ORIGINAL ARTICLE

A Cross-Sectional Study on the Impact of Synchronous Learning among Medical Students during Covid 19 Pandemic: A Case Study of SKZMC, Lahore

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ABSTRACT

Aim: To assess the impact of synchronous learning on medical students of the SKZMC.
Place and duration of study: The study was carried out at SKZMC during the month of May 2021.
Methodology: A questioner was developed on Google and sent to the medical students of each year of the SKZMC. Data of the 101 duly filled forms was analyzed by using SPSS software.
Results: Results of the study reveal that online learning is a new entity for 82.2% medical students and they have not experienced it before. 53.4% participants felt headache during synchronous learning. 42.6% students are of the opinion that online learning method provides an opportunity for real time discussion, 18.8% thinks that it is cost effective, 24.8% for immediate feedback. 77.2% medical students were unable to study during Covid 19. 24.8% students opined that students show misbehavior during online learning.
Conclusion: Having real time teacher-students discussion in cost effective manner and knowledge clarity due to immediate feedback enhances the applicability of this technology bound learning methodology. Inability of synchronous learning to develop clinical skills in future physicians with time constraints along with student misbehavior are some pitfalls in this newly implemented learning strategy. Online learning is not only more effective than traditional classroom learning but it is also significantly more cost effective than the tradition way of learning.
Keywords: Synchronous learning, Covid 19, Medical Students.

INTRODUCTION

December 2019 will always be remembered as the worst year in history as WHO has declared coronavirus as pandemic[1]. Like other countries the government of Pakistan imposed lockdown in views to prevent rapid spread of this infection that has badly affected every field of life especially the education sector. Consequently synchronous learning was introduced to maintain the integrity in delivery of educational system and was considered at par with the traditional classroom settings and learning and it is accessed by the student's performance.[2] Synchronous learning is a sort of pedagogical strategy devised to cut down the effect of geographical barriers on teaching and information is co-transferred between students and teachers in real time. Synchronous learning has penetrated into many educational institutes. Students have preferred synchronous teaching platform over asynchronous mode of learning[3]. Synchronous learning has pros and cons. Positive aspects are cost effectiveness, immediate feedback and real time discussion. Being a relatively new mode of teaching it is not free of pedagogical challenges and shortcomings include time constraints, internet accessibility issues and misbehavior by students. Need for synchronous learning is on the rise and is surely expected to increase exponentially in the time to come[4]. The sense of feeling attached with teachers and students are able to visualize their fellow are the positive features of synchronous learning[5].

During covid-19 the medical education was specifically hurt because it had badly affected the way of future healthcare workers to combat against this pandemic. In view of this online education was the only solution to continue academic activity when the pandemic enforced the shutting down of educational institutes.[6] National educational departments have implemented the online learning to maintain the standards of education in our society and it is the need of an hour. Novel corona virus has disrupted the educational system across the globe and it is mandatory to ensure the maintenance of educational sector standards.

So, it was imperative to carry out study on the effect of synchronous learning on the medical students. A study was designed to access the impact of synchronous learning on the medical students of the Shaikh Zayed Medical College (SZKMC), Lahore.

MATERIAL AND METHODS

A survey was conducted on medical students of the SKZMC, Lahore during April 2021. A questionnaire was developed which included basic demographic data like age and gender of the participant students. Various variables were selected to simulate the impact of synchronous learning on medical students and generated a form on Google that was sent to the class representatives (CRs) of each year of the SKZMC, Lahore. Data filled into the Google form by the students was received during May 2021.101 filled form were and the data was analyzed by using SPSS version 20 (p <0.05, CI> 95%) software to evaluate the impact of synchronous learning among the medical students of the SKZMC and their satisfaction level with this mode of learning.
Inclusion Criteria: First to final year medical students of the SKZMC
Exclusion Criteria: Non-medical students of the SKZMC

RESULTS

The general age range of participated medical students is 16-30 years with 21-25 years dominant age group (Table 1). Males (62.4%) were predominant as compared with females (37.6%) in study (Table 2). Out of 101 population 18(17.5%) first year, 6(5.8%) second year, 8(7.8%) third year, 13(12.6%) and 56 (54.4%) final year students responded to the study (Table 3). 96% have e-learning gadgets while 94.5% have internet accessibility. 53.4% students experienced headache during synchronous learning (Table 4). Among the advantages of the synchronous learning 42.6% students are of the view that this method is useful in real time discussion, 18.8% think that it is cost effectiveness, 24.8% immediate feedback (facilitation by facilitator (7.9%) and

motivation to complete assignment course (5.0%) are the perceived advantages (Table 5). 77.2% are unable to study during Covid 19 (Table 6). 38.6% participant medical students are feared to be infected with Covid 19 (Table 7). 82.2% have not experienced online learning before it is new entity for them (Table 8). As for as disadvantages of the synchronous study are concerned the medical students are of the view that 41.6% lack of in depth critics, 24.8% misbehavior by students, 6.9% time constraints and 3% languages issues (Table 9). 77.8% participants faced difficulty in studying during the pandemic. 75.2% students think that synchronous learning is not an effective way for personality development (Table 10). 57.4% medical students are of opinion that online learning is ineffective to merge clinical knowledge with practical knowledge (Table 11).

Table 1: Age range of the participants

Age groups	No.	%	Valid%	Cumulative %
16-20	22	21.4	21.8	21.8
21-25	69	67.0	68.3	90.1
26-30	10	9.7	9.9	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100.0		

Table 2: Gender of the participants

Gender	No.	%	Valid %	Cumulative %
Male	63	61.2	62.4	62.4
Female	38	36.9	37.6	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100.0		

Table 3: Year of medical schooling

Year of medical school	No	%	Valid%	Cumulative %
First Year	18	17.5	17.8	17.8
Second year	6	5.8	5.9	23.8
Third year	8	7.8	7.9	31.7
Fourth year	13	12.6	12.9	44.6
Final year	56	54.4	55.4	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100.0		

Table 4: Headache experience after prolonged screen time

Headache	No.	%	Valid %	Cumulative %
Yes	55	53.4	54.5	54.5
No	46	44.7	45.5	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100.0		

Table 5: Advantages of synchronous learning

Advantages	No.	%	Valid %	Cumulative %
Real time discussion	43	41.7	42.6	42.6
Cost effective	20	19.4	19.8	62.4
Facilitator can gauge understanding of concepts	8	7.8	7.9	70.3
Motivation to complete assignment course	5	4.9	5.0	75.2
Immediate feedback	25	24.3	24.8	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100		

Table-6: Justification of study time during Covid 19

Justification of study time	No	%	Valid%	Cumulative %
Yes	23	22.3	22.8	22.8
No	78	75.7	77.2	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100		

Table-7: Fear of being infected with Covid 19

Infected with Covid 19	No	%	Valid %	Cumulative %
Yes	39	37.9	38.6	38.6
No	62	60.2	61.4	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100.0		

Table-8: Previous experience of online teaching

Previous Experience	No.	%	Valid %	Cumulative %
Yes	18	17.5	17.8	17.8
No	83	80.6	82.2	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100.0		

Table-9: Disadvantages of synchronous learning

Disadvantages	No	%	Valid %	Cumulative %
Time constraints	7	6.8	6.9	6.9
Lack of indepth critics	42	40.8	41.6	48.5
Audio tool related issues	24	23.3	23.8	72.3
Language barrier	3	2.9	3.0	75.2
Misbehaviour by students	25	24.3	24.8	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100		

Table 10: Effectiveness to pave way for personality development

Effectiveness	No.	%	Valid %	Cumulative %
Disagreel	75	72.8	74.3	74.3
Neutral	16	15.5	15.8	90.1
Strongly agree	1	1.0	1.0	91.1
Agree	7	6.8	6.9	98.0
Strongly agree	2	1.9	2.0	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100.0		

Table 11: Effectiveness of this methodology to merge theoretical knowledge with practical knowledge

Effectiveness	No.	%	Valid %	Cumulative %
Strongly Disagree	59	57.3	58.4	58.4
Disease	33	32.0	32.7	91.1
Agree	3	2.9	3.0	94.1
Neutral	6	5.8	5.9	100.0
Total	101	98.1	100.0	
Missing	2	1.9		
Total	103	100.0		

DISCUSSION

The study reveals that out of 101 participants 45(44.6%) students experienced the complaint of headache while using various gadgets for attending online lectures. Sitting in front of screen for long period of time causes the spasticity in eyes muscles regulating the refractive power of eye eventually causing the complaint of headache.

Instructors and teachers sitting miles away from students are open to each other in terms of sharing views and starting discussion owing to the opportunity of social interaction in real-time.[7] Online presentations could be delivered through this online learning platform and student teacher interaction regarding knowledge delivery can happen in synchronous fashion by just a log in the account sponsored by the concerned institute.

Economic burden generated in seeking traditional F2F learning is relieved by the e-earning system implemented to complete the academic activities[8]. Financial feasibility of online learning is explained by the availability of free technology. Education can be de-confined to international level and educate their students internationally without spending money on travel. Expense increased by travelling intra country or inter country to reach the side of learning are decreased up to the affording range by this e-learning. Online learning is not only more effective than

traditional classroom learning but it is also significantly more cost effective than the tradition way of learning.[9] The cost effective parameters of e-learning has forced the reluctant users to adopt it to continue educational activities.

Synchronous learning has its beneficial status to enable the students to clarify their coursework knowledge via immediate feedback. Students can raise questions and get answered by instant messaging and raising hands by clicking on relevant button on the screen. Out of 101 participants 25 (24.8%) students supported the synchronous learning as an effective mode. Active student-learner interactivity should be an integral part of online learning and it fosters student satisfaction. Immediate feedback along with encouragement and support are an effective strategies used by preacher to enhance the students sense of engagement in delivered lectures.[10] By quickly getting answers, people do learn from their mistakes and avoid them in future. Immediate feedbackis fostered by this new medium of learning and it encourages the development of competent graduates by increasing the opportunities of interactive sessions and teacher-student discussion and improve the professionals skills and hence appearance of betterment in clinical areas through interactive session[11].

Synchronous learning also carries pedagogical challenges with it and these challenges are creating an impediment towards the effectiveness of this form of learning. 42(41.65%) students suffered from lack of clarity in understanding their course work owing to superficially oriented knowledge delivery by this method of learning. Clinical skills required to develop an efficient healthcare mechanism is challenging to attain by synchronous learning. Combination of practical knowledge with theoretical knowledge is the key to enhance the efficacy of clinical practice performed in our clinical setups but unfortunately it is the shortcoming of this teaching modality and our findings endorse the research.[12] Hand on skills and other skills scheduled regularly to escalate the confidence level of medical students in performing clinical skills are discontinued on account of rapid transition from in class teaching to online teaching ending up on deteriorating healthcare standards and increased mental stress[13]. Non clinically oriented medical lectures causes the deteriorating healthcare standards.[14] Many studies have concluded that online learning has the failure to develop clinical skills in participants[15].

Students are the integral part in synchronous learning and students act in synchronous fashion with teachers to achieve the teaching goals. Each student participating in synchronous learning have their unique mindset and these students are the decisive factors as evocative effects in generation of healthy learning environment[16]. From the participants 25(24.8%) students expressed the vexation owing to misbehaving students during lectures. Uncivilized behavior shown by students create an hurdle in generation of learning environment and make the instructor to feel rejected in achieving the functions destined to be performed by preacher[17]. Use of e-learning is essential way to maintain the continuity of academic activities and the use of internet has contributed its role to accomplish this aim but the internet services are abused by mal-behaving students[18].

Poor connectivity to internet increases the hurdles in easy compliance of online learning[19]. All students in our society do not belong to affluent areas. Broadband width is not reachable to all students and students residing in far flung areas are more prone to suffer with the issue of internet inaccessibility. Low broad width internet users are more likely to face the issue of internet connectivity. Unattainability of internet access to participant student leads to the alienation of un-previlized students and eventually lack of education. The term digital divide has been used to define the gap in access to or use of internet devices. Most people in center of Lahore cities have acceptable internet penetration leading to less availability of broad width internet access to rural areas[20]. Most of the students in our medical institutes belong to rural areas.

Out of 101 students 7 (6.9%) participants complaint of time constraints.The preparation of slideshare materials as helping material in synchronous learning demands time and puts burden on preacher.[21] All students must be present at a time to initiate learning.[22] Seven students complaint of language issues as no of foreign students are less and those who have international locality do understand English.

CONCLUSION

Having Real time teacher-students discussion in cost effective manner and knowledge clarity due to immediate feedback enhances the applicability of this technology bound learning methodology. Inability of synchronous learning to develop clinical skills in future physicians with time constraints along with student misbehavior are some pitfalls in this newly implemented learning strategy. Students can raise questions and get answered by instant messaging and raising hands by clicking on relevant button on the screen.

Conflict of interest: Nil

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