

The Double-Edged Sword of Social Media: Medical Students' Usage in Learning and Opinions

Noor-i-Kiran Naeem¹, Maaidah Farrukh², Christine Phiri Mushibwe³

- ¹ Department of Education, UNICAF University, Zambia
Idea Conception, Manuscript writing, data collection and analysis
- ² Student Bachelors Psychology, Florida International University, United States of America
Manuscript writing, data collection and analysis
- ³ Vice Chancellor, UNICAF University, Zambia
Supervised the project

CORRESPONDING AUTHOR

Dr. Noor-i-Kiran Naeem

Department of Education, UNICAF University,
Zambia

Email: noorikiran@yahoo.com

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ABSTRACT

Objective: This cross-sectional study explores the usage patterns, perceived benefits, and adverse effects of social media among MBBS students across different academic years. **Study Design:** Cross-sectional study. **Settings:** ABWA Medical College, Faisalabad Pakistan. **Duration:** January 2024 to June 2024. **Methods:** The study involved 255 MBBS students from 1st, 3rd, and 4th MBBS years who were invited to fill out an online survey containing demographics, usage patterns, and perceptions of social media's impact on learning. Quantitative data were analyzed using descriptive statistics, and qualitative responses were evaluated through thematic analysis. **Results:** The average duration of social media use increased with academic progression, from 2.74 years in 1st-year students to 3.27 years in 4th-year students. Daily social media use also rose, from 3.93 hours in the 1st year to 4.73 hours in the 4th year, while time dedicated to educational purposes declined. Benefits included enhanced understanding and stress management, while adverse effects like distraction, health issues, misinformation, and time wastage were consistently reported across all years. Concerns about cyberbullying and privacy issues intensified in later years. **Conclusion:** Despite its educational potential, social media's growing usage presents significant challenges like distractions, burnout and time wastage. Addressing these issues is essential to optimize its role in medical education and ensure student well-being.

Keywords: Social media, Medical education, Medical students, Online learning.

INTRODUCTION

Social media's introduction has completely changed how people communicate, share information, and engage with one another. Social media sites like Facebook, Instagram, and Twitter are so commonplace that they impact many facets of life, such as relationships, career networking, and education.¹ Medical students have a unique set of opportunities and problems when it comes to social media. It offers a forum for interacting with peers and mentors, accessing instructional materials, and remaining current on medical breakthroughs. It does, however, also come with serious concerns, such as the possibility of being misinformed, being the target of cyberbullying, and being sidetracked from academic obligations.²

Social media's widespread use can have negative effects in addition to positive ones, such as reducing tension and anxiety.³ Psychological anguish can be caused by the constant pressure to keep in touch, FOMO (fear of missing out), and the inclination to compare oneself to

others. These concerns are especially pertinent to medical students, who already have to navigate a very competitive and demanding academic setting. Social media can cause additional stress, which can worsen anxiety, despair, and burnout.⁴ This can have an impact on one's general well-being and academic performance.

Medical students are a special group of people who use social media extensively and are under a lot of pressure from their employers and professors. The COVID-19 epidemic has expedited the shift to digital learning environments, further integrating social media into educational practices and elevating it to the status of a vital instrument for peer interaction and knowledge sharing.⁵ Social media does have advantages, but there are drawbacks as well. These include information overload, exposure to offensive content, and the possibility of fewer in-person encounters, which can exacerbate feelings of stress and loneliness.

Furthermore, the largely visual content of social media sites like Facebook and Instagram can encourage negative

body image worries and unhealthy comparisons, which exacerbates worry and stress.⁶ The availability of content around the clock and the constant flow of information can interfere with sleep cycles, lower productivity, and harm scholastic achievement. In order to provide focused treatments that can improve medical students' digital literacy, encourage positive online behavior, and offer resources for mental health assistance, it is essential to comprehend how these students deal with these obstacles.

Concerns over social media's effects on medical students' mental health and wellbeing are becoming more widespread.⁷ These platforms provide excellent networking opportunities and tools, but they also bring with them a great deal of stress, which can be detrimental to students' mental health. Social media's dual character as a useful tool and a possible cause of stress calls for a thorough analysis.

Existing studies primarily focus on either the positive aspects, such as professional networking and knowledge-sharing, or the negative effects, including distraction, cyberbullying, and mental health concerns. However, a comprehensive analysis of students' own perspectives on this dual nature of social media is lacking. Investigating how medical students navigate social media use, the specific stressors they encounter, and their coping strategies can inform the development of effective interventions and support systems.

This study aims to bridge this gap by exploring medical students' perceptions of social media, emphasizing both its advantages and disadvantages. By gaining insights into their experiences, we can design targeted strategies to help students manage social media challenges more effectively, ensuring a balanced integration of these platforms into their personal and academic lives.

METHODS

This cross-sectional study was conducted at ABWA medical college after obtaining ethical approval via letter ME/864/2023. The investigation was conducted between January and July of 2024, a period of six months.

The sampling technique was purposive, inviting all medical students from 1st, 2nd, and 4th Year MBBS to participate. Inclusion criteria included medical students from the 1st, 2nd, and 4th Year MBBS classes who were available during the data collection period and voluntarily agreed to participate. The students who were unavailable during the data collection period or did not use social media platforms were excluded from the study. The identities of all participants were kept anonymous, and all data were kept confidential.

After obtaining ethical approval from the Ethical Board and the informed consent of the participants, an electronic survey questionnaire was shared with the participants for data collection via Google form (<https://forms.gle/j6cvCzzoFjeXahJZ7>). The questionnaire was developed after a comprehensive literature review and was pilot tested on 12 participants to assess its face validity.

The survey included sections on:

1. **Social Media Usage Patterns:** Frequency, duration, and types of social media platforms used.
2. **Perceived Benefits and Drawbacks:** Participants' views on social media's positive and negative aspects.

Quantitative data from the survey were exported from Google Forms to Microsoft Excel for analysis. Descriptive statistics, such as frequencies and percentages, were calculated to summarise the data. Qualitative responses were analyzed using thematic analysis to identify common themes and patterns.

RESULTS

Out of 300 invited students, 255 returned the form, resulting in a response rate of 85%. The mean age of 1st-year MBBS students was 19.15 years with a standard deviation of 0.84, reflecting a relatively homogeneous age group. The gender distribution in this cohort was skewed towards males, with 84 males (79.2%) and 22 females (20.8%) ($p > 0.05$). By the 3rd year, the mean age increased to 21.56 years with a standard deviation of 0.8, indicating a slight broadening of the age range. Gender distribution became more balanced, with 32 males (44.4%) and 40 females (55.6%) ($p > 0.05$). In the 4th year, the mean age increased to 22.34 years with a standard deviation of 0.86, showing a broader age range than earlier years. The gender distribution remained relatively balanced, with 47 males (61.4%) and 30 females (38.6%) ($p > 0.05$). These findings highlight a trend of increasing age and improved gender balance as students' progress through the MBBS program.

Table 1: Class-wise demographics of study participants

	1st Year MBBS	3rd Year MBBS	4th Year MBBS
Mean Age (Years)	19.15	21.56	22.34
Standard Deviation	0.84	0.8	0.86
Gender	Male	84	32
	Female	22	40

Social Media Usage Patterns

The average duration of social media use among 1st-year MBBS students is approximately 2.74 years with a standard deviation of 0.96. Most students in this group have around 4 social media applications on their phones (average of 4.03, SD = 0.86) and spend an average of 3.93

hours daily on social media platforms (SD = 1.41). For educational purposes, they use social media approximately 2.87 hours daily (SD = 1.10).

In the 3rd year, students have used social media for an average of 3.52 years (SD = 0.61). They typically have about 4 mobile social media applications (average of 4.06, SD = 0.78) and spend approximately 3.88 hours daily on these platforms (SD = 1.28). Out of this time, they allocate about 1.56 hours daily for educational purposes (SD = 0.69).

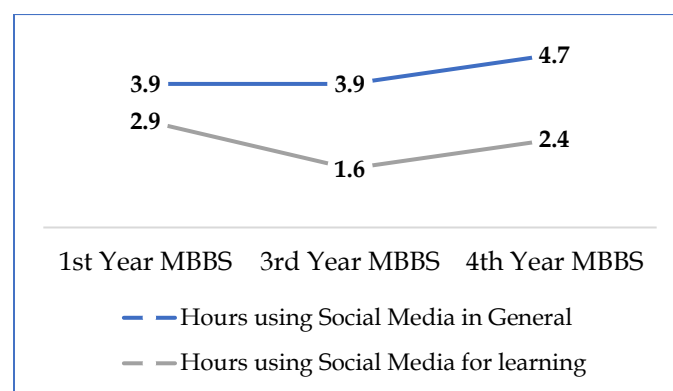
By the 4th year, the average duration of social media use extends to approximately 3.27 years (SD = 0.68). Students have an average of 3.53 social media applications on their phones (SD = 1.07) and spend around 4.73 hours daily on social media (SD = 1.32). For learning and educational purposes, they use social media for an average of 2.35 hours daily (SD = 1.00). Table 2 presents the Class-wise Social Media Usage Patterns of Study Participants.

Table 2: Class-wise Social Media Usage Patterns of Study Participants.

Years Using Social Media Platforms			
1	12	0	0
2	9	3	8
3	18	7	14
4	18	17	19
>4	49	45	36
Number of social media applications on the phone			
0	0	0	2
1	0	0	5
2	5	0	6
3	15	18	3
4	14	12	29
5	27	21	11
>5	45	21	20
Number of hours per day spent on social media platforms			
0	0	0	0
1	6	0	2
2	22	17	7
3	12	17	6
4	23	15	17
5	23	7	25
6	11	10	12
7	4	0	0
8	2	3	0
9	0	0	3
10	1	0	3
>10	0	3	0
Number of hours per day you spent on social media platforms for learning and education			
1	15	45	24
3	30	16	21
2	29	6	17
4	20	3	13
5	3	0	0
6	6	0	0
7	1	0	0
8	1	0	0

Overall, the data reveals that while the average duration of social media use and the number of social media applications on students' phones increased over the years, the amount of time dedicated to educational purposes on social media does not follow the same trend. In the 1st year MBBS students, there is a notable allocation of time for educational purposes (approximately 2.87 hours daily), which decreases in the 3rd year (1.56 hours daily) and remains lower in the 4th year (2.35 hours daily) ($p < 0.05$). This suggests that although students increasingly engage with social media and use more applications as they advance through their MBBS program, their focus on using social media for educational purposes diminishes over time.

Figure 1: Social Media Usage Trends in Classes



Perceived Uses of Social Media in Learning:

The thorough examination of social media use in MBBS classes reveals unique themes and advantages students encounter at various educational stages. Social media dramatically improves comprehension and clarity for first-year MBBS students by giving them access to lectures from their favorite professors and a range of learning resources, including mnemonics, infographics, and bullet points. Platforms such as YouTube provide convenient and easy access, making it possible to get knowledge quickly and learn collaboratively. These students also like the practical advantages and wide range of educational resources provided by social media, which aid in understanding difficult subjects and combining different teaching strategies.

In their third year, students still value social media's efficiency and time-management advantages, emphasizing using it to access various material and viewpoints that facilitate interactive and collaborative learning. They stress how social media can help students grasp concepts better through interactive study groups and peer networks, which can improve their capacity to retain information efficiently.

By their fourth year, MBBS students use social media to learn more sophisticated skills and manage stress. They

also use several teaching modalities and thorough explanations to help them grasp difficult concepts. Their academic growth and advanced learning are further supported by the global connectivity that social media platforms offer, which keeps students abreast of global research and trends. Overall, even if every year has its

own themes, there is a general tendency toward greater dependence on social media for an MBBS program that is more effective, engaging, and all-encompassing. Table 3 lists the major themes that were found in each of the classes.

Table 3: Perceived Uses of Social Media in Learning

Theme	1st-Year MBBS	3rd-Year MBBS	4th-Year MBBS
Enhanced Understanding & Clarity	It is easy to understand topics because I can take lectures from my favorite teacher on social media	Social media makes learning easy by giving access to new information and different viewpoints	Learning from multiple teachers through social media helps in getting a better grasp of concepts
Ease of Access & Convenience	YouTube provides us with lectures and notes. We can combine study with our friends through social media	We can access a vast amount of data on each topic quickly	Social media platforms offer instant access to educational materials and make studying more efficient
Diverse Learning Resources	It is easy to learn through bullet points diagrams and various lecture mnemonics	Online resources provide a wide range of information and diverse perspectives on topics	The availability of multimedia resources like animations and videos enhances the learning experience
Interactive Learning	We can communicate with peers and experts globally through social media, which enhances learning.	Interactive online study groups and peer networks help us learn collaboratively	Engagement with peers and experts through social media fosters a deeper understanding of subjects
Efficiency & Time Management	Learning through social media is time-efficient and helps quickly retrieve information	Social media allows for efficient learning and helps manage study time effectively	Using social media for learning helps save time and allows for flexible study schedules
Global Connectivity & Awareness	We learn about new trends and global perspectives through social media	Social media keeps us updated with the latest news and global research	The global reach of social media platforms helps in staying informed about international developments
Learning Tools & Methods	YouTube lectures provide a quick learning method, and the Google app is very helpful for getting information about any point	Not applicable	Not applicable
Concept Building and Retention	Not applicable	Better conceptual understanding using mnemonics and faster retention of information	Not applicable
Advanced Learning Techniques	Not applicable	Not applicable	Detailed explanations and engagement with multiple teaching methods for advanced learning
Stress Management	Not applicable	Not applicable	Using social media to integrate advanced learning strategies and manage academic stress
Practical Benefits of social media	Social media provides vast amounts of data and alternative ways of learning, which are helpful for understanding complex topics	Not applicable	Not applicable

Perceived Negative Effects of Using Social Media for Learning:

Table 4 outlines the perceived negative effects of using social media for learning across different stages of the MBBS program, revealing a nuanced understanding of the challenges faced by students at each level.

For 1st-year MBBS students, the primary concerns include distraction from irrelevant content, health issues such as eye strain, and the potential for misinformation. They also report a lack of interaction issues, as social media platforms do not facilitate real-time questioning during lectures. Additional negative aspects include

encountering bad content, a growing dependency on social media at the expense of traditional study methods, and time wastage due to the distraction of ads and other applications. Students also note that the excess of information available can sometimes be overwhelming.

Students report that these problems still exist in the third year, with distraction from the current task being a major concern. Health problems like deteriorating eyesight from prolonged screen time and the enduring dissemination of false information that breeds misconceptions are emphasized. One persistent issue is the lack of engagement since online lectures do not allow students to pose questions. Concerns about content, such

as exposure to pornographic material and a rise in social media addiction, are also mentioned. Their problems are exacerbated by online lecture time wasters and ad distractions. Long-term social media use can cause emotional stress and anxiety. Security risks like hacking can also become important considerations.

By the fourth year, students stress the detrimental effects on focus and attention span as well as enduring health issues, including headaches and eye strain. Issues with improper content, the incapacity to ask inquiries, and misinformation are still problems. The detrimental effects of time-wasting and social media dependence are still

there, and new worries about cyberbullying and privacy are starting to surface. In addition, it becomes increasingly clear how shallow and unreliable social media content is compared to more conventional teaching techniques. Students are under more pressure to perform well academically, which raises serious issues about emotional stress and hypertension.

All things considered, the detrimental consequences of social media use are constant across all years; however, as students go through their MBBS degree, the kind and intensity of these effects change.

Table 4: Perceived Negative Effects of Using Social Media for Learning:

Negative Point	1st Year	3rd Year	4th Year
Distraction	Distraction from irrelevant content	Distraction from the task	It decreased my attention span & ability to concentrate
Health Issues (eye strain, headaches)	Affect eyes	Screentime increases that worsen eyesight	Learning through screen has bad effects on our health
Misinformation	Sometimes being fooled by wrong information	Misinformation also lead to misconceptions	Sometimes being fooled by wrong information
Lack of Interaction (unable to ask questions)	One cannot ask questions while taking a lecture on YouTube	We can't ask questions	We can't ask questions
Content Issues (inappropriate, bad content)	Bad content on social media	Vulgar content is easily available on social media	Bad content on social media
Dependency on social media	Dependence increases on social media; books can be neglected	It's addicting	Social media can negatively impact by fostering addiction
Time Wastage	Time wastage	Time consuming and a person may open some other social media app	Time waste
Cyberbullying and Security Issues	Not Applicable	People using it for their negative propaganda to exploit others	Cyberbullying, privacy concerns
Knowledge Limitation (excess information)	Excess knowledge sometimes more than our requirements	Not Applicable	Not Applicable
Unwanted Distractions (ads, other platforms)	Ads	Distractions during online lectures	Ads
Emotional Stress and Anxiety	Not Applicable	The more time spent on social media can lead to anxiety, depression	Stress and hypertension
Privacy Concerns	Not Applicable	Hackers can hack your personal information	Privacy concerns related to personal data security
Lack of Depth and Credibility	Social media can also be distracting, unreliable, and sometimes lacks depth compared to traditional learning methods	Not Applicable	Social media is sometimes way too much distractive

DISCUSSION

Social media integration has created a complicated web of advantages and disadvantages for medical students. The purpose of this study was to investigate how medical students utilize social media and how their perspectives of its benefits and drawbacks have changed as they have progressed through their education. According to the research, social media can be an effective learning tool, but it also adds a lot of stress, adversely affecting students' personal and academic lives.

Social Media Usage Patterns

As students advance through their MBBS program, there appears to be a significant increase in both the average duration of social media use and the quantity of social media programs on their phones, according to the data gathered. First-year students have been using social media for an average of 2.74 years, while fourth-year students have been using it for an average of 3.27 years. From an average of 4.03 in the first year to 3.53 in the fourth year, the utilization of their devices has increased in tandem with the number of applications as also shown in recent studies.^{8,9} Notably, fourth-year students spend

an average of 4.73 hours daily on social media, a jump in daily usage.

The amount of time spent on social media for educational reasons has not increased in line with the general growth in involvement. Students use social media for learning an average of 2.87 hours per day in the first year; by the third year, this amount drops to 1.56 hours, and by the fourth year, it rises slightly to 2.35 hours. This change implies that as students use social media more frequently, they become less focused on using it for learning. Numerous causes, such as mounting academic pressure, changing study habits, and potentially the distraction of non-educational information, could be to blame for this reduction.^{10,11}

Perceived Uses of Social Media in Learning

The qualitative findings shed light on how various academic levels view social media as a tool for learning. Social media is appreciated by first-year students because it can improve comprehension and clarity. Sites like YouTube provide lectures from instructors of choice and a variety of educational resources like mnemonics and diagrams.² Early-stage learners greatly benefit from the accessibility and convenience of access to educational content via social media, which facilitates group study and effective information retrieval.¹²

By the time they reach their third year, students are still aware of how social media might help with efficiency and time management. Access to a variety of viewpoints and information sources facilitates interactive and collaborative learning.⁴ Social-media plays an increasingly important role in creating interactive study groups and peer networks, which enhance conceptual understanding and recall.

Social media use changes by the fourth year to accommodate more complex learning strategies and stress reduction. Students keep up with worldwide research and trends by utilizing multimedia materials, in-depth explanations, and global connectivity.¹³ Their adept usage of social media reflects a more sophisticated integration of digital technologies into their learning processes, helping them manage academic stress and complicated subjects.

Perceived Negative Effects of Social Media

Even while social media has many advantages, there are drawbacks that should be considered as well. Students report serious problems with attention, health concerns, and misinformation every year.^{1,13} The main issues for first-year students are eye strain, exposure to false information, and distraction from other material. These problems continue and change as pupils get older, with worries about concentration, attention span, and the

negative effects of prolonged screen usage on health growing.

The inconsistency of online courses and content problems, such as exposure to unsuitable content, remain persistent obstacles. Later years also see an increase in social media dependency and time wasted as a result of diversions, which is indicative of social media's rising addiction and possible negative effects on academic productivity.¹

By the fourth year, other problems start to show up, like privacy issues, cyberbullying, and shallow and untrustworthy information on social media. Social media use is also linked to increased emotional stress and anxiety, underscoring the aggravation of mental health problems among students under increased academic pressure.¹⁴

Implications for Medical Education

The results of this study highlight social media's dual role as a helpful and detrimental resource for medical students. Although social media provides useful tools and facilitates learning across a range of platforms, it also adds a great deal of stress, which can negatively affect students' well-being and academic performance.

As students progress, there appears to be less emphasis on using social media in education, indicating the need for focused interventions that promote the efficient use of digital technologies for learning. Digital literacy initiatives that stress the value of using social media for education and controlling its possible diversions should be incorporated into educational institutions. Additionally, students' psychological stress can be lessened by offering options for mental health support and advocating for ways to handle the harmful effects of social media.¹⁵

CONCLUSION

In conclusion, this study thoroughly analyses medical students' social media usage habits and identifies both the advantages and disadvantages of using it. Social media presents substantial pressures that can affect students' academic and personal lives, even though it is a valuable tool for improving learning and giving access to various resources. To effectively support medical students in navigating the complexity of social media and sustaining their well-being in the digital age, these dynamics must be understood.

LIMITATIONS

There are various restrictions on this study. First off, the study was limited to one institution, which could limit how broadly the results can be applied to other medical schools or areas. 255 students is a big sample size, yet it

may not adequately represent the variety of experiences that medical students have. Furthermore, using self-reported data may induce biases, and tracking changes over time is limited by the cross-sectional approach. This study excluded second-year students, which could have impacted the data's comprehensiveness, and concentrated mostly on quantitative measurements, which could have obscured subtle qualitative insights. Finally, even though the survey instrument was only pilot tested, its validity and reliability may have been compromised by outside influences like academic constraints or the COVID-19 pandemic. These factors may have had an impact on social media usage patterns. Further investigations ought to tackle these constraints in order to furnish a more comprehensive comprehension of the influence of social media on medical students.

SUGGESTIONS / RECOMMENDATIONS

Future studies ought to investigate the fundamental causes of medical students' declining use of social media for educational purposes. Deeper insights into this tendency can be obtained by looking into elements like shifting study habits, an increase in academic workload, and the impact of non-educational content. Furthermore, studying how particular social media platforms affect mental health and learning outcomes might assist improve the customization of interventions.

Important information on how these dynamics change throughout the course of medical education may also be found in longitudinal studies that monitor social media usage and its impacts over time. Examining how well digital literacy and mental health interventions work to improve students' social media experiences may also help to improve the learning environment.

CONFLICT OF INTEREST / DISCLOSURE

None.

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