Original Article

Approaches and perspectives for online learning during the COVID-19 pandemic and future chaos

Shagufta Nesar, Kiran Rafiq[1], Muhammad Rizwan[2], Syed Mehmood Hasan[3]

Abstract:

BACKGROUND: Online learning (OLL) methodology has been incorporated in higher education extensively on the mount over the last few decades and with the onset of COVID-19 situation, the virtual method in academia became essential. After observing worldly destructions and death due to coronavirus, the WHO declared a high alert emergency, and since Pakistan started to follow lockdown since March 2020 to prevent high penetration and consequently, the online teaching method was adapted to keep the learning atmosphere alive. The study is aimed to identify the influencing factors and compliance for the implementation of the OLL system in COVID-19 and, in the future, nonpandemic state as well.

MATERIALS AND METHODS: The present study is designed to observe the adaptability and hurdles among pharmacy students, and for the purpose of the study, a questionnaire on the Likert scale was developed and asked to respond from pharmacy undergraduate and postgraduate students after taking consensus, which further analyzed through IBM SPSS Statistics Version 26.

RESULTS: The outcomes of the study were analyzed with a high level of conformity; however, the gender-based reservations were observed, and moreover, merits of OLL were observed with high jeopardy.

CONCLUSION: The adaptation of OLL, though proved as the only troubleshooter in an uncontrollable situation and enabled universities, professors, and students for patience, resilience, and hopefully, will serve as swift safeguard for future challenges of epidemic and pandemic disasters. According to the evolution theory, brain adaptability and plasticity of human organisms grow the capacity to adjust itself with an advanced characteristic.

Keywords:

Coronavirus, COVID-19, epidemic, Likert scale, online learning, pandemic, pharmacy

Jinnah College of Pharmacy, Sohail University,[1]Department of Pharmaceutical Chemistry, Institute of Pharmaceutical Sciences, Jinnah Sindh Medical University, Karachi, Pakistan, [3]Department of Pathology, Jinnah Sindh Medical University, Karachi, Pakistan, [2]Department of Medicine, Aziz Fatimah Hospital and Medical College, Faisalabad, Pakistan

Address for correspondence:
Kiran Rafiq, Institute of Pharmaceutical Sciences, Jinnah Sindh Medical University, Rafiqui H. J. Shaheed Road, Sadar, Karachi, Pakistan. E-mail: kiran.rafiq@jsmu. edu.pk

Introduction

The global history reveals pandemics as outbreaks of disease specifically contagious at high frequency and contributes to greatly increase jejuneness and lethality and unfortunately destroy regions and regions with inopportune and uncontainable socioeconomic consequences.[1-3] Globally, humanity experience a number of spates during the preceding decade such as SARS and cholera in Latin America, pneumonic plague in India, and Ebola in Congo.[4-6]

Unfortunately, all destroyed health and trade internationally.[7-10] The change in lifestyle, increase in population, worldwide traveling, and mistreatment of natural atmosphere are the factors accountable for such kind of pandemic situations and emergency outbreaks.[11,12] This is a regretful fact that, undoubtedly, in the last two decades, world population faced different disasters of infectious diseases even though such pandemics engulf thousands of humans and destroy the happy livings and the economy from individual to global level; however, as said above, the human has God-gifted adaptability that makes

him/her strong to fight and manage such situations, stand him/her up to face the consequences, and enable to develop and make use of available resources in the best way to reduce the brutality of the situation and to bring to a halt further obliteration.[13-15] As it was observed during SARS in 2003 that delayed reporting, responding of outbreak and week coordination at global level made the disease more killer. First, the disease was not transmitted to health workers; however, afterward, it happened and the situation become worst when avian influenza virus was detected. After the worsening of situation, clinical and epidemiological information was worked out, and the WHO, different health communities in different countries, formulated and implemented pandemic vigilance plans. The theme was to meet specific standards for distinguishing, reporting on, and countering to outbreaks. The similar guidelines and framework put into place in the present situation of COVID-19, and followed by lockdown in China and Iran, the virus could not stop but spread through traveling to other regions as well from America, Italy, Europe, to Pakistan at last.[16-23] Shutting down in America due to COVID-19, all the universities attempt wave across the country to slow its high penetration by canceling all in-person classes, with virtual conferencing and distant collaboration. The adaptation was not novel as universities and colleges nowadays offer online programs to overcome the problems associated with long travel as lack of commute offers more time for students and financial barricade of moving to a new location with or without family. Providentially, Pakistan utilized all its resources of forces, health workers to monitor the situation and control the spread of disease. As like other countries, partial and complete lockdown was the best option for Pakistan to reduce the chances for penetration of corona virus and timely decision prevents the condition to become worst. However, wrestle with economic crises at national and international level is a big issue to be sort out, but academia and educational activities were at the high risk that were to rule out through online learning (OLL) to sustain the future and running academic year.[24-30]

The timely decision of virtual classroom not only prevented the high penetration of virus in educational places and neighboring communities but also reduced the chaos of rising anxiety levels among students and faculty. Online, virtual method is the effort in nonideal circumstances that keep associates' content for practicing and reinforcing the student learning outcomes. Another study also reported that OLL resources have become a focus of vital discussion in education and research literature, especially at higher education level. Heads in various universities are giving immense attention for online education as an important source of teaching. These OLL resources have been revealed to be a technique

to make the educational opportunities accessible to maximum students at any time and location.[31,32]

In the current circumstances when there is no prospect cure, the probability of infection as well as mortality was at the highest rate. Furthermore, social distancing, implementation of society diffusion, and shutting down policies lead to the closure of academic process for the unlimited period, consequently when the future of student is at battle and risk, the adaptation of OLL is the most suitable alternative to minimize the upcoming loss of stake, and that will help to swift resurrect of previous practicing system. Regarding the today's fact, the first study from Pakistan was conducted to analyze the student perception about OLL due to COVID-19 pandemic.[33-36] Certainly, OLL has proven more beneficial regarding cost-effectiveness and expediency rather than conventional structure of education, over and above covers more learner to avail opportunities of tutoring. In previous research conducted by by Spielman, and Pangelinan about students perception and satisfaction for online method of learning versus face-to-face from Northern California University investigated statistically analysed zero noteworthy difference between both learning modes. Whereas another research at Australian University conducted by Kemp and Grieve was found to support face-to-face conventional method due to certain psychological factors. According to the another study by Tratnik,[37,38] significant differences in satisfaction of student were observed between online and conventional learning as pupils were generally analyzed contented with face-to-face learning rather than several dimensions of online methodology. Despite these facts and figure interestingly, OLL prolongs to cultivate swiftly; however, associated few demerits such as interruptions in internet and power supply specifically in underprivileged areas keep the method restricted to adapt with open arms and probably have taken as option just for survival.[39-41] To rule out the status of OLL at Pakistan in the current situation of COVID-19, the present research lies on exploring the Pakistani students' perception toward the method. More specifically, the purpose of research was to look into discernment among different levels of students toward OLL regarding accessibility of resources and satisfaction. The most important thing about the gripping option of online teaching is that the current situation of COVID-19 pandemic is expected to continue presenting confronts beyond that come up in regular virtual education. Optimistically, the phases of troubleshooting will enable the universities, professors, and students the practice adaptability, patience, and buoyancy and will hand round to reinforce for future challenges that could come with the subsequent contagion, virulent disease, and other adversity.[42,43] The observed parameters in the adaptation of online method in pharmacy program may come across hurdles and challenges regarding facilities

as because such situation has not happened ever and eventually not faced by the nation; however, the current study helps to address the shortcomings and cracks in the newly adapted method with promising future monitoring.

Materials and Methods

The study is aimed to examine the issues and quality perception regarding OLL among pharmacy students and compared with face-to-face learning in the context of COVID-19. The study was cross-sectional and the collected data were analyzed through descriptive and inferential analysis tools. The study period was from March to April 2020.

Population and sampling

The study population comprised Pharm. D. students of different institutes of Karachi. In this study, 500 survey forms with consent pro forma were distributed among the students of Karachi via e-mail, Facebook, and WhatsApp. Out of 500 students, 459 were interested to participate in this study. Students were surveyed with a seven-item [Table 1] questionnaire, designed based on the system usability scale survey to assess their perceptions toward the impact of OLL [Tables 2 and 3]. Different demographic characteristics such age, gender, institution, and social status were recorded. This study instrument was from a previous study and later modified.[36] The first section of the questionnaire included demographic information and availability of resources with access for OLL questions; second section assessed their merits and demerits relating to the impact of OLL system. The three-point Likert scale ranging from 1 = "positive response," 2 = negative response," and 3 = neutral was used to record the perceptions of students. The questionnaires were distributed to the

students who expressed willingness to participate in a survey after explaining the purpose of the study. Verbal consent was obtained from the students who participated in the study, and the questionnaires were collected within 15 days. The present work was conducted by following the Declaration of Helsinki.[44]

Inclusion and exclusion criteria

Pharmacy students from different institutes in Karachi were included in the study who are taking online classes organized by respective institutes and universities; however, those pharmacy students not taking online classes either by will or their respective department had not started online system thus far were excluded from the present research.

Data analysis

Data were analyzed using the IBM SPSS Statistics Version 26. Frequencies and percentages were computed via mean and standard deviation for demographic characteristics. The different perceptions of OLL and face-to-face learning among the different levels of students were calculated through mean, variance, standard deviation, and Pearson's Chi-square.

Results

In present study, conducted among the pharmacy students, different perception was observed in response of questions asked regarding the online methodology and related issues. The responses are summerixed in the Tables 1-3.

Discussion

The aim of the present study was to analyze the level of satisfaction regarding online teaching and its possible

Table 1: General Responses of students for online learning (*n*=459)

	Probability (%)	Number of response	Mean	Variance	SD
Allows to work flexibly	22	459	98.685	77.47	8.80
Easy to use	16	459	75.276	62.93	7.93
Provides a permanent record of lectures	4	459	16.983	16.35	4.04
Easy to communicate in class	56	459	257.958	112.99	10.63
Provides time to reflect before giving opinion	81	459	371.79	70.64	8.40
Do not have to have a text book	49	459	222.615	114.65	10.71
Do not have to go to university	38	459	173.961	108.03	10.39
Reading materials can be accessed online	20	459	92.718	73.99	8.60
Better learning	68	459	313.956	99.21	9.96
More time for family	36	459	162.945	105.10	10.25
Lack of interaction	41	459	189.567	111.28	10.55
Technical difficulties	87	459	400.248	51.23	7.16
Information overloaded	78	459	358.479	78.51	8.86
Lack of motivation	21	459	95.013	75.35	8.68
Language issues	78	459	358.479	78.51	8.86
Do not have proper internet access	86	459	393.822	55.92	7.48

SD=Standard deviation

Table 2: Student's discernment for online teaching methodology (merits)

Advantages	Pearson χ^2	Significance
Availability of resources	9.904	0.042
Allows to work flexibly	7.073	0.215
Easy to use	7.856	0.164
Provides a permanent record of lectures	11.822	0.037
Easy to communicate during class	3.913	0.562
Time to reflect before I give my opinion	2.275	0.81
Do not have to have a text book	4.463	0.485
Do not have to go to university	5.314	0.379
Reading materials can be accessed online	7.262	0.202
Better learning	3.105	0.684
More time for family	5.531	0.355

Table 3: Student's discernment for online teaching methodology (demerits)

Disadvantages	Pearson χ^2	Significance
Lack of interaction	5.022	0.413
Technical difficulties	1.832	0.872
Information overloaded	2.469	0.781
Lack of motivation	7.182	0.207
Language issues	2.469	0.781
Do not have proper internet access	1.938	0.858

effects among pharmacy students, that can also help to implement the tool of learning in the future as common practice or either as an option in any chaos. During the last few months, the chaotic situation of COVID-19, which caused a quick turn to platforms of virtual learning such as Zoom, Google classroom, and LMS, has created a distraction in the curriculum, particularly for the population of both teachers and students of that particular institutes and universities who have not adapted ever before, specifically in Pakistan. Although despite having different hurdles and issues such as a disruption in power supply, internet, Wi-Fi, connections, and most importantly the limitation in the personal handling of advanced devices of a computer during the session such as webinars, Google meeting and conferencing, text chat, it is mostly observed the acceptance of technology by esteemed teachers, as it is found complex for them, which is toys for today's generation

The investigation of the current research showed that the OLL method in COVID-19 is at high using up among the pharmacy undergraduate, below of age 25 years, students. The outcomes are obvious about the lofty consumption of the resource from universities. There may be numerous reasons of this high jeopardy as to achieve whemay, timely completion of the program/course, for getting degree and future career approaches. However, students of postgraduate and master's, mostly above 25 years age, are not being taught through online or either may be by assignment work.

Amazingly, the gender-based query in the present study was answered positive from female population as three-fourth part of population, because nationally and internationally women get admission in universities more and acquired high ratio in diploma and degree program; therefore, the number of female undergraduate students is more in universities [Table 1].

Availability of resources, the very important and irrefutable factor of OLL, for both the aspect of trainer and student and interstinglyin the present study among 459 students, approximately 79.52% showed satisfaction for resources and that strong figure, authenticate the timely provision of updated strategies' with Google class room, Zoom, and others and the role of governing bodies of higher education and universities for strengthening the system of education in COVID 19 outbreak. [Table 2].

Although the OLL has proved an excellent resource to keep the pharmacy education live in such failing state, merits and demerits of any method exist that enable us for improvement and betterment. Similarly, the present research was focused on this factor as the students cannot access the library and accordingly 50% population of students was observed in anxiety and rest were fulfilled, probably due to access of books and library online. The opinion of better learning from online was found mixed as 36% of students showed positive and 34% of students were not in favor, where rest had neutral response; all are highly associated with different factors such as good resources, space at home, family status, respect toward education, household workload specially for the females, and time management. The majority population of the study found the OLL best to focus with full concentration and understandings that enable for quick response of queries during lesson and problem-solving;. Further, the majority students agreed on the opinion for getting best knowledge from the online links and resources provided from the concerned teachers that enable them to pursue the data and information shared from eminent scholars. Online lectures are at all times kept available to go through and accordingly no need to maintain records everyone and can be read with litheness of resources and timings [Table 2]. The study outcomes showed one demerit with high population that it has disturbed the quality time for family as, in conventional method, people were used to busy in scheduled timings and spare more time in healthy indoor activities and tea and dinner times as family unit; however, lockdown situation due to COVID 19 and further out of scheduled online classes have made to manage hard to align all the matters. During online classes, high number of students found the sessions noninteractive as like that learning environment developed in actual class room where teachers try best to keep the class live and conjunct however the online method observed to not to attain

such level of teaching quality; further, it was highly noticed that technical defaults specially internet issues were equally responsible to make the learning process unsmooth and interrupted [Table 3].

According the collected data, the schedule is not followed as in conventional teaching; the teachers upload lectures and assignments in excess and with short deadline of submission that all causes the students to be physically and mentally stressed. In the study, majority of students were found to have lack of motivation during online sessions due to many reasons, such as no face interaction and eye contact with trainer, and sometimes, there are voice issues, and due to having no mutual discussion section, lectures become nonunderstandable; furthermore, classroom study provides appraisal on good communication skills and fluent responses that keep the students motivated, where online sessions have missing this kind of encouragement.

Other than above all mentioned information and specifics collected from designed study and various merits and demerits, the OLL and sessions are source of immense satisfaction in COVID-19 for carrying on the academics to save the students and teachers as well to become more anxious and noncreative.[45-49] It is giving best to save the loss of academic year, prolonging of semester, and the gap that could have developed due to current lockdown situation. Too long closure of universities and institutes is undoubtedly a risk and that could pay high cost in the future as the time and duration of present disaster cannot be predicted; however, transition to online will help as a vehicle and will minimize the academic disruption.[50-52]

Suggestion

The present conducted research recommends to explore and improve resources and facilities involved in OLL as that the method should become more adaptable not only in chaos though normally as well to the extent that enough to cope the situation of unavailability of either student or teacher due to any ailment or other unavoidable cause along and during with the conventional routine schedule.

Conclusion

The present study was designed to identify the SWOT of OLL methodology adopted by Pakistani universities, among pharmacy students in COVID-19. The study covers the concerns, confrontations, and merits in establishing OLL as a successful medium of imparting education at either time or situation. Even though the variety of demerits was identified by students, the positive aspects were found to take precedence over the negative opinions. Students had a praiseworthy perception regarding the online system provided that

flexibility, timely feedback, positive interactions, and the technology work. Students, however, are expected to have suitable access to computers and the internet. Although faculty focus on the concerned course, where students have to follow lectures of all the subjects and expect all to be delivered and resourced in the best way, unless "good practice" in all courses is not offered. Trainers should be more proactive with a positive attitude in adapting the technology in the present chaos of COVID-19. Educational institutions, either public sector or private, need to coordinate their efforts to address the existing adapted system to support the OLL system. As all efforts are based on interest and the capacity of adjustment as the entire will help grace the new approaches and all the expectations are based on the fact that a day will come, the pandemic will end with all possible disaster and mortality; however, it turns the thoughts and approaches toward a new direction of characteristic innovation.

Conflicts of interest

There are no conflicts of interest.

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