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
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, Flicker, 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.

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: premedical, 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.

| 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\(^{a}\)                                      | 217 (32.8)    |

\(^{a}\)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
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 Gasparyan [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 Noura 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  | Abaha University                                        | BU               |
| 20  | Alfaaisal University                                    | ALFAQSAL_U       |
| 21  | Almaarefa College                                      | MCST             |
| 22  | University of Hail                                     | UOH              |
| 23  | Batterjlee 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
5. How frequent do you use social media for your learning?
- Weekly
- Twice a week
- Three times a week
- Daily
- Other (please specify)

6. Which of the following social media you are using in your education?
- Youtube
- Facebook
- Twitter
- Skype
- Others
- Other (please specify)

7. Which one you are using most?
- Youtube
- Facebook
- Twitter
- Skype
- Others
- Other (please specify)

8. How does social media affect your education?

|               | Beneficial | Disturbing |
|---------------|------------|------------|
| Choice of the drops- |      |            |

9. Does it help in relating basic to clinical science?
- Strongly Disagree
- Disagree
- Undecided
- Agree
- Strongly Agree
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 college?
   - 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
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?

[Blank space for comments]