

A study on medical students' perspective regarding online learning from a selected government medical school

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Abstract:

Background: During the Covid Pandemic, online lectures played a crucial role in medical education. The aim of this study was to assess the feasibility of incorporating online teaching in medical curriculum.

Methods: Data was collected via a self-administered online questionnaire from 360 Medical Students of a selected Medical Faculty in Sri Lanka.

Results: Among our study population 63% (213/338) were females aged between 20 to 29 with a mean of 23.4 years (Standard deviation 2.09). Before the pandemic only 3.6% had used online lectures during their medical curriculum.

At the time of data collection 56% of the students had attended more than 50 online lectures. Majority (65.6%) of the study population stated that their knowledge had improved during the pandemic.

Among them, 44% had stated that they read more books during the pandemic while 24% had reduced reading during the pandemic. Majority preferred online lectures (59%) over traditional lectures and the main reasons given were the minimum time consumption for travelling (92.3%). Majority of the students (62.4%) stated that they felt less sleepy during online lectures and 60.1% stated that they retained more facts with online lectures. 83% of the participants who stated that they felt sleepy during the online lectures still wished to continue online lectures even after the Covid Pandemic and it was statistically significant. (P =0.00)

Students preferred online lectures to be more interactive and wanted a lecture note or pdf to be given prior to the lecture. Majority of the students used a smart phone and all the students zoom as their portal to online lectures.

Even though 77.2% of the study population had connection interruptions during online lectures, majority of the students (67.2%) wish to have online lectures even after the COVID-19 pandemic instead of the lectures in the hall.

Conclusion: Online lectures should be continued as a key part of the medical education even after social distancing restrictions are lifted and traditional lectures are resumed. Infrastructure should be improved to minimize connection interruptions.

I. INTRODUCTION

Online lectures have become a crucial component in Medical education due to Corona pandemic with the importance of social distancing. This experience should be used as an opportunity to create a new platform for medical education [1].

Even though medical education used to be traditional class room teaching and traditional practical sessions-based which was resistant to e-learning, with the covid-19 pandemic season the teaching methods have drastically changed and now the faculties have adopted online learning in a large scale to achieve the teaching objectives virtually [2].

Among the software applications for e-learning, University of Sri Jayewardenepura uses the Zoom application to conduct online lectures. However, some could consider this solution less than ideal as Sri Lanka lacks the technology infrastructure compared with developed countries, and some students can have difficulties with gaining access to an uninterrupted internet connection [3].

There are other possible advantages in using online learning like, reducing the transport cost and time [7] and thus increasing the student-teacher interaction time. People who lack the courage to show up in front of a crowd can improve their performance and raise their questions in front of others. Lecturers also have the ability to schedule the lectures at a convenient time. Further since the information can be made available anytime, they can make use of their whole day effectively according to a time table feasible for them.

According to Dumford & Miller [4], if students wish to engage in extracurricular activities or even in a part time occupation, they can cope up with their studies much easily if the online learning methods are available. Online learning can enhance student centered-education. But the disadvantages like less motivation, difficulty to maintain the academic integrity can be reduced by training the facilitators to provide more interactive sessions through lectures and by reducing the cognitive loads [5]. Especially during Covid-19 pandemic season, students have suggested that online learning was very effective and more interesting than regular learning and that it

distracted them from the fear of the covid-19 pandemic which has helped them to improve their mental health as well [6].

The aim of this study was to assess the perspective of medical students regarding online learning in order to decide if it could be incorporated as a method of teaching in the medical curriculum.

II. METHODOLOGY

A descriptive Cross-Sectional study was carried out among the students of Faculty of Medical Sciences, University of Sri Jayewardenepura, Sri Lanka in March 2021 (during the 3rd Covid Wave with maximum restrictions on social gathering). Ethical Approval was obtained from the Ethics Committee University of Sri Jayewardenepura. Data was collected using a self-administered online questionnaire. Data analysis was done using SPSS software. Standard descriptive statistics was used to analyze the data.

III. RESULTS

The questionnaires were given to 360 medical students studying at University of Sri Jayewardenepura, Sri Lanka in which 21 were non-responders with a response rate of 94.1%.

Analyses of the demographic data revealed that majority of the participants were females 63% aged between 20 to 29 with a mean age of 23.4 years (Standard deviation 2.09).

Before the pandemic only 3.6% had used online lectures even though the lectures were available in the medical curriculum as an adjunct to the traditional face to face lectures. At the time of data collection 56% of the students had attended more than 50 online lectures. All the participants used ZOOM as the platform while 10 students used google hangouts in addition to Zoom.

Majority of the study population (65.6 %) stated that their knowledge improved during the COVID pandemic. Even though 50.6% of the population admitted that they have intentionally missed a lecture, 67.2% of the population stated that they wish to have online lectures even after the COVID-19 pandemic instead of the lectures in in lecture hall.

Majority of the study population (62.4%) stated that they felt less sleepy during online lectures 60.1 % stated that they retain more facts during online lectures. 59% stated that they prefer online lectures more.

77.2% of the population stated that their connection was interrupted during lectures. The main reasons for connection interruption were poor Internet connection (61%) and unfavorable weather (58%)

92.33% of the study population stated that they spent less time to travel because of online learning. However, majority of the study population (60.47%) claimed there were more distractions during online learning. Considering the disadvantages of online learning, 38.05% of the study population stated that they found the online lectures boring and 48.08% had difficulty concentrating during these lectures. 249 students (73%) wanted the online learning sessions to be more interactive.

Table 1 Perception of Students

	No N(%)	Yes N(%)	Maybe N(%)	Total N(%)
Did you read your books more than usual during covid 19	80(24)	30.8(44.6)	19.5(31.4)	334(100)
Was your knowledge improved during covid 19 pandemic than usual?	109(34.4)	208(65.6)		317(100)
Have you ever intentionally missed an online lecture?	167(49.4)	171(50.6)		338(63)
Do you feel sleepier during an online lecture than a real lecture?	211(62.4)	127(37.6)		338(100)
	No	Yes		
Do you wish to have online lectures even after the COVID-19 pandemic instead of the lectures in the hall?	105(32.8)	215(67.2)		320(100)
Was the Connection Interrupted During lectures?	76(22.8)	257(77.2)		333(100)
	Online lecture	Traditional lecture		
How do you retain more facts?	203(60.1)	135(39.9)		338(100)
What do you Prefer Most?	193(59)	134(41)		327(100)

Table 2 Association of Gender with perception.

		No N (%)	Yes N (%)	Maybe N (%)	Total N (%)	P Value
	Gender					
Did you read your books more than usual during covid 19	Male	37(30.1)	46(37.4)	40(32.5)	123(100)	0.067
	Female	43(20.4)	103(48.8)	65(30.8)	211(100)	
	Total	80(24)	30.8(44.6)	19.5(31.4)	334(100)	
Was your knowledge improved during covid 19 pandemic than usual?	Male	48(39.3)	74(60.7)		120(100)	0.14
	Female	61(31.3)	134(68.7)		195(100)	
	Total	109(34.4)	208(65.6)		317(100)	
Have you ever intentionally missed an online lecture?	Male	63(50.4)	62(49.6)		125(100)	0.78
	Female	104(48.8)	109(51.2)		213(100)	
	Total	167(49.4)	171(50.6)		338(63)	
Do you feel sleepier during an online lecture than a real lecture?	Male	78(62.4)	47(37.6)		125(100)	0.182
	Female	133(62.4)	80(37.6)		213(100)	
	Total	211(62.4)	127(37.6)		338(100)	
Do you wish to have online lectures even after the COVID-19 pandemic instead of the lectures in the hall?	Male	43(34.7)	81(65.3)		124(100)	0.57
	Female	62(31.6)	134(68.4)		196(100)	
	Total	105(32.8)	215(67.2)		320(100)	
Was the Connection Interrupted During Lectures?	Male	26 (20.8)	99(79.2)		125(100)	0.29
	Female	50(24.0)	158(76.0)		208(100)	
	Total	76(22.8)	257(77.2)		333(100)	
		Online lecture	Traditional lecture			
How do you retain more facts?	Male	74(59.2)	51(40.8)		125(100)	0.85
	Female	129(60.6)	84(39.4)		213(100)	
	Total	203(60.1)	135(39.9)		338(100)	
What do you Prefer Most	Male	74(61.2)	47(38.8)		121(100)	
	Female	119(57.8)	87(42.2)		206(100)	
	Total	193(59)	134(41)		327(100)	

Table 3 Association between certain perceptions.

	Do you wish to have online lectures even after the COVID-19 pandemic instead of the lectures in the hall?				P Value
		No N (%)	Yes	Total	
Do you feel sleepier during an online lecture than a real lecture?	No	34(16.7)	170(83.3)	204(100)	0.000
	Yes	71(61.20)	45(38.8)	115(100)	
Have you every intentionally missed a lecture?	No	49(30.2)	113(69.8)	162(100)	0.32
	Yes	56(35.4)	102(64.4)	158(100)	
	Total	105(32.5)	215(67.2)	320(100)	

83% of the participants who stated that they felt sleepy during the online lectures still wished to continue online lectures even after the Covid Pandemic. (P = 0.00). Out of the participants who stated that they have intentionally missed a

lecture, 69.8% still wished to continue online lectures after the Covid Pandemic (P= 0.32).

Table 4 Advantages of online learning

Advantages	N (%)
Less time spent for travel	313(92.33)
Less distractions	134(39.53)
No stress to dress	261(76.99)
Can record	263(77.58)
Convenient	186(54.87)
Feasible to study	155(45.72)

Table 5 Disadvantages of online learning

Disadvantages	N (%)
Boring	129(38.05)
Difficult to concentrate	163(48.08)
Lack of availability	40(11.80)
Lack of knowledge	20(5.90)
Lack of practicals	232(68.44)

Table 6: Reasons for Connection interruptions

Reasons	N (%)
Poor internet Connection	210(62.4)
Unfavorable weather	200(60.1)
Inadequacy of data	84(24.78)
Device malfunction	55(16.2)

IV. DISCUSSION

Prior to the pandemic, most of the teaching on paraclinical subjects (such as Anatomy, Physiology, Pharmacology etc.) occurred in the lecture hall through lectures and tutorials with supplementary online material which were freely accessible. The clinical subjects were learnt while working in the wards in the relevant Teaching Hospitals. At the time this study was conducted, which was at the height of the pandemic, the paraclinical subjects were taught exclusively via online lectures and tutorials. This study focuses mainly on the paraclinical subjects.

Considering the fact that before the pandemic only 3.6% had used online lectures during their medical curriculum even though it was readily available to the students as an adjunct to the traditional learning methods, it is noteworthy that during the pandemic 56% of the students have attended more than 50 online lectures. Furthermore our study showed that majority of the study population (65.6 %) believed that their knowledge improved during the COVID pandemic and lectures 60.1 % stated that they retain more facts during online lectures. This finding is compatible with some prior studies [6] and is evidence that this experience should be used to create a new platform for medical education [1]. It was also revealed that the online lectures stimulated the students to refer and read more books than usual on the relevant areas (44.6%) thus contributing to the improvement of their knowledge.

Less time spent for travel was seen as an advantage in majority of the study population (92%), while 54.8% claimed that online learning is more convenient. This finding is consistent with prior studies done, which found that online learning allows students to make better use of their time [7,8,9]. Another advantage was that students could record the lectures (77.58%) enabling them to study at their own pace.

In another study the participants have claimed that online learning enables to acquire new knowledge [10] which is supportive of our study findings where 65.6% stated that their knowledge improved during the COVID 19 - pandemic times where they engaged in online learning more than the traditional methods of learning.

As was highlighted in a previous study [3], 77.2% of the population stated that their online connection was interrupted during lectures with the main reason being poor internet connections. This is probably due to the lack on infrastructure throughout the country as suggested in [3]. However, 67.2% of the students still wish to have online lectures even after the COVID-19 pandemic instead of the traditional lectures in the hall.

The main disadvantages in the system were the fact that 38.05% of the study population found the learning technique boring, while 48.08% had difficulty concentrating. This problem could possibly be rectified by making the online sessions more interactive as was suggested by 249 (73%) of the students, in keeping with Mukhtar et al. (2020) [5]. Disadvantages such as less motivation, difficulty to maintain the academic integrity can be reduced by training the facilitators to provide more interactive sessions through lectures and by reducing the cognitive loads [5]. 249 (73%) students wanted the online learning sessions to be more interactive. This could be achieved by a question and answer session or multiple-choice questions (similar to the Exam Format) that students have to answer during the online lecture thus stimulating them and keeping them focused.

Students could be asked to do presentations on topics or discuss case scenarios online with the lecturer supervising. This would be a student-centered online learning session with the fear of stage fright and public speaking almost eliminated and would help character building in addition to the dissemination of knowledge. This practice can be incorporated into the traditional system. One potential situation that comes to mind is to have a session to discuss interesting case histories. If a student who is doing his pediatric rotation comes across an interesting case, he can share it with the rest of the students (some of whom are doing rotations in other specialties such as gynecology and obstetrics or surgery etc.) during the online session. This would be an excellent platform to share their experiences and will stimulate their thinking and help refresh their memory especially if some students had finished the rotation some months back. Further the use of videos and animations to explain complex topics such as life cycles of parasites and action of antibiotics will help students retain the information better and give them the opportunity to play the videos over and over again.

V. CONCLUSION

We believe our research is an eye opener to the possibility of incorporating online learning into the medical curriculum. As online learning has had a positive impact on a vast majority of

the students, the education authorities should consider continuing it along with traditional lectures and this will revolutionize medical education in Sri Lanka. Furthermore, this can be applied not only to the medical field but also in other fields and even in schools. However, authorities should also look into rectifying the main setback in this system which is the interruption of the internet connection. A good internet connection network would even lessen the impact of unfavorable weather. Student loan schemes to enable students to purchase better laptops/tablets would minimize the problem of device failure. We would like to recommend a follow up study on the same population, now that the Covid pandemic is over, to see if their perspectives have changed and if they still feel that online learning is preferable to traditional lectures.

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