Original Article :

Social Media Effects on the Academic Performance of Undergraduate Medical Students in KSA.

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Received on Sep 9, 2023, accepted for publication on Oct 29, 2023, dx.doi.org/10.5455/mjhs.2024.01.005

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Abstract

Background and Aims:
A cross-sectional study aims to measure social media's effects on the academic performance of undergraduate governmental and private medical students in KSA from October 2020 to March 2021.

Methods:
A total of 1200 students participated in the survey. After data collection, data were analyzed in terms of number and percentage, mean and SD, students' t-test, and Pearson correlation coefficient test, using the SPSS-21. The data was collected using a questionnaire adapted from Osharive's (2015) social media and the academic performance of the students' questionnaire (SMAAPOS)..

Results:
The sample size was 1670 students. One thousand twenty-one students responded to the questionnaire with a response rate of 72.45%. Students' GPAs ranged from <2, 2.1-3.0, 3.1-4.0, and 4.1-5.0 were 0 (0.00%), 50 (4.62%), 420 (38.26%), and 610 (56.4%); respectively. Three hundred and seven (31.1%), 220 (18.5%), and 160 (13.4%) use Twitter, YouTube, and Instagram, respectively. Nine hundred and eight students (81.7%) mentioned that the duration of using social media was more than five years, while 910 (75.21%) spent more than 5- 10 hours/ daily using social media. Eight hundred and seven (71.9%), 460 (38%), 36 (29.8), 700 (57.9%), and 280 (23.1%) use social media for social, games, professional, academic, and other purposes, respectively. The results showed Pearson correlation of a significant negative relationship between the time medical students spent on social media and their GPA, r = 0.1553.

Conclusions:
This study concludes a significant negative relationship between medical students' time on social media and academic performance.

Keywords:
Social Media Usage, Students' Academic Performance (SAP), Medical students.

Introduction

A "social media platform" is software that allows people to connect and communicate with one another, create, edit, and share new types of textual, visual, and audio content, and suggest current content types[1]. Social media is a term that refers to every platform people use to communicate, share information and ideas, or post personal blogs; it works through internet connections and can be used to collaborate with others in real-time[2]. In the modern world, information and communications technology is used in almost every aspect of society, including education, decision-making, entertainment, trade, and business. Consequently, people can save time, effort, and money daily[3].

In recent years, people's daily lives have been transformed by Social Media technology. Therefore, researchers and academics are researching the impact of social media technology and systems on the different facets of people's lives through social media[4]. Social media sites such as Facebook, YouTube, and others are "taking over the world" and are often considered a global consumer phenomenon[5]. The current population of Saudi Arabia is 34.54 million. Approximately 25 million (72.38%) are active social media users. Saudis spend 2 hours and 50 minutes daily on social media, with 23 million active social media users, 16 million mobile users, and 16 million mobile social media users[6]. According to Vorderer (2016), young people are encouraged to use social media to obtain and retrieve information, be online, communicate with others, and be consumers and participants[7].

Using social media to improve students' self-directed learning abilities has been noted by Wodzicki, Schawmmlein, and Moskluik (2012). They demonstrated that students could explore and gather information by accessing existing web data or collaborating with others with similar interests through informal and formal activities[8]. Social media is increasingly being used in medical education. Its use finds its roots in the educational theories of Connectivism[9]. Its uses in education are to create and share content whilst participating in social networking, facilitate accessibility to experts or mentors within certain areas of expertise, and allow for discussions that go beyond the limits of a formal curriculum[10].

Academic performance is 'the overall performance reflected in a Grade Point Average (GPA) over a year[3].

This study aimed to measure the effects of social media on the academic performance of undergraduate medical students in KSA and clarify to different stakehold-

ers the relationship between social media usage and academics. The research objectives are to identify undergraduate medical students' social media preferences and time spent on social media and measure the effects of social media technologies and applications on students' academic performance. An alternative hypothesis is that social media affects undergraduate medical students' academic performance. Accept the alternative hypothesis if ($p < 0.05$) and reject the null hypothesis.

Methodology

This study is a cross-sectional descriptive study design. It was conducted at governmental and private colleges of medicine in KSA among students who enrolled in a medical college in 2020-2021, regardless of their year of study. All Saudi undergraduate medical students studying inside KSA were eligible to be enrolled in the study. We exclude students from other colleges rather than medical colleges such as dental and applied medical sciences. The purposeful sampling technique was applied to get a representative sample covering different characteristics such as gender and academic status. Participation in this study was voluntary. The sample size was 1670 students, calculated by the Raosoft calculator of a random sample[11], with a confidence level of 90. The total number of medical students in KSA was approximately 20000 during the academic year 2020-2021. With a 5% margin of error, we can accept.

Peter Osharive's (2015) social media and Academic Performance (SMAAPOS) was used in this study. A student's academic performance is measured according to their GPA. The Pearson Correlation Coefficient was used to determine the reliability of the instrument. A co-efficient value of 0.65 indicated that the research instrument was reliable. There are two sections in the questionnaire. The first section consisted of 10 questions that explored students' demographic information (gender, age, year of study, college of medicine registered in, current GPA, used forms of social media, the number of hours spent studying a week, and the number of hours spent for accessing the social media a week, the duration of using social media, and uses for social media. Section B is composed of 22 Likert-scale questions that elicit information about the use of social media by students: the scale used was Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD). The instrument's validity was measured by its developer, who gave it to the respondents, and the prepared questionnaire was given to the project manager for review, approval, and correction. An analysis of split-half

data did the reliability of the tool, the two halves are made up of things with odd and even numbers. The two halves were given to a sample of university students who were not chosen for the main study by the tool developer[12].

The independent variables are the time medical students spend on social media, different uses of social media, age, and phase of study (basic sciences and clinical sciences), and the dependent variable is the academic performance of medical students in KSA (GPAs). Regarding biases of the study, selection bias was avoided by randomization of the participants, and recall bias was avoided by using objective, reliable tools for data collection.

The researcher created the questionnaire in Google Forms for the quantitative data collection and used it to collect data. The questionnaire link was sent through WhatsApp groups to all KSA medical colleges, the Deans' WhatsApp groups, the Saudi Society of Medical Education groups, and a medical educationist in KSA groups to be distributed to all medical students in the kingdom.

Ethical consideration:

Ethical approval was obtained from the Jouf University research ethics committee, approval number (7-01-43), and the approval date was 19 September 2021. Electronic, written informed consent was obtained before the study as part of the online survey; students can withdraw at any time. The benefits expected from the research were explained to the participants. The proposed research does not disclose the identity of the participants or collect personal data. Participation had no negative consequences; overall, the procedures adhered to the ethical guidelines of the Declaration of Helsinki.

Statistical analysis:

Data were coded, entered, and processed using SPSS version 21. The $P < 0.05$ was considered the cut-value for statistical significance. Descriptive data, such as the distribution of Gender and the distribution of the population over the years, were presented by number and frequency. The t-test for dependent or paired samples was used to test the difference between genders and phases of the study. The Pearson Correlation Coefficient was used to determine the correlation between time spent by students using social media and their GPA[13].

Results

In the academic year of 2020/2021, 1210 students of female/ male students in Saudi medical colleges participated in the study.

Table 1 shows the demographic data of the study population; it shows that 620

(51.70%) students were females, and 470 (39.20%) were males, the age of 840 students (69.40%) ranging between 18 and 24 years. Most of them were in the fifth, third and first year, 330 (27.50%), 300 (25.00%) and 280 (23.30%), respectively. GPAs ranged from <2, 2.1-3.0, 3.1-4.0, and 4.1-5.0 were 0(0%), 50 (4.62%), 420 (38.26%), and 610 (56.4%); respectively.

Regarding the forms of social media used most by students, Table 1 shows that 370 (31.1%), 22 (18.5%), and 160 (13.4%) use Twitter, YouTube, and Instagram, respectively. Nine hundred and eight students (81.7%) used social media for more than five years, and one thousand and five (86.77%) studied more than 10 hours weekly. Regarding the hours medical students spend on social media daily, 901 (75.21%) spend more than 5- 10 hours/ daily. Regarding the uses of social media, 870 (71.9%), 460 (38%), 360 (29.8), 700 (57.9%), and 280 (23.1%) use social media for social, games, professional, academic, and other purposes respectively. Students were asked to respond to ten statements regarding their involvement in social media activities for academic/educational purposes.

Table 1: Demographic data of study population

Parameter	Categories	N	%
		Total (1210)	Total 100%
Sex	Male	470	39.20%
	Female	620	51.70%
	I prefer not to say	110	9.20%
Age range	18-24 years	840	69.40%
	25-30 years	250	20.70%
	31-36 years	120	9.90%
Year of studying	First	280	23.30%
	Second	80	6.70%
	Third	300	25.00%
	Fourth	210	17.50%
	Fifth	330	27.50%
Students' GPA	>2	0	0.00%
	2.1-3.0	50	4.62%
	3.1-4.0	420	38.26%
	4.1-5.0	610	56.40%
Which forms of social media do you use the most?	Facebook	50	4.20%
	Twitter	370	31.10%
	LinkedIn	20	1.70%
	YouTube	220	18.50%

Parameter	Categories	N	%
		Total (1210)	Total 100%
Which forms of social media do you use the most?	Google	110	9.20%
	Snapshot	140	11.80%
	Instagram	160	13.40%
	WhatsApp	120	10.10%
How long have you been using social media?	<2 years	50	4.10%
	3-4 years	170	14.20%
	>5 years	980	81.70%
How many hours do you spend studying per week?	<1 hour	60	5.00%
	1-5 hours	100	8.23%
	>10	1050	86.77%
How many hours do you spend on social media daily?	≤ 1 hour	20	1.65%
	1-5 hours	110	9.09%
	5-10 hours	910	75.21%
	>10 hours	170	14.05%

Table 2 shows that 420 students (35.60%) agreed that they engage in academic discussions on social media platforms and follow the latest developments in their field through it, 400 students (33.30%) strongly agreed that they use WhatsApp to share information with their classmates, 490 students (41.90%) agreed that they have a social media group for some of their courses. While 280 students (23.90%) disagreed that engaging in academic forums on social media confuses them.

Table 2: The students' usage of social media for academic-related purposes

Parameter	SD	D	Neither D nor A	A	SA
	n (%)	n (%)	n (%)	n (%)	n (%)
"I engage in academic discussions on social media platforms."	150 (12.7%)	140 (11.9%)	350 (29.7%)	420 (35.6%)	120 (10.2%)
"I use WhatsApp to share information with my classmates."	130 (10.8%)	80 (6.7%)	290 (17.50%)	380 (31.70%)	400 (33.3%)
"I follow the latest developments in my field through social media".	160 (13.4%)	90 (7.6%)	330 (27.7%)	420 (35.3%)	190 (16%)
"I solely rely on information gotten from social media to do my assignments without consulting other sources".	310 (26.3%)	270 (22.9%)	320 (27.1%)	190 (16.1%)	90 (7.6%)
"Engaging in academic forums on social media confuses me".	170 (14.5%)	280 (23.9%)	350 (29.90%)	230 (19.70%)	140 (12%)
"Sometimes I use social media to understand what I have been taught in class".	200 (16.80%)	90 (7.50%)	220 (18.5%)	370 (31.1%)	310 (26.10%)

Parameter	SD	D	Neither D nor A	A	SA
	n (%)	n (%)	n (%)	n (%)	n (%)
"Social media is encouraged by professors as part of class assignments".	250 (21%)	160 (13.40%)	370 (31.10%)	330 (27.70%)	80 -6.80%
"We have a social media group for some of my courses".	120 (10.30%)	8 (6.70%)	160 (13.70%)	490 (41.90%)	320 (27.40%)
"I have to use social media extensively because most of my course assignments/projects are in the forms of blogs/online presentations".	170 (14.30%)	160 (13.40%)	340 (28.60%)	340 (28.60%)	180 (15.10%)
"I communicate with the professor through social media".	150 (12.70%)	90 (7.7%)	260 (22%)	450 (38.10%)	230 (19.50%)

Table 3 shows that 420 students (35.30%) agreed that the time they spend online on social network takes away from their time studying and the usage of social media for research improve their grades, 400 of them (33.30%) agreed that online social networks distract them from their studies. While 400 students (33.90%) strongly disagree that unlimited access to Facebook through their cell phone has negatively affected their academic performance, 280 students (23.70%) disagree that social media has positively impacted their GPA.

Table 3: The impact of social media on the student's academic performance

Parameter	SD	D	Neither D nor A	A	SA
	n (%)	n (%)	n (%)	n (%)	n (%)
"The time I spend online on social network-stakes away from my time studying".	180 (15.1%)	140 (11.8%)	250 (21%)	420 (35.3%)	200 (16.8%)
"Online social networks distract me from my studies".	200 (16.7%)	160 (13.3%)	260 (21.7%)	400 (33.3%)	180 (15%)
"The hours I spend online on social media are more than I spend reading".	230 (19.3%)	180 (15.1%)	260 (21.8%)	310 (26.1%)	210 (17.6%)
"My unlimited access to Facebook through my cell phone has affected my academic performance negatively".	400 (33.9%)	180 (15.3%)	290 (24.6%)	180 (15.3%)	130 (11%)
"Social media have impacted my GPA positively".	220 (18.6%)	280 (23.7%)	340 (28.8%)	170 (14.4%)	170 (14.4%)
"The usage of social media for research has helped improve my grades".	230 (19.5%)	70 (5.9%)	280 (23.7%)	420 (35.6%)	180 (15.3%)
"Social media has negatively impacted my writing skills".	270 (22.7%)	240 (20.2%)	310 (26.1%)	280 (23.5%)	90 (7.6%)
"Social media have impacted my GPA negatively".	260 (22%)	240 (20.3%	310 (26.3%)	250 (21.2%)	120 (10.2%)
"I will not perform well in my academics even if I stop using social media".	290 (24.6%)	240 (20.3%)	250 (21.2%)	220 (18.6%)	180 (15.3%)

Parameter	SD	D	Neither D nor A	A	SA
	n (%)	n (%)	n (%)	n (%)	n (%)
"I use social media for making new friends and socializing more than I use it for academic purposes".	150 (12.6%)	240 (20.2%)	190 (16%)	410 (34.5%)	200 (16.8%)
"Social media has improved my communication skills".	160 (13.4%)	130 (10.9%)	310 (26.1%)	380 (31.9%)	210 (17.6%)
"Once I interrupt my study time with social media, I lose concentration".	150 (12.7%)	100 (8.5%)	280 (23.7%)	430 (36.4%)	220 (18.6%)

Table 4 showed statistically significant differences between students in the Basic sciences phase and Clinical Phase and between male and female students in items related to their study distraction by social network (p-value 0.028), duration spent on social media compared with that of reading (p-value 0.005), following the latest developments in their field through social media (p-value 0.011), depending on social media information to solve their assignments without consulting other sources (p-value 0.0344), confusion by social media (p-value 0.033), using social media to a more profound understanding of their subjects (p-value 0.003), and their expectation of improvement in performance if they stop using social media (p-value 0.007).

Table 4: Items of statistically significant differences between medical students in basic sciences and clinical phases and gender regarding social media usage.

Parameter	Basic sciences phase students	Clinical Phase Students	p-value	t-value
	Mean ± SD	Mean ± SD		
"Online social networks distract me from my studies".	2.5 ±2.12	3 ±1.41	**0.028***	1.928
"The hours I spend online on social media are more than I spend reading".	2.5 ±2.12	3 ±1.41	**0.005***	-2.604
"I follow the latest developments in my field through social media".	2 ±1.41	2 ±1.41	**0.011***	-2.293
"I solely rely on information gotten from social media to do my assignments without consulting other sources".	2.5 ±2.12	3.5 ±0.70	**0.034***	1.836
"Engaging in academic forums on social media confuses me".	2.50 ± 2.12	2.5 ±0.70	0.033*	-1.854
"Sometimes I use social media to understand what I have been taught in class".	2.5 ±2.12	4 ±0	0.003*	2.733
"I will not perform well in my academics even if I stop using social media".	1.5 ±0.70	1.5 ±0.70	0.007*	-2.464

Parameter	Male Mean± SD	Female Mean± SD	p-value	t-value
"The time I spend online on social network-stakes away from my time studying".	3.5 ±0.70	3.5 ±0	0.049*	1.66
"Online social networks distract me from my studies".	3 ±0	4 ±0	0.000*	6.35
"The hours I spend online on social media are more than I spend reading".	3 ±0	3.5 ±0.70	0.000*	6.35
"I engage in academic discussions on social media platforms."	1.5 ±0.70	3 ±2.82	0.001*	3.00058
"Social media have impacted my GPA positively".	4 ±0	4.5 ±0.70	0.040*	1.75
"I solely rely on information gotten from social media to do my assignments without consulting other sources".	3.5 ±0.70	4 ±0	0.001*	3.122
"Engaging in academic forums on social media confuses me".	3.5 ±0.70	3.5 ±0.70	0.015*	-2.1854
"Sometimes I use social media to understand what I have been taught in class".	3 ±0	3.5 ±0.70	0.000*	4.1573
"I will not perform well in my academics even if I stop using social media".	3 ±2.82	1.5 ±0.70	0.034*	-1.84
"Social media is encouraged by professors as part of class assignments".	2 ±1.41	2 ±1.41	0.043*	0.396
"We have a social media group for some of my courses".	3 ±1.41	4 ±0	0.001*	3.1422
"Social media has improved my communication skills".	3 ±0	3.5 ±0.70	0.026*	1.964

As shown in Figure 1, the results of the Pearson correlation indicated that there is a significant sizeable negative relationship between the time medical students spent on social media and their GPA, r = 0.1553.

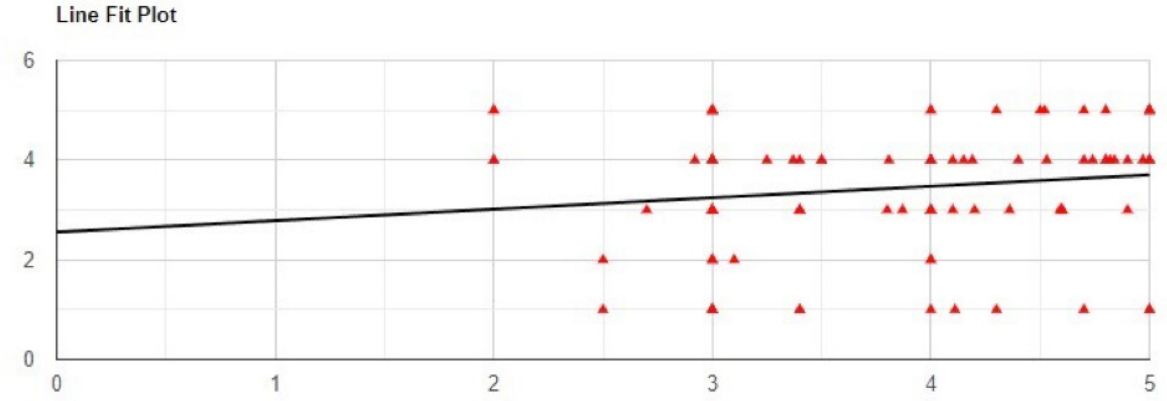


Figure 1: The relationship between social media hours spent by students and their effect on their academic performance.

Discussion

This study's main aim was to understand social media's effect on medical students. This study investigated the effect of social media usage on the Kingdom of Saudi Arabia's undergraduate medical students. The results showed that students preferred using Twitter, YouTube, Instagram, Snapshot, WhatsApp, Google, Facebook, and LinkedIn, respectively. Our study results are incongruent with Mowafy G (2108) and Almoamary et al., 2021 who found that the most popular social media platform in their study was Twitter. On the other hand, Facebook was not very popular. Despite its size, Saudi Arabia has the lowest share of members on Facebook, with 12% of all Arab users on Facebook[14,15]. According to Cheston et al. (2013), Blogs were the most used, followed by Wikis, Twitter, and then Facebook[16]. Other studies preferred Facebook because they are easy to operate and understand (Fewkes & McCabe, 2012; Khan et al., 2014; Viera et al., 2014) as cited in (Greenhow & Askari, 2017)[17-18].

Results show that social media tools that are more ubiquitous and likely to be familiar to both the educator and the learners; the tools that are offered freely (without a cost to it, apart from internet connectivity) and the ones that are highly versatile offer multiple features, such as voice-over, text, image, video, are more used.

Regarding time spent by students on social media, results showed that many students have been using social media for more than five years, they study more than 10 hours weekly and spend more than 5- 10 hours/ daily on social media, we can notice that students have previous experience in using social media for years and they spent a long time using it daily; Acheaw and Larson (2015) found that each day, approximately thirty minutes to three hours are spent by most respondents[19]. Regarding students' use of social media for educational purposes in the form of academic discussions and forums, communication with their classmates, following the latest developments in their field, understanding what is taught in class, class assignments, some course has social media group, their course assignments/projects are in the forms of blogs/online presentations, and finally communicate with the professor through it. In a study conducted in a similar learning environment and study population at the medical college of Jazan University by Alhaj and Banafi (2015), most Saudi medical students agreed that they use social media to communicate with colleagues in class[20]. Our study results were incongruent with Almoamary et al. (2021), who found that communication tops the list, as communication is multifaceted; stu-

dents can personally share their knowledge and experiences through social media[15]. Also, Guo, Rong et al. (2018) showed that social media could communicate between students and students' lectures[21]. The use of social media by health care professionals should be done with the professional guidelines always in mind. The General Medical Council (GMC) and Nursing and Midwifery Council (NMC) provide guidelines on using social media. The guidelines like privacy and confidentiality, respect of the Hippocratic oath (professional, ethical standards), conflict of interest, respect for patients and colleagues, following moral principles, false marketing, and disclosure on the use of social media do not differ much globally. Still, they may be the implementation varies from country to country[22- 24].

In the medical education field, many medical educationists have proven that utilizing social media for teaching and learning can amplify collaborative learning, improve students' interaction with peers, and enhance academic performance[14].

Results show that females are more distracted from their studies by online social networks, spend more hours on social media than on reading, improve their communication skills, and engage in academic discussions on social media platforms than their counterparts. Webb et al. (2015) explained performance theory. They reported that the usage of social media by females is enthusiastic, and they have made meaningful use of it to improve their social life. Our results are consistent with a global study that found 76% of online women and 70% of online males utilize social media[25]. Similarly, Junco, Merson, and Salter (2010) discovered that women spend more time than men on social networking sites[26]. The culture in KSA, where women often spend more time at home, can be blamed for the discrepancy in this study. As a result, people use social media to keep in touch with their loved ones, friends, and classmates. Alshalawi, A.S. (2022) mentioned in his study that male undergraduate students use mobile phones for entertainment, while female students use SMNs more frequently for educational purposes[27].

Regarding the relationship between the time medical students spend on social media and their GPA, our results indicated that there is a significant sizeable negative relationship ($r = 0.1553$), which is consistent with many studies worldwide Alam & Aktar, 2021; Ddungu et al. 2021which have claimed that greater social media use is associated with poorer academic achievement[28-29].

Our results are inconsistent with those of Alwagait et al., 2015 and Hargittai & Hsieh, 2010; who have yet to find a rela-

tionship between the use of social media networks and academic performance[30, 31]. And Alshalawi, A.S. (2022) and Al Adwan et al. (2021) found a positive relationship between students' academic performance and SMNs usage intensity[27, 32].

The researcher recommends covering a large proportion of the population and identifying the factors that impact social media usage among medical students. Also, medical students should use social media to learn and watch medical videos, not for games and communication, and learn how to benefit appropriately from them. As medical students spend several hours on social media, medical educationists should incorporate social media into the medical curriculum as a teaching method.

One of the limitations was the small sample size so we couldn't generalize the results; further studies are needed to examine its appropriateness. Further, the study was limited to Saudi medical students.

Conclusion

This study concludes that medical students in KSA use social media for social, games, professional, and academic purposes. There is a significant negative relationship between medical students' time on social media and their GPA. Yet, students should use social media carefully since the time spent online on social media takes away from studying. Future research should consider all possible stakeholder groups to provide a holistic view.

Acknowledgement

The authors acknowledge medical students who participated in the study from different medical colleges inside KSA for their generous contributions in time, insight, and support to make this study successful.

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