

“Perception of Phase I MBBS Students towards online classes compared to offline in Physiology Teaching and Assessment of CBME curriculum during Covid-19 Pandemic”

Dr.Malini M¹, Dr Divyashree², Dr Sudhir G K³, Dr Ravi G N⁴, Dr Anand K S S⁵

¹(Assistant Professor Physiology, Adichunchanagiri Institute of Medical Sciences/Adichunchanagiri University, India)

²(Assistant Professor Physiology, Adichunchanagiri Institute of Medical Sciences/Adichunchanagiri University, India)

³(Professor and Head Physiology, Adichunchanagiri Institute of Medical Sciences/Adichunchanagiri University, India)

⁴(Associate Professor Physiology, Adichunchanagiri Institute of Medical Sciences/Adichunchanagiri University, India)

⁵(Associatet Professor Physiology, Adichunchanagiri Institute of Medical Sciences/Adichunchanagiri University, India)

Abstract

Background: The world is suffering from the Covid-19 pandemic. To keep the students in the trail of learning when the lockdown was imposed by the government and also execution of new Competency Based Medical Education Curriculum(CBME) introduced by the Medical Council of India was more challenging than regular conventional method of delivering lectures. Hence Virtual Physiology classes were conducted in various modes. The present study objective was to evaluate the Perception of Phase I MBBS students toward online classes in Physiology teaching and assessment of CBME curriculum.

Methods: Cross-sectional study conducted after obtaining ethical clearance from IEC. 150 Phase I M.B.B.S students (2019-20 batch) were instructed to fill the questionnaire which containing CBME components dealt by an online method provided through google form after filling online consent form. Responses obtained were analyzed using Epi Info software. Data obtained was expressed in frequency and percentage.

Results: Most of the students have perceived virtual physiology teaching have encouraged self-directed learning, provided better opportunities for formative and summative assessment, encouraged effective time management and task completion, and have perceived offline mode is better for effective skill training, ECE session, AETCOM sessions.

Conclusion: Online teaching also has its own benefits to amplify undergraduate knowledge and skills, hence can be considered as a budding method in medical teaching, and to combat the negative effect of pandemics on medical education we can incorporate blended learning.

Keywords: Perception; online classes; offline Classes; Teaching ; Assessment ; CBME curriculum

Date of Submission: 12-10-2021

Date of Acceptance: 27-10-2021

I. Introduction

Human Physiology comprises the functioning of cellular organs and various organ system of the human body. Medical Physiology deals with knowledge of human physiology application in the management of dysfunctions and diseases of human beings. The descriptive knowledge of physiology aids in learning Pathology, Pharmacology, and Medicine. Physiology is considered the mother of medical research.¹ The two decades of old traditional curriculum (1997) that was substituted by newly refined competency-based medical education in 2019 has led to stormy changes in medical education. This refined medical education is experiencing resistance from teachers, students, and also the management.² The various aspects of this new CBME curriculum includes the initiation of foundation course, early clinical exposure, skill training & assessments, programs on attitudes, ethics, communication, more importance on small-group teaching methods, the introduction of electives, and horizontal and vertical integrated teaching-learning methods.³ The arrival of novel coronavirus worldwide has resulted in disruption of all the sectors of day to day living and In India nationwide first lockdown was imposed on 24th March to reduce the transmission which resulted in the closure

of medical colleges so to keep the students in the trail of learning online teaching has been adopted in all medical colleges.^{4,5,6}

Online teaching has become one of the commonly used teaching methods in medical education with the increasing use of technologies. Online teaching methods provide chances that are extensively used around the world which includes online videos, ppt with narrations, tutorials, online lectures and live demonstration of practical skills, online assessments can be incorporated in parallel as well as unparallel methods.⁷

Lockdown due to Covid-19 pandemic and CBME curriculum were more challenging than the regular conventional method of delivering lectures made us adopt alternate methodologies to deliver regular classes and to keep the students in the trail of learning. All these circumstances together made us adopt online teaching and assessment methods to continue the Physiology classes. Hence Virtual Physiology classes were conducted in the form of sharing recorded PowerPoint presentations, delivering live online lectures, practical classes for demonstration of clinical skills. Also at present arrival of the second wave of covid-19 has made us continue with online teaching. Hence the present study was undertaken to evaluate the Perception of male and female students of Phase I MBBS toward online classes in Physiology teaching and assessment of CBME curriculum.

II. Material And Methods

This is a cross-sectional descriptive study conducted on 150 Phase I M.B.B.S (2019-20 Batch) students who had experienced both offline and online Physiology teaching and assessment were selected for the study after taking approval from the Institutional Ethical Committee Adichunchanagiri Institute of Medical sciences, Adichunchanagiri University. Study duration was 2months conducted between April 2021 to June 2021. 2019-20 batch students had experienced offline teaching from September to March and online classes from April to November, for them we had conducted online theory classes, small group practical classes, tutorials, Integrated teaching program, ECE, AETCOM, assessments so they were included in the study to give their perception and suggestions towards CBME components delivered through online mode and to incorporate the suggestions in the ongoing batch. The Phase I MBBS(150) students(2019-20 batch) after explaining about the study, the participants were instructed to fill the online consent form. A questionnaire was prepared in google forms and the validation of the questionnaire was done by two internal and one external faculty from the Physiology department. A questionnaire provided to assess includes 12 questionnaires which contain 2 Yes/No/Can't say response types and the 10 questionnaire includes 5 points Likert scale response with scoring as 5 = strongly agree, 4 =agree, 3 = neutral, 2 = disagree and 1 = strongly disagree. Later questionnaire in google forms was shared with all the students who were voluntarily participating in the study. After that the perception of the students towards online physiology teaching and assessment compared to conventional methodologies was analyzed based on the responses obtained from the students. The analyzed responses were later statistically treated. Please

Table(original) 1: Questionnaire regarding Perception of Phase I MBBS Students towards online classes compared to offline(Please Tick in the appropriate box(✓) Answer the Question: 1=Disagree strongly 2= Disagree 3=Neutral 4=Agree 5=Agree strongly

SL no	Questions	1	2	3	4	5
1	Virtual physiology teaching is better and easy to understand than Classroom					
2	Virtual classes encouraged Self-directed learning compared to offline					
3	Virtual Physiology classes provided effective skill training and assessment compared to offline					
4	Virtual Physiology classes encouraged effective time management and task completion compared to offline					
5	Virtual Physiology ECE session of classroom setting was better than the Hospital setting					
6	Virtual Physiology AETCOM sessions will be better than offline					
7	Virtual Physiology Horizontal and vertical integration classes were better than offline					
8	Virtual Physiology teaching provided appropriate and timely feedback on students performances compared to offline					
9	Virtual Physiology assessment methods provided better opportunities for formative and summative assessment compared to offline					
10	Virtual Physiology teaching encouraged medical graduates to develop necessary skills, knowledge, attitude, responsiveness					
11	Virtual Physiology teaching-learning methods adopted have met the objectives of the CBME curriculum	Yes	No	Can,t Say		
12	Virtual Physiology Assessments methods adopted have met the objectives of the CBME curriculum	Yes	No	Can,t Say		

Statistical Methods: The data obtained were tabulated, analyzed, and expressed as frequency and Percentage. Then To evaluate the perception of male and female students towards online teaching compared to offline Mean

± Standard Deviation (Mean ± SD) was calculated for 5point Likert scale score questions. To compare independent 't' test was used and statistical significance of 'P' value less than 0.05(<0.05) was considered. The Epi info statistical software was used for the analysis of the data, and to generate graphs, tables Microsoft and Excel have been used.

III. Results

The present study was conducted to evaluate the perception of Phase I MBBS Students towards online classes compared to offline classes of Physiology teaching and assessment 146 responses were obtained from our 2019-20 batch phase I MBBS students obtained. The following findings were observed on analysis (Fig 1, Fig 2 and Table 2)

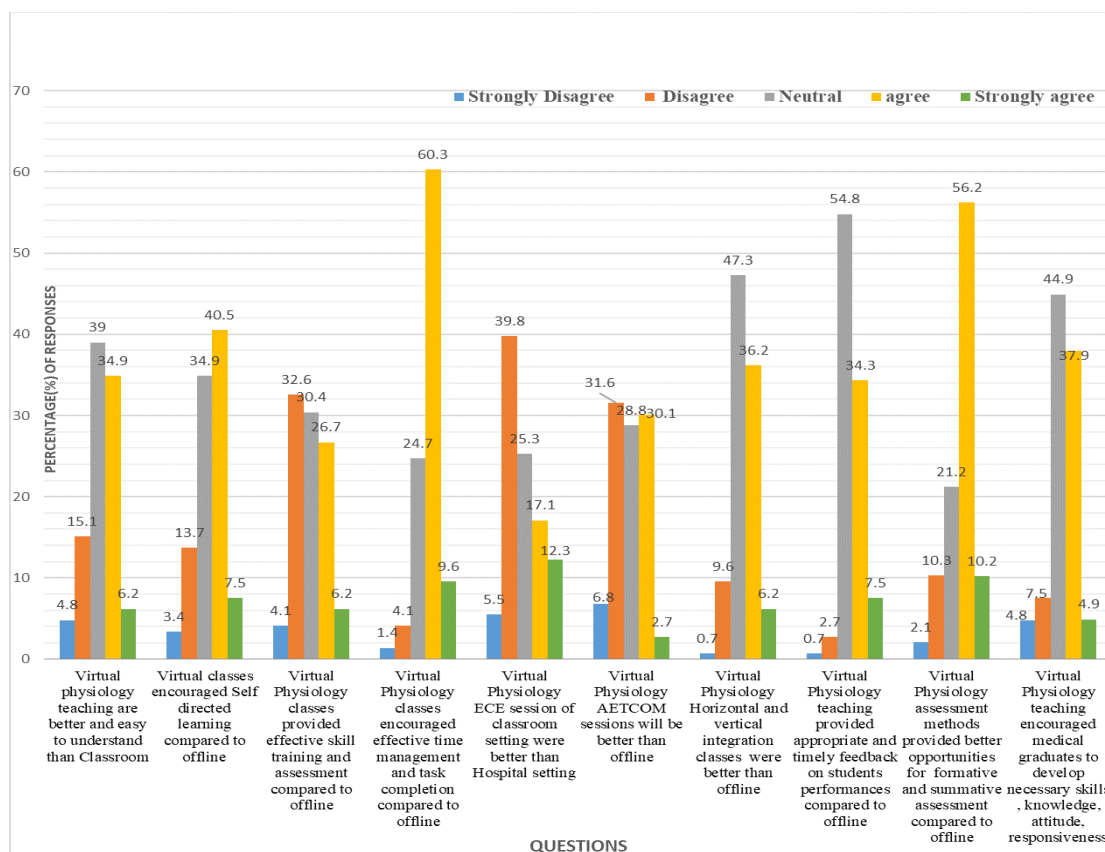


Fig 1: Perception of Phase I MBBS Students towards online classes compared of teaching and assessment of CBME curriculum

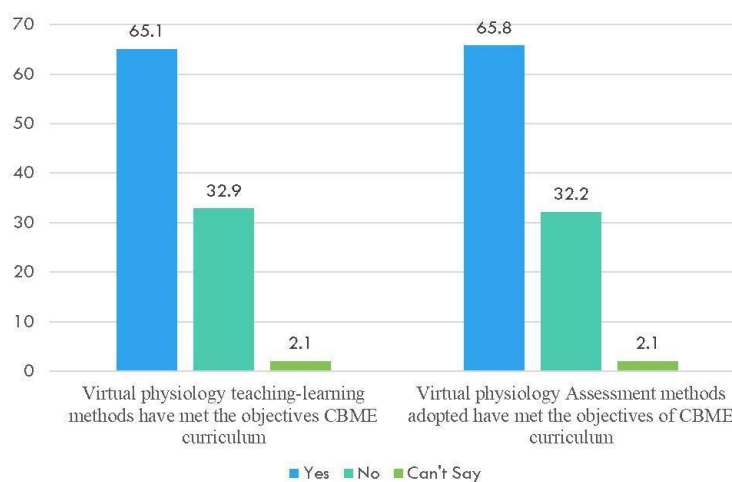


Fig 2: Perception of Phase I MBBS Students towards online classes compared of teaching and assessment of CBME curriculum

Table:2 Perception of Male and Female students towards online compared offline.

Questions	Males(N=69)	Female(N=77)	Significance
Virtual Physiology teaching is better and easy to understand than Classroom	3.17±0.894	3.29±1.001	0.422NS
Virtual classes encouraged Self-directed learning compared to offline	3.34±0.912	3.36±0.861	0.873NS
Virtual Physiology classes provided effective skill training and assessment compared to offline	2.86±0.928	3.08±0.951	0.002*
Virtual Physiology classes encouraged effective time management and task completion compared to offline	3.70±0.727	3.75±0.775	0.674NS
Virtual Physiology ECE session of classroom setting was better than the Hospital setting	2.90±1.131	3.30±1.102	0.029*
Virtual Physiology AETCOM sessions will be better than offline	2.96±0.966	3.25±1.021	0.085NS
Virtual Physiology Horizontal and vertical integration classes were better than offline	3.29±0.792	3.61±0.732	0.012*
Virtual Physiology teaching provided appropriate and timely feedback on students performances compared to offline	3.53±0.661	3.80±0.689	0.020*
Virtual Physiology assessment methods provided better opportunities for formative and summative assessment compared to offline	3.58±0.937	3.67±0.816	0.575NS
Virtual Physiology teaching encouraged medical graduates to develop necessary skills, knowledge, attitude, responsiveness	3.08±0.957	3.61±0.647	0.000*

All values are expressed in mean±Standard deviation, *=Significant, NS=Non significant.

IV. Discussion

The present study was undertaken to assess the perception of Phase I MBBS Students towards online classes compared to offline methods in Physiology Teaching and Assessment of CBME curriculum. Also to assess the perception of male and female students towards online classes in Physiology teaching and assessment during Covid-19 Pandemic.

Most of the students(65%) have perceived that the virtual Physiology teaching learning and assessment methods have met the objectives of the CBME curriculum.

Most of the students have agreed and strongly agreed virtual physiology teaching better and easy to understand(34.9 and 6.2%) has encouraged self-directed learning(40.5% and 7.5 %), provided better opportunities for formative and summative assessment(56.2% and 10.3 %), encouraged effective time management and task completion(60.3% and 9.6 %).

Most of the students have strongly disagreed and disagreed for the questionnaire virtual Physiology teaching provided effective skill training(4.1 % and 32.6%), ECE sessions were better(5.5 % and 39.8%), AETCOM sessions were better(6.8% and 31.6%).

Most of the students have perceived as neutral for the questionnaire Virtual Physiology Horizontal and vertical integration classes were better than offline(47.3%), provided appropriate and timely feedback on students performances compared to offline(54.8%), encouraged medical graduates to develop necessary skills, knowledge, attitude, responsiveness(44.9%).

The perception of male students toward online teaching was better compared to male students.

Online teaching is adaptable, student-focussed, can aid students in developing self- directed learning skills. E- learning has also been promoted as an essential instrument for self- directed learning in the newly executed competency based curriculum. Good online teaching strategies should be used for effective online learning. These include aligning online teaching and learning with new curriculum and delivery of its objectives, the interaction between facilitator and student should be both synchronous and asynchronous, encouraging the students to acquire higher- order thinking skills, active learning, and self- directed learning. Furthermore, satisfactory online teaching practices should include a feedback and allow for productive time management, appreciation for various talents, and learning methods with persistent observation and tutoring of the students. online assessments both formative and summative should also make certain the involvement of students in the process. In the ages of COVID- 19 pandemic faculty strength building through faculty development programs for the progress of particular competencies namely communal capability, Instructive competency, administrative competency, and technical competency have presently become a necessity. Although in medical education online teaching and learning are still in their early stages, they can possibly become mainstream in the future.⁸

In meta-analysis conducted by *Cook et al.*, observed instead of no intervention, the internet-based learning was better, the effectiveness was similar in comparison to non-internet based training and have concluded that through an interaction of multiple factors online medical education is advantageous to undergraduate teaching.⁹

Leisi Pei et.al in their study observed that not any of the enclosed studies concluded that the online method was lesser yielding than offline methods, irrespective of the statistical method used. Furthermore it was

stated that we must identify, online learning provides benefits for improving students learning and could be regarded as likely tutoring approach in medical education.¹⁰

The study conducted by Ranu Rawat et al. similar to present, compared to traditional education, a higher number of students agreed that online teaching is more convenient, delivers more learning, and has higher retention, while most of the students disagreed that online teaching is more engaging, motivating, gratifying, and easy to understand.¹¹ and also in their study they have found significant association was detected in perception among males and females, that a significantly majority of males perceived online teaching as capable of providing more learning in comparison to traditional teaching.¹¹

Systematic Review and Meta-analysis by Alexandre Vallee and co-investigators to compare blended learning with traditional methods in medical education observed blended learning when compared with traditional learning has greater outcome of knowledge in health education.¹²

In our present study, The perception of male students toward online teaching was better compared to female students. A most probable reason for these result could be that in females technology awareness is less as well they have resistance to leaning usage of technology when compared to males. Males, being more resonance in technological skills, will learn better by online method. Also it has been reported that males could use technology for other non-educational purposes, they might find online teaching better compared to offline. There is scope for further exploration.

V. Conclusion

In the present study conducted most of the students have perceived as online classes were better and as offline classes were better for few components of CBME as discussed in the results.

In our study conducted we want to conclude Online teaching also has its own benefits to amplify undergraduate knowledge and skills, hence can be considered as a budding method in medical teaching, and to combat the negative effect of pandemics on medical education we can incorporate blended learning, which combines online and offline teaching, as constituent of our curriculum

References

- [1]. G K Pal, Pravati Pal, Nivedita Nanda. Comprehensive textbook of Medical Physiology As per the revised new MCI Curriculum. 2nd Ed. New Delhi: Jaypee Brothers Medical Publishers; 2019.p1-6
- [2]. R. Rajashree1, D. M. Chandrashekar1 Opinion Article Competency-based medical education in India: A work in progress, IJPP 2021;64(Suppl_1): 57-9
- [3]. Rustagi SM, Mohan C, Verma N, et al. Competency-based Medical Education: The Perceptions of Faculty. J Med Acad 2019;2(1):1-5
- [4]. 21-day lockdown in entire India to fight coronavirus, announces PM Narendra Modi. India Today. 2020. Available at: <https://www.indiatoday.in/india/story/indialockdown-pm-narendra-modi-speech-coronavirus1659266-2020-03-24>. Accessed on 29 July 2020.
- [5]. Suryawanshi DM, Venugopal R. Preferences, perception and barriers to e-learning among medical students during COVID-19 pandemic lockdown in India. Int J Community Med Public Health 2020;7:4100-4.
- [6]. Joshi AR, Wasir AS, Chelluri SI. Effect of nationwide lockdown due to coronavirus disease-19 pandemic on daily activities and study pattern of the 1st MBBS students. Natl J Physiol Pharm Pharmacol 2020;10(10):889-893.
- [7]. National Medical Commission. Module on Online learning and assessment. 2020. New Delhi: pp1-57.
- [8]. Saiyad S, Virk A, Mahajan R, Singh T. Online Teaching in Medical Training: Establishing Good Online Teaching Practices from Cumulative Experience. *Int J Appl Basic Med Res*. 2020;10(3):149-155. doi:10.4103/ijabmr.IJABMR_358_20
- [9]. Cook DA, Levinson AJ, Garside S, Dupras DM, Erwin PJ, Montori VM. Internet-based learning in the health professions: A meta-analysis. JAMA 2008;300:1181-96
- [10]. Pei L, Wu H. Does online learning work better than offline learning in undergraduate medical education? A systematic review and meta-analysis. Med Educ Online 2019;24:1666538. doi:10.1080/10872981.2019.1666538.
- [11]. Ranu Rawat, Parmal Singh A Comparative Study between Traditional and Online Teaching-Learning: Medical Students' Perspective in the Wake of Corona Pandemic National Journal of Community Medicine 2020;11(9) Sept 2020 Page 341-345.
- [12]. Vallee A, Blacher J, Cariou A, Sorbets E. Blended Learning Compared to Traditional Learning in Medical Education: Systematic Review and Meta-Analysis. J Med Internet Res. 2020 Aug 10;22(8):e16504. doi: 10.2196/16504. PMID: 32773378; PMCID: PMC7445617.

Dr.Malini M, et. al. "Perception of Phase I MBBS Students towards online classes compared to offline in Physiology Teaching and Assessment of CBME curriculum during Covid-19 Pandemic." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(10), 2021, pp. 43-47.