

Impact of Social Media as an Adjunct in Teaching Learning Method for Undergraduate Medical Education: A Randomized Controlled Study

T. Elavarasan¹, K. Haribaskaran², M. Suganya³

¹Professor, Department of Pathology, Government Dharmapuri Medical College, Tamil Nadu, India

²Assistant Professor, Department of Pathology, Government Dharmapuri Medical College, Tamil Nadu, India

³Assistant Professor, Department of Community Medicine, Government Dharmapuri Medical College, Tamil Nadu, India

Received: 01-04-2026 / Revised: 15-05-2026 / Accepted: 21-06-2026

Corresponding author: Dr. M.Suganya

Conflict of interest: Nil

Abstract

Introduction: Social media platforms are increasingly being integrated into medical education due to their accessibility, flexibility, and ability to enhance learner engagement. In the post-COVID era, online learning tools have become popular among undergraduate medical students. Integrating social media with conventional teaching methods may improve student participation and facilitate competency-based medical education.

Aim: To assess the impact of social media tools as an adjunct in teaching-learning methods among undergraduate medical students.

Materials and Methods: This randomized controlled study was conducted among second-year undergraduate medical students at a Government Medical College from February 2024 to June 2024. A total of 102 students were randomized into two groups of 51 each. Educational materials related to Anaemia and Myocardial Infarction (MI) were shared through social media platforms (WhatsApp and Telegram) for one group, while conventional reference materials and notes were shared for the other group. A crossover design was followed. Pretests and post-tests were conducted for both topics. Data were analysed using SPSS version 23.0. Independent t-test was used to compare mean scores.

Results: Among 102 participants, students receiving social media-assisted learning achieved significantly higher post-test scores and greater mean knowledge gain than those receiving conventional teaching ($p < 0.001$). Most students (89.9%) preferred online sharing of educational materials, and 98% reported improved understanding of classroom lectures.

Conclusion: Social media platforms can serve as an effective adjunct to conventional teaching methods in undergraduate medical education by improving student engagement and academic performance.

Keywords: Social media, Medical education, Undergraduate students, Teaching-learning methods, Competency-based medical education.

DOI: 10.25258/ijcpr.18.7.83

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Social media has emerged as an important digital resource that has revolutionized the way information is exchanged and communication occurs across many fields, including medical education. These platforms provide opportunities for learners to interact, exchange ideas, collaborate with peers, and actively participate in knowledge construction within online learning communities. Their interactive features support both structured educational activities and self-directed informal learning.

Medical education encompasses a vast curriculum with numerous complex concepts that may not

always be adequately conveyed through traditional lecture-based teaching alone. Conventional instructional methods can sometimes limit student engagement and interest, particularly during lengthy classroom sessions.

The rapid advancement of educational technologies, together with the widespread shift toward digital learning during the COVID-19 pandemic, has accelerated the integration of online learning resources into undergraduate medical education. [1]

Evidence from previous studies suggests that the incorporation of online and social media-assisted

learning strategies can enhance educational outcomes among medical students. [2-4]

Platforms such as WhatsApp, Telegram, and YouTube enable the convenient sharing of educational resources, including animations, instructional videos, illustrations, and other multimedia content that may improve understanding, knowledge retention, and learner motivation. When integrated with conventional classroom instruction, these digital platforms have the potential to strengthen the implementation of competency-based medical education (CBME) by promoting active learning and facilitating equitable access to high-quality educational materials.

The present study was conducted to assess the impact of social media as an adjunct teaching-learning method among undergraduate medical students.

Materials and Methods

This randomized controlled study was conducted at a Government Medical College, Tamil Nadu, India, from February 2024 to June 2024 among second-year undergraduate medical students.

Institutional Ethical Committee approval was obtained prior to commencement of the study (IEC No. 1/2024). Written informed consent was obtained from all participants.

Study Population: Second-year undergraduate medical students.

Sample Size: A total of 102 students participated in the study. The students were randomized into two groups, A and B each consisting of 51 students.

Inclusion Criteria

- Second-year undergraduate medical students
- Students possessing smartphones
- Students familiar with social media applications

Intervention

Two pathology topics, Anaemia and Myocardial Infarction (MI), were selected for the study.

For the topic of Anaemia:

- Group A received educational materials through social media applications, including animations, video clippings, and pictorial content shared via WhatsApp and Telegram.
- Group B received conventional study materials including reference book details and notes.
- Pretests were conducted before the intervention followed by regular theory lectures and post-tests.
- For the topic of MI, crossover was performed:
- Group A received conventional materials.
- Group B received social media-based materials.

Pretests and post-tests were similarly conducted.

Validation: Study materials and feedback questionnaires were validated by faculty members of the Department of Pathology.

Statistical Analysis: Data were entered into Microsoft Excel and analysed using SPSS version 23.0 trial version. Independent t-test was used to compare differences between mean scores. A p-value <0.05 was considered statistically significant.

Results

Among the 102 participants, 51 students were included in each study group.

Table 1: Comparison of Mean Scores between Study Groups

Variable	Group	Mean±SD	p-value
Anaemia Pre-test	Social media	9.8 ± 1.544	0.22
	Conventional	9.49 ± 2.017	
Anaemia Post-test	Social Media	12.24 ± 1.327	<0.001
	Conventional	11.33 ± 2.283	
MI Pretest	Conventional	6.65 ± 1.968	0.13
	Social media	7.02 ± 1.463	
MI Post-test	Conventional	8.3 ± 2.311	<0.001
	Social media	9.8 ± 2.04	

The difference in Mean pretest scores was not statistically significant. For the topic on Anaemia, students exposed to social media-assisted learning demonstrated higher mean post-test scores compared to those receiving conventional study materials. Social media group achieved a higher post-test mean score of 12.24±1.327 compared to 11.33±2.283 in the Conventional group (p=0.001).

For the topic MI, Group B which received Social media intervention during crossover, demonstrated higher scores.

The mean post-test score was 9.8±2.04 in the social media group was significantly higher when compared to 8.3±2.311 in the conventional group (p=0.001) as shown in Table 1.

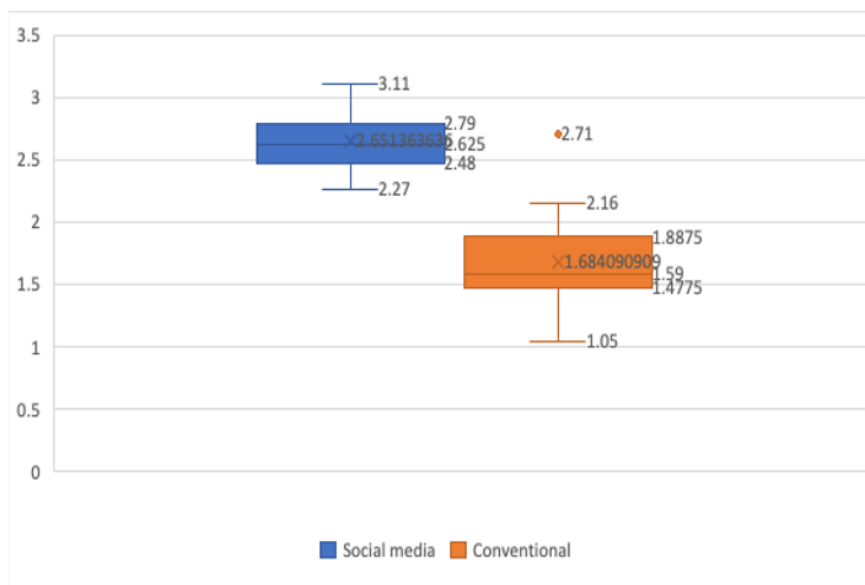


Figure 1: Knowledge Gain: Social Media vs Conventional Teaching

Students in the social media group demonstrated higher median knowledge gain (difference between pre-test and post-test) and an overall upward shift in score distribution compared with the conventional group, indicating better academic performance as illustrated in Figure 1. The difference in the Mean knowledge gain between the two groups was found to be statistically significant by Independent t-test ($p < 0.001$).

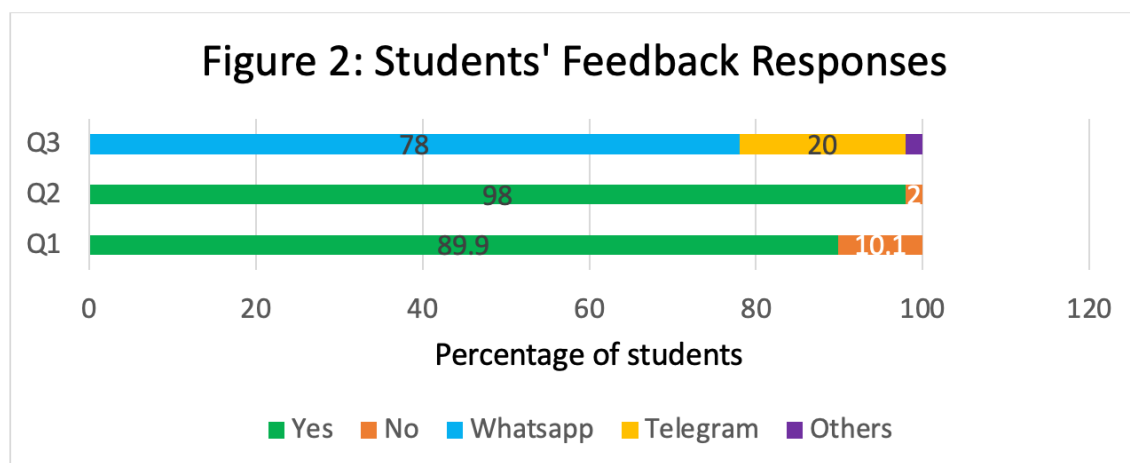


Figure 2: Students' Feedback Responses

Q1. Will you prefer this method of sharing materials through online before regular classes in future?

Q2. Whether sharing these materials beforehand helped in better understanding during the regular theory classes?

Q3. Select one social media platform which is convenient and easily accessible for sharing and reading these materials

Figure 2: Student's feedback responses

Feedback analysis revealed that the majority of students had a positive perception towards social media-assisted learning. About 89.9% of the students preferred sharing of educational materials through online platforms prior to regular theory classes. Nearly 98% of the students reported that prior exposure to educational materials through

social media helped them understand the regular classroom lectures better. Among the various social media applications used in the study, WhatsApp was the most preferred platform, chosen by 78% of students, followed by Telegram as shown in Figure 2.

Discussion

The present study demonstrated that social media-assisted learning significantly improved academic performance among undergraduate medical students compared to conventional study materials alone. Students who received educational content through social media applications showed higher post-test scores in both Anaemia and Myocardial Infarction topics. These findings suggest that integrating social media platforms into routine medical teaching can enhance learner engagement, accessibility to educational resources, and understanding of complex concepts. The findings of the present study are consistent with recent literature highlighting the increasing role of digital and social media platforms in undergraduate medical education. Whyte W et al., reported that social media usage in medical education was associated with positive educational outcomes, including enhanced communication, collaboration, learner engagement, and accessibility to educational resources. However, the authors also emphasised the need for structured implementation and appropriate faculty guidance to maximise educational benefits [5]. The COVID-19 pandemic accelerated the adoption of online educational strategies across medical institutions worldwide. Nirupama AY et al., observed that undergraduate medical education in India underwent substantial transformation during the pandemic period, with increased reliance on online teaching platforms, messaging applications, and virtual learning methods. The authors reported that students adapted favourably to digitally assisted learning methods because of their flexibility and ease of access [6]. The present study similarly demonstrated favourable student responses towards social media-assisted teaching methods. In the current study, educational materials shared through WhatsApp and Telegram included animations, pictorial representations, and video clippings. Such audiovisual learning methods may facilitate better understanding and retention of difficult concepts compared to text-based conventional notes alone. Tan JWC et al., in their systematic review on innovations in undergraduate medical education during the COVID-19 pandemic, reported that digital educational approaches including social media platforms, online video-based teaching, and virtual interactive learning improved continuity of medical education and promoted learner-centred approaches [7].

The present study also demonstrated high acceptability of social media-assisted learning among students. Nearly 98% of participants reported better understanding during regular theory classes after prior exposure to online educational materials. Similar findings were reported by Arun PB and Jannavada H, who observed that most

medical students considered social media to be an engaging and beneficial adjunct to conventional medical education. Their study identified YouTube, WhatsApp, and Telegram as commonly used educational platforms among undergraduate medical students [8].

WhatsApp emerged as the most preferred platform among students in the present study. This finding is comparable with observations from recent studies evaluating the role of mobile messaging applications in medical education. Soon MKS et al., explored the use of Telegram in surgical education and reported that mobile messaging platforms promoted flexible learning, improved learner interaction, and helped compensate for reduced clinical exposure during the pandemic period [9]. These findings support the role of messaging applications as effective adjunctive educational tools in undergraduate medical teaching.

The present study supports the concept that current-generation learners are more inclined towards digitally accessible educational resources compared to exclusively conventional teaching approaches. Social media-assisted learning provides opportunities for repeated access to educational content at the learner's convenience, thereby encouraging self-directed learning and active participation. Greviana N et al., reported that social media platforms supported communication, collaboration, resource sharing, learning motivation, and development of self-learning skills among medical students [10].

Despite the educational advantages, certain concerns regarding social media usage in medical education must also be considered. Previous studies have highlighted issues related to misinformation, distraction, professionalism, and long-term retention of knowledge. A study by Baradwaj et al. reported that although students perceived social media as useful for learning, many participants expressed concerns regarding information accuracy and poor long-term retention. Therefore, social media-assisted learning should be implemented in a structured and faculty-supervised manner to ensure educational quality and authenticity of content [8].

Overall, the findings of the present study indicate that social media platforms can effectively complement conventional teaching-learning methods in undergraduate medical education.

Integration of structured social media-assisted educational interventions may facilitate better implementation of competency-based medical education by promoting active learner participation, flexible access to educational materials, and enhanced student engagement.

Limitations: The present study was conducted in a single institution with a relatively small sample size, which may limit the generalisability of the findings. The duration of the intervention was short, and only two educational topics were included in the study. In addition, the study evaluated short-term academic performance and student perceptions without assessing long-term knowledge retention or behavioural outcomes. Further multicentric studies involving larger sample sizes, multiple disciplines, and longer follow-up periods are recommended to validate the findings.

Conclusion

Social media platforms such as WhatsApp and Telegram can serve as effective adjuncts to conventional teaching-learning methods in undergraduate medical education. Social media-assisted learning improves student engagement, accessibility to educational materials, and academic performance. Incorporation of structured social media interventions may support better implementation of competency-based medical education.

References

1. Selvaraj A, Radhin V, Ka N, Benson N, Mathew AJ. Effect of pandemic based online education on teaching and learning system. *Int J Educ Dev*. 2021;85:102444.
2. Su B. Enhancement of Online Education to the Teaching paradigm: taking Academic Medical Postgraduate Cultivation as an Example. *Front Med (Lausanne)*. 2022;9:807469.
3. Pei L, Wu H. Does online learning work better than offline learning in undergraduate medical education? A systematic review and meta-analysis. *Med Educ Online*. 2019;24:1666538.
4. Subramanian A, Timberlake M, Mittakanti H, et al. Novel educational approach for medical students: improved retention rates using interactive medical software compared with traditional lecture-based format. *J Surg Educ*. 2012;69(4):449–452.
5. Whyte W, Hennessy C. Social Media use within medical education: A systematic review to develop a pilot questionnaire on how social media can be best used at BSMS. *MedEdPublish* (2016). 2017 May 11;6:83. doi: 10.15694/mep.2017.000083.
6. Nirupama, A. Y et al. Undergraduate Medical Education in India During COVID-19 Pandemic. *Current Medical Issues* 20(3):p 177-181, Jul-Sep 2022. DOI: 10.4103/cmi.cmi_38_22.
7. Tan CJW, Cai C, Ithnin F, Lew E. Challenges and innovations in undergraduate medical education during the COVID-19 pandemic—A systematic review. *Asia Pac Sch*. 2022;7(3):1-9. doi:10.29060/TAPS.2022-7-3/OA2722
8. Bharadwaj Arun P, Jannavada H. Impact of social media on medical education as assessed by a structured questionnaire among medical students of a medical college in a metropolitan city. *Int J Community Med Public Health*. 2025;12(10):4429-35.
9. Soon M, Martinengo L, Lu J, Car L, Chia C. The Use of Telegram in Surgical Education: Exploratory Study. *JMIR Med Educ*. 2022;8(3):e35983.
10. Greviana N et al. Exploring social media usage among medical students and its potentials in learning. *Education in Medicine Journal*. 2024;16(4):113–25.