

Original Research Article

Impact of social media on medical education as assessed by a structured questionnaire among medical students of a medical college in a metropolitan city

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Received: 11 June 2025

Revised: 23 August 2025

Accepted: 25 August 2025

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ABSTRACT

Background: The integration of social media into medical education has redefined access to and dissemination of knowledge. Platforms such as YouTube, WhatsApp, Instagram, and Telegram are increasingly used for collaborative discussions, exam preparation, and procedural learning. In urban India, where internet access is widespread, understanding its impact on medical education is highly relevant. This study assessed patterns of social media usage among medical students enrolled in a metropolitan medical college, examined the educational relevance of their social media content, and evaluated students' perceptions of social media as a learning tool.

Methods: A cross-sectional study was conducted using an online questionnaire with both open- and closed-ended questions among undergraduate students at a tertiary hospital in Bengaluru. A total of 117 responses were analysed using descriptive statistics. The survey examined platform use, content relevance, recall, behavioural influence, and overall attitudes.

Results: YouTube (98.3%), WhatsApp (97.43%), and Instagram (83.76%) were the most used. While 60.68% spent 1-3 hours daily, only 5.99% crossed 6 hours. About 58.12% reported 26-50% medically relevant feeds. Students preferred "edutainment": 70.94% engaged with memes, and 56.41% with mnemonics. Although 83.76% believed social media improved education and 63.25% recalled better than lectures, 76.1% admitted to poor long-term retention. Only 36.75% said it helped pass exams.

Conclusions: Social media is an engaging and beneficial adjunct to medical education, but is limited by retention and accuracy. Structured integration, student-led creation, and regulatory oversight can optimise its academic utility.

Keywords: Education, India, Internet-based interventions, Medical students, Social media

INTRODUCTION

The landscape of medical education has undergone a significant transformation in recent years, spurred by technological advancements and increased internet penetration. In the 21st century, it is nearly impossible to separate the internet from medical education. The pervasive use of social media has emerged as a major influence, reshaping how medical students access information, interact with peers, and engage in continuous learning. Social media platforms, such as YouTube,

Instagram, WhatsApp, Telegram, and X (formerly Twitter), are increasingly being utilized not only for personal interaction but also for academic purposes, including case-based discussions, updates on medical guidelines, and preparation for licensure examinations.^{1,2} Furthermore, access to networking tools like LinkedIn has enabled students to secure opportunities that would have been previously out of their reach.

Digital educational services have been promoted as an alternative to conventional in-person tuition facilities. A

cross-sectional study by Guraya et al. revealed that over 70% of medical students acknowledged the role of social media in enhancing their understanding of clinical concepts.³ Furthermore, platforms like YouTube have become popular for visual and procedural learning, especially in resource-limited settings where traditional learning aids may be scarce.⁴ Similarly, WhatsApp and Telegram groups are frequently used for academic discussions, collaborative study, and rapid dissemination of institutional updates.⁵

In India, with a rising number of digitally literate youth, especially in urban and metropolitan areas, social media's penetration into educational contexts is even more evident. A study by Goyal et al reported that 90% of Indian medical students used at least one form of social media for educational purposes, with significant implications on study patterns and information retention.⁶ Despite its increasing ubiquity, structured assessments evaluating the extent, pattern, and perceived effectiveness of social media in medical education in the Indian context remain limited, particularly in metropolitan settings where both digital infrastructure and usage are high.

Understanding how social media impacts the educational experiences of medical students is crucial, given its growing use and potential to either augment or distract from traditional academic methods. Although international literature has explored this phenomenon to some extent, there is a dearth of localized data from Indian metropolitan medical colleges, where student behaviour and institutional policies may differ substantially. Additionally, a structured assessment using validated tools can provide objective insight into usage patterns, perceived benefits, and concerns such as misinformation, distraction, and time management.

This research aimed to address this issue by examining the impact of social media on medical education for students at a medical college situated in a metropolitan area, using a structured questionnaire. The objective of the study was to measure the degree to which social media infiltrates the personal and professional spheres of medical students and to evaluate whether social media can be effectively utilized for the benefit of promoting medical education. The findings can inform educational strategies, guide policy-making at the institutional level, and shape the development of responsible, tech-integrated curricula for future medical professionals.

METHODS

This was a cross-sectional study which was conducted at a tertiary care hospital in Bengaluru, India. Data were collected using an online survey questionnaire that included both open-ended and closed-ended questions. The study was completed over three months, from December 2024 to March 2025. An additional one month was used for data analysis and interpretation.

Sample size

The sample size was chosen to be 117. The population size has been considered to be 750, with 150 students per batch and 5 batches in total. With the current sample size, and expecting a result with 90% confidence interval and a 7% margin of error, the current sample size was derived.

Inclusion criteria

Subjects were medical students, and between the ages of 16 and 28.

Exclusion criteria

All those who refused to sign the informed consent form.

Method of analysis

Students across different years of a medical college were approached and briefed on the objective of the study. Upon informed consent, an online survey was administered through social media platforms to the participants. The subjects were assessed on the number of social media platforms they accessed, the relevance of medical content on the social media applications, and the extent of medical content that they could obtain through these platforms. Further, they were also asked to express their opinion on the future of social media in medical colleges and how it could be used efficiently and diligently for the propagation of medical education. The above was studied through several open-ended and closed-ended questions. The quantitative data were assessed through percentages. Open-ended questions were analysed based on the available literature.

Statistical methods and tools

The method used was descriptive analysis of primary data. Data has been tabulated in raw numbers and percentages.

Ethical approval

The study was approved by the institutional ethics committee.

RESULTS

A total of 117 medical students participated in the study, of whom nearly half (48.7%) were aged 21-24 years and one-third (33.3%) were aged 18-20 years; the majority were female (71.8%), and the largest group was third-year students (27.4%). YouTube (98.3%), WhatsApp (97.4%), and Instagram (83.8%) were the most commonly used social media platforms, with most students (60.7%) spending 1-3 hours daily online, and 58.1% reporting that 26-50% of their feed was medically relevant. The preferred types of medical content included memes (70.9%), mnemonics (56.4%), and concise notes

(54.7%), with the majority (76.1%) being accessed by subscribing to the creators.

Table 1: Demography of participants.

Variables	Distribution	Percentage
Age (in years)		
Below 18	14	11.97
18-20	39	33.33
21-24	57	48.71
Above 25	7	5.99
Gender		
Male	33	28.20
Female	84	71.80
Others	0%	0.0
Year		
First year	23	19.67
Second year	16	13.68
Third year	32	27.35
Final year	27	23.10
Internship	19	16.20

Table 2: Answers to ‘which social media platform(s) are you active on?’.

Platform	Distribution	Percentage
Facebook	62	53.00
Instagram	98	83.76
YouTube	115	98.30
Snapchat	44	37.61
Twitter	25	21.37
Reddit	59	50.42
WhatsApp	114	97.43
Others	4	3.42

Multiple options are correct.

Table 3: Answers to ‘how much time do you spend on social media in a day?’.

Criteria	Distribution	Percentage
<1 hour	11	9.40
1 hour to <3 hours	71	60.68
3 hours to <6 hours	28	23.93
6 hours or more	7	5.99

Table 4: Answers to ‘what percent of your social media content is medically relevant?’.

Criteria	Distribution	Percentage
0-25%	23	19.66
26-50%	68	58.12
51-75%	23	19.66
76-100%	3	2.56

Ease of access (46.1%) and better recall strategies (23.9%) were the key factors influencing followership,

while only 3.4% cited physical attraction. Medical content was moderately likely to be shared (41.0% selecting mid-scale), though retention was low, with 76.1% reporting they did not remember the content for long; accuracy was also perceived as moderate, with most assigning scores of 3 (41.9%) or 4 (52.9%).

Table 5: Answers to ‘what kind of medical content do you like seeing on social media?’.

Content	Distribution	Percentage
Memes and goofs	83	70.94
Short videos	56	47.86
Concise notes	64	54.70
Quizzes	42	35.90
Mnemonics	66	56.41
Promotional content	59	50.42

Multiple options are correct.

Table 6: Answers to ‘how do you come across medical content on social media?’.

Criteria	Distribution	Percentage
Subscribed to content creators	89	76.10
Random scrolling	17	14.53
Appears on ‘for you’ page	8	6.84
Suggested by peers	0	0.0
Unsure	3	2.53

Multiple options are correct.

Table 7: Answers to ‘which aspect of social media content creators makes you more likely to follow them?’.

Criteria	Distribution	Percentage
Creativity of approach	14	11.97
Concise explanation	17	14.53
Better recall strategy	28	23.93
Easier access to information	54	46.15
Physical attraction to creators	4	3.41
Others	0	0.0

A majority of respondents believed social media could positively influence medical education (83.8%), with 63.3% recalling concepts better through social media than classroom teaching, 36.8% crediting it with helping them pass an exam, and 63.3% agreeing it could complement traditional education.

However, only 29.1% had considered creating their own content. Overall, 82.9% of participants perceived social media as having a positive impact on medical education.

Table 8: Likelihood comparisons.

Score	Distribution	Percentage
Answers to ‘how likely are you to share medical content as compared to non-medical content?’		
1 (least likely)	11	9.40
2	27	23.08
3	48	41.02
4	16	13.67
5 (most likely)	15	12.83
Answers to ‘how likely are you to follow/subscribe to a medical content creator?’		
1 (least likely)	2	1.70
2	4	3.42
3	47	40.17
4	52	44.44
5 (most likely)	12	10.27
Answers to ‘how likely are you to remember medical content that you see on social media?’		
Do not remember it	89	76.10
Lingers for a few minutes	17	14.53
A few hours	8	6.84
A few days	0	0.0
Etched in permanent memory	3	2.53
Answers to ‘on a scale of 1 to 5, how accurate do you find the medical content on social media?’		
1 (highly inaccurate)	0	0
2	6	5.13
3	49	41.88
4	62	52.99
5 (highly accurate)	0	0

Table 9: Answers to ‘how do you feel when you see medical content on social media?’

Criteria	Distribution	Percentage
Intrigued to learn more	72	61.53
Guilty that I’m not studying	21	17.95
Indifferent to the content	16	13.67
None of the above	8	6.85

Table 10: Answers to directive questions.

Criteria	Distribution	Percentage
Answers to ‘do you think social media can be beneficial in improving medical education?’		
Yes	98	83.76
No	12	10.26
Unsure	7	5.98
Answers to ‘have you remembered a concept better through social media, than how it was taught in college?’		
Yes	74	63.25
No	18	15.38
Unsure	25	21.37
Answers to ‘have social media posts (or creators of medical content) motivated you to study longer?’		
Yes	37	31.62
No	31	26.49
Unsure	49	41.89
Answers to ‘has social media helped you pass an exam?’		
Yes	43	36.75
No	55	47.01
Unsure	19	16.24

Continued.

Criteria	Distribution	Percentage
Answers to ‘can social media content significantly complement traditional resources/systems of education?’		
Yes	74	63.25
No	31	26.49
Unsure	12	10.26
Answers to ‘have you considered creating medical content on social media?’		
Yes	34	29.06
No	72	61.15
Unsure	11	9.79
Answers to ‘do you think social media has a positive or negative impact on medical education?’		
Positive	97	82.90
Negative	20	17.10
Answers to ‘will your approach to medical content on social media change after answering this questionnaire?’		
Yes	49	41.88
No	43	36.75
Unsure	25	21.37

DISCUSSION

The findings of this study demonstrate that social media plays a significant role in shaping the learning behaviour of medical students, with distinct patterns of usage, preferences, and perceived effectiveness. The majority of students reported frequent use of YouTube (98.3%), WhatsApp (97.4%), and Instagram (83.8%) for medical learning, consistent with studies by Raiman et al and Goyal et al, which identified YouTube and WhatsApp as leading platforms for educational engagement among medical students.^{5,6} This underscores the scalability of these platforms in disseminating medical knowledge.

A major observation was the preference for edutainment formats such as memes (70.9%) and mnemonics (56.4%), which facilitate engagement and recall. This finding corroborates previous reports highlighting that interactive and visually appealing formats enhance attention span and learner motivation. However, while 63.3% of participants reported remembering concepts better from social media than from traditional lectures, 76.1% indicated that they did not consistently retain content. This aligns with Jain et al, who similarly observed that while social media content generates curiosity and short-term recall, it lacks reinforcement mechanisms to sustain long-term knowledge retention.⁷

To strengthen memory retention, it is crucial to integrate active recall and spaced repetition techniques into social media-based learning. Creating interactive formats such as quizzes and flashcards can help reinforce key concepts. Additionally, using short video snippets or reminders on platforms like WhatsApp, delivered 24 to 48 hours after initial content exposure, can effectively engage learners and encourage the retention of information over time.

Edutainment content, such as memes or short video explainers, proves highly effective for capturing student attention. Crafting memes that incorporate mnemonics or

creating themed video series can offer both educational value and entertainment, making the learning process enjoyable and memorable. Collaborating with content creators can amplify these efforts, ensuring a consistent flow of engaging content that resonates with students.

WhatsApp and Telegram can be powerful tools for professional development in the medical field. Moderated groups featuring daily prompts, quizzes, or interactive quizbots can help reinforce key learning points and maintain consistent engagement. A centralized repository for “best explanations” or visual aids can further serve as a valuable resource for learners, offering easy access to high-quality, well-explained content.

Another important finding is that although engagement with educational content is high, active content creation by students remains low, with only 29.1% considering becoming creators. Previous research has also documented similar hesitancy, citing barriers such as time constraints, fear of inaccuracies, and lack of institutional encouragement.⁶ The limited participation in content creation restricts the potential for peer-to-peer learning and the development of collaborative digital learning ecosystems, which are increasingly recognized as valuable in medical education.^{7,8}

To foster deeper engagement and a sense of ownership, students should be encouraged to create educational content. Hosting workshops or offering mini-grants for students to develop concise and impactful learning materials can cultivate creativity and participation. A ‘content incubator’ approach within universities, where students receive mentorship from faculty and peer review, can further enhance the quality and reach of student-generated content, allowing for a collaborative learning environment.

Concerns regarding accuracy were also evident. In this study, most students rated the accuracy of social media medical content as 3 or 4 out of 5, suggesting moderate

reliability. This is in agreement with the National Academy of Medicine report, which cautioned that misinformation is a major challenge due to the lack of regulatory oversight on these platforms. The moderate confidence in accuracy reported here mirrors findings in prior studies that stressed the importance of curating credible content and providing digital literacy training for medical learners.⁸

The credibility of medical information shared on social media is paramount. To address concerns about misinformation, universities and medical institutions should recruit recognised figures, such as faculty doctors or reputable medical pages, to produce and endorse content. Adopting the standards outlined by the National Academy of Medicine for identifying reliable sources is crucial in maintaining trust. Additionally, establishing verification systems or “trusted” labels for content will help ensure that learners have access to accurate and trustworthy resources.⁸

Finally, an overwhelming 82.9% of respondents in this study believed that social media exerts a positive influence on medical education, and 63.3% felt it could complement traditional teaching. These findings are consistent with earlier systematic reviews demonstrating that social media serves as an effective adjunct to conventional teaching methods, particularly for reinforcement and learner engagement.^{5,6} However, the modest motivational effect observed here- where only one-third of participants reported studying longer due to social media- suggests that while social media is effective as a supplementary tool, it cannot yet substitute structured curricular teaching.

Given the sensitive nature of healthcare-related content, it is essential to implement robust data protection strategies. Adhering to the Digital Personal Data Protection (DPDP) Act 2023 will ensure the secure handling of personal data, including informed consent and anonymization of information. For discussions involving patient data or case studies, platforms like WhatsApp should employ encrypted communication and pseudonymization techniques to safeguard privacy and comply with regulatory standards.⁹

Several organizations and initiatives can support the integration of digital tools in medical education. The CHAKRA Centre at Maharashtra University of Health Sciences, for example, offers simulation labs and digital learning environments, which can serve as hubs for content creation and training.¹⁰ Free Open Access Meducation (FOAMed) is an international movement that encourages the use of open educational materials in the medical field and can act as an example for networks of content created by students.¹¹ Furthermore, institutions should follow best practices as outlined by organizations like HIMSS and the World Health Organization (WHO), which guide digital transformation in healthcare education and data protection. These organizations also

develop interoperable platforms that can enhance educational messaging and data-sharing practices.¹²

Several key pieces of legislation play a crucial role in ensuring the safe and ethical use of social media in medical education. The DPDP Act 2023, as mentioned before, ensures that privacy is maintained in the creation and use of digital medical content, while the DISHA Bill and Health Data Management Policy regulate the collection, storage, and sharing of digital health data, which is particularly important for content involving patient information.¹³ The IT (Intermediaries and Digital Media Ethics) Rules 2021 impose accountability on platforms and mandate content moderation, ensuring that harmful or misleading information is kept in check.¹⁴ Lastly, the Telemedicine Practice Guidelines under the NMC Act set clear standards for digital interactions and the sharing of content by healthcare professionals, ensuring that the ethical and legal framework directs the application of social media in healthcare education.¹⁵⁻¹⁷

This study was limited by its cross-sectional design, single-institution setting, and reliance on self-reported data, which may restrict generalizability and introduce reporting bias. Long-term academic outcomes were not assessed, limiting conclusions about causality between social media use and educational performance. Future research should adopt multicentric and longitudinal designs to capture broader patterns and sustained effects. Interventional studies that integrate active recall, spaced repetition, and mentorship-driven content creation could provide evidence-based strategies to improve retention and accuracy. Furthermore, examining institutional endorsement and regulatory frameworks will be key to establishing sustainable, ethical, and scalable models of social media-based medical education.

CONCLUSION

Social media is an engaging and widely used adjunct to medical education, with students reporting improved attention and recall through edutainment formats. However, concerns regarding misinformation, poor long-term retention, and low participation in content creation limit its full potential. Integrating active recall, spaced repetition, and mentorship-driven student content, alongside regulatory safeguards such as the DPDP Act 2023 and DISHA Bill 2022, can enhance both credibility and effectiveness. With structured adoption, social media can evolve into a credible, sustainable complement to traditional medical curricula.

ACKNOWLEDGEMENTS

The investigators would like to extend their gratitude to the institution, M. S. Ramaiah Medical College, for their support in allowing us to further our research, and the faculty of the department of community medicine for their mentorship and guidance over the same. They would like to thank the Principal and Dean, Ramaiah Medical

College, for allowing us to conduct the investigation and administer the survey questionnaire in the premises. The investigators would like to thank the study participants for their role in furthering the advancement of knowledge in this crucial topic.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Arun PB, 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;12:4429-35.