dornan et al.(6). Similarly, Duque et al. found that medical students who received early clinical exposure

were generally more satisfied with their medical education (7). Additionally, Sathishkumar et al. reported that early exposure in an endocrine physiology course during the first year of medical school was highly valuable and enjoyable for the students (8).

Most students in this study found ECE to be effective in building professional knowledge. They felt it provided opportunities to understand underlying mechanisms, deepen their understanding of subject matter, and integrate knowledge across disciplines. This integration, in turn, helped them appreciate the physiological basis of clinical problems. Other studies (9, 10) have also indicated that ECE improves students' logical reasoning skills. Instead of relying on rote memorization, students learn to think rationally. This development of an analytical mindset will benefit them throughout their professional careers.

Previous studies have shown varying perspectives on the significance of learning practical methods and skills through ECE. While some studies have emphasized its importance, others have scarcely mentioned it. However, it is important to note that the significance of ECE has been more prominently highlighted in longer courses compared to shorter ones.(11,12,13).

Students suggested that the module should be designed more meticulously with prior orientation of the students also for more fruitful implementation of ECE. These perceptions align with findings from other studies (14,15), which reported that more time should be allocated for ECE sessions. Additionally, they noted that a large amount of content was covered in a short period.

This study has several **limitations**. One such limitation is small sample size comprising of only 89 participants, due to low response rate to the feedback form which may not provide a comprehensive representation of the entire student population of the class of 200 students.

Another significant limitation was the unavailability of the scheduled clinical case, which resulted in the use of a video instead. This change may have impacted the students' experience and perceptions of the ECE program. Moreover, all aspects of ECE might not have surveyed by the method used.

Future research should aim to include larger populations to enhance the generalizability of the findings. It would also be beneficial to assess the perceptions of faculty members regarding ECE. Longitudinal studies following the same cohort of students into their higher years would help determine whether early clinical exposure during the preclinical period has a lasting impact on their medical education and practice.

Conclusion –

It can be concluded that ECE is helpful for students in better understanding of the topic as well as to understand the importance of the basic science subjects. It helps them to correlate the preclinical with clinical subjects.

Although some limitations are there in implementation of ECE, but interdepartmental collaboration, comprehensive faculty training, and the development of well-designed, preplanned strategies may be helpful in overcoming current limitations and enhancing the

effectiveness of ECE. These measures will help ensure that ECE is more fruitful and capable of achieving its desired goals.

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