ORIGINAL ARTICLE

The Use of Social Media for Student-led Initiatives in Undergraduate Medical Education: A Cross-sectional Study

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ABSTRACT

Background and Objectives. One of the effects of the COVID-19 pandemic on medical education is an increased awareness and use of social media (SocMed) to facilitate learning. However, literature on the use of SocMed in medical education has focused primarily on educator-led teaching activities. Our study aimed to describe SocMed initiatives that were student-led, particularly for information dissemination and peer collaborative learning, and to elicit perceptions of medical students towards such activities.

Methods. An online survey on SocMed usage in medical education was sent to all first- and second-year medical students at the University of the Philippines Manila College of Medicine from October to December 2021. The questionnaire collected data on demographics, SocMed habits and preferences, and perceived advantages and disadvantages of SocMed. Descriptive statistics were calculated while the free-text responses were grouped into prominent themes and summarized.

Results. We received a total of 258 responses (71%) out of 361 eligible participants. Overall, 74% found SocMed platforms to be very and extremely helpful; 88% recommended its continued use. The most popular SocMed platforms for different tasks were as follows: Discord for independent study groups and for conducting peer tutoring sessions; Facebook Messenger for reading reminders; Telegram for reading announcements related to academics and administrative requirements, and for accessing material provided by classmates and professors.

Conclusion. The high uptake of SocMed among medical students may be attributed to its accessibility and cost-efficiency. The use of a particular SocMed platform was dependent on the students' needs and the platform's features. Students tended to use multiple SocMed platforms that complemented one another. SocMed also had disadvantages, such as the potential to distract from academic work and to become a source of fatigue. Educators must engage with students to understand how SocMed platforms can be integrated into medical education, whether in the physical or virtual learning environment.

Keywords: undergraduate medical education, student-led initiatives, social media, online learning

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INTRODUCTION

The COVID-19 pandemic disrupted medical education worldwide and caused a transient shift to remote learning in many countries.[1-6] To adapt to the online learning environment and overcome its limitations, educators and students alike had to innovate and explore ways to attain learning outcomes. During this period, there had been a resurgence of interest in using social media (SocMed) for medical education.[7]

Even before the pandemic, literature to support the integration of SocMed into teaching methods already existed. Students and educators have a strong familiarity with these platforms.[8-10] Moreover, the platforms offer a wide range of features that support learning activities, including dissemination of information, collaborative working, mentoring, and peer tutoring, among others.[4,9] However, existing studies on the use of SocMed in medical education have focused primarily on educator-led activities.[2,5] In a 2021 systematic review, 58 out of 112 included studies were on the development of SocMed teaching interventions, while the rest focused on usage patterns, SocMed services commonly used, and duration of use by medical students.[8]

To our knowledge, the use of social media to facilitate student-led initiatives in undergraduate medical education has not been described before. Student-led initiatives refer to activities conceptualized and conducted by learners themselves to assist in the acquisition and retention of knowledge and skills. These include peer-assisted learning and tasks such as information dissemination and class coordination, which aim to improve the efficiency of learning in medical education. It is essential to document and evaluate these initiatives as they reflect the capacity of students to adapt to unexpected changes in their learning set-up.

Our study aimed to describe how undergraduate medical students in the Philippines used social media for student-led initiatives during the height of the COVID-19 pandemic. We also aimed to elicit the perceptions of students towards these activities. Worldwide, the Philippines is the leading country when it comes to average time spent on SocMed, with Facebook and Facebook Messenger being the most popular SocMed platforms.[11-14] When communities were put on lockdown and universities abruptly shifted to a remote learning environment in the year 2020,[11,15] Filipino students and educators used different SocMed platforms for teaching and maintaining social connections.[16]

To this day, it remains crucial for medical educators to be aware of how students perceive, use, and adapt to SocMed platforms to meet their learning needs. A thorough understanding of student-led SocMed initiatives will allow for seamless integration into medical education, maximizing their benefits and complementing traditional classroom activities.

Theoretical Framework

Our theoretical framework (Figure 1) focused on how students used social media to acquire information and facilitate knowledge transfer among themselves in the context of medical education. The behaviorist learning theory on medical education emphasizes a teacher-centered approach, which involves manipulating the environment for learners to elicit a specific response. Our study draws inspiration from the cognitivist, humanist, connectivist, and constructivist theories, which shift the attention to the learner's cognitive tools, personal involvement and initiative, interactions, as well as meaning construction from experiences to develop a student-centered learning approach.[19]

The constructivist learning theory emphasizes learning as a collaborative and social process,[20] and SocMed enhances this process by encouraging cooperation, feedback, and student engagement[21]. The connectivist theory states that learning occurs through the formation of networks, facilitated by technology. Learners are given the tools, and educators facilitate the process. In the context of social media, this translates to online interactions that increase the opportunity for knowledge transfer, resource sharing, and exposure to diverse perspectives.[17]

METHODS

We conducted a cross-sectional descriptive study, through an online, self-administered survey among first- and second-year undergraduate medical students at the University of the Philippines College of Medicine from October 26, 2021 to December 27, 2021. It adhered to the Checklist for Reporting Results of Internet E-Surveys (CHERRIES).[22] Exemption from ethical review was granted by the University of the Philippines Manila Research Ethics Board (UPMREB 2021-585-EX).

Setting

The Doctor of Medicine (MD) program in the Philippines takes four years, followed by one year of internship training and a written licensure examination that covers twelve subjects. The first two years focus on basic sciences (including anatomy, biochemistry, physiology, pathology, pharmacology), while the latter two years consist of clinical placements at different teaching hospitals. The University of the Philippines College of Medicine (UPCM) implements an organ-system integrated curriculum in which clinically relevant skills and concepts from the basic and clinical sciences are grouped and taught according to the different organ systems.[23] During the study period, the mode of learning was purely online because of COVID-19 restrictions.

Throughout their four years of medical education, each cohort of medical students (or Learning Unit in UPCM) is led by an elected class council and an appointed academic committee. These student volunteers are in charge of liaising with professors, maintaining communication channels, creating review materials, and managing transcriptions of lectures. All relevant files are usually stored in a Google Drive folder that is shared with the entire class. SocMed

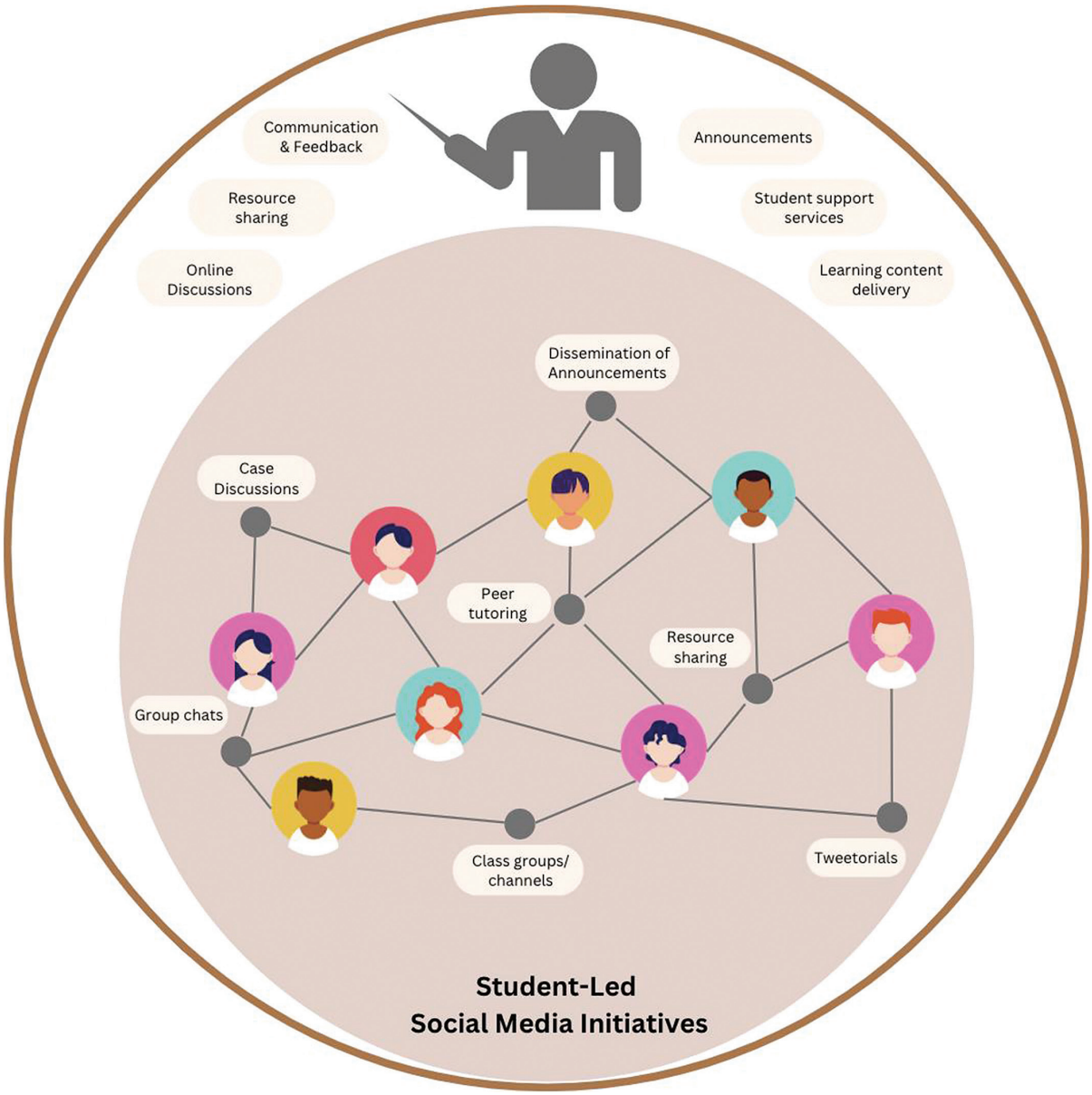

Figure 1. Theoretical framework on the role of social media in facilitating student-led initiatives in undergraduate medical education.[17,18]

platforms (Facebook, Messenger, Discord, Telegram, Twitter) complemented this student-led file sharing system. The various SocMed platforms used by the medical students are enumerated in Table 1.

Survey Instrument

The survey instrument was developed through two focus group discussions among the student investigators, facilitated by the senior author. Faculty from the Department of Anatomy reviewed the questionnaire for face validity. The survey was pilot tested on twelve participants from the population of interest, and then revised to improve clarity. The survey consisted of multiple-choice, Likert-scale, and open-ended questions. It collected students' demographic data (age, gender, year level, academic standing, location by region, family income) and internet usage (devices used, type of internet connection, number of hours on SocMed, and SocMed platforms used). Perceptions and attitudes on the use of SocMed for different student-led initiatives for online medical education were obtained. These encompassed how often they used each SocMed platform and which of these platforms were most effective for specific activities. Open-ended questions were used to elicit the advantages and disadvantages of SocMed platforms from the participants. The questionnaire is included in the Appendix.

Table 1. SocMed Platforms and How They were Used by Undergraduate Medical Students at the University of the Philippines

SocMed Platform	Features	How the SocMed Platform was used
Facebook Groups	• Private/public groups that allow users to share content with each other	• Posting of academic and administrative announcements (e.g., enrollment concerns, module schedules and requirements, class reviewers, transcription matters, etc.) • Posting of non-academic class announcements (i.e., extra-curricular activities) • Peer tutoring (i.e., live-streaming lectures and class reviews conducted on Zoom)
Facebook Messenger	• Private and group messaging • Video call • Sharing of photos, videos, and audio recordings	• Group chats for academic, administrative, and non-academic purposes (i.e., both announcements and reminders) • Only the class council, academic committee, and liaison officers could send messages to the academic and administrative group chats
Discord	• Allows for collaborative activities and communication via servers and channels (i.e., text chat, video call)	• Meeting with fellow students through servers and channels dedicated to academic and non-academic topics (e.g., independent study groups, peer tutoring, meeting rooms, gaming rooms)
Telegram	• Allows users to send messages, photos, videos, and files of any type • Has "no-reply" channels, where only administrators are allowed to send messages to the group	• Channels for general module announcements, lecture transcription updates, and class reviewers (i.e., both announcements and reminders) • Only the class council, academic committee, and liaison officers could send messages to these channels
Twitter (now X)	• Allows users to view content or communicate via a series of quick short posts called "tweets" which may contain text, photos, videos, or polls	• Posting of review materials (e.g., lecture summaries, multiple choice questions)

Data Collection

The questionnaire was created using Google Forms and required students to sign-in to their university webmail accounts to prevent multiple entries from a single respondent. All students from the included year levels were invited to participate.

Using the Raosoft online sample size calculator (Available at http://www.raosoft.com/samplesize.html), the required sample size to achieve a 5% margin of error with a 95% confidence interval is 187. Participation was voluntary. Because face-to-face activities were prohibited at the time of the study, the survey link was distributed through class networks, including SocMed platforms. The survey was open from October 26, 2021 to December 27, 2021. Periodic reminders were sent to the class.

Data Analysis

Survey data were de-identified and exported to SPSS v25 for analysis. We reported continuous variables as median (IQR) and categorical variables as frequencies and percentages. Responses to the open-ended questions were analyzed and grouped into categories by two sets of authors independently. These two groups then reconvened to summarize the responses. Any disagreements were discussed with and resolved by the senior author.

RESULTS

Respondent Characteristics

We received 258 responses, all of which were valid. There were 128/175 (73%) and 130/186 (69%) responses from first- and second-year medical students, respectively. The overall response rate was 71%. The median age of the respondents was 23 years (IQR=2, range=21-34). Additional demographic data are shown in Table 2.

Social Media Use

Most students owned a smartphone (98%), laptop/desktop computer (96%), and an iPad or tablet (77%). The internet source of the majority (91%) were postpaid subscription services such as broadband and digital subscription lines. Only three students (1%) did not have internet access where they stayed. The median time spent on SocMed per day was 4 (IQR=3) hours. The median percentage of time spent on SocMed related to academics was 50% (IQR=45). Based on the number of active profiles, the most popular SocMed platforms among the students were Facebook (99%), Telegram (98%), and Discord (83%).

Most Useful SocMed Platforms

On a five-point Likert scale (i.e., not at all helpful, slightly helpful, moderately helpful, very helpful, extremely helpful), 31% of the participants said that the student-led initiatives on SocMed were extremely helpful while 43% said they were very helpful. Most of the participants (88%) would recommend the continued use of SocMed to facilitate student-led initiatives for the rest of medical school.

As shown in Figure 2, Discord was the most popular platform for independent study groups and peer tutoring (71% and 33%, respectively). Facebook Messenger was the preferred platform for reading reminders (55%). Telegram was the preferred platform for reading announcements

Table 2. Participant Demographics and Social Media Use

Category	Subgroup	Number (n = 258)	Percentage
Year Level	First-year	128	49.6
	Second-year	130	50.4
Gender	Male	135	52.3
	Female	119	46.1
	Non-binary	3	1.2
	Prefer not to say	1	0.4
Location	National Capital Region	126	48.8
	Luzon	94	36.4
	Visayas	20	7.8
	Mindanao	18	7.0
Living Situation	Living with immediate family	224	86.8
	Living with extended family	21	8.1
	Living with partner, roommate, or friends	6	2.3
	Living alone	6	2.3
	Others	1	0.4
Financial Scholarship	Yes	69	26.7
	No	187	72.5
	Prefer not to say	2	0.8
Family Total Annual Income	PhP 250,000 or less	23	8.9
	Between PhP 250,000 and PhP 1 million	89	34.5
	Between PhP 1 million and PhP 2 million	65	25.2
	More than PhP 2 million	34	13.2
	Prefer not to say	47	18.2
Owns a Smartphone	Yes	254	98.4
	No	4	1.6
Owns an iPad or Tablet	Yes	199	77.1
	No	59	22.9
Owns a laptop or desktop computer	Yes	249	96.5
	No	9	3.5
Internet Access	I did not have Internet access where I lived	3	1.2
	I used prepaid mobile data	19	7.4
	I had a postpaid subscription service	236	91.5

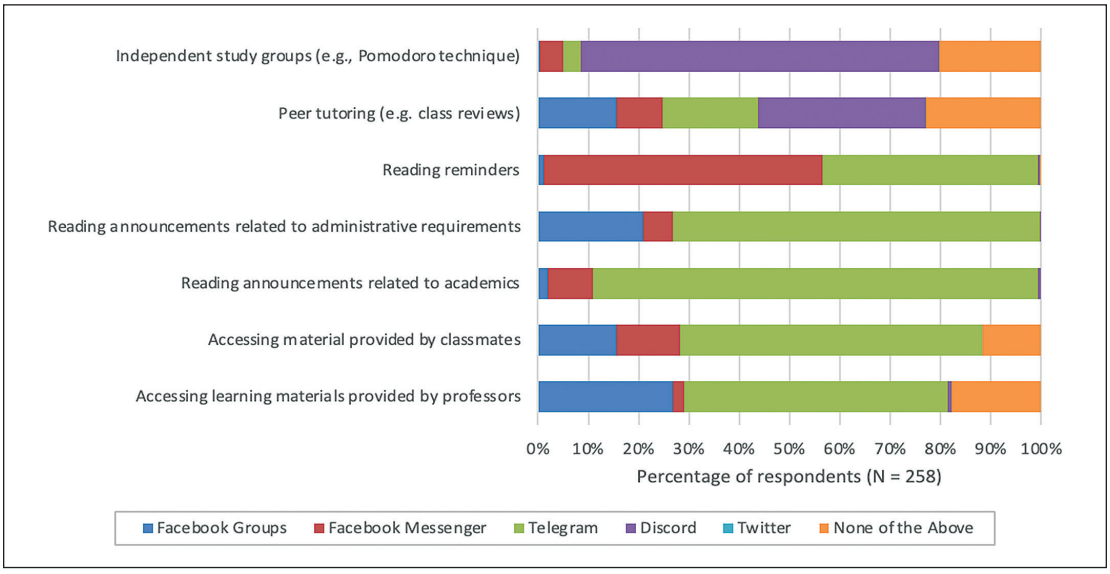

Figure 2. Proportion of students selecting a SocMed platform as most useful for each activity.

related to academics (88%) and administrative requirements (73%), and for accessing materials provided by classmates (60%) and professors (52%).

Advantages and Disadvantages

The participants enumerated several advantages and disadvantages of using SocMed platforms for medical education. Among the advantages, SocMed was described as convenient and accessible because its use was already prevalent among students; it provided ease of communication and was cost-efficient. According to one participant, "Some platforms such as Facebook have partnered with cellular service providers to allow free data access." (Respondent #56)

The variety of features of SocMed platforms was also highlighted, as these catered to the varying needs of the students. It allowed students to compartmentalize their work across various platforms, according to their respective features. Finally, it served as an alternative for previously on-site student-led initiatives, which had long been a part of the student culture at UPCM, allowing active participation of students in various capacities, albeit in the online environment: "[Social media] maintains social interaction and continuous sharing of ideas despite the distance." (Respondent #23)

Among the cited disadvantages, SocMed was described to be a distraction; the academic tasks were sometimes overshadowed by personal or social use. Some students experienced social media fatigue and got overwhelmed by the mix of social and academic notifications from the various SocMed platforms. Some also felt that the set-up led to a form of "resource-dependence," saying that the use of SocMed platforms demanded adequate resources, such as strong internet, network signal, and gadgets. "Most platforms rely on good internet and mobile data. Where I live, [the] cellular phone signal is virtually zero so I have no backup in case there is power interruption or slow internet. I will have to travel to my relatives to connect to the WiFi." (Respondent #121)

Respondents cited the burden of additional responsibility among student leaders. The set-up may have been time-consuming for the volunteers of the initiatives and for those who had to learn how to use the SocMed platforms. Other disadvantages mentioned included potential misuse of social media (e.g., privacy violations), and the lack of quality of social interactions compared with face-to-face initiatives. A summary of response categories and sample responses is presented in Table 3.

DISCUSSION

Here we described the use of SocMed to facilitate student-led initiatives among first- and second-year medical students in the Philippines during the peak of the COVID-19 pandemic. Our study found a high uptake of SocMed platforms among preclinical undergraduate medical students. The majority of respondents found SocMed helpful and recommended their continued use.

The high uptake of SocMed platforms among medical students in the Philippines is in line with global trends. A 2021 systematic review by Guckian et al. reinforces this trend, showing widespread SocMed use by undergraduate medical students across 26 countries in six continents.[8] SocMed platforms like Facebook, YouTube, and WhatsApp have been utilized for sharing resources, establishing dialogue with educators, facilitating classroom activities, and supporting informal conversations and social events. While it is possible to conduct such tasks without SocMed, the benefits are significant. The same study found that SocMed enhanced communication, increased accessibility to resources and information, and facilitated collaboration and community building among students and educators.[8]

Some of the most prominent advantages of SocMed from our study included accessibility and cost-efficiency. The perceived accessibility of SocMed platforms in medical education is most likely due to the current generation of medical students growing up with SocMed and using it in their everyday lives; there was already a great degree of familiarity for when it had to be used more frequently for educational purposes. This familiarity was further enhanced during the COVID-19 pandemic, when SocMed platforms became even more essential communication tools during lockdown restrictions, accelerating their integration into educational settings.[24]

Accessibility and cost-efficiency are particularly important to medical students in the Philippines; diverse socioeconomic backgrounds and the geographical spread of the class members can present challenges in accessing traditional educational resources. Although access to SocMed platforms necessitated device ownership and WiFi connectivity, an increase in financial and technological support from families and school administrators mitigated these barriers.

Our study found that students' use of a particular SocMed platform was dependent on how their needs matched the platform's features. The student-led initiatives can be classified into two categories: dissemination of information[25,26] (e.g., academic and administrative announcements and reminders, accessing educational materials provided by professors) and peer collaborative learning[9,27,28] (e.g., independent study groups, peer tutoring, review sessions, accessing supplementary materials provided by classmates).

Dissemination of information is important in medical school because sharing credible health information and resources is a professional obligation of a physician. Relevant, up-to-date, and evidence-based knowledge is meant to be shared with patients, colleagues, and the public to provide the best patient care.[29] By stimulating interaction and learner-generated content, social media tools promote active learning, thereby enhancing efficiency of students by staying informed and prepared for their medical careers.[30]

On the other hand, peer collaborative learning is an educational approach wherein students work together to

discuss problems and share knowledge with the goal of collectively enhancing their understanding of a subject. Social media has been found to facilitate this type of learning by providing various platforms for students and educators to connect and interact outside the physical classroom.[31]

The SocMed platforms used for reading announcements and accessing materials were Facebook Groups, Facebook Messenger, and Telegram. Among these, Telegram was found to be most useful, despite Facebook having the most number of active accounts. A study conducted in Saudi Arabia showed similar findings for the benefit of Telegram in medical education amidst the COVID-19 pandemic.[32] Accessing material was convenient because Telegram allows adding hyperlinks to texts, pinning important messages, and has an unlimited sharing capacity for files (i.e., no limitations on file size or type). Additionally, Telegram has a "no-reply" feature in which only administrators of a group chat have the ability to send messages, allowing for the curation of information being disseminated to and read by the cohort.

Table 3. Analysis of Advantages and Disadvantages of Social Media Use

Advantages		
Category	**Description**	**Sample Responses from Students**
Accessibility and convenience	Social media platforms are readily available and are already commonly used by students. They are thus a convenient option for information dissemination. Moreover, for resource disadvantaged students who need to preserve data, social media platforms also serve as cheaper alternatives to Zoom which requires a larger bandwidth consumption.	*Ease of communication* "Social media is readily accessible and easy to use. It also offers a wide variety of material." (Respondent #91) "No need to create new accounts since most of us already had accounts in these social media platforms." (Respondent #217) *Cost-efficiency* "The Facebook live feature in Facebook groups is also extremely helpful for listening to lectures when I have poor internet connectivity or can only rely on data." (Respondent #94) "Some platforms such as Facebook have partnered with cellular service providers to allow free data access." (Respondent #56)
Variety of features of social media platforms	The different features of social media platforms cater to the varying needs of students. Different social media platforms also serve designated purposes (e.g., Telegram for academics, Discord for socializing), which allows students to compartmentalize.	*Variety of Features* "Telegram has so many customizable features that can be changed depending on your preferences making the use of your time for work efficient and pleasant. Discord's also an effective social media app as it best connects students real-time, simulating f2f study or table sessions. It's easy to use, accessible, visually engaging, and free." (Respondent #123) "It collates all the relevant materials and allows it to be easily accessible. This is especially notable in our no reply academics-exclusive group chats in Telegram and Facebook messenger where all our class materials are posted without the interruptions of unnecessary messages." (Respondent #14) *Compartmentalization* "Segregating announcements through various platforms allows one to compartmentalize the incoming information (e.g., I know it will be a formal announcement if announced in Telegram, or I know it is a lengthy announcement if on Facebook, while Discord is more on for socialization and relaxation)." (Respondent #201) "Telegram is a useful platform for work/ academics. Having a separate social media app from Facebook and Messenger gives a clear delineation of which messages are urgent and require your attention versus those that are just for casual talk." (Respondent #19)
Alternative for previously on-site student-led initiatives	Student-led initiatives have long been a part of the student culture at UPCM (e.g., study groups at cafes, announcements/reviews in the classroom). During the COVID-19 pandemic, there was a spillover of these previously on-site initiatives to the online setting. Social media platforms invite active participation of students in various capacities, such as sharing of resources, peer tutoring, and study groups. They are also perceived as a safe space for students.	"Maintains social interaction and continuous sharing of ideas despite the distance." (Respondent #23) "Content is made more digestible when made by students." (Respondent #102) "Promotes independent work and safe space from professors." (Respondent #135) "Zoom and Discord study sessions are particularly beneficial in that they can be used not only for socialization, but for peer accountability as well." (Respondent #94)

Table 3. Analysis of Advantages and Disadvantages of Social Media Use *(continued)*

Disadvantages		
Category	**Description**	**Sample Responses from Students**
Social media fatigue	There may be associated physical, emotional, and mental fatigue from frequent social media use due to the overall dependence of student-led initiatives on such platforms. In addition, having too many initiatives across multiple social media platforms may be overwhelming.	"Social media is distracting, time-consuming, and sometimes even anxiety-inducing. Although Facebook is a useful platform for posting academic announcements and files, I sometimes get overwhelmed with seeing both personal and academic/work posts in one app." (Respondent #211) "No protected time, mixing of personal and academic social life, instant accessibility brings about anxiety (i.e., seeing messages pop up all the time, spam of notifications." (Respondent #19) "The use of multiple platforms for different uses may be distracting and also hard to keep up with. As there may be information that is relayed on one platform and not on the other. The obligation to be active on many social media platforms becomes tedious." (Respondent #167)
Resource dependence	Engaging in social media initiatives may be more challenging for those who lack the proper resources, particularly strong internet connection, cell signal, and up-to-date gadgets.	"The only disadvantage of social media is when people cannot access pertinent information and initiatives due to poor access, especially during emergencies like power outages and natural calamities." (Respondent #56) "Unfortunately, student-led initiatives can also be limited by poor connectivity. Zoom (and sometimes even FB live) consumes a lot of bandwidth. For those who are living in areas that do not have good signal, it is very difficult to access the learning content made available through social media. For example, reviews organized by the student organizations may be scheduled at a time when the internet connection is unstable." (Respondent #91) "Most platforms rely on good internet and mobile data. Where I live, cell phone signal is virtually zero so I have no backup in case there is power interruption or slow internet. I will have to travel to my relatives to connect to the WiFi." (Respondent #121)
Prone to misuse	The ease of sharing files on social media platforms may also come with the pitfall of possible misuse, such as privacy and copyright concerns. Examples of these include the unauthorized sharing of lectures, which are the property of the institution, and illegal copies of textbooks.	"Data privacy is not secured." (Respondent #4) "Intellectual properties may be compromised if not properly monitored in social media as these can be easily distributed…" (Respondent #91) "Easy to spread academic files that are prohibited to be duplicated and shared." (Respondent #107)
Lack of quality social interactions	The online and remote set-up causes a decline in quality of social interactions, consequently affecting the student-led social media initiatives. For example, communication between learners is limited when in a peer teaching session. Discussions cannot be made between students without disrupting the student-tutor.	"It removes the essential student-tutor and student-student interactions which facilitate more efficient learning." (Respondent #59) "The experience tends to be impersonal." (Respondent #28) "Group studies are the most difficult part. While Discord allows for sharing screens so that everyone is on the same page, it does not allow for separate conversations between students, unlike in a face-to-face study group, any student may ask any other student without disrupting the one tutoring." (Respondent #159)
Distraction	Social media platforms are an avenue for entertainment and are not primarily educational applications. Having academic initiatives in the same platform may be distracting for students. There is no clear delineation between the use of the social media platforms for educational purposes and for leisure.	"Easy distraction, especially as these sites serve the purpose of being social apps over educational apps. With Facebook especially, there are other videos you can watch, or your timeline to scroll through." (Respondent #91) "Notifications get mixed with nonacademic matters." (Respondent #6) "Social media is, for me, the biggest source of distraction that leads me to be inefficient." (Respondent #216)
Additional responsibility	There are additional responsibilities for those who are not adept with the platform. Some students need to allot time to familiarize and learn how to use social media platforms. There is also an additional burden placed on the volunteers of the social media initiatives, as they have to plan, execute, and oversee the initiatives on top of their academic responsibilities.	"There is a learning curve and it could be overwhelming at times." (Respondent #88) "... Additionally, it provides a barrier to those who are not as familiar with specific platforms or those with limited internet connection." (Respondent #69) "Some activities may eat up the time of those participating or those who volunteer to lead." (Respondent #256)

Despite Telegram generally being rated best at disseminating information, our study found Facebook Messenger to be the most useful for reminders, and Discord for independent study groups and peer tutoring. This aligned with a previous study that noted how Discord helped teams communicate and collaborate effectively, as well as brainstorm and have discussions with one another.[33]

Students used multiple SocMed platforms, whose functions complemented one another. Limiting use to one platform may bring about technical difficulties as some platforms may not be as appropriate for certain tasks. Telegram was preferred for announcements due to its features: scheduled messages, channels, and chat categorization. Meanwhile, Discord was preferred for group studies because of its audiovisual capabilities. Ideally, a single platform would offer all these features in one application, thus saving time, memory storage, and internet data usage.

Privacy was a concern for many respondents. In particular, our study noted that SocMed can be prone to misuse, potentially violating privacy and copyright laws. Telegram afforded some assurance because of the ability of messages to self-destruct. Future student-led initiatives may use Telegram for sharing sensitive information. In terms of privacy, self-disclosure in the online setting is complex and multidimensional. Users may be tricked by data thieves to disclose private information. Providing technical support and fostering privacy literacy are two ways in which users may be assisted in regulating their self-disclosure.[34]

Previous literature recommended SocMed as a means to improve the students' mental health during online learning.[35] However, some respondents expressed that SocMed use caused them significant mental fatigue; its use was even described to be anxiety-inducing. An analysis of social media fatigue enumerated three major causes: a) *relationship overload*, related to the vast network of relationships SocMed platforms offer, b) *content overload*, associated with the overwhelming amount of information available on the web, and c) *function overload*, attributed to the convenience brought about by SocMed through the wide range of available services it provides.[36] Our study is most related to the third cause of SocMed fatigue, which is well-encapsulated by a student's response: "the lack of compartmentalization of one's personal and work life." This may be due to the impression that work never seems to stop because of the availability of functions allowing users to work anytime and anywhere. Closing social media tabs in the browser, turning off notifications, or placing the device out of sight have been identified as useful strategies in reducing SocMed distractions.[37]

Overall, we recommend a targeted approach to optimize the use of SocMed in medical education. This approach should begin with recommending the usage of different SocMed platforms to explore their unique features effectively. Platforms like Telegram, known for their efficient information dissemination capabilities, can be recommended for announcements and sharing educational materials, while platforms like Discord, which offer robust audiovisual features, can be recommended for peer tutoring and group studies.

Students must be educated on privacy and security concerns associated with SocMed usage. If not yet available, university-wide social media guidelines must be formulated; a campaign to increase awareness must be periodically conducted. Lastly, student-led SocMed initiatives must be more thoughtfully integrated into the medical curriculum. This integration should complement traditional learning methods and be tailored to meet specific educational needs. It is essential that medical educators stay informed about student-led initiatives driven by technology. By doing so, educators can ensure that SocMed is used in a manner that enhances learning outcomes while safeguarding the well-being of students.

Limitations of the Study

Our study has several limitations. The SocMed initiatives were spearheaded by the class councils and academic committees. Under their leadership, rules were established with regard to the use of the SocMed platforms. Therefore, the ratings of the students with regard to the usefulness of each platform for each activity may have been influenced by the conventions initially agreed upon by the class. Our study findings may not be generalizable to other medical schools. The demands of each medical school vary and call for context-sensitive initiatives. Our survey was also subject to selection bias, wherein those with poor internet access may have not had the chance to complete the survey. Lastly, the study was unable to gather data on the effect of SocMed use on long-term learning outcomes, since we only focused on students' perceptions during the study period. Nevertheless, our study provides a blueprint for both educators and undergraduate medical students keen on implementing similar initiatives in their respective settings. Future research could investigate the impact of participating in student-led SocMed initiatives on academic performance and attainment of learning outcomes of the medical curriculum.

CONCLUSION

Undergraduate medical students had high uptake of SocMed platforms for academic-related matters. Certain platforms emerged as the most helpful for specific activities, and these were determined by both the students' needs and the platforms' corresponding features. Despite some disadvantages, such as the potential for distraction and mental fatigue, the majority of participants still agreed that SocMed platforms were helpful and recommended their continued use for student-led initiatives in undergraduate medical education. Educators must meaningfully engage with students to understand how SocMed platforms can be integrated into medical education, whether in the physical or virtual learning environment.

Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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APPENDIX

Survey Questionnaire

The Use of Social Media to Facilitate Student-led Initiatives in Undergraduate Medical Education

This is a survey on the use of social media (SocMed) to facilitate student-led initiatives for undergraduate medical education during the COVID-19 pandemic. Specifically, the research study aims to describe the use of social media in student-led initiatives for online medical education during the COVID-19 pandemic and to elicit the perceptions of students towards these initiatives.

In this study, student-led initiatives refer to activities planned and executed by students within each class (i.e., not led or sponsored by faculty, organizations, fraternities, or sororities), with the purpose of enhancing peer learning. These activities include study groups, peer review sessions, class announcements, and discussion boards.

The survey is open to all second- and third-year medical students (i.e., Learning Units 4 and 5, respectively) of the University of the Philippines College of Medicine, who were enrolled during the previous academic year 2020-2021. The entire survey will only take 5 to 10 minutes to complete. Participation in this survey is voluntary. You may end the survey at any point. By answering the survey, you consent to providing your personal information to the study investigators. The researchers will maintain the confidentiality of data, and all data will be de-identified prior to analysis.

As a token of gratitude, five participants will be randomly selected to receive a gift with a value of PhP 500.

The study protocol has been submitted to and approved by the University of the Philippines Manila Research Ethics Board (2021-585-EX).

For questions, or if you wish to withdraw your response, you may email any of the primary investigators. Thank you for your participation!

***Required questions**

Informed Consent *

- I have read the study description above and AGREE to participate in the survey.
- I do NOT wish to participate in the survey.

Medical Education

1. Indicate your CURRENT year level: *
   a. Learning Unit 4
   b. Learning Unit 5

2. Data obtained from this survey will be stratified according to class standing. Do you consent to retrieval of your GWA and class rank for AY 2020-2021 from the UP College of Medicine?
   - I consent to retrieval of my GWA and class rank under the conditions stated above
   - I do NOT consent to retrieval of my GWA and class rank

Demographics

3. What is your age? *

4. What is your gender? *
   a. Male
   b. Female
   c. Non-binary
   d. Prefer not to say

5. Indicate the region where you spent most of your time during AY 2020–2021. *
   - Dropdown list of the 17 regions of the Philippines

6. What was your living situation for most of **AY 2020-2021**? *
   a. Living with immediate family (e.g., parents, siblings)
   b. Living with extended family (e.g., uncle, aunt, cousin, grandparents)
   c. Living with partner, roommate, or friends
   d. Living alone
   e. Other:

7. Were you on any financial scholarship (i.e., based on financial need) during AY 2020-2021? *
   a. Yes
   b. No
   c. Prefer not to say

8. What is your family's total annual income? *
   a. PhP 250,000 or less
   b. Between PhP 250,000 and PhP 1 million
   c. Between PhP 1 million and PhP 2 million
   d. More than PhP 2 million
   e. Prefer not to say

Online Learning

9. Do you own a smartphone? *
   a. Yes
   b. No

10. Do you own an iPad or tablet? *
    a. Yes
    b. No

11. Do you own a laptop/desktop computer? *
    a. Yes
    b. No

12. Which statement best describes your Internet access for most of **AY 2020-2021**? *
    a. I did not have Internet access where I lived and had to go somewhere else
    b. I used prepaid mobile data (e.g., phone, pocket Wi-Fi...)
    c. I had a postpaid subscription service (e.g., broadband, DSL...)

Social Media Platforms

13. In which of the following social media platforms do you have an active profile or account? Please check all that apply.
    a. Facebook
    b. Twitter
    c. Instagram
    d. Discord
    e. Telegram
    f. Tiktok
    g. LinkedIn

14. On average, how many hours do you spend on social media every day? If it is less than 1 hour, please express your answer in decimal form (e.g., 0.25 for 15 minutes, 0.5 for 30 minutes) *
    - [0 to 24]

15. On average, what percentage of your social media use is related to academics? Write a number from 0 (None) to 100 (All of it). *
    - [0 to 100]

16. For each item, indicate which social media platform is MOST USEFUL for the indicated activity:

	Facebook Groups	Facebook Messenger	Telegram	Discord	Twitter	None of the Above
Accessing learning materials provided by professors (e.g., lecture recordings, PowerPoint slides)						
Accessing materials provided by classmates (e.g., transcriptions, reviewers)						
Reading announcements related to academics (e.g., instructions from professors or liaison officers)						
Reading announcements related to administrative requirements (e.g., enrollment, class enlistment)						
Reading reminders (e.g., "The lecture will begin in 15 minutes.")						
Peer tutoring (e.g., class reviews)						
Independent study groups (e.g., Pomodoro technique)						

17. If there are other ways in which you used social media for studying, please write them here and indicate the SocMed platform that you used.

Recommendations

18. Overall, were student-led initiatives on social media helpful to you during AY 2020-2021? *
    a. Not at all helpful
    b. Slightly helpful
    c. Moderately helpful
    d. Very helpful
    e. Extremely helpful

19. Would you recommend continuing the use of social media to facilitate student-led initiatives for the rest of medical school? *
    a. Yes
    b. Maybe
    c. No

20. In your opinion, what are the advantages of using social media to facilitate student-led initiatives in medical education? Indicate specific social media platforms, if necessary. *

21. In your opinion, what are the disadvantages of using social media to facilitate student-led initiatives in medical education? Indicate specific social media platforms, if necessary. *

22. What other student-led initiatives on social media would you like to suggest to your class?

UPM Social Media Guidelines

23. How often do you adhere to the UPM Social Media Guidelines?*
    a. Never
    b. Rarely
    c. Sometimes
    d. Often
    e. Always
    f. I am not aware of the UP Manila Social Media guidelines.

[END OF SURVEY]