

Original Article

Electives implementation in competency-based medical education: Perspective of final year medical undergraduate students in a tertiary care hospital

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ABSTRACT

Objectives: Elective postings are a part of the new competency-based medical education curriculum as they are known to provide a more well-rounded education. This was the first medical undergraduate batch to undergo the elective postings, and their perspective regarding its implementation will help us to refine this process for future batches. Hence, this study was taken up to assess their feedback.

Materials and Methods: A well-designed, structured and pre-validated questionnaire was filled out by consenting students who had attended the elective postings. The responses were collected through Google Forms, which were then exported and analysed in Microsoft Excel.

Results: Out of the total 150 students in the batch, 96 consented and filled out the questionnaire. About 81.25% of students were aware of the existence of electives, and 76% were aware of both their purpose and importance. About 51% agreed that the postings were useful, and 46.9% felt that it was necessary for both clinical and nonclinical postings to be included in the study. About 43.75% felt that it was confusing to select the topics, and 60.4% opined that there were sufficient topics to choose from.

Conclusion: We found that the students were aware of the existence and purpose of elective postings, and they perceived them to be useful, and the majority did not face many challenges during its implementation. It is up to the decision-makers to improve the process further to improve its implementation.

Keywords: Competency-based education, Program evaluation, Elective postings, Medical students

INTRODUCTION

An elective is a learning experience created in the curriculum to provide an opportunity for the learner to explore, discover and experience areas or streams of interest.^[1] It refers to 'a period of time during undergraduate within which there is a significant element of student choice.'^[2] Unlike obligatory or core courses, which every student is required to take to complete a training program, students can select electives from a list of available options as per their interest.^[3] The benefits of electives have been documented in numerous studies. These benefits include increased knowledge and skills, improved communication and teamwork skills, enhanced critical thinking and problem-solving abilities, increased self-confidence and motivation, a more well-rounded education, opportunities for exploratory learning, lateral thinking, immersive learning and the development of an inquiring spirit.^[4-7]

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Medical education in India is going through a radical change this year with the implementation of a competency-based medical education (CBME) curriculum.^[8] The CBME is an outcome-based approach where the emphasis is on producing a competent Indian Medical Graduate.^[9] To that extent, keeping in mind the benefits of electives, they were formally added to the undergraduate medical curriculum in India by the Board of Governors in the Super-Session of the Medical Council of India (MCI) through a gazette notification, effective for the MBBS batch of 2019.^[4]

The National Medical Council (NMC), which replaced MCI on September 2020, released a module for electives to help medical institutions all over India adopt and implement it smoothly. According to this module, after the examination is finished at the end of MBBS Phase III, Part 1 and before the start of MBBS Phase III, Part 2, 1 month (4 weeks) is set aside for elective rotations. Two blocks of 15 days each are designated for electives. Block 1 electives must be completed in pre-clinical, paraclinical or other basic sciences (laboratory) or under the guidance of a researcher working on an active project. Block 2, on the other hand, will be completed in a clinically oriented department such as the intensive care unit, casualty, super-specialisations and specialities. Electives must be created and offered within the facility or at a community clinic in a city or a rural area.^[1]

This was the first CBME batch (MBBS admission 2019), and they completed phase 2 part 1 of their MBBS in February 2023; hence, elective postings for them were held in March–April 2023 in our college. Ratification of the topics to be allotted for the students and the number of staff available under each department was conducted by the Electives Coordinator 6 months before the elective postings. Faculty in each department were asked to give information regarding the objectives of the study and how many students they could accommodate for the elective postings. Students' preference for subjects was collected in a Google form, and both were sent to the coordinator, who allotted the students to different subjects (Clinical and Non-clinical) based on their preferences and availability of slots. Monitoring was done using a specific electives logbook in which students entered each day's activities and got it signed by their respective guides and an attendance register was also maintained in each department. Completion of the elective postings was issued by the guide and the respective HODs only if the objectives of the study were fulfilled and the required attendance was met at the end of the elective postings.

As these students were the first to undergo the elective postings according to the new curriculum, feedback from them will help us to improve the implementation of the program for future batches. Hence, the above study was taken up with the objective of analysing the awareness and perception of medical undergraduates and the challenges

envisaged in the implementation of electives in the CBME curriculum.

MATERIALS AND METHODS

This was a questionnaire-based cross-sectional study conducted at Kempegowda Institute of Medical Sciences (KIMS), Bangalore, during the month of May 2023 after approval from the KIMS Institutional Ethics Committee (KIMS/IEC/A076/M/2023).

Study subjects

The study subjects were 4th year medical students in KIMS, Bangalore, who attended the elective postings during March–April 2023.

Study procedure

Each faculty in the department of pharmacology was given the framed questionnaire on electives for validation and asked to opine whether the questionnaire was well structured and to check people's understanding and ability to answer the questions, highlight the areas of confusion and errors, as well as provide an estimate of the average time each questionnaire will take to complete. After their validation, a questionnaire was made into a Google Form.

This questionnaire was sent to all the final-year medical undergraduates through e-mail in the form of a Google Form. Only those students were able to access the questionnaire who agreed to give the consent to fill the form in the informed consent page. Hence, responses from only consenting students who filled out the form online were collected.

The questionnaire included six questions about both awareness and perceptions about elective postings and five questions about the challenges faced during its implementation. The questions about awareness and challenges were in 'yes' or 'no' format, and the questions for their perception were on a 5-point Likert scale from strongly agree to strongly disagree. Data regarding their choice of electives were also obtained. The responses were collected through Google Forms, which were then exported and analysed in Microsoft Excel.

RESULTS

Out of the total 150 students in the batch, 96 consented and filled out the questionnaire (Response rate = 64%). Of those who filled out the questionnaire, 42 (43.75%) were male, and 54 (56.25%) were female. Age-wise, students were within 20–25 years, with most of them (48%) being 22 years old [Table 1].

Awareness regarding the elective postings was high in the students as the majority were aware of the existence of electives (81.25%), their purpose (76%), their importance (76%), attendance requirement during electives (72.9%) and the option of both clinical and nonclinical topics (80.2%). However, only 24% were aware of the formative assessment related to the electives [Table 2].

While checking the perception of the students regarding the elective postings using a 5-point Likert scale, the majority agreed that these postings were useful (13.5% strongly agreed and 51% agreed) and it was necessary to undergo both clinical and nonclinical postings (20.8% strongly agreed and 46.9% agreed). However, when asked if they felt certain elective topics were not important, the responses were mixed, with 18.8% strongly agreeing, 30.2% agreeing, and 32.3% remaining neutral. Most of them also agreed that the timing (13.5% strongly agreed and 45.8% agreed) and duration (15.6% strongly agreed and 41.7% agreed) of these postings were appropriate and sufficient, respectively. Even though 43.8% agreed (and 8.3% strongly agreed) that these postings served their purpose, an equal percentage of students either disagreed (12.5%) or strongly disagreed (12.5%) with this, and 22.9% were neutral regarding this [Table 3].

When asked about the challenges faced during the selection and conducting of the elective postings, 43.75% felt that it was confusing to select the topics. According to 62.5%, it was not difficult to attend nonclinical postings after their clinical postings. About 72.9% did not choose their topics by default, and 60.4% opined that there were sufficient topics to choose from. About 43.75% agreed that there was no option to change their selection of topics, but 56.25% felt that there was an option to change their selection [Table 4].

When data about the choice of electives of the students were collected, it was seen that biochemistry (18.8%) was the most commonly chosen nonclinical posting, and medicine (24%) was the most commonly chosen clinical posting. No students chose Otorhinolaryngology or Ear, Nose and Throat (ENT), making it the least commonly chosen clinical posting, followed by pulmonary medicine (2.1%). Anatomy (4.2%) was the least chosen nonclinical posting [Figure 1].

When asked about the reason for the choice of electives, the majority of the students answered that they chose their postings, both clinical (84%) and non-clinical (61%), because they were interested in the subjects. About 5% of students chose their clinical postings because they thought it would be an easy posting as opposed to 28% in choosing their non-clinical postings. Because their friends took, the postings 5% and 6% of students chose the same clinical and nonclinical postings, respectively. About 2% and 5% of students chose their clinical and nonclinical postings, respectively, because

Table 1: Demographic details of study subjects.

Characteristics of the participants	Total number of participants n (%)=96 (100%)
Gender	
Male	42 (43.75)
Female	54 (56.25)
Age in years	
20	1 (1)
21	22 (23)
22	46 (48)
23	22 (23)
24	3 (3)
25	2 (2)

Table 2: Awareness of study subjects regarding Elective Postings.

S. No.	Questions	Response (n=96)	
		Yes (%)	No (%)
1.	Were you aware about the existence of elective postings before the third phase part 2 (Final year)?	78 (81.25)	18 (18.75)
2.	Were you aware of the purpose of elective postings?	73 (76)	23 (24)
3.	Did you know about the importance of the elective posting?	68 (70.8)	28 (29.2)
4.	Were you aware about the formative assessment related to electives?	23 (24)	73 (76)
5.	Were you aware about the percentage of attendance required in electives?	70 (72.9)	26 (27.1)
6.	Were you aware about choosing clinical and non-clinical topics?	77 (80.2)	19 (19.8)

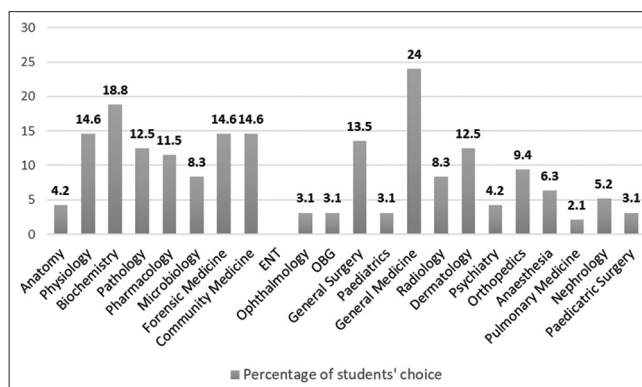


Figure 1: Choice of elective postings. (ENT: Ear, Nose and Throat; OBG: Obstetrics and Gynecology)

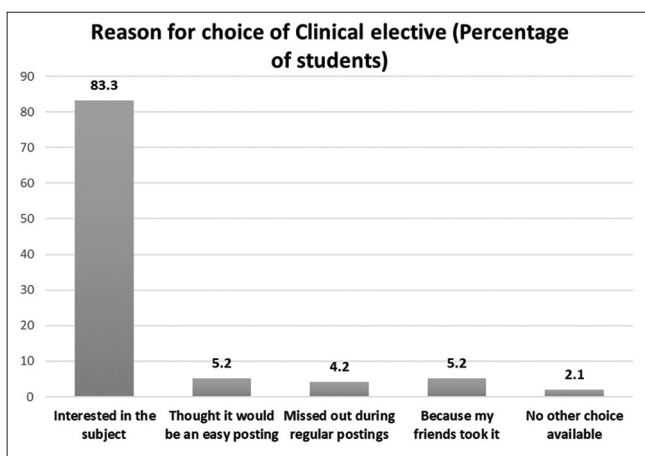
there were no other choices available. Only 4% of students selected their clinical postings because they had missed them during their regular postings [Figures 2 and 3].

Table 3: Perception of study subjects regarding Elective Postings.

S. No.	Questions	Response (n=96)				
		Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
1.	Was clinical and non-clinical elective posting useful?	15 (15.6)	49 (51)	20 (20.8)	6 (6.3)	6 (6.3)
2.	Was the timing for electives appropriate (between third phase part 1 and third phase part 2) appropriate?	13 (13.5)	44 (45.8)	21 (21.9)	12 (12.5)	6 (6.3)
3.	Was it necessary to undergo both clinical and non-clinical electives?	20 (20.8)	45 (46.9)	9 (9.4)	10 (10.4)	12 (12.5)
4.	Did you feel the non-importance of certain elective topics?	18 (18.8)	29 (30.2)	31 (32.3)	15 (15.6)	3 (3.1)
5.	Was the duration for electives sufficient?	15 (15.6)	40 (41.7)	18 (18.8)	13 (13.5)	10 (10.4)
6.	Did the elective postings serve their purpose?	8 (8.3)	42 (43.8)	22 (22.9)	12 (12.5)	12 (12.5)

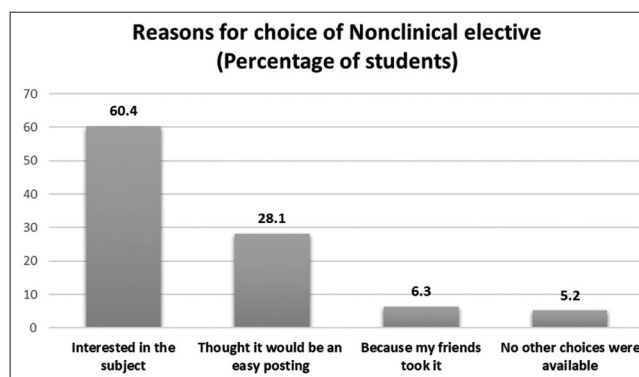
Table 4: Challenges faced by study subjects throughout the Elective Postings.

S. No.	Questions	Response (n=96)	
		Yes (%)	No (%)
1.	Selecting the topic was confusing?	42 (43.75)	54 (56.25)
2.	While attending the non-clinical electives, was it difficult to finish clinical posting and then attend the electives?	60 (62.5)	36 (37.5)
3.	Did you choose certain topics by default?	26 (27.1)	70 (72.9)
4.	Many students chose the same topic as there were not many options to choose?	58 (60.4)	38 (39.6)
5.	No option to change after selecting the elective topic in the Google Form?	42 (43.75)	54 (56.25)

**Figure 2:** Reason for choice of clinical postings.

DISCUSSION

Electives are a series of short courses offered during the undergraduate year that students can choose from based on their interests or career goals. This self-directed learning activity may allow the learner to explore an area of interest to augment future study.^[10] As this was the first CBME batch and hence first to participate in elective postings, this study was taken up to analyse their awareness and perception of electives and the challenges, they faced during its implantation which will help us to improve on

**Figure 3:** Reason for choice of non-clinical postings.

the design and implementation of this program for the future batches.

While assessing the awareness of students regarding these electives, we found that majority of the students were aware of the not just the existence of these posting but also their purpose and importance. They were also very aware of the attendance requirement and that they have to undergo both clinical and nonclinical elective postings. All these suggest that they were properly oriented and informed about the program beforehand, which was done as a part of foundation course at the start of their 1st year MBBS and also during the orientation session at the start of their 3rd year MBBS, but as majority were not aware of the formative assessment at the

end of these postings, this suggests that we have to further improve our orientation program for the students.

When enquired about the students' perception about the electives, most of the students agreed that having both clinical and nonclinical postings was useful and necessary, which was similar to findings in a study by Koceic *et al.*,^[11] where students suggested integrating both pre-clinical and clinical knowledge and skills in the electives. Majority of the students opined that the timing of these posting, that is at the end of the academic year, was appropriate which suggests that the program was well thought-out. Most of them also felt that the duration of these posting was sufficient and the program served its purpose, similar to the results of the study by Vidja *et al.*,^[7] and Neel *et al.*^[12] Response regarding non-importance of certain topics in electives was mixed with many being either neutral or agreeing to this question. This indicates either a varied interest in subjects or need for us to enquire the students regarding the topics that they are interested in before the list of available topics is provided to them.

Asking about the challenges students faced throughout the electives program, we found that majority of the students felt that the process of selecting the topics was not confusing but there was no option to change their choice of topics once it was entered in the Google Form. Most of the students chose their elective topics because they were interested in them and few chose their postings either by default or because there were not many options available similar to the students in study by Koceic *et al.*^[11] Majority also opined that it was not difficult for them to attend non-clinical electives after their normal clinical postings. This suggests that the process of selecting elective topics and the implementation of elective postings was good but needs to be further improved so that all students can get the electives of their choice, without any confusion and attend these postings comfortably.

While analysing the students' choice of electives, General Medicine was the most common clinical elective chosen and the reason for choice of clinical elective was mostly their interest in the subject and very few chose their topics due to other reasons. Similarly, non-clinical electives were also chosen mainly due to their interest in the subject, with biochemistry being the most often selected but some still chose it because they thought it would be an easy posting or for other reasons which implies that these students are not interested in non-clinical topics which may be because they are not aware of the opportunities available in them. It is up to the faculty to improve students' knowledge in these areas so that they can make a more informed decision.

Strengths of this study are that the questionnaire used was validated and this was one of the very few studies done to

evaluate the students' perspective of CBME recommended elective postings. Non-inclusion of the opinion of the faculty involved in the implementation of this program is a limitation of this study as their perception of and the challenges, they faced with regard to the elective postings which would have served as a criterion for evaluation of this program just as if we had included more questions about students' experience before and after the elective postings. These would have given us more data for better conduct of this program for the future batches.

CONCLUSION

Elective postings can be an important part of the medical education under the new CBME curriculum, as the choice of topics is up to the students which can make them feel more involved and help them to explore their areas of interest. In our institution, we found it to be a good inclusion in the curriculum with students exploring their fields of interests and getting to know about the opportunities in various departments especially in non-clinical subjects. Through our study, we found that students were aware of the program and perceived them to be very useful and it's up to the faculty and decision makers to improve the program further to meet all the needs of the students and its better execution. Better evaluation of the program could have been done by assessing the opinions or perception of the faculty involved in elective postings and this can be the basis for future studies.

Acknowledgment

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Ethical approval

The research/study approved by the Institutional Review Board at Kempegowda Institute of Medical Sciences, number KIMS/IEC/A076/M/2023, dated 03 April 2023.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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