Can virtual learning be integral part of our education system? A cross-sectional study to assess the various challenges faced by students during virtual classes in Punjab

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ABSTRACT

Background: The growth of technology has brought tremendous change in almost every sphere of life. Also, there is an impact on the process of education by the technology. Online learning has become the standard practice by many education institutions which use information and communication technologies (ICT) in managing the processes of learning and delivering teaching [1]. Our education system is also trying to adapt these technologies in lieu of their experiences during COVID-19 which has disrupted the normal teaching and learning in universities and colleges and posed significant challenges to higher education. Educational institutions struggle to find alternative options to face-to-face education to deal with this challenging situation [2].

  So this study attempts to investigate the various challenges experienced by the students during virtual classes and to detect socio- demographic variables and other correlates associated with it. This cross-sectional study was conducted among the students of professional and non-professional courses institutes (Medical & Humanities) of District Patiala, Punjab where students were approached by means of

emails, WhatsApp and other social platforms. Pre-structured and pre-tested proforma was distributed through google forms which was analyzed statistically using Microsoft Excel and JASP software. Mean age of study participants was 20.86$\pm$ 2.4 years and majority 698(97.35%) were unmarried. Two fifth of the total study group 283(39.47%) were from upper middle socio-economic status and majority 426 (59.41%) were from Non-professional colleges. Challenges related to availability of smart devices and internet access as well as presence of separate space for virtual classes were significantly higher among the students who were not in favour of virtual classes. However, no co-relation was established between their socio-economic status and preferred of mode for learning. Students experiences with virtual classes can be improved by focusing the various challenges found in this study which can serve as baseline information for the colleges to redesign or revise policies that are relevant and responsive in future.

Key words: Virtual classes, Challenges, College students

INTRODUCTION

Education is one of the sectors most badly hit by the Covid-19 disease. The campuses in many countries had been closed as there was the need for social distancing to combat the spread of the virus. Many schools and universities had shifted to online learning mode. This abrupt change in the educational landscape in the midst of the pandemic was challenging. There had also been a lot of strain on students, teachers, administrators and other stakeholders due to COVID-19 pandemic. The factors that encouraged the demand for virtual learning include the wide spread of diseases that required serious mitigation as in our experience of COVID-19, advancements in technological tools & increased demand for Information and Technology (IT) skills etc [3]. Many initiatives are being taken by the Government of India to promote

online education. One of the initiative was Swayam through which free education and certification courses are being offered to all [4]. Virtual learning has become a new trend in education system in many colleges and universities across the world. As far as many colleges and universities are concerned, online learning comes with a number of benefits and challenges to both the school, colleges and learners. In this article, only the challenges faced by the students during virtual learning are discussed [3]. The purpose of this study is to explore the socio- demographic and other related variables which can further help to plan strategies and effective implementation of them.

MATERIAL AND METHODS

A cross-sectional descriptive study was conducted under the department of Community Medicine, Government Medical College, Patiala. Prior permission from the Institute Ethical committee was taken. This study involved a questionnaire that was distributed in online version by means of email and social media. The characteristics of the participants included age, gender (male or female), residence type (urban or rural) , stream of education (science, humanities), and Socio-economic status (using Modified Kuppuswamy Scale).The students from different colleges were approached. Those who gave consent, were included in the study. The questionnaire was self-administered without intervention by the investigator or any specific person, and it did not contain any identifying data of the participants to ensure confidentiality. They were assured that the information thus obtained would not be used for any other purpose except for the study. Proformas with incomplete information or missing data were excluded from the analysis.

Statistical Analysis: The data collected was compiled in MS Excel and analysed statistically using JASP 0.170 software. Descriptive analyses were computed in terms of mean and standard deviation for continuous variable and frequencies were expressed in percentages. Pearson's chi-square test was used for statistical associations.

RESULTS

A total of 717 students participated in this study excluding the incomplete and missing data. Mean age of study sample was 20.86 ± 2.4 years and majority (97.35%) were unmarried. Around 60% participants were from urban areas as compared to 39.47% which were from rural areas. Two fifth of the total study group (39.47%) were from upper middle socio-economic status followed by lower middle (27.61%)

and upper-class accounting to 18.27% of the participants. Majority of the study participants (59.41%) were from Non-professional colleges and 40.58% were from professional college as in Table1.The present study was focused to assess the various challenges faced by the students during virtual classes (Table 2) and it was observed that the maximum number of students 236(32.9%) never faced any   difficulty related to availability of smart devices followed by 222 (30.9%) of the students who sometimes faced difficulty, 114(20%) faced difficulty often whereas 145(20.2%) always faced difficulty to get the smart devices. On the other hand, difficulty to get internet access sometime was there among 251(35%) students followed by 182(25.3%) who always had difficulty.162 (25.3%) students often had difficulty whereas 122(17%) never had difficulty to get internet access. On asking about the difficulty to get separate/ peaceful space, it was seen that 245(34.17%) sometimes, 199 (27.7%) always, 166 (23.1%) often while 107(14.9%) always found it difficult to get separate/peaceful space for virtual classes. Other challenges like self-motivation to attend classes, understanding of the topic during virtual classes and to understand the study materials of their own were faced only sometimes by 228(31.7%), 285(39.7) and 285(39.7%) respectively. More than half 401(55.92%) of the study participants were not in favour of virtual learning (Table 3).When these challenges were analyzed in relation to their preferred mode of the learning, highest number of students among face to face preference group (FF) come up with these difficulties as compare to the other (VL) group and these observations were statistically significant. Difficulties to get smart devices, to get internet access and peaceful /separate spaces are the hindrance to their acceptance of virtual mode of learning.

DISCUSSION

This study was carried out to assess various challenges perceived by the students during virtual learning. Literature related to this was reviewed and various observations were made. Studies focusing on the challenges during distance learning included some external factors, such as unstable Internet connection, extra financial burden for the Internet quota and internal factors such as time management and difficulty to focus while learning online for a longer period of time similar to our study[5]. Various challenges for implementing the online teaching and learning activities have also been highlighted by many researchers. These challenges have been reported to result from expensive internet data package and bad signal [6]. Another challenge of online learning observed by Joubert & Snyman,(2017) in their study that has affected many university students around the world is that most students do not have gadgets to use during the course of the online programme [7].Shreeda shah in her study emphasized the non-availability of smart devices as most of these devices like laptops, computers and smart phones are shared resources in most of the families. As a result, in a family having more than one child, not every child will have equal availability of such device[8].Technology dependence was one of the differentiating factor of online learning in comparison to face to face learning as mentioned in the study by Julia Li[9].The increased cost of college education was another problem faced by the students as observed in the study by Palvia, et al., 2018[10]. Similar findings related to students's perception of increased financial burden to the family due to virtual learning were also found [3].

A lot is needed to be done in this field inspite of the initiative taken to develop digital infrastructure by the Government of India. The biggest problems are the high speed internet and stable power supply. India stands 89th worldwide on internet speed and

stability. As per the report of World Economic Forum, the Internet is accessible to only 15 percent of the households while accessibility to mobile broadband remains to very few i.e. only 5.5 subscriptions for every 100 people[4].This shows availability and accessibility of internet is very important aspect to plan virtual learning as a part of our education system. Unfavorable home learning environment was reported as a challenge faced by the students during online classes similar to our study [11]. Some students need the push to get to the class. Self-motivation and discipline is required to complete the assignments and upload them timely. Hence, there is always a requirement to boost the morale of the students for active participation.

CONCLUSION

Student's experiences with virtual classes can be improved by focusing the various challenges found in this study which can serve as baseline information for the colleges to redesign or revise policies that are relevant and responsive in future.

Table 1: Socio-demographic profile of Study Participants

Variable	Frequency	Percentage
Marital status		
Married	19	02.65
Unmarried	698	97.35
Residential area		
Rural	284	39.60
Urban	433	60.39
Socio-economic status		
Lower Lower	6	0.83
Upper lower	99	13.80
Lower middle	198	27.61
Upper middle	283	39.47
Upper class	131	18.27
Stream		
Medical	291	40.58
Non professional	426	59.41

Table 2:Distribution of respondents on the basis of perceived challenges

Survey question	N	SM	OF	Al
Difficult to get smart devices	236(32.9)	222(30.9)	114(20.0)	145(20.2)
Difficult to get internet access	122(17.01)	251(35.0)	162(22.59)	182(25.38)
Difficult to get separate/ peaceful space	107(14.9)	245(34.17)	166(23.1)	199(27.7)
Difficult to get self motivation to attend class	84(11.7)	228(31.7)	199(27.7)	206(28.7)
Difficult to understand the topic during online class	66(9.2)	285(39.7)	206(28.7)	160(22.3)
Difficult to understand the study material of your own	85(11.8)	285(39.7)	209(29.1)	138(19.2)

N= Never, SM= Sometimes, OF= Often, Al= Always

Table 3: Analysis of perceived Challenges in relation to their preferred mode of learning

Challenges	Prefer virtual learning VL (N=316) Frequency(%)	Prefer face to face learning FF (N= 401) Frequency(%)	Chi square Test
Difficult to get smart devices			
Never	106(14.784)	130(18.131)	13.27
Sometime	92(12.831)	130(18.131)	df 3
Often	38(5.300)	76(10.600)	P=0.004
Always	80(11.158)	65(9.066)	
Difficult to get internet access			
Never	66(9.205)	56(7.810)	13.993
Sometime	112(15.621)	139(19.386)	Df=3
Often	53(7.392)	109(15.202)	(p=0.003)
Always	85(11.855)	97(13.529)	
Difficult to get separate/ peaceful space			
Never	65(9.066)	42(5.858)	18.620
Sometime	109(15.202)	136(18.968)	df=3
Often	57(7.950)	109(15.202)	(p=<.001)
Always	85(11.855)	114(15.900)	
Difficult to get self motivation to attend class			
Never	53(7.392)	31(4.324)	20.468
Sometime	104(14.505)	124(17.294)	df=3
Often	68(9.484)	131(18.271)	(p<0.001)
Always	91(12.692)	115(16.039)	
Difficult to understand the topic during online class			
Never	49(6.834)	17(2.371)	42.523
Sometime	126(17.573)	159(22.176)	df=3
Often	62(8.647)	144(20.084)	(p<0.001)
Always	79(11.018)	81(11.297)	
Difficult to understand the study material of your own			
Never	55(7.671)	30(4.184)	31
Sometime	124(17.294)	161(22.455)	df=3
Often	66(9.205)	143(19.944)	(P<0.001)
Always	71(9.902)	67(9.344)	

Perceived financial burden to the family			
Yes	137(19.107)	272(37.936)	43.207
No	179(24.965)	129(17.992)	df=1
			(P<0.001)

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