Original Research Article

Perception of medical students towards online learning during COVID-19 pandemic: a cross-sectional study in South Kerala, India

Allen Kuriakose*, Joe Abraham, Nisha Kurian, Elsheba Mathew

Department of Community Medicine, Pushpagiri Institute of Medical Sciences & Research Centre, Thiruvalla, Kerala, India

*Correspondence:
Dr. Allen Kuriakose,
E-mail: allenkurian1@gmail.com

ABSTRACT

Background: Coronavirus disease 2019 (COVID-19) pandemic has brought major changes in every sector including education. From school to college level, traditional classroom learning was forced to change to online learning. There were many challenges from inexperience to mental and physical health issues. This study aimed to find the perception of medical students about current medical online learning system in south Kerala.
Methods: An online survey was conducted in November 2020 using a self-designed pretested questionnaire consisting of three sections: socio demographic profile, a 4-point Likert scale having 29 items to assess the perception of online learning, questions to assess certain parameters like health problems, duration of electronic usage etc. Frequencies, percentages, and descriptive statistics were calculated, and Chi-square test was used for statistical significance.
Results: Study showed nearly three-fourth (74%) of students have a negative perception towards online learning. Of the different formats of e-learning used by students during the study period, most preferred were live lectures. Among the participants, more than half (57%) suggested a need for improvement in the quality of classes. Majority (75%) of students agreed that long hours of online classes had caused health problems.
Conclusions: Though online learning is the need of the hour; majority of the students have a negative perception towards it which demands an enhancement in its standards and change to a preferred format inclusive of student's suggestions.

Keywords: Online learning, E-learning, Medical education, COVID-19, Health problems, Perception

INTRODUCTION

E–learning is defined as a type of education where students work on their own at home and communicate with teachers and other students via e-mail, online forum, video conferencing, chat rooms, bulletin boards and other computer-based communication.[1] E-learning is a type of "distance learning" – which is a term for any learning that takes place across distance and not in a traditional classroom. The differences between traditional and e-learning come in following aspects: information Technology (IT) environment and support, communication forms in teaching, presentation modes of lecture content.[2] The minimum requirement for students to participate in an online course is their access to a computer or a mobile phone, uninterrupted Internet supply, and the motivation to succeed in a non-traditional classroom.

COVID-19 was declared a pandemic by World Health Organisation (WHO) on March 11, 2020. The first case of the COVID-19 pandemic in India was reported on 30

January 2020 in a medical student from the state of Kerala with a travel history from Wuhan, China. According to WHO it had affected around 26.1 million of population as of 1st week of September 2020. Due to various restrictions and the nationwide lockdown for COVID-19, more than 32 crore students in India have been affected. It is an exceptional situation in the history of education, but COVID-19 has created many opportunities to come out of the existing rigorous classroom model of teaching to a new era of digital model. The lockdown has compelled many educational institutions to cancel their classes, examinations, internships etc. and to choose the online method of outreach to students.[3]

The United Nations suggests E learning as a useful tool in addressing education needs in healthcare especially in developing countries. However, due to resource limitation in such countries (like India) this approach created a major challenge.[4]

Considering the relatively recent introduction of this teaching methodology both teachers and students are in the process of getting acquainted with this system. At this juncture, it is important to find out the opinion of students and their viewpoints regarding this virtual approach to teaching and learning. During this transition period, it is important to explore whether the learners are attuned to this new method, do they prefer any modification, do they have any coping mechanism, or rather prefer to go back to conventional method altogether. Therefore, the purpose of this study is to assess the perception of medical students regarding e-learning during this pandemic.

METHODS

An online cross-sectional study was conducted among undergraduate medical students in medical colleges of South Kerala, India. The study was conducted for a period of one month (November 2020) after obtaining approval from Institutional Ethics Committee. Study population included medical students from first year to final year in medical colleges of Alappuzha, Pathanamthitta, Kollam, and Trivandrum district. Sample size was calculated to be 672 based on the proportion of students with negative perception from previous study5.

Study tools

The study used a pretested and validated questionnaire consisting of three sections.

Section 1- Questions on the characteristics of participants including age, gender, name of institution(optional), type of institution, native state, native district, geographical area of residence, stay pattern (alone/with friends/with family), year of learning, preferable content for online learning, experience of previous online learning.

Section 2- Questions to determine the perception towards online learning- 29 items elicit the positive and negative perceptions of students towards E-learning. 11 of the items were positively worded and 18 negatively worded. and graded using a four-point Likert scale which was scored from four to one (from strongly agree to strongly disagree) for positively worded questions and reverse scored for negatively worded questions.

Section 3- Questions Regarding health outcomes, need and suggestions for improvement, coping ability, electronic device usage and preferred mode of learning. Perception of medical students towards E-learning was assessed by questionnaire

The questionnaire was created using google forms platform. The study was voluntary. The data was collected by snowball technique by sending the online questionnaire link to students through social media platforms (WhatsApp, Facebook) and asking them to forward the link to their peers.

Data analysis

Data was coded in excel and analysed using Statistical package for social sciences (SPSS) 21 version. Sociodemographic characteristics and response to perception questions were presented as frequency and percentage. The scores were added to get an overall score on perception and the descriptive statistics of this score were calculated. Those participants who scored above the mean score was taken as having positive perception towards online learning and those scored less than mean score was taken as having negative perception towards online learning.

RESULTS

Total respondents were 801. The socio-demographic characteristics of the study sample is shown in Table 1.

Table 1: Socio-demographic characteristics of the study sample.

Characteristics	Group	Frequency (n)	%
Gender	Male	264	33
	Female	537	67
Type of institution	Private	714	89
	Government	87	11
Geographical area	Rural	275	34.3
	Semi Urban	290	36.2
	Urban	236	29.4
Year of learning	First year	272	33.9
	Second year	169	21.09
	Third year	169	21.09
	Fourth year	191	23.8

Nearly 90 % of the study participants were students of private institutions and more than 65% of them were females. They were almost equally distributed across the year of study. Table 2 shows the response of medical students to the perception questions.

Table 2: Perception of medical students towards online learning.

Questions	Strongly Agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)
Helps to study at convenient time	19	55	21	6
Makes it difficult to ask question	10	48	38	4
Lack of hands-on learning (practical)	62	35	3	0
Lack of clinical learning (clinical students only)	70	28	1	0
Helps to study at convenient location	30	56	11	3
Hard to stay on task	21	52	25	1
Increased need and cost of electronic device (Laptop/tablet/ mobile etc.)	33	44	21	2
Increase in your internet cost	33	40	25	2
Technical issues (Internet connectivity, range etc.) are affecting your learning	44	39	16	1
Hard to be motivated to study alone	36	41	20	3
Hard to pay attention	31	41	25	3
Enables repeated learning with the educational materials	20	60	18	2
Easier for shy students to participate	19	54	22	5
Repeated assessment is a nuisance	19	38	39	4
Fewer distractions	9	39	36	16
Prevent class loss due to sick days	29	57	11	2
Cost saving on travel and material	25	53	19	3
Hard to retain information	13	44	39	4
Encourages self-directed learning	20	62	15	4
Academic dishonesty (Cheating in exams and assignments)	23	47	26	4
Get more time for recreational activities	26	61	10	3
Lose companionship with peers	46	39	13	2
Repeated assessments drive learning	11	54	29	6
Less guidance and assistance	27	53	19	1
Hard to setup study groups	30	53	15	1
Unable to use peers as resources	33	46	20	1
Study environment better with family (if you are staying with family)	18	41	31	9
Too much parental interference (if you are staying with parents)	11	33	48	8
Too much online learning affects the health	29	46	22	3

Table 3: Association between socio-demographic characteristics and perception.

Characteristics		Perception		Total	P value
		Positive (%)	Negative (%)		
Gender	Male	60 (22.7)	204 (77.3)	264	0.067
	Female	150 (27.9)	387 (72.1)	537	
Native district	South Kerala	129 (28.7)	320 (71.3)	449	
	Central Kerala	37 (23.8)	118 (76.1)	155	0.001*
	North Kerala	44 (22.3)	153 (77.7)	197	

Characteristics		Perception		Total	P value
Year of learning	First	51 (18.7)	221 (81.3)	272	<0.001*
	Second	46 (26.2)	123 (70.3)	169	
	Third	63 (37.3)	106 (62.7)	169	
	Fourth	50 (26.2)	141 (73.8)	191	
Preferred format of learning	Online learning	40 (80)	10 (20)	50	<0.001*
	Classroom learning	25 (9.5)	239 (90.5)	264	
	Combination of both	145 (29.8)	342 (70.2)	487	
Time of screen usage other than e-learning	<1 HR	6 (19.3)	25 (80.7)	31	0.003*
	1-2 HR	53 (35.1)	98 (64.9)	151	
	2-3 HR	65 (30.1)	151 (69.9)	214	
	3-4 HR	44 (25)	132 (75)	176	
	>4 HR	42 (18.5)	185 (81.5)	227	

Table 4: Association between other study variables and perception.

Characteristics		Perception		Total	P value
		Positive (%)	Negative (%)		
Previous experience of e-learning	Yes	63 (32.8)	129 (67.2)	192	0.0012*
	No	147 (24.1)	462 (75.9)	609	
Perceived coping ability	Yes	195 (38.6)	310 (61.4)	505	<0.001*
	No	15 (5)	281 (95)	296	
Need in improvement of quality of class	Yes	99 (21.8)	354 (78.1)	453	0.001*
	No	111 (31.9)	237 (68.1)	348	
Health problems related to e-learning	Yes	67 (15.1)	375 (84.8)	442	<0.001*
	No	143 (37.9)	234 (62.1)	377	

Out of the 801 participants, 26% of them had positive perception towards online learning and 74% negative perception towards online learning. (Mean score-72.5) Lack of hands on training and clinical training were a concern for almost the entire study population. Table 3 and 4 show the association between socio-demographic characteristics and other study variables with perception. Students with lack of experience in online learning and those having health problems related to online learning had negative perception which was statistically significant.

DISCUSSION

According to the results of the present study, around three-fourths (74%) of MBBS students are having a negative perception towards online learning during this COVID-19 pandemic which is similar to study conducted by Abbasi et al in Pakistan where students showed 76% of negative perception towards online learning. The authors of this study concluded that students did not prefer e-teaching over face-to-face teaching during the lock down situation.[5] This negative perception can be due to the disadvantages which outweigh the advantages especially because medical education cannot be fully learnt or understood through an online medium.

Major advantages of online learning include 'convenient study', 'convenient time', 'convenient location', 'cost saving on travel and material', 'enables repeated learning with educational materials' and 'encourages self-directed learning'. Disadvantages of online learning include 'hard to stay on task', 'technical issues like interruption of internet and electricity', 'lack of hands on clinical and practical learning', 'increased need and cost of electronic devices' and 'academic dishonesty'. These results are consistent with studies conducted in Pakistan, Indonesia and Poland.[12,15,16]

Variables like native districts, year of learning and time of screen usage other than e-learning showed significant association with perception of medical students towards online learning. Majority of students from every district included in the study had a negative perception to online learning, so did most students from all the different batches. Perception showed a more negative trend with increasing screen time.

Majority of study participants (n=609) lacked any experience of online learning, this showed significant association with perception towards online learning. As the students are new to an education which is screen glued, first time for most participants, the negative perception is an expected result.

Variables like health problems related to online learning, need in improvement of quality of online class and perceived coping ability also showed significant association with the perception of medical students.

75% of participants reported they are having health problems related to long duration of online learning. Major problems included a combination of eye pain, neck pain and headache. Loss of sleep and obesity were also reported by a few.

In our study 32.9% preferred classroom learning and 60.9% preferred a combination of both classroom and online learning. Similar findings were shown by a study conducted in Rajasthan.[14] This shows that more than one third students do not prefer medical education through online medium at all. This lack of preference is an issue that needs to be addressed at the earliest. To improve preference and increase acceptability among medical students' interventions like decreasing the screen time, more interactive sessions, adequate breaks between the sessions, giving screen-off days, giving counselling for the students who have least coping ability with present learning system can be incorporated if not already in place, into the ongoing system.

CONCLUSION

Though online learning is the need of the hour; majority of the students have a negative perception towards it which demands an enhancement in its standards and change to a preferred format inclusive of student's suggestions.

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