

## **SOCIAL MEDIA UTILIZATION AND ITS IMPACT ON MALE MEDICAL STUDENTS' LEARNING DURING COVID-19 PANDEMIC**

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### **ABSTRACT**

To assess the patterns of social media uses and their impact on the learning of male medical students during the COVID-19 pandemic. A cross-sectional descriptive study was conducted from March to May 2020 at the College of Medicine, University of Bisha (UBCOM) in Saudi Arabia. A validated questionnaire was used to collect data from the students at first year, pre-clerkship and clerkship levels about the types, patterns and benefits of social media usage in their learning. A five-Likert scale was used to measure the students' responses.

Descriptive statistics and ANOVA tests were used for data analysis. Of the 203 students enrolled, 89.2% (n=181) were responded. Most students commonly used Twitter (75.1%), followed by YouTube (52.5%) and Facebook (24.3%). The highest usage of Twitter was found among clerkship students (85.1%) compared to first-year (76.2%) and pre-clerkship students (69.6%), with no significant differences ( $p = 0.133$ ). About 38.7% of students spent over 10 hours per week on social media and pre-clerkship students being the highest group (43.5%). Most students (67.9%) showed that social media enhance learning activities, 65.2% are interested in using social media in their learning and 64.1% suggested that their inappropriate use consumes time. We concluded social media become interactive tools of learning in medical schools during the urgent situation such as the COVID-19 pandemic. Such findings highlighted the benefits of considering social media inclusion when designing medical curricula.

**Keywords:** Social media applications, benefits, medical students, COVID-19.

## INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic is a global public health crisis that resulted in massively social, educational, economic and health challenges (Garfin, 2020) (Ibrahim, Al-aklobi, Abomughaid, & Al-Ghamdi, 2021). This global dilemma resulted in the locked-down of schools, colleges and educational institutions, leading to a shift to distance learning (Garfin, 2020). Social media websites and applications are digitally mediated technologies that become popular tools and widely use with multiple attractive facilities (Radwan, Radwan, & Radwan, 2020; Sattar et al., 2016). It is internet-based tools that facilitate communication between groups of peoples to share information, ideas and messages (Guraya, 2016; Sattar et al., 2016). There are several types of social, including Facebook, Wikipedia, Twitter, YouTube, and Blogger, LinkedIn, Snapshot and Instagram (Wanner, Phillips, & Papanagnou, 2019). However, the era of technology and mobile phones makes social media applications in learning is attainable (Elsamanoudy et al., 2018). Unlike traditional written media, such as textbooks, social media is cost-effective, cheap, allowing users for vivid interaction, add comments or content and can easily apply (D'Souza et al., 2017; Wanner et al., 2019).

In medical education literature, usage of social media is supported by constructivist learning theory, where the learning between learners could be facilitated by interaction, exchanging information and active enrolment in activities (Huang, 2002). Social media has created a revolution learning in teaching and practicing medicine in the digital and communication era (Guraya, 2016; Sattar et al., 2016). Medical literature suggests a significant correlation between social media and the acquisition of knowledge and desired skills among medical students (Al-Khateeb & Abdurabu, 2014). Connection via social media can promote collaborative learning among medical students and can retain the knowledge taught, exchange of information and discuss any target learning objectives (Hinojo-Lucena, Aznar-Díaz, Cáceres-Reche, & Romero-Rodríguez, 2020). Also, students can share texts, posts, presentation of pictures, and audio of learning materials and videos of practical procedures (Wanner et al., 2019).

In recent years, social media has become a trend for most educational institutes by the provision of the website, official pages for the institute and students (Kind, Genrich, Sodhi, & Chretien, 2010; Wanner et al., 2019). Students at medical schools and other healthcare institutions are frequently using social media in their education (Wanner et al., 2019). Several studies highlight the benefits of social media in improving the learning of students during their medical education (Hinojo-Lucena et al., 2020; Pander, Pinilla, Dimitriadis, & Fischer, 2014; Ravindran, Kashyap, Lilis, Vivekanantham, & Phoenix, 2014; Wanner et al., 2019). A systematic review found that medical students accept Facebook and 45-96% of health care professionals have a Facebook profile during their medical school (Pander et al., 2014). Ravindran et al. indicated that Facebook provides a safe environment for learning and discussion amongst medical undergraduates undergoing their clinical attachments (Ravindran et al., 2014). Another study found that the use of Facebook, YouTube, Instagram and Twitter augments the education of physician assistant students' (Wanner et al., 2019). In Saudi Arabia, several studies assessed the usage of social media in medical education and found it to be promising (Alsuraihi, Almaqati, Abughanim, & Jastaniah, 2016; Elsamanoudy et al., 2018; Sattar et al., 2016) According to Alsuraihi et al. medical schools need to improve the utilization of social media by their faculty and students by developing activities and encouraging the usage of social media in education (Alsuraihi et al., 2016).

Due to the global crisis of novel coronavirus disease 2019 (COVID-19), educational institutions have introduced distance learning to prevent the spread of infection (Sahu, 2020). Academic institutions support the faculty and student to stay connected through online applications social media forums to deliver educational activities and to support academic continuity (Rastegar Kazerooni, Amini, Tabari, & Moosavi, 2020; Sahu, 2020). However, the University of Bisha, College of Medicine (UBCOM) facilitates the usage of social media networking to cope with the urgent situation brought by the COVID-19 pandemic. This study aimed to assess the patterns of social media networking uses and their impact on the learning of male medical students from different academic years during the COVID-19 pandemic.

## **METHODS**

### **Study Design and Setting**

A cross-sectional descriptive study was conducted from March to May 2020 during the lockdown of all educational institutions because of the COVID-19 pandemic. The study was carried out at the University of Bisha, College of Medicine (UBCOM) in Bisha, Saudi Arabia. The UBCOM adopted an innovative medical curriculum and most of the courses were students centered, conducted through different instructional methods of team-based learning, problem-based learning, seminars, and interactive lectures. Due to the diversity of these educational methods, students need to exert massive effort to cope with their learning. However, university administration provides blackboard internet accounts for students and tutors to interact with each other to promote collaborative learning.

### **Participants**

Male medical students at all academic levels of Year one, pre-clerkship (second, third and fourth years) and clerkship (fifth and sixth years) were included in the study. Students who are not registered for the current academic year were excluded from the study.

### **Data Collection and Processing**

An online survey was conducted to collect the data from medical students from all academic years. A standardized structured questionnaire was designed to assess the patterns, frequency and benefits of social media use, as described in the literature (Alhababi, Alfadil, Mia, & Williams, 2015; El Bialy & Jalali, 2015; Guraya, 2016). The link to the survey questions was sent to the students through their mobile numbers and their official e mails registered at the university.

The questionnaire comprised three parts: the first part concerned with the general information of the students. The second part comprised items to identify the types of social media and their frequency of usage by students. The third part was used to assess students' perceptions about the benefits of social media in their learning. In parts one and two, the students were asked to respond to different closed-ended questions regarding demographic data, types of social media, and its frequent usage per week. A five-Likert scale was used to test the third part of the questionnaire. This was arranged from 5 to 1 as strongly agree, agree, neutral, disagree, strongly disagree. For the analysis purposes, 5 and 4 were categorized as positive perceptions, and 2 and 1 were grouped as negative perceptions about social media.

### **Ethical Approval**

The study was approved by the Research Ethics Committee at the University of Bisha, College of Medicine (UBCOM/H-06-BH-87 (03/21)). Participation in the study was voluntary and anonymous. Cover letters that explained the purpose and benefits of the study were distributed to the students with the questionnaires. Participants in the study were not provided incentives or affect students' academic scores.

## Statistical Analysis

Data entry and analysis were performed by the Statistical Package for Social Sciences (SPSS version 22) (Armonk, NY: IBM Corp.). Simple descriptive statistics of percentage, mean, and standard deviation were used to present the data. The frequency response of the Likert scores was calculated as a positive perception for 5 and 4 scores and negative perception for 2 and 1 scores with each question statement. The internal consistency of the questionnaire items (part 3) measured using Cronbach's alpha. One-way analysis of variance (ANOVA) was used for multiple comparisons. All p values less than 0.05 were considered statistically significant.

## FINDINGS

Cronbach's alpha test was 0.681, indicating the validity and reliability of the questionnaire to assess medical students' perceptions about the benefit of social media. Of the 203 students asked to participate in the study, 181 (89.2%) were responded and completed the questionnaire forms. These participants were from the first year (n=42), pre-clerkship (n=92) and clerkship (n=47). The students were in the age ranged from 18 to 26 years old, with a mean of 21.2±2.

### Types and Frequency Use per Hour of Social Media

Social media classified according to their aspects of electronic communication and collaboration including, blogs (Blogger), micro-blogs (Twitter), social networking (Facebook), professional career networking (LinkedIn, Hangout), video-sharing (YouTube, Snapchat) and photo-sharing (Instagram)(Jose et al., 2014; Wanner et al., 2019). The types of social media and their common features and uses in medical education are shown in Table 1.

**Table 1.** Types of social media and their common features and uses in medical education.

Social media	Feature
Twitter	<ul style="list-style-type: none"><li>• Allow a total of 280 characters in a single tweet (Katz &amp; Nandi, 2021).</li><li>• Information dissemination, social networking, and real-time communication (Jose et al., 2014).</li></ul>
Facebook	<ul style="list-style-type: none"><li>• Permits about 63,206 characters in a single post(Katz &amp; Nandi, 2021)</li><li>• Facilitate communication between learners, promoting learning, collaboration and exchange of ideas between students and for the circulation of documents (Latif, Hussain, &amp; Atif, 2019; Wise, Skues, &amp; Williams, 2011).</li></ul>
Instagram	<ul style="list-style-type: none"><li>• Share images and short videos, give students access to virtual mini-case presentations(Katz &amp; Nandi, 2021).</li><li>• Share visually appealing teaching points even after a formal lecture(Katz &amp; Nandi, 2021).</li></ul>
YouTube	<ul style="list-style-type: none"><li>• The single largest video-sharing platform and is the leading free web-based source of videos (Katz &amp; Nandi, 2021).</li><li>• Permits to upload and create galleries of photos, videos, and, slide presentations (Jose et al., 2014).</li></ul>
WhatsApp	<ul style="list-style-type: none"><li>• Used to send messages, pictures, video, and audio files (Katz &amp; Nandi, 2021; Latif et al., 2019).</li><li>• Provides secure, encrypted messaging and sharing of audiovisual material (Katz &amp; Nandi, 2021).</li><li>• Hand availability of WhatsApp facilitates learning at ease, anytime, anywhere, and immediately (Latif et al., 2019)</li></ul>
Snapshot	<ul style="list-style-type: none"><li>• Video-sharing, obtain information (Wanner et al., 2019).</li></ul>
LinkedIn, Hangout	<ul style="list-style-type: none"><li>• Interactions and relationships related to business or a person's professional career(Jose et al., 2014).</li></ul>

Table 2 summarizes the frequency and usage of social media per hour. Most students commonly used Twitter (75.1%), followed by YouTube (52.5%) and Facebook (24.3%). The highest usage of Twitter was found among clerkship students (85.1%) compared to first-year students (76.2%) and pre-clerkship students (69.6%), with no significant differences ( $p = 0.133$ ). YouTube was most likely preferred by all students at clerkship students (57.4%), first-year students (54.8%) and pre-clerkship students (48.9%). The highest usage of LinkedIn was found among clerkship students, whereas first-year students frequently used Snapshots and Instagram. Overall, 38.7% of students spent over 10 hours per week in the social media and pre-clerkship students being the most group 40 (43.5%), followed by first-year students (35.7%) and clerkship students (31.9%). However, no significant differences in time spent on social media among these three groups of students ( $p = 0.738$ ) (Table 2).

**Table 2.** Frequency per hours and types of social media usage medical students from different academic levels

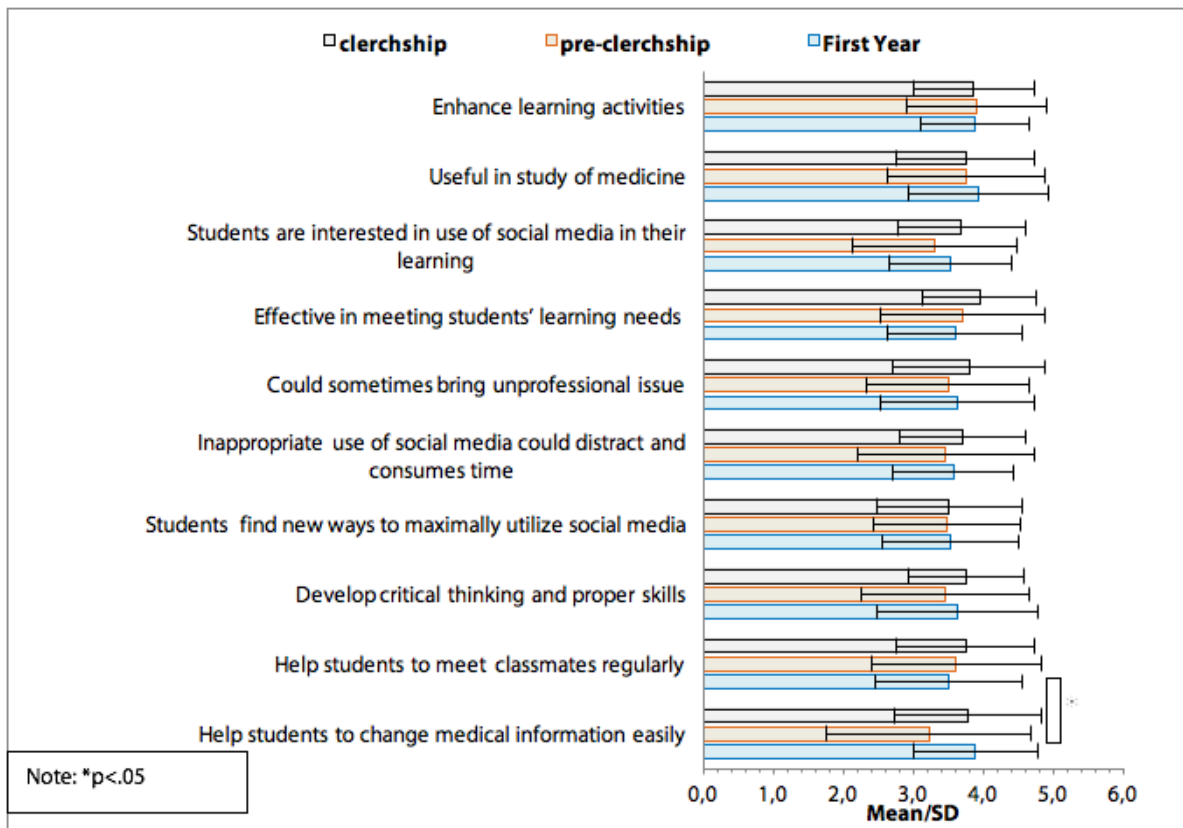
Item	Overall (n=181)	First Year (n=42)	pre-clerkship (n=920)	Clerkship (n=47)	
Type of social media		n (%)	n (%)	n (%)	P-value
Twitter	136 (75.1)	32 (76.2)	64 (69.6)	40 (85.1)	0.133
YouTube	95 (52.5)	23 (54.8)	45 (48.9)	27 (57.4)	0.604
Facebook	44 (24.3)	8 (19.0)	19 (20.7)	17 (36.2)	0.087
LinkedIn	31 (17.1)	7 (16.7)	12 (13.0)	12 (25.5)	0.183
Snapshot	20 (11.0)	8 (19.0)	8 (8.7)	4 (8.5)	0.171
Instagram	14 (7.7)	5 (11.9)	7 (7.6)	2 (4.3)	0.406
<b>Spend hours per week</b>					<b>0.738</b>
1 to 2 hours	18 (9.9)	3 (7.1)	13 (14.1)	2 (4.3)	
2 to 6 hours	53 (29.3)	18 (42.9)	21 (22.8)	14 (29.8)	
7 to 10 hours	40 (22.1)	6 (14.3)	18 (19.6)	16 (34.0)	
More than 10 hours	70 (38.7)	15 (35.7)	40 (43.5)	15 (31.9)	

### Students' Perception about Social Media

Table 3 illustrates students' perceptions of social media. Medical students have positive attitudes ranged from 68.5% to 55.8% to the investigated items. As shown in Table 3, about 68.5% of students find new ways to use social media maximally, 67.9% reported that social media enhance learning activities, 65.2% are interested in using social media in their learning and 64.1% showed that inappropriate use of social media could distract and consumes time. Regarding the item of social media change medical information easily, pre-clerkship students have reported significantly lower rates when compared to clerkship students ( $p=0.041$ ) or first-year students ( $p=0.014$ ) (Figure 1).

**Table 3.** Medical students' perception about the benefits of social media

Item	Negative Perception (%)	Neutral (%)	Positive perception (%)	Mean±SD
Enhance learning activities	10 (5.6)	48 (26.5)	123 (67.9)	3.9±0.9
Useful in study of medicine	21 (11.6)	46 (25.4)	114 (63)	3.8±1.1
Students are interested in using social media in their learning	33 (18.3)	30 (16.6)	118 (65.2)	3.5±1.1
Effective in meeting students' learning needs	19 (10.5)	47 (26)	115 (63.5)	3.7±1.0
Could sometimes bring unprofessional issue	32 (17.7)	42 (23.2)	107 (59.1)	3.6±1.1
Inappropriate use of social media could distract and consume time	28 (15.4)	37 (20.4)	116 (64.1)	3.5±1.1
Students find new ways to maximally use social media	26 (14.4)	31 (17.1)	124 (68.5)	3.5±1.0
Develop critical thinking and proper skills	28 (15.4)	43 (23.8)	110 (60.8)	3.6±1.1
Help students to meet our classmates regularly	29 (16)	40 (22.1)	112 (61.9)	3.6±1.1
Help students to change medical information easily	35 (19.3)	45 (24.9)	101 (55.8)	3.5±1.3



**Figure 1.** Comparison of students' perceptions (mean ± SD) about the benefits of social media by academic levels

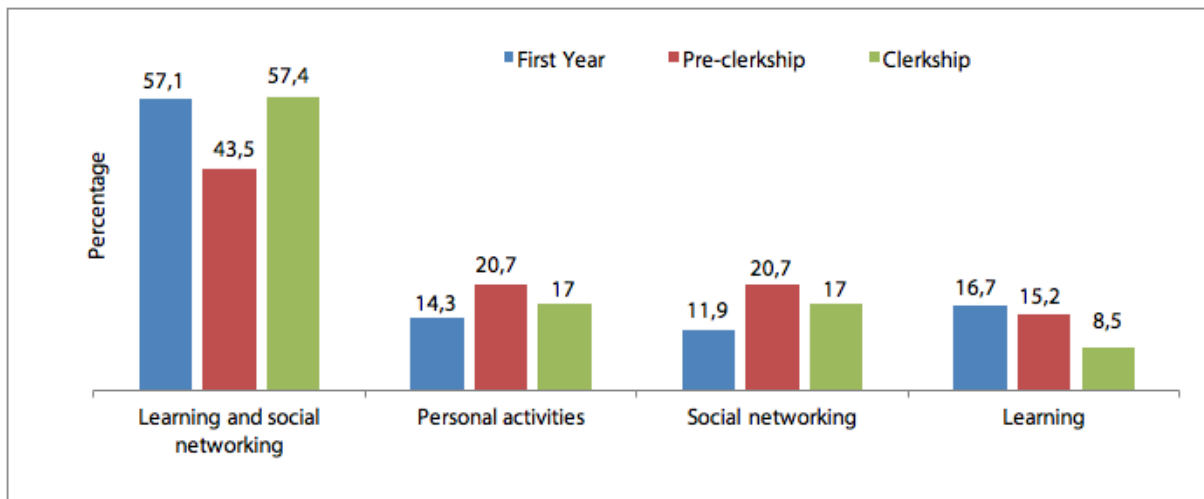
### Purposes of Social Media

The purposes of using social media among medical students are shown in Figure 1 and Table 3. Half of the medical students were used social media for learning and social networking, 18.2% were reported for personal activities and 17.7% were reported for social networking and 13.8% for learning. However, no statistical differences between the students' academic levels ( $p=0.319$ ) (Table 4).



**Table 4.** The purposes of the usage of social media among medical students

Usage	Total number of students				P-value
	Overall (n=181)	Year one (n=42)	Pre-clerkship (n=92)	Clerkship (n=47)	
Social networking	32 (17.7)	5 (11.9)	19 (20.7)	8 (17)	0.319
Personal activity	33 (18.2)	6 (14.3)	19 (20.7)	8 (17)	
Learning	25 (13.8)	7 (16.7)	14 (15.2)	4 (8.5)	
Learning and social networking	91 (50.3)	24 (57.1)	40 (43.5)	27 (57.4)	



**Figure 2.** Comparisons of the purposes of social media usage according to the academic level of students.

## DISCUSSION AND CONCLUSION

In the education context, active use of social media can generate more available data as students create and share medical information online. It provides opportunities for students to receive, share, and express knowledge and information with each other's (Latif et al., 2019; Moorhead et al., 2013). However, passive use involves consuming information and reposting links not aimed at anyone in particular, unrelated to the person's self-concept, and requiring minimal effort (Allegrante & Sigfusdottir, 2019). Research evidence documented that passive use of social media is associated with depressive symptoms and poor psychological well-being (Allegrante & Sigfusdottir, 2019). Studies suggest many disadvantages of social media, including information overload, wasting time, doubt about online information credibility, and sharing risky behaviors (Benetoli, Chen, & Aslani, 2019; Radovic et al., 2017). In addition, spending more time on social media has adverse effects on students' learning and leads to poor academic achievements (Latif et al., 2019). The present study aimed to assess the patterns of social media use and the impact on male medical students learning in UBCOM during the COVID-19 pandemic. The results revealed that all the students were using social media daily. Previous studies in Saudi Arabia found that medical students commonly experienced social networking (Elsamanoudy et al., 2018; Sattar et al., 2016). Similarly, elsewhere authors documented that social media as useful learning tools for medical students (Guraya, 2016; Pander et al., 2014) and health care professionals (McGowan et al., 2012; Wanner et al., 2019).

In the present study, Twitter was the most used type of social media, with the highest rates reported among clerkship students. Previous studies in Saudi Arabia found that male medical students preferred Twitter than other types of social media like email, Facebook and short message service (Alsuraihi et al., 2016). Widely accepted that Twitter provides many advantages such as allowing brief comments, permitting immediate suggestions of a topic for discussion, therefore, it is suitable for large group learning and improving academic engagements (Wise et al., 2011). The literature showed that Twitter improves students' learning in the classroom of the college (Alhababi et al., 2015). In the present study, YouTube and Facebook tend to become the second choice of social media by our medical students.

YouTube is preferred by about half of the clerkship students. Well known that YouTube is an easy tool for search learning topics and share videos with other learners without creating a website account (Alsuraihi et al., 2016). Data argued Facebook has only limited benefits for promoting students' academic engagement (Pander et al., 2014; Wise et al., 2011). A previous study found that students' users of Facebook were having lower GPAs and spend fewer hours per week studying than nonusers (Kirschner & Karpinski, 2010). Another study concluded that the professional use of Facebook as an educational tool is associated with a good student's perception, satisfaction index and better academic performance (Elsamanoudy et al., 2018). Other authors suggest Facebook can be used for small group discussions in the closed platform. According to Ali., educators should encourage the use of secret or closed informal Facebook groups in educational contexts, especially within small groups, to enhance learning (Ali, 2016). Henry et al. suggested that Facebook discussion group was a free, efficient, and effective method of cultivating the learner-teacher relationship with the preclinical medical students, resulting in a reported enhancement of learning and morale (Henry et al., 2020).

Most medical students in this study spent over ten hours per week on social media. A previous study in the United States found that college students at a doctoral research institution commonly spent less than ten hours per week on social media (Alhababi et al., 2015). The increasing time of social media usage in this study could be attributed to the current situation of the COVID-19 pandemic since our medical school moved to online learning that needs students to be in contact with their tutors and colleagues on daily bases (Huddart et al., 2020).

In this study, 13.8% of the students used social media for learning, with no significant difference observed between students' academic levels. This result was lower than that reported in Turkey, where 89.3% of medical students were using social media for their education and professionalism (Avci, Celikden, Eren, & Aydenizoz, 2015). Similarly, a systematic review found that 20% of medical students using social media for sharing academic and educational information (Guraya, 2016). Our findings revealed that half of the students were using social media for both social and learning communication. According to Paul and Baker, the time spent on social media networking sites by medical students can negatively influence students' academic achievement. Students should be made aware of the detrimental impact of online social networking on their potential academic performance (Paul, Baker, & Cochran, 2012).

In the present study, students in the first year, pre-clerkship and clerkship have positive insight into the benefits of social media as effective tools for their learning. However, more than half of the students were satisfied with social media in terms of learning, accessing information and developing skills and thinking abilities. This in agreement with a previous study conducted at King Saud University, Riyadh, Saudi Arabia (Sattar et al., 2016). Likewise, the positive attitudes among medical attitudes towards social media have been reported in Turkey (Avci et al., 2015). However, McGowan et al. indicated that the use of social media applications might be seen as an efficient and effective method for physicians to keep up-to-date and to share newly acquired medical knowledge with other physicians within the medical community and to improve the quality of patient care (McGowan et al., 2012). In this study, about 60%% of our medical students were having a sense of the possible unprofessional attitudes that might be developed from social media. Well known that unaware of using social media for posting material online has adverse effects on students' careers and might raise an ethical issue. Therefore, appropriate lecturing sessions about the professional use of social media should be introduced to our medical students to raise their attention.

The present study concluded that social media become common tools of learning in medical schools and their usage might increase during the urgent situation such as in the current COVID-19 pandemic. Twitter, YouTube, and Facebook seem to be the most popular social media platforms used by UBCOM medical students. Most of the students from different academic levels have positive perceptions about social media in supporting their medical education and awareness about the effects of improper usage. Such findings highlighted the benefits of considering social media inclusion when designing medical curricula. However, large-scale studies are recommended to build quantitative evidence about the use of social media in the medical curriculum.

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