Conventional to virtual poster presentation in scholars' day during coronavirus disease-19 lock down: Medical students' performance and perspective

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ABSTRACT

Objectives: The study was conducted to assess the performance regarding presentation and communication skills of the undergraduate medical students and to explore the perceptions and challenges while adopting to virtual mode of presentation held during the 1st wave of coronavirus disease pandemic lock down in the first ever online scholars' day.

Methods: A mixed method research was designed, enrolling all presenters of scholars' day, data collection was done in 2 weeks in the month of May 2020. Descriptive statistics were calculated using SPSS version 23.0. An interview guide was prepared to explore participants experience in the online e-poster competition, which took 20 min each conducted by the team of investigators, who were trained before interviews. Thematic analysis was done.

Results: The mean score for students' performance was 8.9 ± 2.1. Three main themes were generated following transcription of data. These include engaging in the tedium of lockdown era, assortment of imperative material in research, Pros and Cons.

Conclusion: E-poster presentation is an innovative method of presenting the research work of undergraduate students. It helps students to communicate at a different forum with diversity using multitude of skills, thus enhances learning. Moreover, comments by the audience and judges can provide a platform to brainstorm on research projects before these get published.

Keywords: Scholar's day, research, undergraduate medical students, e-poster presentations

Introduction

Poster presentation is an empirical learning activity that encourages inquisitiveness among students. It provides students with a creative way to validate their understanding of research. This also helps them to acquire skills and incorporate the concepts of scientific ideologies. This hone the skills of team work and collaborative learning among students.[1]

Multiple advantages are attached to the poster making and its presentation. Posters are designed to provide an outline of a problem that draws attention, initially through visual appearance, and later on expresses the intended message. Although, the poster medium has been well accepted in the publication culture, still there are certain restrictions about the penetration of knowledge sharing and issues of materialization and conception.[2]

Poster presentations are effective method of passing on the educational knowledge. It elucidates a full array of learning styles by the use of interactive delivery, thus promoting dynamic learning. Moreover, adaptability in the poster designs and diffusion of knowledge adds to its benefit. "Media Poster" provides new prospects to convey the significance of facts.[3] Thus, not only increase knowledge, but also change attitudes and behavior when combined with educational interventions. The illustrations and visual appearance of the poster can somewhat ascertain its accomplishment in promoting knowledge exchange, when combined with good communication skills.[4]

Most studies have shown that students take poster presentation and its related activities positively; enjoy group poster preparation, stimulate good personal presentation, foster student's activeness, and creativity along with a desire to engage in similar practices in the future, also improving the manuscript writing techniques.[5,6]

Evidence-based medicine is an integral part of the decision-making in healthcare. Medical research introduced in the

curriculum at medical schools have positive effects on the outcomes and research productivity of the students and presenting their work through posters or publications help them promote these skills.[7]

It is important for the medical students to develop research skills under the supervision and guidance of their mentors and disseminating their findings through a medium contributing to their medical knowledge which can later on be applied in their practice.[8]

In recent times of coronavirus disease (COVID-19) era, it has become difficult to continue with the face-to-face activities so the disruption has caused many transformations in the delivery of curriculum as well as in other extra-curricular activities.[9] Mounted poster presentation carries a significant role in academic activities related to medical education. It gives freedoms to introduce new data and to work with peers to develop team work. However, study also shows that in this method of presentation the participants at the event may not have full concentration on the content delivered, and have poor recall, thus a better way for information display is to use electronic media to present and disseminate information.[10] Furthermore, the usefulness of this method in medical education is an important area to evaluate.

Therefore, this study was carried out to explore the perspective of undergraduate medical students in the twin cities of Pakistan through presentation of their research work in the first ever online scholars' day held during the 1st wave of COVID-19 pandemic lock down. The purpose was to share the research work of undergraduate medical students using communication and presentation skills encouraging them and their colleagues; thus, promoting the culture of research. Moreover, this helped to know the perspective of undergraduate students regarding the transition from conventional to virtual poster presentation in COVID-19 lock down era.

Methods

An annual event of mounted poster Scholar's Day for undergraduate medical students from year 1 to year 5 is organized in Shifa College of Medicine, Shifa Tameer-e-Millat University (STMU) every year for the past 9 years. In 2020, Scholar's day was planned to be held in April in the traditional way but due to the COVID-19 lock down in pandemic a quick decision in a span of 2 weeks was made to make it an online activity in May. This was done to engage and motivate students to continue with academia and participate in the cocurricular activities. We designed a template adapted from the Association of Excellence in Medical Education and customized it according to STMU: Total four slides per group for the purpose of quality assurance. First slide comprised an overview of the research. Second slide comprised of visual presentation of an unstructured abstract, third about the methodology details and last slide about the description of results. The students were given instructions

regarding the font size and type of presentation. They were given deadline for the submission. For this purpose, five medical colleges from twin cities of Rawalpindi and Islamabad including Foundation Medical University (FMU), Rawalpindi Medical University (RMU), Islamabad Medical and Dental College (IMandDC), Army Medical College (AMC), and Shifa College of Medicine (SCM) participated in this competition. The presenters were asked to give 5 min presentation followed by 2 min of question answer session. Thirty abstracts from discipline of basic health sciences, clinical health sciences, medical education, and public health were submitted, out of which twenty abstracts that met the criteria were shortlisted, ten abstracts were excluded because of incomplete information submitted. A checklist comprising 15 marks was designed for the assessment of the presentations which was shared with the panel of three judges belonging to different disciplines of Medicine. At that time, the first wave of COVID-19 pandemic was at its peak, the judges along with one moderator joined the session from the campus while maintaining social distancing. The event was conducted through Google Meet platform. It was chaired by the Vice Chancellor STMU and Dean Shifa College of Medicine, STMU. A database was set for the online presentations and the presenters were given the detailed instructions and guidance. The result was being compiled simultaneously on the excel sheets through the average scores. The result was announced and the prize money was given to the first, second and third presenters. All the participants were awarded e-certificate of participation. The winners were announced online.

A mixed method research was designed, enrolling all presenters of scholars' day. The data collection was done in 2 weeks in the month of May, 2020.

Following Institutional Review Board Ethics approval, all 20 participants were contacted for in-depth interview on cellphone. An interview guide was used to record data after taking informed consent. Fifteen to twenty minutes of interview were conducted to know the students' perception regarding the online scholar's day and how different they felt about the transition from mounted poster to online poster presentation. Questions regarding participants' experience, format of presentation, timing, limitation, and suggestions were asked from participants. The data were audio recorded. The recordings were transcribed and after familiarization with the data, themes were generated by thematic analysis.

Quantitative data received in the form of scores of the presentations, were entered and analyzed in SPSS version 23. Descriptive statistics were calculated.

Results

A total of 20 students presented their e-poster on Scholars' day. Thirteen participants were female while seven were male. Eleven students were from RMU whereas six were from STMU and other three students were from AMC, FMU, and IMDC.

Descriptive statistics of scores given by all three assessors is given in Table 1.

Inter-rater reliability between the three assessors was done using Kappa statistics as given below:

Assessor 1 and Assessor 2 were 0.25 meaning Fair Agreement, Assessor 1 and Assessor 3 were 0.17 meaning Slight Agreement while between Assessor 2 and Assessor 3 it was −0.64 meaning no agreement.

Thematic Presentation of Qualitative Results

Engaging in the tedium of lockdown era

As majority of the students had never presented a poster before and when all other face to face activities had to be stopped in the era of COVID-19 lockdown they thought that this would be a hindrance in availing the opportunity. However, when they came to know that the poster presentation was going to be held online, all the participants were very excited to have given a chance to show their skills and research work.

"Many of my friends have presented a mounted poster but this is the 1ˢᵗ time I got the chance and that too presenting an e-poster"
"The moment I heard about the scholars' day being held online and that my abstract have been selected for the presentation, it gave me a sense of achievement and I enjoyed making the poster"
"There should be more of such activities like webinars and seminars as well especially during the pandemic to keep us busy as all the academic activities are online nowadays"

All the participants were of the opinion that presenting a poster gave them a sense of relaxation as they were in their comfortable homely environment.

"It was very convenient for me as I was out of station and had it been the mounted poster, so I had to be available there but e-poster presentation facilitated me in that sense"
"It was a very different experience as I learned a lot from other presenters as well in my own comfort zone"
"This activity helped us to develop research skills and I am glad this will add to my CV"

Table 1: Descriptive statistics of assessors' evaluation of students' online poster presentation

Assessor	Minimum	Maximum	Mean	Std. Deviation
Assessor 1	5.0	14.0	8.5	2.5
Assessor 2	6.0	13.0	8.7	1.8
Assessor 3	6.0	14.5	9.6	2.5
Total	6.0	13.8	8.9	2.1

Assortment of imperative material in research

Majority of the students were of the opinion that the template provided was very helpful to focus on the important features of the research and give a crisp overview of it. Also summarizing the results in a form of a poster made it easy to understand the crux of one's research.

"The template created a uniformity among all the presentations and helped me streamline my results with the help of my group members"
"The allotted time given for each presentation was ample as it allowed the exchange of information and to say a lot in less time"
"Template was so concise just like fill in the blanks"

Few of the students were of the opinion that the template given was bit confusing. *"The template was not flexible as we were not able to customize it according to our requirements"*

The percentage of positive and negative responses, regarding the template of the E-posters can be seen in Table 2.

Pros and cons

Students faced few challenges while presenting e-posters, there were positive responses as well presented in Table 3.

Control of slides
"Control for changing the slides should be in the presenters' hand, as telling the host again and again to change the slides was bit time consuming".

Clinical researches versus non-clinical researches
"Clinical researches are more difficult to conduct and present as lot of ethical issues are involved in it".

Table 2: Perception of the participants regarding template of e-posters

	Perception about the template provided	
	Positive	**Negative**
Number of participants	16	4
Percentage %	80	20

Table 3: Positive and negative responses regarding e-poster presentation

Subthemes	
Positive responses (65%)	Negative responses (35%)
Critical thinking	Control of slides
Fair assessment	Clinical researches versus non-clinical researches
Motivation	Internet issues
Cost effectiveness	Lack of eye contact
Collaborative learning	

Internet

"Internet connectivity is a huge problem faced by lot of students during these online activities and there was lot of distortion".

Lack of eye contact

"As we couldn't see the judges so we were not able to know their expressions on our answers".

Among all these challenges students were quite positive about such activities to be conducted in future amid the extension of the COVID-19 lockdown.

Collaborative learning

"Different medical colleges from various cities can participate in this online activity encouraging collaborative learning".

Critical thinking

"It was very convenient and also we were able to see all the presentations which enhanced our learning in research as this is not possible in the conventional method of presenting".
"Listening to all the presentations and the questions asked by the judges made me think out of the box and improve my research skills".

Fair assessment

"Assessment was a fair method as the panel of three judges marked on the same criteria".
"This was an innovative method to teach us research as the assessment scores made us realize how we can improvise our research".

Motivation

"We are now planning to start another research project from the experience we gained".
"I am aiming to get my research work published in some international journal as this presentation has given me great confidence and now, I know it's doable"

Cost effectiveness

"Above all other benefits, it was really helpful in terms of its cost as being students making mounted posters is costly and requires more resources"
"Electronic posters are relatively inexpensive as if we need to update anything in our research, changes can be made easily or else we will have to get a new poster made".

Discussion

In the era of COVID-19, remote learning strategies have been implemented in the medical curriculum worldwide. This pandemic has compelled the medical colleges to use online mode for the teaching with lots of creativity. Our participants also reiterated the innovative way of presenting the research work. To motivate the students and develop deep learning among them, poster presentation has been an effective teaching and evaluating strategy especially in a large group setting.[11]

There had been few difficulties reported in preparing the posters by the participants as the format given was not flexible and a lot of information was to be disseminated in a limited space. Moreover, the internet connectivity was found to be another key challenge. As seen in the study conducted in India Internet signals has been the most challenging part in the smooth conduction of the e-poster presentations whereas accessibility and convenience being the important facilitating factors.[12] Furthermore, the process of preparation of the posters with the given guidelines facilitated the participants in its making. This develops good teamwork and collaborative learning as seen in a study conducted in Philadelphia.[13]

Our participants were of the opinion that the research findings when presented in the form of a summary and charts give a vibrant picture which catches the interest of the audience. Similar results were observed in a study published in health services research which showed that the visual appeal helps to display the research data much more effectively.[14] Moreover, poster presentation was found to be the effective method of gaining knowledge and promoting research knowledge transfer, as being a new strategy providing visually appealing presentations and discussion engage the audience. This is also in line with a study conducted in Turkey that the poster presentations are effective means for the transfer of knowledge.[15]

E-poster presentation provides good learning opportunity to the upcoming medical graduates. Through electronic display, research work presentation is more meaningful, which is in line with another study conducted on the nursing students stating that e-posters provides more learning opportunities.[16]

The e-poster assessment has been a contributing factor to the learning process and the active engagement of the participants. It enhances critical thinking about the research projects and helps to identify errors in their academic writing. This, in turn, makes them more vigilant, building eagerness and confidence to work. The assessment of research develops skills for professional education in under and post graduates.[17]

The transition from the conventional poster presentation to the e-poster presentation has made it very innovative, thought-provoking, and eye-catching for the audience and it is suggested to be used along with the traditional methods of poster presentation in future as well.[18]

This transition has been helpful in terms of its cost. Changes in the posters can be made till the last minute easily as per the requirements without bearing the extra cost. Conventional poster presentations provide a medium for spreading the knowledge of the research findings but are expensive. Digitalization not only reduces the cost but also protects the environment by going paperless.[19]

Medical research has become an imperative part of the medical curriculum as the importance of research in medical science can never be negated. Publications and presentations are considered as the academic outcomes to assess the accomplishment of the research projects at undergraduate level.[20] This study is also in-line with this concept as it projects medical student's researches.

In the absence of evidence of similar literature, this study is novel and therefore will open avenues for continuing medical education in ties of natural disasters. This study thus holds its merits and demerits. Due to the shortage of time in the transition from mounted poster to e-poster, less number of participants could be involved from various colleges in the twin cities only. A bigger sample was not taken because of limitations due to COVID 19 pandemic. From the students point of view they could not complete their ongoing researches due to pandemic thus could not participate in the Scholars Day. Different cities can be involved through this online platform to present their research work, which can, in turn, broaden the scope of the study.

Literature search could not reveal evidence regarding the undergraduate students presenting their research work in online competitions during times of COVID pandemic and lock down.

Conclusion

E-poster presentation is an innovative method of presenting the research work of undergraduate students in the developing world. It helps students to communicate at a different forum with diversity using multitude of skills, thus enhances learning. Moreover, comments by the audience and judges can provide a platform to brainstorm on research projects before these get published. Therefore, it needs to be practiced more among undergraduate students to promote research even in times of global medical emergencies like pandemic.

Authors' Declaration Statements

Ethics approval and consent to participate

Institutional Review Board of Shifa Tameer E Millat University gave the approval of the study. All the participants who were interviewed gave their written consent to participate in the study.

Availability of data and material

The data used in this study are available and will be provided by the corresponding author on a reasonable request.

Competing interests

The authors declare no conflicts of interest.

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