

Telegram as a Tool to Supplement Online Medical Education During COVID-19 Crisis

Muhammad Zafar Iqbal¹,
Hussain Ibrahim Alradhi²,
AbdulSalam Abdulkarim
Alhumaidi³, Khalid Hussni
Alshaikh⁴, Abdulraouf
Mohammed AIObaid⁵,
Mohammed Taher Alhashim⁶,
Mona Hmoud AISheikh⁷

¹Medical Education Department, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

²College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

³College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

⁴College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

⁵College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

⁶College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

⁷Medical Education Department, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

Corresponding author: Muhammad Zafar Iqbal, Department of Medical Education, Building 30, King Fahd University Hospital, Street 22, Khobar, Saudi Arabia. E-mail: zafar@iau.edu.sa. ORCID ID: <https://orcid.org/0000-0002-5605-8143>.

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ABSTRACT

Introduction Instant Messaging Applications are known for their potential to enhance learning. However, to date, there has been little investigation into the implications of the 'Telegram' application for online medical education and training. **Aim:** This study explores the potential benefits and disadvantages of integrating Telegram into undergraduate medical education during the COVID-19 pandemic. **Methods:** An exploratory study was conducted between March and May 2020, with 203 undergraduate medical students recruited through purposive sampling. Data was collected through seven open-ended questions, followed by thematic analysis using Atlas.ti. **Results:** Most students participating in this study reported multiple utilities of the application, including easy access to educational resources and the ability to add unlimited members, as well as files in all formats and sizes. Additionally, the application assisted students to engage with collaborative learning, maintain their wellbeing, and ensure their security. However, they also reported some drawbacks, i.e., a complex interface, information overload, and a tendency to distract them, causing time wastage. **Conclusion:** This study concludes that Telegram provides an effective mobile learning platform for medical students during the current crisis, in particular. Moreover, it offers considerably more functionalities and fewer potential drawbacks than alternative applications.

Keywords: Telegram, Instant messaging applications, Mobile learning, Online medical education..

1. INTRODUCTION

The novel COVID-19 pandemic has resulted in widespread disruption for all sectors, including education (1). The implementation of emergency lockdowns and social distancing has led to campus-based education being suspended in most parts of the world. These unforeseen circumstances have challenged medical institutes, both globally and regionally, to rethink ways of ensuring the smooth delivery of high-quality education, resulting in a paradigm shift from face-to-face to online teaching and learning (2). Teachers are now using a variety of technology-based modalities, i.e., Zoom, Microsoft Teams, Google meet, Adobe Connect, WebEx and Skype to continue their students' education, depending upon their convenience and institutional resources

(3-5).

Alongside these web-based programs, additional support is being provided by instant messaging and social media applications to streamline medical education during the current crisis. Smartphone applications (i.e., WhatsApp, YouTube, LinkedIn, Messenger, and Facebook) (6) known for improving students' clinical decision making, working efficiency and performance in examinations, are already well integrated into medical education and practice (7-9). A relatively new application, known as Telegram, has recently gained in popularity among medical students as a resourceful educational platform. Telegram is a free, cloud-based messaging application capable of being used on both smartphones and desktops. The application's official website (www.telegram.org)

telegram.com) states that it allows its users to create groups and channels formed of as many as 200,000 members. The application also facilitates the sharing of files of multiple formats, including PowerPoint presentations, audios/videos, PDFs, and Word documents.

Much has been previously written concerning the role of instant messaging applications for supplementing educational practices (10–12). However, an in-depth exploration of the utility of Telegram as a mediating tool for online teaching and learning has not been reported yet. Its increased use during the ongoing pandemic has highlighted the need to explore and document both the merits and demerits of Telegram to obtain evidence and enable its users to make informed decisions (13).

2. AIM

This study, therefore, examined the perceptions of medical students concerning the utility of Telegram in online education. The research question guiding this project was as follows: What is the impact of the online application Telegram on the education of students during the COVID-19 pandemic?

3. MATERIAL AND METHODS

Study Design and Setting

This exploratory study was conducted between March and May 2020 in the College of Medicine of Imam Abdulrahman Bin Faisal University, Saudi Arabia. The college of medicine has, in response to the COVID-19 pandemic, been completely transferred its courses to online delivery. Moreover, all students have been advised to install and use the Telegram application, as this is being used to create official class groups and channels to facilitate distance learning.

Participants

Homogenous purposive sampling (14) was undertaken to recruit volunteers, focusing on undergraduate students of our Medical College. As this was not an experimental study, we only recruited those students who already had Telegram installed on their smartphones and excluded all students with no prior familiarity with the application.

Materials

After undertaking a thorough literature review, we developed an inventory of seven open-ended and semi-structured questions to examine students' perceptions in a more meaningful manner. The inventory was then pilot tested on five students to determine the relevance, face validity and clarity of the questions. The responses received from pilot testing were then used to make minor corrections. See Appendix I for the list of validated survey questions.

Procedure

Using the validated inventory, an online survey link was developed and distributed by means of QuestionPro® (Survey Analytics LLC, Oregon, USA). We collected the data over four weeks, and a parallel template analysis was conducted, using both inductive and deductive coding until saturation was achieved (15). Qualitative data were analyzed using Atlas.Ti (Version 8; Sci-

entific Software Development, Berlin, Germany) qualitative data analysis software, whereas the number and frequency of responses were calculated through Microsoft Excel 2019.

Ethical Considerations

Ethical approval for the study was obtained from the Institutional Review Board of Imam Abdulrahman Bin Faisal University, under the IRB # IRB-UGS-2020-01-168. An informed consent was also obtained electronically from all participants, agreeing to the use of the collected data for the anonymous dissemination of information.

4. RESULTS

A total of 698 students were approached, of which 203 (29.03%) agreed to participate. The majority of the participants (n=81, 39.90%) had been using Telegram for over five years, while n=59 (29.06%) had been using it for between two and five years and n=63 (31.03%) for less than two years. In addition, 27.58% had between one and five channels for educational purposes, while 61.08% had between six and ten, and 11.33% had over ten channels.

Benefits

The participants reported multiple educational benefits of the application, as discussed below.

Educational resources

The most frequently reported benefit was the ease of access to educational resources, with the most frequently accessed being: (1) lecture slides (77.2%); (2) eBooks (66.3%); (3) online question banks (44.6%); (4) websites (33.7%); (5) notes (31.7%); (6) educational podcasts (15.8%); (7) discussion forums (14.9%); (8) mind-mapping (9.9%); (9) journal articles (8.9%); (10) the Saudi Commission for Health Specialties (national) guidelines (6.9%); and (11) clinical calculators (3%). The students valued the diversity offered by the application to support distance learning, with one stating:

I like the app very much. We have special channels where my class fellows and teachers regularly upload content in different formats. When the app notifies me, I go through the reading material, all in one place.

Unlimited sharing capacity

Another distinctive feature of Telegram noted by students was that (unlike other applications) it allows the unlimited addition of group members and file sharing without any limitations of size or type. Furthermore, within the group, each member is given administrative rights, enabling all students and teachers to send and receive educational resources freely. One participant commented:

We often have large video lectures, presentations and graphics, which require more than the allowed space in WhatsApp. Then I prefer switching to Telegram because it has no size limit.

Communicating with peers

Many of the participants stated that they found Telegram beneficial for communicating with their colleagues and class leaders, in particular, when it came to obtaining information regarding timing, schedules, and announcements. The students also highlighted the usefulness of channels, informing that they used specific channels to access information and create polls to make

decisions. One student said,

Since our hospital rotations have started, we work in schedules which are different from my other class fellows. Sometimes, there is a clash in schedules because some lecture, test or ward round has been changed by the teacher. We then quickly create a poll in Telegram and take the opinions of others to decide the best alternative option that suits everyone's schedule.

Wellbeing

Many students stated that their teachers maintained their engagement through different educational activities by posting quizzes and informative material on the class channel. The students also noted that the application helped them to pursue collaborative peer learning, which prevented them from feeling isolated. One student shared:

We have created a group in Telegram where we share information and study material. We also use this group to support each other emotionally because of the corona situation.

Security

The students stated that the application's encrypted chats and the ability of messages to self-destruct made them feel secure. This feature gave them the liberty to be extroverts and freely discuss a topic or problem without worrying about making mistakes. Additionally, the majority of the female students said that they felt safer using this application than many others, as it allows anonymous access to channel resources. One student noted:

The best thing about this app is that I don't have to reveal my number. I can enter any class channel to get information or notes anonymously. I feel safe that way.

Drawbacks

Alongside the advantages of Telegram, the participants also highlighted some disadvantages which are capable of having a negative influence on student learning. Some students found the application a source of disturbance and distraction while studying, with one stating:

It's a good thing that the app has so much to offer, but sometimes it is annoying too, especially when I am not using it. I keep receiving notifications from groups and channels, which distract me a lot and waste my time too.

Some students also reported that they found Telegram to be complex and that its interface is difficult and lacks user-friendliness. A small number of students also criticized the app for causing information overload.

5. DISCUSSION

This study explored the use of the Telegram application to facilitate online medical education during the current global pandemic. The results identified that the application was generally perceived as being beneficial, with multiple utilities reported by the respondents. The features most frequently highlighted were: the ease of accessing education resources; the ability to add unlimited members; the facility for uploading or downloading files in all formats and sizes; the ability to undertake peer collaboration; the promotion of wellbeing; and security. The findings of this current study accord with that of Far-marzi et al.(16) who reported similar utilities of Telegram when exploring its feasibility for the distance teaching of language courses. However, one significant difference is that the current participants reported the resource

sharing feature more valuable than stated in other studies (16–18). A plausible reason for this finding could be the nature of medical education and training that demands a wide range of learning resources.

In addition, the Telegram channels also enabled the students to search for journal articles and eBooks by subscribing to different libraries and without the need for support from other browsers, websites and/or applications (18, 19). This feature not only facilitates student learning but also lessens the need for the university library. A further benefit of this application, particularly for female students, was user anonymity while accessing channel resources. This finding could be attributed to local cultural norms that place particular emphasis on female privacy and modesty (20).

This study acknowledges that several other applications (i.e., WhatsApp and Facebook Messenger) also have comparable functionalities to Telegram. However, these have some limitations, including restrictions on the number of group members, limited file sharing capacity and type, and the need to link with other accounts (7, 12, 16, 18). These limitations may have result in the participating students expressing a preference for Telegram over other instant messaging applications.

The current crisis arising from the COVID-19 global pandemic has put all activities on hold, which has resulted in many challenges for students, including maintaining their psychological wellbeing. In such testing times, students need to remain interconnected and continue to engage with educational activities, to prevent any negative psychological impacts (21). Our own study showed that the dedicated class groups within the application enabled the students to communicate with each other and faculty staff regarding the curriculum, schedules, examinations, and learning queries. This feature has the potential of reducing the communication gap between students and their teachers and preventing student isolation in the current lockdown. However, further research is also required to test the full benefits of mobile learning for engaging students and maintaining their psychological wellbeing.

Limitations

This study contains a number of limitations. Since the study was conducted in a single institution, its results may not be generalizable for other educational contexts. This study explored only the merits and demerits of Telegram in online pedagogy. Further research is required to establish whether the application's educational use can also be supported through the lens of educational theories. A further limitation of this study concerns the low response rate, which could be attributed to the current COVID-19 crisis. However, since we achieved data saturation, we do not see any negative impact of the low response rate on our findings.

6. CONCLUSION

This study concludes that Telegram offers more functionalities and fewer potential drawbacks than many other applications. Following the principles of constructivism, the application supports learners in scaffolding new information on prior knowledge, instead of relying

completely upon teachers (6, 12, 22). However, as reported by some students, too much information can also cause a cognitive overload that can potentially impede learning (23). Thus, Telegram's users need to maintain a balance if they wish to achieve the optimal learning benefits from the application. We advocate that Telegram provides an effective mobile learning platform, particularly during the current crisis.

Appendix 1: Questions inventory

In this appendix, we provide the list of validated questions which were used for data collection.

1. For how long you have been using Telegram?
2. Do you use Telegram for studying, chatting, or both?
3. How many channels do you have for educational purposes?
4. Which educational resources do you access in Telegram groups and channels?
5. Do you see any potential use of Telegram in your online education during the COVID-19 pandemic? If yes, then please explain them
6. Do you see any potential drawbacks of Telegram in your education? If yes, then please explain them
7. Is there any unique feature in Telegram that supports your learning more other applications?

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