

Effectiveness of early clinical exposure in improving attitude and professional skills of medical students in current Indian medical education set up

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ABSTRACT

Introduction: As a part of education reforms Medical Council of India has introduced early clinical exposure (ECE) as an important intervention in Medical teaching. It is stated in the literature, ECE helps to relieve stress of the students pertaining to patient handling, developing real-time clinical reasoning ability, communication skills, professional attitude, and patient empathy. With this view, this study was planned to assess effectiveness of early clinical exposure in improving attitude and professional skills in the current Indian medical education set up. **Methods:** This cross-sectional study was carried out amongst 820 students for three years duration. Students were randomly divided into two groups viz. ECE exposed group (Group A) and Traditional teaching exposed group (Group B). We conducted periodical sessions (Each duration: 60 minutes). We used a validated 10-point questionnaire for feedback collection. **Results:** Using perception-based 10-point questionnaire based on Likert scale we found, 93.21% of students strongly agreed that the method of ECE teaching aroused interest in learning. 86.03% of students strongly agreed that the method of ECE teaching technique helped in better retention of topic. 89.91% of students strongly agreed that the method of ECE teaching imparts better clinical context. 92.75% of students strongly agreed that the method of ECE teaching allows better assimilation of knowledge gained during learning. With ECE-based teaching 87.42% of students found highly satisfied while 81.22% of students found highly competent about the knowledge and skills thus acquired via this teaching methodology. 95.11% of students liked ECE teaching methodology and these students enjoyed it a lot and with interest. **Conclusion:** This study concluded that early clinical exposure is the most important teaching tool in improving attitude and professional skills in the current Indian medical education set up.

Keywords: Attitude, early clinical exposure, professional skills, medical education

Introduction

Today, India has 542 medical colleges means the highest number of colleges in the world.^[1] This growth has been occurred in the past two decades in response to the escalating demand of

doctors due to the increasing healthcare needs of our country. The most significant challenge for the regulatory bodies like the Medical Council of India (MCI) is to maintain equilibrium between the need for more medical colleges and simultaneously improvement in quality standards.^[2] In the last two decades, tremendous changes are observed in medical education reforms and learning styles/approaches in India. Their impact on medical education and medical students is under study process by the number of expert local as well as international medical education communities.^[3]

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In India current new CBME reforms (Competency-Based Medical Education) the MCI has included early clinical exposure in undergraduate medical curriculum. MCI instructed inclusion of early clinical exposure from foundation course.^[4] As per the new curricula, student should be competent and works as the first contact of the community with having requisite knowledge, skills, attitudes, values and responsiveness, as per IMG (Indian Medical Graduate) concept.^[5]

With this view undergraduate medical education is now shifting towards new curricular model ‘competency-based education’ with specified competencies, objectives and standardized approaches.^[6] With these changes Indian Medical Education is in phase or compulsion to be adopting newer teaching methodologies that will suit for local needs and will be responsible for greater outcome. As a part of these reforms MCI introduced early clinical exposure (ECE) as one of the important intervention in Medical teaching. It is stated in literature, ECE helps to relieve stress of the students pertaining to patient handling, developing real-time clinical reasoning ability, communication skills, professional attitude and patient empathy.^[7] With this view this study was planned to assess effectiveness of early clinical exposure in improving attitude and communication skills in the Indian medical education set up.

Material and Methods

This cross-sectional study was carried out amongst 820 students in the Department of Physiology of Rural Medical College, Pravara Institute of Medical Sciences (Deemed University), Loni, Maharashtra, India in collaboration with Department of Medicine, Department of Surgery and in 5 other Medical Colleges from the Western Maharashtra during the period of 3 years. Sample size was estimated by using probability proportionate random sampling (PPRS) technique (50% criteria) with the help of expert statistician. The study was approved by the Institutional Ethical Committee. Prior informed written consent was obtained from the participants after explaining the procedure and purpose of study.

Voluntarily participated students were randomly divided into two groups viz. ECE exposed group (Group A) and Traditional teaching exposed group (Group B). We conducted periodical sessions (each duration: 60 minutes). Ethical Approval was obtained for this study from IEC of our university as part of my own PHD work.(Date of approval : 12 June 2014).

List of participating medical colleges

1. Byramjee Jeejeebhoy Government Medical College, Pune
2. Rajashree Chatrapati Shahu Maharaj Government Medical College, Kolhapur
3. Smt. Kashibai Navale Medical College and General Hospital, Pune
4. Dr. Vitthalrao Vikhe Patil Foundation’s Medical College and Hospital, Ahmednagar
5. Dr. D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune
6. Rural Medical College, PIMS (DU), Loni

Inclusion criteria

This study included first-year M.B.B.S. students from two government medical colleges, two private medical colleges and two deemed university medical colleges from the western Maharashtra region who voluntarily participated after explaining necessary details of this study.

Exclusion criteria

The students not willing to participate were not being included in this study.

We used a validated 10-point questionnaire for feedback collection. Regular ECE sessions were conducted periodically. List of modules and topic covered under each module is depicted in Table 1.

In our study, we conducted six modules in a hospital-based setting as well as community setting, covering the majority syllabus of clinical physiology. We demonstrated clinical examinations to students in small groups. We motivated students to observe and to revise basic clinical examinations in wards. Faculties and residents supported students during these visits. We motivated students to active participation of students.

Above sample validated questionnaire [Table 2] was used to collect feedback from students.

Data analysis

Data were pooled and tabulated for analysis using Microsoft Excel Sheet and analysis was done using SPSS (Statistical Package for the Social Sciences), IBM, version 23.0 software.

Results

In this study, 820 students (71.30%) were participated [Table 3]. In this study, attitude was assessed by using validated 10-point feedback questionnaire based on Likert scale.

Table 1: List of modules and topic covered

Module Title	Topic covered under each module
Module -1 Ward and OPD visit	Working structure of OPD and ward in hospital General examination of patient Basic terms used in medicine
Module -2 Blood bank visit	Working structure of blood bank Blood groups Blood donation Blood group matching
Module -3 Cardiovascular system examination	Working structure of wards Cardiovascular system examination Blood pressure and Pulse
Module -4 Respiratory system examination	Working structure of wards Respiratory system examination
Module -5 Nervous system examination	Working structure of wards Central nervous system examination
Module -6 Community visit	Community-Health and disease Communication skills Doctor-patient relationship Herd Immunity

Table 2: 10 Point-validated questionnaire

	Strongly disagree=1	Disagree=2	Agree=3	Moderately agree=4	Strongly agree=5
The method of teaching arouse interest					
The technique help in better retention of topic					
The method imparts better clinical context					
Allows better assimilation of knowledge					
Will better equip me to apply the knowledge when the opportunity arise					
	0-10%=1	21-40%=2	41-60%=3	61-80%=4	81-100%=5
Has the method of teaching enhanced your knowledge than what it was?					
How satisfied are you with the method of teaching?					
Are you confident about the knowledge and skills thus acquired?					
Do you like the method of teaching?					
Do you enjoy this process of learning?					

Table 3: College wise student participation in this study

Name of medical college	Students participated	College student capacity	Percentage of participation
B J Medical College, Pune	110	200	55.00
Government Medical College, Kolhapur	104	150	69.33
SKN Medical college, Pune	120	150	80.00
PVVPF Medical college, Ahmednager	112	150	74.66
Dr. DY Patil Medical College, Pimpri, Pune	181	250	72.40
Rural Medical College, PIMS, Loni	193	250	77.20
Total	820	1150	71.30

Table 4: Measurement of attitude of students (Likert scale)

Likert scale	Attitude of students towards ECE	Number of students	Percentage of students
1	ECE may not helpful in making positive attitude	00	00
2	ECE may be helpful in making positive attitude	91	11
3	ECE can be used in making positive attitude	197	24
4	ECE must used in making positive attitude	189	23
5	Highly positive towards ECE	345	42

From the above table [Table 4], it is clear that student's attitude towards . ECE has been found highly positive. 42% of students reported a highly positive impact towards ECE, while nearly 47% students reported ECE can be used in making a positive attitude.

Results based on validated perception-based 10-point feedback questionnaire from students after completion of the sixth ECE session

- 93.21% of students strongly agreed that the method of ECE teaching aroused interest in learning
- 86.03% of students strongly agreed that the method of ECE teaching technique helped in better retention of topic
- 89.91% of students strongly agreed that the method of ECE teaching imparts better clinical context
- 92.75% of students strongly agreed that the method of ECE teaching allows better assimilation of knowledge gained during learning
- With ECE-based teaching 87.42% of students found highly satisfied while 81.22% of students found highly competent about the knowledge and skills thus acquired via this teaching methodology

- 95.11% of students liked ECE teaching methodology and these students enjoyed it a lot and with interest.

Discussion

Advantages of early clinical exposure proved in the research literature are that ECE plays an important role in understanding basic clinical terms, making easier transition from layperson to student physician, provide an opportunity to bring social relevance and contextualize basic science learning, provide teaching and learning of basic clinical skills, enhances student motivation and encourages the students to learn professional behavior.^[8-11]

Using perception-based 10-point questionnaire based on Likert scale we found, 93.21% of students strongly agreed that the method of ECE teaching aroused interest in learning. 86.03% of students strongly agreed that the method of ECE teaching technique helped in better retention of topic. 89.91% of students strongly agreed that the method of ECE teaching imparts better clinical context. 92.75% of students strongly agreed that the

method of ECE teaching allows better assimilation of knowledge gained during learning. With ECE-based teaching 87.42% of students found highly satisfied while 81.22% of students found highly competent about the knowledge and skills thus acquired via this teaching methodology. 95.11% of students liked ECE teaching methodology and these students enjoyed it a lot and with interest.

Motivation is an important component in any teaching and learning methodology in changing or improving attitude and professional skills. We found that students were highly motivated by using ECE session. Similar observations were noted by Chari S *et al.*,^[12] Baheti SN *et al.*,^[13] Sawant *et al.*^[14]. The purpose, objective and importance of motivation should be clearly understood by the faculty. The fundamental aim of motivation is to stimulate and to facilitate learning activity.^[15] Learning is an active process that needs to be motivated and guided toward desirable ends.^[16-18] Situational motivation is a concept in which aspects of the immediate environment enhance motivation to learn particular things or behave in specific ways. Motivation directs behavior toward particular goals. It leads to increased effort and energy. It increases the initiation and persistence of activities. It enhances cognitive processing.^[16,17]

In any kind of work, dedication and motivation are most important that leads to best outcome from that activity or work.^[17] In human, motivation plays a crucial role and self-motivation is found most effective in learning process. The first-year students need to be given early clinical exposure to actual patient's care either at hospital setting or community setting.^[17] In this study, we found that community setting ECE sessions are more appreciated by students followed by hospital-based setting ECE sessions.

This may help in achieving recognition of basic sciences taught in the classroom, thus making the learning conceptual. It will motivate the students to learn and integrate the ethics and professionalism in doctor-patient relationship. Basic sciences should be learned as a relevant subject, for application in the clinical practice. Gaining a vast amount of knowledge may not always mean that the student will be able to apply that knowledge in a clinical setup or in patient care. An ideal knowledge of basic sciences will be a clear understanding of its clinical applications and will subsequently lead to a sound clinical practice. Hence basic sciences in first year would be better understood, retained and later practically applied, if learned in a clinically significant set-up.^[17-20]

Tang *et al.* observed a positive correlation between students' learning achievement in basic medicine and their clinical exposure environment.^[21] Deolalikar S *et al.* found, ECE would strongly enhances the logical reasoning skills of the students.^[22] Gupta K *et al.* found, ECE protocol was perceived as a very satisfactory by the students, and it helped in improvement of knowledge and to understand the relevance of preclinical subject in clinical setup.^[23]

Hence Early clinical exposure can be defined as exposure towards clinical environment either in hospital or in community setting at first year of medical education that can enhancing knowledge,

improving skills and motivating learning of medical students. Early clinical experience helps medical student acclimatize to clinical environments, develop professionally, interact with patients with more confidence and less stress, develop self-reflection and appraisal skill, and develop a professional identity. It strengthened their learning and made it more real and relevant to clinical practice.

Motivation is the most important factor in the learning process of the medical students. The association that motivation can have with a learning self-regulation is of utmost importance for the design of curriculum, teaching methods and evaluation process. Self-motivational and active interest in learning facilitates the development of the independent study skills, specifically in the search of information. The role of teachers is a crucial in promoting these skills and the perception of medical students from their learning process.^[24] However it is our observation that motivation process is ignored in syllabus drafting and in assessment pattern. We should frame curricula with strong intent including motivation and active learning as major weapons for best outcome.^[25]

From this study we may conclude, early clinical exposure gives context and relevance to the basic sciences learning. ECE facilitates early involvement in the healthcare environment that act as a motivation for students, leading to their best professional growth and proper development. Early clinical exposure to the clinical environment will provide a major point of reference. The ECE program in the MBBS curriculum tries to create an opportunity for students to correlate learning in phase one subjects with their clinical application. Learning of basic sciences with associated or linking to a clinical context can be definitely improve student's motivation to learn and improve retention. It provides exclusive authentic human context and early introduction to immersion into the clinical environment. The basic principles underlying the early clinical exposure are providing a clinical context and ensuring patient central. Thus the ECE is the most important teaching tool in improving attitude and professional skills in Indian medical education set up.

Conclusion

This study concluded that early clinical exposure is the most important teaching tool in improving attitude and professional skills in current Indian medical education set up.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have

given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

- Goswami S. Problems and challenges in medical education in India. *Eur J Contemp Educ* 2015;11:31-7.
- Ogur B, Hirsh D, Krupat E, Bor D. The Harvard Medical School-Cambridge integrated clerkship: An innovative model of clinical education. *Acad Med* 2007;82:397-404.
- Lawley TJ, Saxton JF, Johns MM. Medical education: Time for reform. *Trans Am Clin Climatol Assoc* 2005;116:311-20.
- MCI Early Clinical Exposure for Undergraduate Medical Education Program 2019, Delhi, 2019 Available from: https://www.mciindia.org/CMS/wp-content/uploads/2020/01/Early_Clinical_Exposure-MBBS-07.08.2019.pdf. [Last accessed on 2019 Dec 10].
- AETCOM Module, Medical Council of India, Delhi, 2018.
- Jacob KS. Medical council of India's new competency-based curriculum for medical graduates: A critical appraisal. *Indian J Psychol Med* 2019;41:203-9.
- Das P, Biswas S, Singh R, Mukherjee S, Ghoshal S, Pramanik D. Effectiveness of early clinical exposure in learning respiratory physiology among the newly entrant MBBS students. *J Adv Med Educ Prof* 2017;5:6-10.
- Kar M, Kar C, Roy H, Goyal P. Early clinical exposure as a learning tool to teach neuroanatomy for first year MBBS students. *Int J Appl Basic Med Res* 2017;7(Suppl 1):S38-41.
- Verma M. Early clinical exposure: New paradigm in medical and dental education. *Contemp Clin Dent* 2016;7:287-8.
- Khabaz Mafinejad M, Mirzazadeh A, Peiman S, Khajavirad N, Mirabdolhagh Hazaveh M, Edalatfard M, *et al.* Medical students' attitudes towards early clinical exposure in Iran. *Int J Med Educ* 2016;7:195-9.
- Shah N, Desai C, Jorwekar G, Badyal D, Singh T. Competency-based medical education: An overview and application in pharmacology. *Indian J Pharmacol* 2016;48(Suppl 1):S5-9.
- Sawant SP, Rizvi S. Importance of early clinical exposure in learning anatomy. *Scholars J Appl Med Sci* 2015;3:1035-38.
- Vyas R, Solomon sathishkumar. recent trends in teaching and learning in physiology education early clinical exposure and integration. *Int J Basic Appl Physiol* 2012;1:15-8.
- Tayade MC, Kulkarni NB. The interface of technology and medical education in India: Current trends and scope. *Indian J Basic Appl Med Res* 2011;1:8-12.
- Kachur EK. Observation during early clinical exposure- an effective instruction tool or a bore. *Med Educ* 2003;37:88-9.
- Karandikar PM, Tayade MC, Kunkolol R. Three-dimensional (3D) Printing applications in Healthcare sector in India. *Pravara Med Rev* 2020;12:51-6.
- Baheti SN, Maheshgauri D. Early clinical microexposure (Ecmix) (A path from early clinical micro exposure to early clinical macro exposure (Ecmix)). *Glob J Res Anal* 2015;4:1-2.
- Cook DA, Artino AR Jr. Motivation to learn: An overview of contemporary theories. *Med Educ* 2016;50:997-1014.
- Mann KV. Motivation in medical education: How theory can inform our practice. *Acad Med* 1999;74:237-39.
- Williams GC, Saizow RB, Ryan RM. The importance of self-determination theory for medical education. *Acad Med* 1999;74:992-5.
- Tang K, Chen C, Wu M, Chen TT, Wu BW, Tsai PF, *et al.* Correlation between early clinical exposure environment, attitudes toward basic medicine, and medical students' basic science learning performance. *BMC Med Educ* 2019;19:183.
- Deolalikar S, Nandi J, Pramod J. Introduction of early clinical exposure to 1st year MBBS students in physiology. *CHRISMED J Health Res* 2020;7:63-7.
- Gupta K, Gill GS, Mahajan R. Introduction and implementation of early clinical exposure in undergraduate medical training to enhance learning. *Int J Appl Basic Med Res* 2020;10:205-9.
- Fasce HE, Ortega BJ, Ibáñez GP, Márquez UC, Pérez VC, Bustamante DC, *et al.* Aspectos motivacionales involucrados en el aprendizaje autodirigido en estudiantes de medicina. Un enfoque cualitativo [Motivation and self-directed learning among medical students]. *Rev Med Chil* 2016;144:664-70.
- Kusurkar RA, Croiset G, Mann KV, Custers E, Ten Cate O. Have motivation theories guided the development and reform of medical education curricula? A review of the literature. *Acad Med* 2012;87:735-43.