ORIGINAL ARTICLE
Volume 16 Issue 4 2024
DOI: 10.21315/eimj2024.16.4.8

ARTICLE INFO
Received: 21-08-2023
Accepted: 22-08-2024
Online: 29-12-2024

Exploring Social Media Usage among Medical Students and Its Potentials in Learning

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To cite this article: Greviana N, Wiyarta E, Novarianto JK, Supranoto YTN, Ayusha MAR, Hanum C, Hidayah RN, Sari SM, Wijaya DP, Riezky AK, Adista MA, Marlina M, Abriya W, Ivone J, Ummah FC, Nurikhwan PW, Qomariyah N, Atta K, Findyartini A. Exploring social media usage among medical students and its potentials in learning. Education in Medicine Journal. 2024;16(4):113–25. https://doi.org/10.21315/eimj2024.16.4.8

To link to this article: https://doi.org/10.21315/eimj2024.16.4.8

ABSTRACT

The growth of social media as instant interactive platforms for students has significantly affected medical education practices. Despite its reported disadvantages for student learning, the rapid development of social media warrants an examination of its relevance and potential as a learning tool for medical students. This study thus explored the use of social media by medical students and its potential for supporting their learning. This cross-sectional study adopted a descriptive approach. Preclinical and clinical-year medical students from 43 medical schools in Indonesia completed a questionnaire inquiring into social media use by individuals and their reasons for such use. Descriptive statistics and content analysis were used to analyse the data. The analysis of the data retrieved from 1,122 respondents revealed the most common social media platforms used by medical students and various usage purposes. Further, this study revealed that social media assists students in learning through three processes: (a) it increases communication, collaboration and resource sharing, which enables flexible and timely access to a broad range of information; (b) it enhances learning motivation by facilitating engagement with role models and motivating content; and (c) it supports personal and learning skills development. Medical students reported using a variety of social media platforms, but few did so with the aim of supporting their learning. However, social media can potentially assist student learning through its capacity to increase collaboration and flexibility, enhance motivation and support personal and professional development. Therefore, creating social-media-based learning strategies that are appropriate and meet students' learning needs could help students improve both personally and professionally.

Keywords: *Social media, Learning, Personal and professional development, Medical students*

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INTRODUCTION

In the past 10 years, the extraordinary growth of social media, defined as websites and applications that enable users to create, share and contribute content or participate in social networking, has led to impactful changes in medical education by promoting student engagement and participation in active learning. Social media promotes instant feedback and improvements in teaching activities, and it boosts student-centred communication, leading to a higher degree of student satisfaction. Enhanced social media use in medical education facilitates access to new ideas, interaction and sharing, connections in learning networks, self-regulation, open-access support and the formation of communities of practice (1–3).

Since the COVID-19 pandemic, social media use for educational purposes in formal and informal learning activities has been highlighted at all academic levels, including in continuing medical education. Social media can also assist students in personal and professional development, as new information and research findings are rapidly disseminated through social media (4).

The evidence concerning social media use by medical students is limited despite the increasing use of the internet and social media. A study focused on students from Saudi Arabia reported that 69.3% of the students believed that social media is beneficial for

learning (5). Another study conducted in Vietnam in 2021 that investigated health science students reported that 90.9% of students used social media daily, with approximately 42 out of 93 minutes of each day's usage allocated to learning; the students regarded social media as a convenient and valuable tool for learning. Students in the study used various social media platforms, with Facebook and YouTube the most frequently cited (6).

Despite its perceived benefits, several challenges and pitfalls associated with social media use have been reported—in particular, the massive spread of misinformation, the poor quality of information, challenges in maintaining a professional image, patient privacy breaches, and several other legal issues (4, 7). Pros and cons aside, it is vital for the medical education community to adapt to the current widespread use of social media and support students' professional identity formation through the explicit use of social media as a source of learning (8).

A clear understanding of social media's utility in enhancing learning is therefore urgently needed, and it is essential to investigate how medical students use social media platforms that may have unique potential to promote active learning (9). The initial step in this endeavour is to explore the types of social media frequently used by medical students and the students' underlying reasons for using social media. This information would enable the medical education community and medical schools to utilise social media for routine teaching and learning and to support the professional development of medical students by managing their use of social media. Thus, this study aimed to identify the social media platforms used by medical students and their contribution to learning. We sought to answer the following research questions: (a) What are the most commonly used social media platforms among medical students?; (b) What are the students' purposes for using social media?; and (c) How do social media platforms support students in their learning?

METHODS

Context

This study enrolled medical students from 40 public and private medical schools in Indonesia. Students in Indonesia attend medical school at the undergraduate level, with one of the admission requirements being a high school (senior secondary school) diploma. Indonesian medical schools' curricula are delivered as undergraduate programmes (three and a half to four years of study at the preclinical stage) and professional programmes (one and a half to two years of study at the clinical stage). Before the COVID-19 pandemic, most medical schools delivered face-to-face learning. However, in response to the pandemic, blended and hybrid learning approaches were introduced and implemented across Indonesia. Medical schools have used online learning management systems and social media to support learning activities.

Study Design, Respondents and Instrument

This was a cross-sectional study that applied a descriptive approach to explore how medical students use social media. The respondents of this study were medical students in the preclinical and clinical stages of their education (years one to six). Quantitative and qualitative data were collected using a questionnaire, and the data were evaluated to

determine the types of social media platforms used by the respondents and the purposes of their usage. At the end of the questionnaire, open-ended questions modified from the Learning to Learn Strategies Questionnaire by Dabbagh and Kitsantas (9) were included to further the exploration of how social media helps medical students in their learning.

Data Collection and Analysis

The authors and research collaborators, faculty members in several medical schools and medical students from the Center for Indonesian National Medical Students' Activities (CIMSA) recruited respondents from their respective institutions. Invitations to participate were broadcast, and interested respondents completed an online survey using Google Forms. The survey was distributed from June to August 2022. All respondents signed an electronic consent form embedded in the questionnaire before completing the questionnaire.

Quantitative data regarding the types of social media platforms used by medical students and their purposes of usage were analysed descriptively by four authors (EW, JKN, YTNS, MARA). An iterative content analysis of the qualitative data obtained from the narratives given in the answers to the open-ended questions was conducted. The iterative analysis started with individual content analysis of 10% of all responses by four authors (NG, CH, RNH, SM); the 10% sample was selected randomly using maximum variation sampling approaches, and school of origin and education level (preclinical or clinical) were considered to generate initial codes and categories. Following the initial content analysis, the coders met to discuss any disparities and reach a consensus regarding the analytic framework of categories, subthemes and themes. The content analysis of the remaining 90% of the data was conducted by five other authors (DPW, AKR, AA, MM, WA) using the agreed-upon framework. The iterative content analysis by different coders ensured the trustworthiness of the data. The data remained anonymous during the analysis to avoid biases. An audit trail was maintained by using records and notes throughout the data collection and analysis processes.

RESULTS

Respondent Characteristics

This study enrolled 1,122 undergraduate medical students from 43 medical schools across Indonesia. Details on the study participants are reported in Table 1.

Table 1: Respondents' characteristics (n = 1,122)

Gender	n (%)	Education stage		Medical schools	
		Preclinical n (%)	Clinical n (%)	Public n (%)	Private n (%)
Male	387 (34.5)	215 (19.2)	172 (15.3)	112 (10.0)	275 (24.5)
Female	785 (65.5)	413 (36.8)	322 (28.7)	160 (14.3)	575 (51.2)
Total	1,122 (100)	628 (56.0)	494 (44.0)	272 (24.2)	850 (75.8)

Medical Students' Social Media Usage

Data from 1,122 respondents revealed that the most frequently used social media platforms among medical students were WhatsApp (66%), Instagram (51%), YouTube (38.6%) and TikTok (29%), as shown in Table 2. More than half of the respondents (58%) reported using social media mainly for entertainment, and 46.6% of respondents reported using social media for daily socialisation and interaction. In contrast, only 27.6% of respondents utilised social media for self-study.

Table 2: Types and purposes of social media used by medical students (n = 1,122)

Type of social media	Frequency					Purposes			
	Very rarely				Very frequently	Entertainment	Socialising	Learning	Organisation
	1	2	3	4	5				
Pod/vodcast	47.5	26.6	17.2	6.1	2.6	74.06	16.13	21.12	9.71
Instagram	1.3	4.4	16.0	27.3	51.0	74.78	72.55	20.68	36.10
Facebook	43.3	32.6	13.7	5.9	4.5	57.22	47.95	5.35	8.02
YouTube	0.4	7.7	21.2	32.1	38.6	82.17	14.53	71.84	15.15
Twitter	28.7	24.7	20.7	13.2	12.7	73.80	44.21	14.88	5.44
Linked-In	68.6	18.5	8.6	3.2	1.0	36.54	38.06	13.37	24.87
Line	8.8	17.9	18.3	19.7	35.3	28.70	77.09	30.84	56.95
WhatsApp	0.3	1.2	8.6	23.9	66.0	27.18	88.24	40.37	56.60
TikTok	24.3	11.0	14.8	20.9	29.0	92.42	21.12	18.27	7.49
Telegram	18.0	26.2	29.6	15.2	11.1	46.35	50.18	32.62	24.96

Even though the results indicated limited use of social media for self-study purposes, students reported using several social networking sites for learning or individual study, including YouTube (71.84%), WhatsApp (40.37%), Telegram (32.62%) and Line (30.84%). Furthermore, by posing the open-ended questions modified from Dabbagh and Kitsantas' (9) Learning to Learn Strategies Questionnaire, we further explored the role of social media roles in enhancing student learning.

The results of the content analysis demonstrated that social media assisted students' learning through three processes: (a) it increases communication, collaboration and resource sharing, which enables flexible and timely access to a broad range of information; (b) it enhances learning motivation by facilitating engagement with role models and motivating content; and (c) it supports personal and learning skills development.

Increasing Communication, Collaboration and Resource Sharing, Which Enables Flexible and Timely Access to a Broad Range of Information

Students reported that because it facilitates rapid, if not instant, communication, social media assists them in collaborating and communicating with their peers, teachers and supervisors. They highlighted the importance of collaboration in exchanging knowledge and staying engaged in discussions, especially with their peers. Respondents also mentioned near-peer teaching that occurs through social media:

> WhatsApp is beneficial for exchanging learning resources, discussing [topics and assignments] with friends, doing group assignments, and communicating easily. (Clinical student-F-Pub-881)

> Social media helps me reach out to my teachers when I still have a question to ask. (Preclinical student-M-Pub-470)

> Social media aids us in collectively evaluating whether we have reached our expected learning outcomes—for example, when discussing some challenges in learning together as a group, we can come up with effective solutions to help us to reach the learning outcome. (Preclinical student-M-Pub-467)

Respondents perceived the free content provided by medical practitioners and institutions on social media as a valuable source that helped them to understand some concepts better and provided free formative assessments:

> There are several practitioners who share cases and questions through their social media channels, which I found helpful for self-assessing my learning progress. (Clinical student-F-Priv-334)

> With its accessibility, social media provides free and easy access as well as meaningful learning content. (Preclinical student-M-Pub-654)

We found that the students' perceived preference for social media was based on its accessibility and flexibility. They appreciated it when teachers utilised social media as a part of their learning experience.

However, respondents viewed the distraction of using interconnected social media platforms as a challenge in learning. The instant and rapid connections with others tend to make it difficult to maintain their focus on learning, primarily when they are handling multiple tasks:

> [With this much connectivity], there are times when I have to answer so many chats [in social media groups]—for example, [I may be messaged] in regard to clinical rotation schedule arrangements, which can be annoying, especially when I am attempting to focus on finishing my study assignments. (Clinical student-F-Pub-874[1])

Enhancing Learning Motivation through Engagement with Role Models and Inspirational Content

Respondents also highlighted how using social media helps them enhance their learning motivation by directly or indirectly engaging with their role models (i.e. senior medical doctors, their peers or near-peers, and their teachers), which helps them envision their future selves:

> Seeing some of the best doctors on their social media makes me want to be like them. (Preclinical student-F-Priv-91)

> Following a specialist who consistently educates the community or a medical scientist who makes achievements in scientific fields as well as listening to a podcast of sharing sessions with inspirational figures—these motivate me to study harder so that I can be one of them. (Clinical student-F-Pub-81)

This process also helps them self-monitor their current knowledge, skills and attitude and promotes further self-reflection:

> Looking at the conversation of my peers helps me to analyze the state of my current knowledge compared to theirs. (Clinical student-M-Priv-771)

Students also reported acquiring learning motivation from posts or content on social media that provide motivational quotes or tips and tricks:

> Sometimes, when I get tired of studying, I open my Instagram to look for inspirational quotes that encourage me not to give up on my learning process. I follow Dr. Clarin Hayes and love seeing her videos, which motivate me. (Preclinical student-F-Priv-152)

However, based on their values, respondents also highlighted the increasing risks of falling prey to the "fear of missing out" (FOMO) phenomenon while seeking motivation from social media:

> I believe that social media can motivate and trigger me to do better, especially after seeing that my friends have achieved some awards. However, it is not uncommon that social media also makes us feel FOMO about others' achievements. There are times when I only focus on others' achievements without making any attempt to improve myself. (Preclinical student-F-Pub-473)

Supporting Personal and Learning Skills Development

Respondents of this study were aware of the importance of practicing self-regulated learning in social media learning. However, students in this study also highlighted how social media supports their learning skills:

> Besides the aspects of creativity and somehow being motivating [present on some social media platforms], several social media platforms can be more addictive, which can negatively affect our learning. (Preclinical student-M-Priv-70)

> Although some social media draws my focus from learning, some content on social media provides us with tips on how to manage our time wisely. Besides, social media also helps me to stay in touch with people who can help me regulate my time management. (Preclinical student-F-Pub-921)

To use social media more wisely, several respondents use social media as a self-reward. They set goals for their studies and only access social media upon completing them. In addition, students use social media features to help them limit their use:

> Social media is one of my comfort zones for refreshing myself when I get tired. It is entertaining after studying, and it can bring back my motivation to study afterwards. (Preclinical student-F-Pub-430)

> Watching my favourite YouTube channel is my self-reward that I look forward to before going back to studying. (Preclinical student-F-Priv-511)

> I can use the feature embedded in the social media to limit my social media usage. (Preclinical student-M-Priv-255)

Respondents also mentioned the new learning skills that they acquired from social media. Some social media content teaches them general soft skills not formally introduced in the classroom:

> There are some [knowledge and skills] shown on social media that are not taught in medical school. (Preclinical student-M-Priv-238)
>
> Social media helps me to be self-taught about many things. It has taught me not only to rely upon textbooks or lecture notes but also to use credible journals and to find credible resource persons. (Preclinical student-M-Priv-329)

On the other hand, the flood of information on social media can be overwhelming, and the respondents underscored the importance of familiarising themselves with each social media platform that they use so that they can recognise the features that may enhance or interfere with their learning. Appropriate goal setting, time management, searching ability and critical thinking to assess information validity were also highlighted as essential skills that the students acquired while using social media for learning:

> Social media offers convenience in obtaining and processing information. On the other hand, the information on social media is not limited to educational information but also encompasses information that is not always completely correct, which can interfere with our task completion. So, I think wisdom is needed to set time to focus and to have our own goals for using social media, whether it is for entertainment, for community outreach, or learning. (Preclinical student-F-Priv-569)
>
> It may be challenging to find the right keywords when looking up information on social media. (Preclinical student-F-Priv-41)
>
> The skills to evaluate whether the information on social media is credible or not are very important. (Preclinical student-M-Priv-3)

DISCUSSION

The current increase in internet and social media usage demands studies attempting to understand social media's utility and how it is and can be used to enhance students' learning. To explore social media usage among medical students, we administered a self-reported questionnaire to identify the most used social media platforms and the reasons for their use among medical students. The present study findings revealed that the most used social media platforms were WhatsApp, Instagram and YouTube and that social media was used primarily for entertainment purposes.

The frequency of social networking site use among medical students was varied, with Instagram, YouTube, WhatsApp and TikTok being the platforms most commonly used daily. A study in a European country indicated that medical students used Instagram the most, with Facebook, LinkedIn and Snapchat also favoured (10, 11). Interestingly, a study of medical students in Saudi Arabia that addressed the type of social media they used and the duration of use per day suggested a decreasing trend of Facebook, LinkedIn and Twitter use and an increasing trend of YouTube, WhatsApp and Instagram use (6). Our study also obtained data on which social media platforms are being used for educational purposes, with YouTube, WhatsApp, Telegram and Line being the platforms most used for learning. The results differed from those of a survey conducted in Vietnam that reported that Facebook was the most frequently used platform for education purposes (5). This difference may be due to factors such as individual motivation for using social media, the influence of peers,

culture, age and other factors such as personal preferences in learning, learning styles and the learning objectives of the individual study. Although reports on how social media platforms are used within undergraduate curricula are limited, a systematic review reported that Twitter, podcasts and blogs were used to engage learners in postgraduate study, while YouTube and Wikis were used for enhancing residents' technical skills (12).

Although the results indicated that the use of social media for educational purposes was low, a quantitative study describing student attitudes towards social media for learning, information sharing and knowledge development in the same setting revealed that students scored highly on using social media for learning purposes (13). In this study, we found that social media assists students in learning through three processes: (a) it increases communication, collaboration and resource sharing, which enables flexible and timely access to a broad range of information; (b) it enhances learning motivation by facilitating engagement with role models and motivating content; and (c) it supports personal and learning skills development. The qualitative data in this study regarding social media use for learning underscored that learning is a social activity that requires connectivity and participation (14). Different forms of social media allow students to interact within learning communities in various ways. This study showed that WhatsApp, which enables individual and group chats and interactions, is the most frequently used social media platform, thus demonstrating that direct interactions, communication and collaboration are prominent aspects of social media's value in students' learning.

In medical education, social media has been seen as a tool to promote learner engagement, feedback, collaboration and professional development (3). In addition, a scoping review on the use of social media by physicians demonstrated the high potential of different platforms to encourage knowledge translation and education by creating occasional opportunities to engage with social media, thereby fostering individual engagement and blended strategies (15). The qualitative data from medical students in this study also highlighted the increased opportunities to communicate, collaborate and engage with others, thus facilitating personal and learning skills development. This finding resonates with previous studies revealing the positive impact of social media in developing community connections. As it promotes stronger relationships within and between groups, students and academics have found social media to be helpful in promoting teamwork and cooperation (16). This feature has become an essential focus of social media as a potential learning tool in medical education.

The respondents in this study also highlighted that they were motivated by the figures they followed on social media, whom they referred to as role models. Studies regarding motivational processes in learning often acknowledge the role that social processes, including role modelling, have in influencing goal setting, motivation and displaying possible selves (17, 18). Role models in learning processes can motivate individuals to perform novel behaviours, inspire them to set ambitious goals and impart core values to professional doctors (19, 20). Therefore, role models are important for successful learning as well as for the professional identity formation of medical students, including the development of their digital persona (21, 22). The effectiveness of role models is affected by various factors, such as shared group memberships, the similarities between role models and role aspirants, and the level of role models' success and the attribution of this success by the role aspirants (19). This highlights the importance of explicitly exposing students to excellent role models on social media and providing them opportunities to engage in reflective dialogue regarding their role models from social media with their teachers. Encouraging teachers to actively engage with social media and recognise their roles as digital role models can also be promoted by institutions.

Social media can also, to some extent, promote students' personal and learning skills development. Various self-development content on social media can help students manage their time better in learning and using social media. Students who use social media as a self-reward for completing their studies exhibit good self-regulated learning practices (23). Students in this study were also aware that the abilities to appraise data and assess the abundance of information need to be nurtured, which is in line with the pedagogical aims of responding to the current generation's needs, empowering them to thrive, and promoting lifelong learning (24). Furthermore, to help students acquire basic and complex personal knowledge management skills, assisting students in developing the ability to self-regulate through the creation, management and sustenance of a personal learning environment by using various social media platforms is crucial (25).

Despite its positive role in students' learning, social media generates distractions, disrupting the learning process. These distractions from social media occur constantly compared to distractions caused by other activities. The constant visual, auditory and haptic alerts from social media may also cause amplified stress levels and abrupt shifts in individuals' moods, even when in silent mode. Issues relating to students' professionalism and integrity when using digital platforms are also commonly reported problem areas in the use of social media (26). In this study, students highlighted the FOMO effect as a negative impact of using social media. Hence, social media impacts students' health and well-being and approaches to mitigate these negative impacts should be introduced to them. Formal discussions concerning professional standards in social media usage and its integration into learning, clinical practice and research are necessary to explicitly teach students about self and emotional regulation when using social media (27). Moreover, to manage negativity on social media among medical students, institutions should incorporate the use of social media for learning by formally embedding the use of social media within their curricula, engaging students in reflective practice to acknowledge its potential and drawbacks, and discussing students' potential action plans to encourage the exercise of self-regulated learning skills when using social media (13, 28).

This study has several implications for medical students, teachers and schools regarding the positioning of social media for learning purposes. First, while students are digital and social media natives and use social media for different purposes, although mostly entertainment, they need to be aware of social media's potential for enhancing their learning. Students must consciously regulate social media to navigate its use for learning purposes (13). Moreover, by understanding how students use social media as a self-reward and how it enhances their confidence in studying through digital role-modelling processes, faculty members can enhance their teaching methods by utilising the social media platforms commonly used by medical students and creating motivational content. Second, given the vast opportunities for education and scholarship provided by social media, it is time to consider creating networks through social media both formally in the curriculum and informally within learning communities. The latter may involve medical students and their peer learning system, with teacher support. Social media's potential to enhance learning informally may go beyond medical students and their peers since, on social media, they can engage with faculty, teachers and students from other institutions, medical professionals not affiliated with medical faculty, and the general public. Third, social media can formally be incorporated into a curriculum by deliberately encouraging and increasing the proportion of self-learning done using social media. For example, social media can be prioritised when searching for case studies or trending health-related issues for use as learning material. Similarly, social media can help to direct public attention to particular health-related issues, teach information literacy, maintain and monitor well-being, and encourage digital professionalism among students.

We acknowledge that despite our attempt to identify the main social media platforms used by medical students and determine how they assist students in their learning, causative relationships between the studied factors cannot be inferred from this study. The self-reported questionnaires used in this study might result in recall and social desirability response bias in high power distance and collectivistic settings, thereby influencing the results. Therefore, future studies can refer to the results of this study as baseline data when conducting in-depth explorations by obtaining qualitative data from focus group discussions or interviews in different cultural settings. Despite its limitations, this study has the strength of involving a large number of respondents from different medical schools, thus providing insights into the potential of social media for student learning as well as their personal and professional development.

CONCLUSION

Medical students reported using various social media platforms, with time dedicated to different purposes; however, little of their usage time was aimed exclusively at supporting their learning. Despite the limited use reported, this study revealed that social media does assist learning through its features, accessibility, and content, which enable flexible and collaborative access to information, enhanced learning motivation through digital role models and motivational content, and support for personal and professional development. Medical schools can embrace the opportunity to enhance learning and personal and professional development among the current and future generations of medical and health professionals by designing and developing suitable approaches to social media and continually engaging students in reflective practices in regard to social-media-based learning.

ACKNOWLEDGEMENTS

This study was funded by Hibah Publikasi Terindeks Internasional (PUTI) Q1) 2022 NKB 406/UN2.RST/HKP.05.00/2022. The authors would like to extend our gratitude to all respondents and medical schools involved in this study, especially to our contributors: Dr. Dwita Oktaria, Dr. Santhi Sueningrum, Dr. Yuni Susanti Pratiwi, Dr. Eti Poncorini Pamungkasari, Dr. Gita Sekar Prihanti, Dr. Rahma Tsania Zhuhra, Dr. Yoanita Widjaja and Dr. Andrew Ruspanah, who has dedicated their time and support to data collection of this study. We would also like to extend our appreciation to the Center for Indonesian Medical Students' Activities for supporting the data collection of this study. The authors would also like to thank Dr. Fona Qorina for her continuous support and assistance during the study.

ETHICAL APPROVAL

This study received ethical clearance from the Faculty of Medicine Universitas Indonesia/dr. Ciptomangunkusumo General Hospital Ethics Committee (Number: KET-44/UN2.F1/ETIK/PPM.00.02/2022).

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