

ORIGINAL RESEARCH

Early Clinical Exposure, A New Teaching Learning Tool in Competency Based Medical Curriculum. Students Perception

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ABSTRACT

Background: ECE is one form of vertical integration between basic science and clinical subjects. Thus this study is an effort to explore the use of ECE as an effective teaching learning tool, toward better learning as vertical integrated method over traditional teaching method through student's perception.

Materials and Methods: A cross-sectional study was conducted during April 2022. A convenience sample of 190 first- and secondyear MBBS students, enrolled in the medical curriculum, participated in an early clinical exposure program. To collect data from medical students, a questionnaire consisting of open-ended questions and structured questions, rated on a five-point Likert scale, was used to know students' attitudes toward early clinical exposure.

Results: Of the 190 medical students, 160 completed the questionnaire. The results demonstrated that medical students had a positive attitude toward early clinical exposure. Most students (84.1%) stated that early clinical exposure could familiarize them with the role of basic sciences knowledge in medicine and how to apply this knowledge in clinical settings. Moreover, 67.4 of them believed that early clinical exposure increased their interest in medicine and encouraged them to read more. Furthermore, content analysis of the students' responses uncovered three main themes of early clinical exposure, were considered helpful to improve learning: "integration of theory and practice", "interaction with others and professional development" and "desire and motivation for learning medicine".

Conclusion: Majority of students felt that early clinical exposure is a very good teaching learning tool, The present design involving a introduction of variety of dimensions of medical profession like scientific, ethical, interpersonal, professional and social to the new entrants in addition to enhancing their motivation to learn. A well designed ECE program could be the ideal first step in the making of a holistic doctor.

Keywords: Early clinical exposure, undergraduate medical curriculum, Attitude, Perception, vertical integration.

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INTRODUCTION

In the early years of the curriculum, MBBS students are engaged in long hours of classroom and laboratory teaching with no exposure to the clinical setup.^[1,2] Under these circumstances, students often find their preclinical year to be tough, dry and most importantly, they fail to understand the relevance of basic sciences in the clinical setting.^[3,4]

There has been an urgent need for curricular reforms with emphasis towards vertical and horizontal integration and competency based training.^[5] MCI vision 2015 aims to produce a new generation of medical graduates of global standards through curricular reforms. “The roles of this new age doctor are recognized as clinician, communicator, life-long learner, team leader and professional”.^[6] Required curricular changes begin early in the form of a foundation course; early clinical exposure; properly designed integrated teaching and programs to develop the correct attitude and communication skills (ATCOM module).

Early clinical exposure (ECE) needs to be a coordinated effort by the preclinical, paraclinical and clinical faculty. If implemented effectively, it has the potential to improve motivation for learning and promote deep learning, better understanding and longer retention of the knowledge. It can facilitate the students to understand the application of basic sciences in clinical practice and aid in effective learning of clinical skills.^[7] Above all, it provides an opportunity for them to see the illness from the patient’s perspective. All this can foster the development of a holistic doctor who will be competent, communicative, humanistic and empathetic towards the patients.^[8,9,10]

MATERIALS & METHODS

Study Design

This was an observational, cross sectional, questionnaire-based study conducted in department of General Medicine under the guidance of medical education unit at Basaveshwara medical college and Hospital, Chitradurga, Karnataka India in month of Apr 2022. This study was approved by the Institutional ethical committee.

Participants;

MBBS students (n = 190) had enrolled in study after informed consent.

Data Collection

Data was collected using a researcher-developed questionnaire, including two open-ended questions and thirteen structured questions, rated on a five-point Likert scale (strongly agree, agree, neutral, disagree, and strongly disagree). The questions were generated based on a critical review of the literature and informal interviews with the clinical faculty involved in teaching the medical students, the questionnaire was tested for validity by medical education and clinical experts. The reliability of the questionnaire was acceptable, with a Cronbach’s alpha of 0.72.

Data Analysis

Statistical analysis was performed using SPSS software (version 20). The quantitative descriptive analysis was used to evaluate the students’ attitudes and content analysis to analyze the notes about their first experiences.

RESULTS

Based on the quantitative data, the majority of students (84.1%) stated that the ECE program could familiarize them with the role of basic sciences knowledge in medicine and the way to apply it in clinical settings. Further, 67.5% of them believed that the early clinical experience increased their interest in medicine and motivated them to read more. Also, 64.3% of students

mentioned that group discussion during the grand round could help them to reflect on their experiences and share them with others.

Furthermore, 64.1% of students agreed (completely agree/agree) with the usefulness of the grand round. The descriptive analysis of the questionnaire is presented in Table 1. A

Table 1: Students Perception to assess vertical integrated teaching sessions with five point likert scale

Students Perception	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Early clinical exposure is an important learning method introduced in the new curriculum	55(34.4%)	70(43.8%)	24(15.6%)		
ECE made me know about various specialities/departments in hospital, their functioning infrastructure “Made us familiar with various fields of medicine and clinician	60(37.5%)	75(46.9%)	15(9.4%)		
ECE gave “insight about what patient undergoes”. Learnt about the duties of a doctor and importance of human life, sensitized to handle a patient.	50(31.3%)	70(43.8%)	30(18.8%)		
Made me feel proud to be a doctor' my dream to walk into hospital as a doctor made true	50(31.3%)	84(53.1%)			
ECE session enabled me to relate basic sciences with clinical implications in a better way “ able to correlate theory with practical work	44(28.1%)	64(40.6%)	30(18.8%)	15(9.4%)	
ECE allowed a better understanding of the coordinated action of several systems in one setting through vertical integration	41(25%)	75(46.9%)	24(15.8%)	15(9.4%)	
ECE session increased my interest in the topic taught, also helped me in better retention of the topic. I	24(15.6%)	84(53.1%)	35(21.9%)		

expect to score better in this topic as a result of this teaching.					
ECE encouraged students to critically think about problems of health care, evaluate and incorporate new skills that they will use for rest of their professional lives.	45(28.1%)	75(46.9%)	24(15.8%)	15(9.4%)	
I think more time should be devoted to the conduct of ECE sessions	30(18.8%)	80(50%)	40(25%)		
ECE module was well organized. As a student, i was comfortable with this teaching technique.	25(15.6%)	85(53.1%)	25(15.6%)	15(9.4%)	
Usefulness of participation in grand rounds	25(15.6%)	75(46.9%)	56(34.4%)		
Providing opportunities to discuss and share knowledge	30(18.8%)	93(58.3%)	15(9.4%)	19 (12.5%)	
Familiarity with doctoring skills in medicine, roles and responsibilities of clinical students	45(28.1%)	89(56.3%)	25 (15.6%)		

DISCUSSION

Early clinical exposure and the accompanying knowledge and skills development, does not replace the basic and clinical sciences, but rather enriches and contextualizes that learning and offers a wider variety of teaching and learning methods.

Mangala N et al found out that ECE through vertical integration showed as an efficient new teaching learning method which had positive influence in knowledge and skills gained by the students in applying prospectively in their routine clinical case analysis and interpretation. IN their study out of 230 enrolled students 87.4% agreed that ECS is an important teaching method, 94% were able to correlate basic sciences with clinicals. . Out of 160 students 134(84.1%) results in our study comparable to mangala et al, Many students commented that ECE made them to understand the topic in depth, increased their interest for the subject and motivated them to read more. It strengthened their learning and made it more real and relevant to clinical practice. It helped students learn about the structure and function of the healthcare system, and about preventive care and the role of health professionals.^[1]

Spencer J, Blackmore D, Heard S, et al found direct contact with patients can be seen to play a crucial role in the development of clinical reasoning, communication skills, professional attitudes and empathy.^[11]

Kate et al.^[12] also used integrated teaching in second-year medical students to have better clinicopathological correlation along with improvement in cognitive and psychomotor domain. Faculty and students both had positive attitude toward this method. Perception of

students for having encouraged intellectual curiosity is in concurrence with our study as well as the study by Sharma et al.^[13] whose results showed that 81% of students responded that they were able to correlate clinical picture of the disease after integrated teaching sessions and 85% of students were agreed that there was a good correlation of all three pre-clinical subjects.(our study-67.6%) .

Ali et al.^[14] concluded in their study that the experience of integrating clinical teaching with basic sciences not only improved students' clinical experience reflected by evaluation but also rewarding in improving the results of various modules related to preclinical subject. Tayade et al.^[15] reported statistically significant difference in the knowledge, skills and attitude of first year M.B.B.S students between ECE and NonECE group. Rawekar et al.^[16] also reported significant gain in the skills in M.B.B.S students as evident by the scores of OSCE. ECE had an effective influence on learning as manifested in skills gained by the students and their perceptions of ECE being helpful prospectively in their routine clinical posting.

Suchitra Deolalikar, Jayshree Nandi, John Pramod et al^[17] in their study found that ECE would enhance the logical reasoning skills of the students.

The student's perceptions were also found more positive towards early clinical exposure than traditional teaching mode. Recently all medical colleges as well as universities are actively involved in 'vertically integrating program' to give clinical knowledge to the first year medical students. The rapid change in priorities in health care system is giving rise to corresponding rapid changes in the content and process of medical education.^[7]

CONCLUSION

Medical students found their first experience with clinical settings valuable and rewarding. Providing clinical exposure in the first years of medical education and presenting the application of basic sciences knowledge in the clinical practice can enhance students' motivation and understanding of the role they will play in the future as a physician.

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Conflict of Interest: The authors declare that they have no conflict of interest

REFERENCES

1. Mangala N. Sirsikar et al.2021, Role of Early Clinical Exposure As An Effective New Teaching And Learning Tool In Competency-Based Undergraduate Medical Curriculum. Int J Recent Sci Res. 12(06), pp. 41883-41887. DOI: <http://dx.doi.org/10.24327/ijrsr.2021.1206.5982>
2. S. Aggarwal, V. Sharma The problems of medical education in a developing economy: the case of India Ann Trop Med Public Health, 2012;5 : 627-629
3. A. Solanki, S. Kashyap Medical education in India: current challenges and the way forward. Med Teach, 2014;36:1027-1031
4. A. Mandal, A. Ghosh, G. Sengupta, N. Das, S. Mukherje e, T. Bera.Factors affecting the performance of undergraduate medical students: a perspective Indian J Community Med, 37 (2012): 126-129
5. A. Swaminathan, S. Viswanathan, T. Gnanadurai, S. Ay yavoo, T. Manickam Perceived stress and sources of stress among first-year medical undergraduate students in a private medical college – Tamil Nadu Natl J Physiol Pharm Pharmacol, 2016;6: 9-14.

6. D.M. Irby, M. Cooke, B.C. O'Brien. Calls for reform of medical education by the Carnegie Foundation for the Advancement of Teaching: 1910 and 2010. *Irby Acad Med*, 2010;85:, 220-227. *Vision 2015 Medical Council of India*.
7. Medical Council of India. Regulations on Graduate Medical Education 1997. Available from: http://www.mciindia.org/know/rules/rules_mbbs.htm.
8. Chari S, Gupta M, Gade S. The early clinical exposure experience motivates first year MBBS students: A study. *Int J Educ Sci*. 2015; 8:403–5.
9. Patel V, Patel PR. MCI regulations on graduate medical education 2012 – Are we ready for paradigm shift? *NHL J Med Sci*. 2012; 1:5–6
10. Sathishkumar S, Thomas N, Tharion E, Neelakantan N, Vyas R. Attitude of medical students towards early clinical exposure in learning endocrine physiology. *BMC Med Educ*. 2007; 7:30.
11. Spencer J, Blackmore D, Heard S, McCrorie P, McHaffie D, Scherpbier A, Gupta TS, Singh K, Southgate L. Patient-oriented learning: a review of the role of the patient in the education of medical students. *Med Educ*. 2000 Oct;34(10):851-7.
12. Kate MS, Kulkarni UJ, Supe A, Deshmukh YA. Introducing integrated teaching in undergraduate medical curriculum. *Int J Pharm Sci Res*. 2010;1:18-22.
13. Sharma S, Kacker S, Jha M. Effectiveness of horizontal Integrated teaching programme in medical curriculum. *Int J Pharm Sci Res*. 2015;6(6):976-81.
14. Ali L, Nisar S, Ghassan A, Khan SA. Impact of clinical skill lab on students' learning in preclinical years. *J Ayub Med Coll Abbottabad*. 2011;23(4):114-7.
15. Tayade MC, Bhimani N, Kulkarni NB, Dandekar KN. The impact of Early Clinical Exposure on First
16. M.B.B.S. Students. *International J of Healthcare and Biomedical Research*. 2014;2(4):176–81.
17. Rawekar A, Jagzape A, Srivastava T, Gotarkar S. Skill Learning Through Early Clinical Exposure: An Experience of Indian Medical School. *J Clin Diagn Res*. 2016 Jan;10(1):JC01-4.
18. Savitha D, Iyengar A, Devarbhavi H, Mathew T; Kuttappa, Rao S, Thomas T, Kurpad AV. *Natl Med J India*. 2018 Sep-Oct;31(5):296-300.
19. Frank JR, Snell LS, Cate OT, Holmboe ES, Carraccio C, Swing SR, et al. Competency-based medical education: theory to practice. *Med Teach*. 2010;32:638–645. doi: 10.3109/0142159X.2010.501190
20. Singh A, Katyal R, Chandra S, Joshi HS, Singh K. Study of impact of vertical integration in medical education in a medical college of India. *Int J Community Med Public Health* 2017;4:3328-31.
21. Wijnen-Meijer M, Ten Cate O, van der Schaaf M, Burgers C, Borleffs J, Harendza S. Vertically integrated medical education and the readiness for practice of graduates. *BMC Med Educ*. 2015;15:229.
22. 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
23. Dr Surekha W. Meshram, Dr. Ujwal Gajbe To Study The Perceptions of First Year MBBS Students Towards Early Clinical Exposure (ECE) In Anatomy February. 2018;17(2): 32-35.
24. Bell K, Boshuizen HP, Scherpbier A, Dornan T. When only the real thing will do: junior medical students' learning from real patients. *Med Educ*. 2009 Nov;43(11):1036-43.
25. Frank JR, Snell LS, Cate OT, Holmboe ES, Carraccio C, Swing SR, et al. Competency-based medical education: theory to practice. *Med Teach*. 2010;32:638–645.
26. Dornan T, Littlewood S, Margolis SA, Scherpbier A, Spencer J, Ypinazar V. How can experience in clinical and community settings contribute to early medical education? A BEME systematic review. *Med Teach*. 2006; 28:3–18.