

## ORIGINAL ARTICLE



# Use of social media in education among medical students in Saudi Arabia

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**Purpose:** Social media (SM), a virtual place where people can share, exchange, and communicate their ideas and knowledge, has become the new trend in communication and learning. This study aims to explore Saudi Arabian medical students' usage of SM and to discover the most common resources used in medical education. Furthermore, it aims to illustrate students' belief about the influence of SM on their learning.

**Methods:** This cross-sectional study administered validated questionnaires to medical students from different universities in Saudi Arabia, via emails, Twitter, Facebook, and short message service. A non-probability sampling technique was utilized and a sample size of 381 students was arrived at, using 95% confidence interval and 5% margin of error, since the total number of medical students in Saudi Arabia is approximately 36,000. The total respondents were 657 students from 23 different Saudi Arabian medical schools (females: 60.5%, n=397; males: 39.5%, n=260).

**Results:** The questionnaires of 21% of the students (n=139) were excluded from the analysis since they were incomplete. The most common website used by both genders was YouTube (42.3%, n=185); however, males preferred using Twitter and Wikis (p=0.001). With regard to utilizing SM for learning, 95.8% (n=419) of the students believed that it is beneficial. Females stated that SM helps them link basic and clinical science (p=0.003).

**Conclusion:** Medical schools need to improve the utilization of SM by their faculty and students by developing activities and encouraging the usage of SM in education.

**Key Words:** Medical education, Social media

## Introduction

One of the most powerful communication tools of the 21st century is social media (SM). SM includes web tools and applications designed to facilitate online interaction and instant information sharing. Social network users

interact through sharing texts, photos, and audio and video messages [1]. The role of SM is varied: it helps people communicate with each other, advocate about topics of concern, and share their common interests, as well as gives them the freedom to express their emotions and opinions. For instance, patients commonly use websites such as Facebook, MySpace, and YouTube to share

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personal information about their diseases [2]. It is used for educational purposes in various fields, such as pharmacy. Tutors can use social networks to increase their chances of success in student recruiting and brand management [3]. Recently, SM usage in medical education has been gradually increasing. For example, 132 of all U.S. medical schools have a website and 95% of them have some Facebook presence. Out of these schools, 26% have official medical school SM pages and 71% have student groups [4].

The use of SM by medical students has become a very popular method to engage teachers and learners [5]. According to social-constructivist principles of Dewey and Vygotsky [6], social interaction, sharing of information and active participation in SM activities may facilitate learning. A recent pilot study evaluated the integration of Twitter, YouTube, Flickr, Blogging, and Skype in two elective courses for fourth year medical students at the Penn State College of Medicine [7]. The results of this study showed that students were satisfied by the new approach in both courses. They also expressed the extent to which the integration of SM in teaching enhanced their learning. However, some students reported challenges such as lack of time and technological facilities [7]. Since the introduction of the Internet in Saudi Arabia in 1994 for academic, medical, and research institutions' usage, there have been limited studies about the effect of using SM on medical students' learning, despite the dramatic increase in the number of medical schools [8]. In addition, students' awareness and the need for a SM usage policy is of important concern since it allows them to communicate with their tutors without any restriction. A cross-sectional study among medical students in Qassim University showed that 80% of the students used computers for academic purposes [9]. A recent systematic review showed that SM promotes student engagement and enhances deeper

understanding; however, one of the obstacles to this was privacy issues, as reported by 29% of the participants [10].

This study was conducted to produce measurable statistical data on Saudi Arabian medical students' SM usage, since sufficient data to examine the relationship between SM and medical education is unavailable.

This study aims to explore Saudi Arabian medical students' SM usage and to discover the most common resources used in medical education. Furthermore, it aims to illustrate students' belief about the influence of SM on their learning.

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## Subjects and methods

This cross-sectional analytical study was approved by the Institutional Review Board. An online questionnaire was distributed to medical students from different grades and universities in Saudi Arabia, from June 1 to August 30, 2013, via emails, Twitter, Facebook, and short message service. According to the Ministry of Higher Education, the total number of medical students in all universities is around 36,000. We utilized a nonprobability sampling technique, and the sample size was calculated using 95% confidence interval and 5% margin of error; we needed to include 381 participants. To compensate for the expected incomplete questionnaires, we decided to include a total of 400 participants. The questionnaires were distributed through SM along with an invitation cover letter. All respondents were included in the study, except the ones who are interns and those who are studying abroad.

Participants were invited to voluntarily and anonymously complete a validated questionnaire. The questionnaire was piloted for face/content validity by distributing it to 10 medical students from different grades,

and was then peer reviewed by two assessors who examined its psychometric characteristics (Appendix 2). It consisted of four main parts: the student's demographic and personal data (age, gender, year of study, and school name); SM details (usage of SM, frequency, type of SM, and preferred platform); belief about SM's influence on learning (influence on education, communication, and collaboration); and barriers and challenges for using SM in education (ethical barriers, institutional availability, and cooperation). A Likert-type scale was used in sections 2, 3, and 4 of the questionnaire (where 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, and 5=strongly agree).

We classified the students into three categories: pre-medical, medical, and clinical phases. Most Saudi Arabian universities offer a 6-year medical program, wherein students study basic sciences, such as physics, chemistry, and biology, in their first 2 years (premedical phase); medical sciences, such as anatomy, physiology, and pharmacology, during the next 2 years (medical

phase); and a specialty in rotation with others, such as medicine, surgery, and pediatrics, in the last 2 years (clinical phase).

We conducted a reliability analysis and evaluated the item-total correlation matrix. The average item-total correlation was above 0.3, and the standardized Cronbach's  $\alpha$  was above 0.65.

SurveyMonkey designed the survey and collected the data. SPSS version 21.0 (IBM Corp., Armonk, USA) was used for the data analysis. Descriptive statistics were utilized for mean scores and proportions. Skewed data were transformed to normal distribution ones using log-transformation methods, and parametric statistical methods were utilized. The correlation matrix was used to analyze the item-total correlation. Independent sample Student t-test and multiple linear regression were utilized to measure the significance of associations between dependent and independent variables. All tests were two-tailed, and p-value of  $<0.05$  was considered significant.

Table 1. Demographic Details of Participants

Characteristic		No. (%)
Gender		
	Male	260 (39.5)
	Female	397 (60.5)
Medical year		
First year	Premedical phase	74 (11.26)
Second year		108 (16.44)
Third year	Medical phase	143 (21.77)
Fourth year		105 (15.98)
Fifth year	Clinical phase	100 (15.22)
Sixth year		127 (19.33)
Name of university		
	Umm Al-Qura University	176 (26.8)
	King Abdulaziz University	152 (23.2)
	King Saud bin Abdulaziz University for Health Sciences	68 (10.4)
	King Saud University	44 (6.7)
	Others <sup>a1</sup>	217 (32.8)

<sup>a1</sup>NBU, TU, KFU, UT, QU, KKU, JU, PNU, IMAM U, TAIBAH U, DMU, ISNC, SAU, UNAIZAUM, BU, ALFAISAL U, MCST, UOH, and BMC (names indexed in Appendix 1).

## Results

The total number of respondents was 657 students from 23 different Saudi Arabian medical schools. The respondents were mostly from Umm Al-Qura University (26.8%, n=176), followed by King Abdulaziz University (23.2%, n=152). Females represented 60.5% (n=397) of the total participants. Majority of participants belonged to the medical phase (37.8%, n=248) (Table 1).

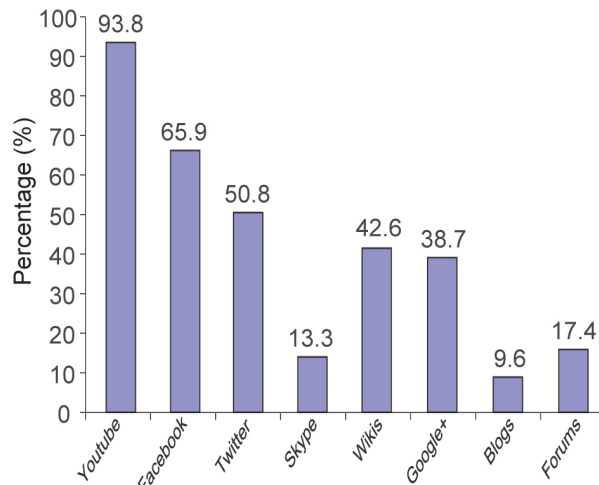
Of the total participants, 87.7% (n=576) use SM in their education. However, this question was the endpoint for those who do not use SM in their education, and therefore 81 participants were initially excluded from the final analysis. Furthermore, 139 participants were excluded because they did not complete the questionnaire. Therefore, the total number of participants included in the final analysis was 437. Fig. 1 illustrates students' frequency of SM usage in learning.

There was no significant difference between genders in the frequency of using SM (p=0.12). YouTube, Facebook, and Twitter were among the most commonly used resources, while the most common website used by both genders was YouTube (42.3%, n=185). However, males

preferred using Twitter and Wikis (p=0.001) (Figs. 2, 3). Regarding utilizing SM for learning, 95.8% (n=419) of the students believed that it is beneficial, while 40% (n=175) thought using SM might be distracting. There was no statistical significance between genders in the belief that using SM as an educational tool is beneficial. Compared to male students, females communicate more with their tutors through SM (p=0.04).

Of all students, 74.4% (n=325) reported that their medical institution utilized SM in education. We found

Fig. 2. Social Media Resources Used in Medical Education (n=437)



This question was a multiple answer question.

Fig. 1. Frequency of Social Media Usage in Learning (n=437)

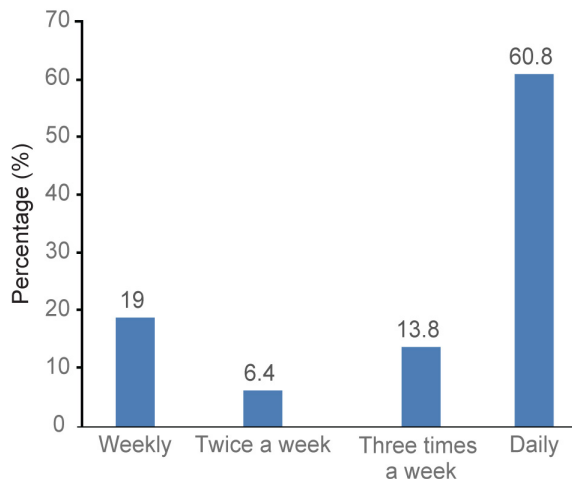
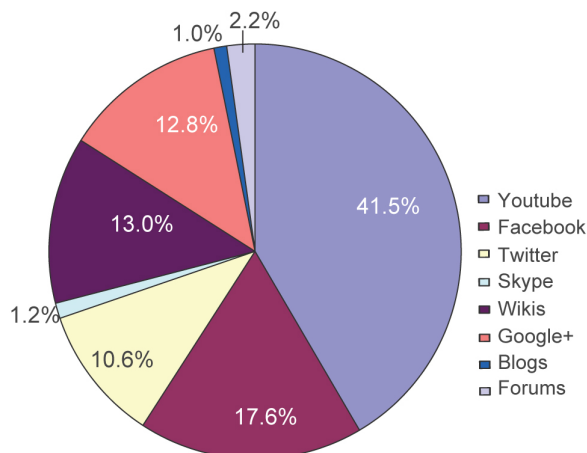


Fig. 3. Commonly Used Resources in Education (n=437)



that clinical year students think that their tutors do not use SM effectively ( $p < 0.01$ ). SM facilitates communication among students with their peers in the same college, as well as those from other universities, especially among females ( $p = 0.001$ ). SM was also found to help the students have a deeper understanding of a topic and link basic and clinical science. A majority of female students stated that SM helped them focus on important topics while studying for their exams ( $p = 0.007$ ). Hitherto, we have not been able to find any ethical guidance on using SM in medical education in Saudi Arabia, although a majority of participants (72.7%,  $n = 318$ ) think it is important to have one.

## Discussion

This study showed that SM is commonly used in learning by medical students in Saudi Arabia. Of all participants, 87.7% ( $n = 576$ ) stated that they use SM in their education. However, our data showed no significant statistical gender difference similar to Avci et al.'s study [11]. We found that YouTube is the most used website (93.8%) followed by Facebook (65.9%), which does not match with the results of Barlow et al.'s study (Facebook, 99.4%; YouTube, 96.9%) [12]. On YouTube, it is easier to search for specific topics, to share it with others without the need for an account, and to find a variety of examples on the same subject. Moreover, YouTube was found to be better regarding content, integration of information, and interaction among users when compared to textbooks and eMedicine articles, as stated by Azer [13].

Since YouTube contains a large amount of educational materials that can be of low quality and not based on solid evidence, Assadi and Gasparian [14] suggested the idea of creating a specialized platform for educational

materials and discussions that are reviewed by health professionals. Creating such a website would need the presence of guidelines for posting educational materials, including ethical terms (confidentiality and respect of patient rights).

The spread of SM in Saudi Arabia has not been studied well; however, a Saudi social media agency acknowledged a growing use of it in recent years [15]. Surprisingly, more males than females preferred using Twitter and Wikis. We could not interpret the cause for this, and therefore further research is needed to explore this result.

A majority of students considered SM as beneficial to their learning, resembling the results of Avci et al.'s study. In a study that evaluated Twitter as a teaching tool, it was found that students believed it to be efficient and effective to their learning. It also strengthened student-tutor relationship [11,16].

Most students in our study think their tutors do not use SM effectively. This could be attributed to the absence of organizational policies or the underestimation of SM's importance in education. Therefore, more regional studies on the topic are required, since many international studies already exist in this area [17,18].

Ethical guidance is rules and policies that guide and maintain the professional use of SM by defining what is forbidden and inappropriate [19,20]. Many countries have released policies regarding the professional use of SM, such as the American Medical Association policy [20]; however, similar ethical guidelines for SM usage in Saudi Arabia are absent.

The use of SM among students in medical education is common, and therefore medical schools need to improve the utilization of SM by their faculty and students by developing activities and encouraging the usage of SM in education. Medical institutions should also guide students on how to get the maximum benefit from SM and

how to avoid its drawbacks, such as distractibility.

We recommend educational organizations to orient their tutors about the importance of SM, since we believe it saves time and simplifies instant group interaction. Further, we suggest that they create authentic SM pages on common resources, such as YouTube and Twitter, to supply students with reliable information. The presence of policies to guide the usage of SM is crucial to deliver valuable information, to maintain a professional atmosphere, and to ensure privacy.

One of the limitations of this study is that we used SurveyMonkey to collect data. Therefore, we could not calculate the response rate. Another limitation is that a large number of students did not complete the questionnaire (21%, n=139) and were hence excluded from the analysis.

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Appendix 1. Names of Universities

No.	Name of university	Abbreviation
1	Umm Al-Qura University	UQU
2	North Border University	NBU
3	King Abdulaziz University	KAU
4	Taif University	TU
5	King Faisal University	KFU
6	University of Tabuk	UT
7	King Saud bin Abdulaziz University for Health Sciences	KSAU-HS
8	Qassim University	QU
9	Ibn Sina National College for Medical Studies	ISNC
10	King Khalid University	KKU
11	Jazan University	JU
12	Princess Nora bint Abdul Rahman University	PNU
13	Al-Imam Islamic University	IMAM U
14	Taibah University	TAIBAH U
15	King Saud University	KSU
16	University of Dammam	DMU
17	Salman Bin Abdulaziz University	SAU
18	Unaizah College of Medicine	UNAIZAHUM
19	Albaha University	BU
20	Alfaisal University	ALFAISAL U
21	Almaarefa College	MCST
22	University of Hail	UOH
23	Batterjee Medical College	BMC



Appendix 2. Research Questionnaire

- First page

**1. Gender ?**

Male

Female

**2. Which medical year ?**

1st medical year

2nd medical year

3rd medical year

4th medical year

5th medical year

6th medical year

**3. Name of university ?**

**4. Do you use social media in your education ?**

Yes

No

• Second page

**5. How frequent do you use social media for your learning ?**

Weekly

Twice a week

Three times a week

Dally

Other (please specify)

\_\_\_\_\_

**6. Which of the following social media you are using in your education ?**

Youtube  Wikis

Facebook  Google+

Twitter  Blogs

Skype  Forums

Others

\_\_\_\_\_

**7. Which one you are using most ?**

Youtube

Facebook

Twitter

Skype

Wikis

Google+

Blogs

Forums

Other (please specify)

\_\_\_\_\_

**8. How does social media affect your education ?**

Beneficial Distracting

Choice of the drop-list

**9. Does it help in relating basic to clinical science ?**

Strongly Disagree

Disagree

Undecided

Agree

Strongly Agree

•Third page

**10. Do you communicate with your tutor via social network ?**

- Yes
- No

**11. Does the tutor utilizes social media in education effectively ?**

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

**12. Does your institution use social media ?**

- Yes
- No

**13. Does social media facilitate communication with your colleagues in your collage ?**

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

**14. Does social media facilitate communication with colleagues in other universities ?**

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

**15. Communicating with my colleagues help me to learn more about the topic?**

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

• Fourth page

**16. Communicating with my colleagues help me to focus my studying on the important topics in exams ?**

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

**17. Are you aware of ethical guidance for using social media as medical student ?**

- Yes
- No

**18. Do you think it is important to have ethical guidance for using social media as medical students?**

- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree

**19. comments ?**