Challenges of Peer Assisted Learning in online clinical skills training of Ophthalmology module

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Abstract

Background

In recent days when mankind is passing through the difficult times of COVID-19 pandemic with lock down, almost all over the world, online communication has taken over the world. Overburdened physicians in this pandemic cannot get enough time to teach clinical skills online to the students. Also, due to student's safety issues, the students cannot attend the clinics. Therefore, in this scenario online PAL sessions for clinical skill teaching and learning can be an effective alternative for undergraduate medical students. The academic limitations caused by the COVID-19 related lockdown however can have a pleasurable outcome if certain challenges, related to online PAL, are overcome. Therefore, the present study aims to identify the challenges of Peer Assisted Learning (PAL) sessions during online clinical skills training in Ophthalmology module of undergraduate medical students.

Methodology

This qualitative exploratory study, utilizing online focus group discussions to explore the challenges of online PAL in training and learning of clinical skills was carried at Ophthalmology department of Batterjee Medical College, Jeddah; Saudi Arabia. Ethical approval was taken from the college and purposive convenient sampling technique was used to collect data. Data was transcribed and analyzed by using thematic analysis

Results

The study identified six themes for argument and classified into further smaller subthemes. The subthemes derived from the collected data were organized under major themes; infrastructure, learning environment, psychological problems, interaction deficit, learning desires and desire for feedback on performance. In our study, major challenge faced by the medical student during online PAL sessions was infrastructure in terms of network connection, scheduling, timing of the session which overpowered by other challenges of online PAL. Unprofessional learning environment, psychological problems in terms of behavioral issues and personality changes, interaction deficit with peers, tutor and patient, learning desires and desire for feedback on performance were the other important challenges faced by the students.

Conclusion

The challenges explored by our study can be used by the medical educators to incorporate online PAL as an effective, efficient and alternative teaching and learning modality in the curriculum especially in compromised circumstances like current COVID-19 pandemic.

Background

In recent days when mankind is passing through the difficult times of COVID-19 pandemic with lock down all over the world, online communication has taken over the world. With this lockdown when all on campus teaching and learning and patient communication has been ceased, online teaching and learning in undergraduate medical schools has become an important and sole alternative. Online mode is a good option to convey knowledge and assure the safety of the students but teaching online clinical skills to the medical students without interaction to the actual or simulated patients has become a great challenge.

Learning from peers is a part of informal curriculum of medical schools from decades with lots of benefits (1). It gives a valuable method of enhancing student's learning experience.

Peer Assisted Learning (PAL) is an important known feature of medical curriculum (2)(3). PAL involves people from similar social groupings who are not professional teachers, helping each other to learn and learning themselves by doing so (4).

More knowledgeable peer facilitates discussions and clinical skills teaching sessions to help the transition of less knowledgeable students into more knowledgeable and skilled professional (5). By this practice of peer assisted learning, acquisition of knowledge and skill takes place through active helping and support among status equal or year specific matched companions (6).

Learning of clinical skills in the clinics is a fundamental part of medical education. But tough student schedule, non-availability of physicians in the clinics due to their hectic schedules, non-availability of rare cases in the clinics and patient safety and privacy protocol have restricted the clinical exposure of the undergraduate medical students. Added on to this, COVID-19 pandemic led social isolation and lockdown has made it more difficult for undergraduate medical students to attend the clinics. Over burden physicians in this pandemic cannot get enough time to teach clinical skills online to the student and due to student's safety issues, they cannot attend the clinics. Therefore, in this scenario online PAL sessions on clinical skill teaching and learning can be an effective alternative for undergraduate medical students.

The limitations caused by the corona related lockdown however can have a pleasurable outcome if certain challenges, related to online PAL, are overcome. This study will explore the challenges in conducting online PAL sessions during clinical skill training in Ophthalmology module and will help to pave the path of online PAL as an effective and efficient entity in undergraduate medical curriculum (7). The improvement of the online PAL as extrapolated from our study may also lead to greater student satisfaction.

Methods

Study Design & Setting

A qualitative exploratory study was carried out over a period of seven months (December 2019 to July 2020) at Batterjee Medical College, Jeddah; Saudi Arabia to explore the challenges that 4th year undergraduate medical students faced while learning clinical skills through online PAL.

Ethical approval

Ethical approval was granted by Ethical Review Committee (UOL/ERC/07/20/01) and informed written consent was taken from the participants.

Participants

Participant of the study were selected by purposive convenient sampling. Two peer tutors (one male and one female) from 4th year MBBS were selected on the basis of their good academic grades and willingness to participate for online PAL. Two peer tutor clinical skill training sessions were conducted by the first author. Four online PAL sessions were conducted to teach clinical skills of visual acuity examination, extra ocular muscle movement examination, cover uncover test and confrontation visual field examination. After PAL sessions, two online focused group discussions of two hours each were arranged to collect the data by first (SN) and fourth (DR) author.

In total, 22 students participated in FGDs, eleven in each. The participants were selected on the basis of their academic grades and willingness to participate in a way that both groups of FGD include mix of students (high achievers, average students and low achievers, 8 males, 14 females) to gain a thick descriptive of fourth year medical students. The FGD participants were informed about the voluntary participation and informed written consent was taken.

Instrument development

To develop the FGD items, seven steps for instrument development were followed as suggested in AMEE guide 87(8). Step-1: included literature review was done to align the online PAL with prior research. Already existing survey scales and items were also explored. Step-2 was a short FGD of 20 minutes was conducted with the 4th year students to learn that that how they describe and conceptualize the online PAL. Step 3 & 4 included the analysis of the FGD data to develop the questions. Step 5 & 6 included expert validation of the items that was done by sharing expert validation form with four experts, two from basic science and two from clinical science department to get a holistic perspective. The response received was discussed and analyzed to finalize the items. Step 7 included pilot testing the FGD questions for credibility and reproducibility.

Data collection and Analysis

The proceedings of the discussions were audio recorded. Open ended questions were asked from the participants about the challenges they faced in online PAL sessions while learning clinical skills. FGDs were conducted until the data saturation. Data collected from the FGDs was recorded and transcribed for analysis by first (SN) and fourth (DR) author. Thematic analysis was carried out by first author (SN) to find out the patterns within the data and to generate themes. Initial familiarization with data was done and codes identification done by open coding process, which means, "Working intensively with data line by line, identifying themes and categories that seem of interest" and then elucidated themes from the

connection of these classifications (selective coding). Finally, by the merging of the open and axial codes, sub-categories (subthemes) made and arranged under a central theme.

Subsequently, summaries of the transcripts and identified themes were discussed and reviewed with second and third author to clarify.

Results

The objective of the study was to explore and identify the challenges encountered by the medical students in learning clinical skills through online PAL sessions. Our study has explored the challenges faced by the 4th year undergraduate medical students during online PAL and discussed and shared their views in online focus group discussions. The discussion in FGD started with an initial opening question: *What did you learn today in online clinical skills PAL session?*

Most of the students were well aware of informal PAL but they found formal online PAL as a new and exciting experience. They made many positive comments about learning from their own peer and considered it a better way of application of theoretical knowledge in a fearless and supportive environment. They also found it a safe way of communication and learning during these special circumstances of COVID 19 pandemic.

Although, majority of the students valued this new instructional tool for their learning especially when they were not able to attend the clinics due to COVID 19 pandemic related lockdown but still they had many reservations. The result of our study also helped to find out these challenges, the students encountered during these online PAL sessions. Data analysis identified six main themes with relevant subthemes mentioned in Table 1.

Table 1: Challenges of online PAL in clinical skill training

#	Theme	Sub theme	Representative quotes
1	Infrastructure	<ul style="list-style-type: none"> • Network connection • Scheduling • Timing/duration of sessions 	<p>"Internet connection is a big issue all the time."</p> <p>"I feel that time for the session was too short to learn clinical skills by a big batch of students."</p>
2	Psychological issues	<ul style="list-style-type: none"> • Behavioral • Personality • Distrust on peer tutor • Skill deficit (use of gadgets) 	<p>"I found poor motivation to start work and learn coz of no direct contact with the teacher."</p> <p>"I felt little confused whether I am getting right skill or not while learning clinical skills from my own class fellow."</p> <p>"I think that our tutor needed more training because in question answer session he could not give satisfactory answers to my question."</p>
3	Learning environment	<ul style="list-style-type: none"> • Professionalism • Acceptability (culture of safety) 	<p>"I do not feel myself in a professional environment that's why get distracted most of the time."</p>
4	Interaction deficit	<ul style="list-style-type: none"> • Patient • Physician 	<p>"No direct contact with patient."</p> <p>"Honestly, I prefer live and personal interaction with the doctor and watching and learning from her directly in clinics especially in clinical subjects like ophthalmology. It is impossible to compare it with attending clinics or rotations."</p>
5	Learning preferences	<ul style="list-style-type: none"> • Desire for supervision • Desire for hands on training 	<p>"I prefer the session to be conducted by the doctor as we gain experience from the doctor which of course more skilled and well versed."</p> <p>"No hands-on experience which I think is very important in learning clinical skills."</p>
6	feedback on		<p>"Feedback on performance, I missed it. Due to lack of</p>

performance

hands on practice I feel that I can still make many mistakes while actually performing this clinical skill and nobody would correct me or would be there to give me feedback on my performance (whether I am right or wrong)."

Learning environment, interaction deficit and learning preference were the most arduous challenges faced by the students while learning clinical skill through online PAL. Lack of patient and physician interaction, their desire for physician supervision and his feedback on performance made online PAL more challenging.

Discussion

The world, these days, is facing one of the biggest public health crises globally due to COVID-19. The infectivity and fatality of the disease has had significant socio-economic, political and psychological impact on human life. Millions of people have quarantined at their homes due to global lockdown to implement social distancing measures to avoid infectivity and control the spread of the virus (9). This social isolation has been compounded by panic, stress and anxiety and has been affecting human mind in a crucial way. Health system including medical students are under great amounts of stress.

The study revealed the importance and need of online PAL in current lockdown situation related to COVID-19 pandemic. Pandemic related global lockdown has led the academic activities online all over the world due to the redundant spread of virus infectivity and student safety. Due to this sudden shift of teaching strategy, teachers have become over occupied in making their lectures and other academic activities compatible to new learning requirements. Meanwhile in clinics, due to increase patient load in hospitals, it's not possible for the physician to cater medical students to teach them clinical skills. In such scenario online PAL has emerged as a very useful alternative instruction tool to train the medical students about clinical skills.

At the same time where online PAL is highly needed and desired instructional tool, it has its own challenges as well (10). The desire to make online PAL as an effective instructional tool in future, the study has explored these challenges. The current study has identified the discernable challenges of online PAL while training clinical skill to the medical students.

Inadequate infrastructure deployment can be an eminent cause of online learning failure. Our study also showed that infrastructure related problems were one of the main concerns by the students. Although, most of the students agreed upon the importance and demand of online PAL in current situation of COVID-19 related lockdown but at the same time they indicated some important problems they faced while their online learning. Strong internet connection is the first step in conducting any successful online session (11). Poor internet connection can affect learning in many ways. It can affect the quality of videos and sound of the session, causes a delay in communication with peer tutor and problems related to download the videos or recording of the sessions. Many of them found difficulties in logging in to the

system which caused them stress of being left behind than their class fellows. Few found them absent on the system while they were still in the session (12). They also found that the timing of each session was not sufficient to learn clinical skills. Daroedono has already mentioned the importance of enough timing in learning the clinical skills in his study. Clinical skill learning is a complex task which needs enough time to learn and practice (13).

In classroom settings the teacher can employ different ways to manage a student's day to day behavior, emotional challenges and interpersonal skills to help them to learn. During lockdown related online learning, especially online PAL, which is taken by their own peers, our study has discovered many psychological challenges experienced by the medical students (14). Lack of motivation to learn was the substantial problem faced by many students caused chiefly due to a lack of interaction with the physician and patient. Owusu-Fordjour has also explored that demotivation during online learning caused many students additional lethargy, coupled with an additionally sedentary lifestyle due to the corona related lockdown (15). Uncertainty about the future has created stress and anxiety among the students which led them into habit of delaying their study time. This poor time management indirectly affected their work efficacy and ability meeting the deadlines (16).

Distrust on peer tutor made them skeptical about peer tutor's knowledge and skill expertise and wanted to learn it from the expert (physician) directly (17). Despite their liking of online PAL in current special circumstances and encouraging positive comments from the students, it was apparent that most of them wanted direct contact and direct learning from the expert (18). Direct contact with expert (physician) in clinical setting and time spent with them was more effective and valued by the students than learning the content. Being in their company and connectivity with them in clinics fulfills many purposes (19). This also fulfills their desire to be supervised in their learning of clinical skills. This desire to be supervised or to be in direct contact with the expert or physician has made online PAL more challenging.

Well planned online learning is usually meaningful but, in the current unpredictable situation of crisis management of teaching and learning, most of the online sessions were put in place as an emergency measure to cope with the situation (20). Psychologically stressed students also need proper training to learn to yield the maximum benefit in these special circumstances (21).

Feedback on performance is essential in clinical education and has powerful influence on learning (22). Observation of physical performance of others and positive comments contribute in learning. In clinical settings, comments on skill performance by the physician or expert is the most desired response for the students to enhance their performance and understanding (23). Constructive feedback on performance always encourages and motivates the students to learn (24). Lack of constructive feedback on performance from the physician (expert) himself was another deficiency felt by the participants of our study. They found themselves confused or clueless about the success of their learning.

Limitation of the study: Due to unexpected and unprecedented COVID-19 related lockdown, we felt that having more time to prepare or train the peer tutor for online sessions would have further improved the student's experience of online PAL.

Conclusion

While being in the midst of COVID-19 crisis, it is crucial for medical academic community to learn from their experience and prioritize a forward thinking to draw practical solutions to train medical students in these unprecedented times. Within the constraints of current healthcare situation, integration of online PAL into the curriculum from the outset would help the medical students to become self-accountable for their learning. By overcoming the challenges explored by the study, online PAL can be an effective alternative for teaching and learning not only for academic knowledge but also for clinical skill training. It creates a successful virtual learning environment for students to practice clinical examinations or history taking among themselves with the help of a more knowledgeable peer tutor in a comfortable non-threatening environment. Use of a wide variety of online resources will also help the students to promote their learning. Its integration in the curriculum to train medical students for clinical skill may reduce the need for basic clinical educator especially in such special unprecedented circumstances when they are increasingly busy.

Abbreviations

PAL Peer Assisted Learning

FGD Focus group discussion

PRISMA Preferred Reported Items for Systemic Review and Meta-Analysis

BMC Batterjee Medical College

UOL University of Lahore

Declarations

Availability of data and material

The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

Ethics approval and consent to Participate:

Ethical approval (UOL/ERC/07/20/01). was obtained and informed written consent was taken from all the participants of the study.

Competing interests: Dr. Usman Mahboob is the associate editor of BMC Medical Education.

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Authors' Contributions: Study was initially conceived by SN with UM, RA and DR. SN initially drafted the proposal, online FGD protocol and FGD questions. UM and RA subsequently reviewed and edited the proposal and FGD questions. All data were compiled and data analysis with coding and initial themes were done by SN and DR. Further refining and review of data analysis was done by UM. SN prepared the manuscript and UM, RA and DR participated in final drafting and revision of the manuscript. All authors have approved the final version of submission.

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