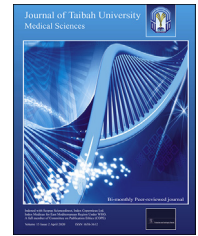




Taibah University
Journal of Taibah University Medical Sciences

www.sciencedirect.com



Original Article

Determining the usage of social media for medical information by the medical and dental students in northern Jordan



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Received 21 December 2019; revised 8 February 2020; accepted 12 February 2020; Available online 12 March 2020

المخلص

أهداف البحث: استخدام وسائل التواصل الاجتماعي للاستعلام عن المعلومات الطبية وطب الأسنان يمكن أن يكون له تأثير كبير على الأداء الأكاديمي للطلاب والتطوير الوظيفي. لذلك قمنا بتقييم استخدام طلاب الطب وطب الأسنان لوسائل التواصل الاجتماعي للاستعلام عن المعلومات الطبية.

طرق البحث: تم توزيع استبانة ذاتية لعمل دراسة مقطعية على طلاب الطب وطب الأسنان في جامعة العلوم والتكنولوجيا الأردنية.

النتائج: أكمل 856 طالبا الاستبانة؛ ثلثهم من طلاب الطب. ومعظم الطلاب لا يعتبرون وسائل التواصل الاجتماعي مصدرا موثوقا للمعلومات الطبية، وكان مصدر قرارات العلاج للأغلبية (96.6%) هو الطبيب المتخصص وليس النصح المنشورة على وسائل التواصل الاجتماعي. استخدم الإناث عدد أكبر من تطبيقات وسائل التواصل الاجتماعي، وقضين وقتا أطول على وسائل التواصل الاجتماعي، من الذكور. ارتبط مستوى التعليم بشكل كبير مع الوقت الذي يقضيه يوميا على وسائل التواصل الاجتماعي. أولئك الذين أكملوا سنوات أكثر من تعليمهم الطبي أو طب الأسنان كانوا أقل استخداما لوسائل التواصل الاجتماعي للاستعلام عن المعلومات الطبية ولكنهم كانوا أكثر متابعة للمواقع الطبية أو المنتديات الطبية.

الاستنتاجات: كان هناك تردد عام بين طلاب الطب وطب الأسنان في استخدام وسائل التواصل الاجتماعي للاستعلام عن المعلومات الطبية، وهو ما يمكن تفسيره من خلال المعتقدات الثقافية بأن وسائل التواصل الاجتماعي تهدف أساسا إلى التواصل الاجتماعي والترفيه. ومع ذلك، يلزم إجراء مزيد من البحوث لتقدير

آثار استخدام وسائل التواصل الاجتماعي على الأداء الأكاديمي، وبالتالي، تحديد ما إذا كان سيتم تشجيع الطلاب على استخدام وسائل التواصل الاجتماعي للتعليم وتطوير برامج تدريبية لذلك أم لا.

الكلمات المفتاحية: الطب؛ الأسنان؛ وسائل التواصل الاجتماعي؛ الاستعلام؛ الأردن.

Abstract

Objectives: Using social media to gain medical and dental information may have significant effects on the students' academic performance and career development. Therefore, we assessed the usage of social media for medical information among medical and dental students.

Methods: In this cross-sectional study, we administered a self-reported questionnaire to medical and dental students at the Jordan University of Science and Technology.

Results: A total of 856 students completed the questionnaire; two-thirds of them were medical students. Most students did not consider social media as a trusted source for medical information. In contrast, the source for treatment decisions for the majority (96.6%) was speciality physicians and not the management plans posted on social media. Females used more social media applications ($p = .05$) and spent more time on social media ($p = .001$) than males. The amount of educational information gained was directly associated with time spent on social media ($p < .001$). Those who completed more years of their medical or dental education were less likely to use social media for medical information and were more likely to follow medical online sites or forums.

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Peer review under responsibility of Taibah University.



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Conclusions: This study showed general reluctance among medical and dental students to use social media for medical information. This could be explained by cultural beliefs that social media is mainly for socialisation and entertainment. However, further research is needed to estimate the effects of social media usage on academic performance. This will help us decide whether to encourage students to use social media for education.

Keywords: Dental; Inquiry; Jordan; Medical; Social media

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Introduction

Social media (SM) is a modality used to rapidly and effectively communicate, educate, and learn.¹ It has been growing exponentially in the last few years. As of 2018, it was estimated that 2.65 billion people were using social media worldwide. This is projected to exceed 3 billion active social media users by 2021, which is around one-third of the entire world population, indicating the magnificent potential of social networking.²

There is no doubt that social media platforms are becoming a significant source of scientific information, including scientific news, technical discussions, and educational tools. A consumer survey administered by the PwC's Health Research Institute on 1060 US adults revealed that consumers use social media to access health-related consumer reviews, support a health cause, share their health experience and join a health forum or community.³

Within the educational framework, social media has several benefits that can enhance the learning process of medical education. Medical and dental students can use social media to learn new information, elicit opinions through scientific discourse, facilitate learner–teacher interaction, and interact with the educational process outside the classroom.^{4,5} Students prefer it to traditional ways of education due to the convenience of internet over physical travelling,⁶ in addition to the virtual interaction with a large number of people through the formation of group discussion forums.⁷ Such scientific forums had demonstrated the ability to create strong connections and shared values among their members.⁸ Another example of the considerable impact of social media on the academic culture is the free open-access movement (FOAM). With its vast resources of medical information, it had removed barriers among physicians, medical students, and patients by disregarding the potential obstacles formed by their different geographical origins or income levels.⁹

Medical and dental students, like students of other majors, spend a portion of their time on social media to socialise or to obtain scientific information. Although it is expected that medical and dental students endure a lot of pressure during their education, and thereby, are left with limited free time, a study by Byrne-Davis et al., (2016) showed that

medical students spent their social media time mainly on social communication and entertainment.¹⁰ It is supported by Guraya et al., (2016) in a systematic review study, which demonstrated that only 20% of medical students used social media for academic and educational purposes.⁴

Studies assessing social media usage among Arab university students demonstrated various purposes for social media use including socialisation, entertainments, and for political and cultural activities.^{5,11–13} However, there is generally a scarcity of data about medical or dental students' usage of social media for educational purposes and the extent on which they rely on social media to acquire medical/dental information. In Jordan, no studies are yet cited on this topic. Thereby, this study aimed to assess the use of social media to obtain medical information among medical and dental students.

Materials and Methods

Study design and settings

This study was a voluntary anonymous online survey, distributed to the medical and dental students of Jordan University of Science and Technology (JUST). JUST is one of the 10 public universities in Jordan, and it's the only university in northern Jordan that has medical and dental colleges. The university only offers science majors and is ranked 1st in Jordan; it is one of the best universities in the entire region.

Measurement tool

A structured questionnaire was developed based on similar studies related to the topic. The questions were formatted according to the objectives of the study while avoiding lengthy questions to ensure a higher response rate with the least possibility of missing data. The survey consisted of 13 questions; 6 questions related to demographic information (age, gender, place of residence, major, level of education, and place of residence), and 7 questions related to the usage of SM (number of SM sites used, the 2 most common sites used, daily time use, if they trust SM for medical information, if they use it to acquire medical information, if it is used to make treatment decisions, and if they follow any medical forum or sites online).

The survey was reviewed by 4 experts to validate its content. One question was omitted as it was found to be repetitive and the wordings of 2 other questions were changed for clarifications. Other items were found suitable. The survey was then pilot tested on 10 students to examine their comprehension of questions and to express their opinion if they found anything vague. One of the comments said to include all the SM sites that the students use, not only the 2 most common ones, and another comment said other reasons for using SM should be included as options in the questionnaire. However, researchers did not modify the survey based on these opinions because the first opinion would obscure the most common sites used if all the SM sites were mentioned in the questionnaire, and the other opinion was beyond the objectives of this study and would result in unnecessary questions in the survey.

Sampling

The survey was prepared on Good forms, which is an online survey tool. The survey was then distributed to the members of Facebook groups of medical and dental students. There are several Facebook groups for JUST students and each college has its own groups as well. The virtual number of students in each group is unknown, but almost all, if not all, students are members of these groups because announcements and discussions are frequently posted there.

Analysis

Description of student demographic information and their usage of SM was represented in frequencies and percentages. A comparison between medical and dental students as well as male and female students for SM usage was obtained by Pearson's chi-squared (χ^2) distribution test. Logistic regression analysis was used to examine the association of demographic information and the usage of SM with medical information online inquiry. Items related to demographic information were: gender, age, place of residence, education major, and years completed. Items related to SM usage were: number of SM sites used, names of SM sites used, and daily hours usage. Items related to medical information online inquiry were: consideration of SM as a trusted source for medical information, frequency of using SM to inquire about medical information, usage of SM for treatment decisions, and following some medical sites and/or forums on the internet.

All analyses were performed using the Statistical Package for the Social Sciences "SPSS" software version 23 (IBM Corp., Armonk, N.Y., USA). The level of significance equal to .05 was used for all statistical tests.

Results

A total of 856 students completed the questionnaire, which formed a response rate of about 14.3% of the total number of students in both colleges. Two-thirds of the students who participated in the study were medical students. In addition, most participants were females between the age of 20–25 years, and have already completed 2 years or less of their college education (Table 1).

Table 2 illustrated the distribution of SM usage based on gender and major of education. Most students reported using 2 or more SM sites or applications, which were mainly Facebook (52.5%) followed by Instagram (20.8%). Almost two-thirds of the students reported a daily usage of SM for 3 h or more. Further, most students did not consider SM as a trusted source for medical information, and therefore, over half of them rarely or never used SM to inquire about medical information. Moreover, the source of treatment decisions for the majority (96.6%) was speciality physicians and not advice posted on SM. Nonetheless, about 3 out of 4 students reported following some medical forums or sites online.

Gender was significantly associated with the number of applications used ($p = .05$), SM site used ($p = .037$), and time spent per day on SM ($p = .001$). Females used more SM

applications than males (95.9% vs. 89.5%) and spent more time on SM (70.3% vs. 56.7%), see Table 2. Major of education was significantly associated with time spent per day on SM ($p < .001$). It is interesting that none of the medical information inquiry items were significantly associated with gender or major of education, except for the frequency of SM usage to inquire about medical information, which was significantly associated with major of education ($p = .036$), as shown in Table 2.

The relationship of demographic information with items related to medical information online inquiry using logistic regression models indicated that the major of education and years completed of current education were the only predictors that had a statistically significant association (Table 3). In addition, the daily time spent on SM was the only factor among those related to SM usage that was significantly associated with online medical inquiry ($p < .05$).

It is obvious that spending less time on SM was associated with less likelihood of trusting SM for medical information and with less frequency of using SM to inquire about medical information, as shown in Table 3. Further, those who completed more years of their medical or dental education were less likely to use SM to inquire about medical information but were more likely to follow medical online sites or forums.

It is interesting that medical students were less likely to use SM for medical information inquiry than dental students (Table 3), which is also demonstrated in Table 2; dental students had a relatively higher frequency of SM usage for medical/dental information inquiry than medical students (49% vs. 41%). In addition, dental students who spent more than 3 h per day on SM were 72%, while medical students were 60%. However, the percentage of medical students who reported following a medical website or forum online was almost equal to that of dental students who reported the same (71.9% vs. 72.7%).

Table 1: Demographic information of students.

Characteristics	Number (%)
Gender	
Male	307 (35.9%)
Female	546 (63.7%)
Missing	3 (.4%)
Age	
Less than 20 years old	298 (34.8%)
20–25 years old	542 (63.4%)
Older than 25 years old	14 (1.6%)
Missing	2 (.2%)
Place of Residence	
Village	147 (17.2%)
City	706 (82.4%)
Missing	4 (.4%)
Your current major of education	
Medicine	563 (65.8%)
Dentistry	293 (34.2%)
Years of completion of current education	
2 years or less of education	375 (43.8%)
2–4 years of education	236 (27.6%)
4 years or more of education	239 (27.9%)
Missing	6 (.7%)

Table 2: Distribution of social media usage by gender and degree.

	Gender		*Total	P - value	Major		*Total	P - value
	Male N (%)	Female N (%)			Medical N (%)	Dental N (%)		
<i>How many social media applications do you use?</i>								
I don't use any	1 (1%)	1 (1%)	2%	.05	1 (1%)	1 (1%)	2%	.121
One application	31 (3.65%)	31 (3.65%)	7.3%		48 (5.6%)	14 (1.6%)	7.3%	
Two applications or more	273 (32.1%)	513 (60.4%)	92.5%		512 (60%)	277 (32.5%)	92.5%	
<i>Which social media sites do you use most?</i>								
Facebook	177 (20.8%)	270 (31.7%)	52.5%	.037	299 (35%)	151 (17.7%)	52.7%	.059
Twitter	34 (4%)	48 (5.6%)	9.6%		63 (7.4%)	19 (2.2%)	9.6%	
WhatsApp	22 (2.65%)	58 (6.85%)	9.5%		55 (6.4%)	25 (2.9%)	9.4%	
Snapchat	22 (2.6%)	43 (5.1%)	7.6%		39 (4.6%)	26 (3%)	7.6%	
Instagram	51 (6%)	126 (14.8%)	20.8%		105 (12.3%)	72 (8.4%)	20.7%	
<i>On Average, how many hours do you spend on social media per day?</i>								
Less than 3 h	133 (15.6%)	170 (20%)	35.6%	.001	223 (26%)	81 (9.5%)	35.5%	<.001
3–5 h	128 (15%)	265 (31.1%)	46.1%		252 (29.5%)	141 (16.5%)	46%	
More than 5 h	45 (5.3%)	111 (13%)	18.3%		87 (10.2%)	71 (8.3%)	18.5%	
<i>I believe that social media is a trusted source for medical information</i>								
I don't agree	186 (21.9%)	318 (37.4%)	59.3%	.594	344 (40.3%)	163 (19.1%)	59.4%	.262
Neutral	103 (12.1%)	190 (22.4%)	34.5%		183 (21.5%)	110 (12.9%)	34.4%	
I agree	16 (1.9%)	37 (4.4%)	6.2%		33 (3.9%)	20 (2.3%)	6.2%	
<i>I use social media to inquire medical information</i>								
Never did	93 (10.9%)	143 (16.8%)	27.7%	.60	174 (20.3%)	64 (7.4%)	27.7%	.036
Rarely	97 (11.4%)	146 (17.1%)	28.5%		157 (18.4%)	86 (10.1%)	28.5%	
Sometimes	94 (11.1%)	198 (23.2%)	34.3%		180 (21.1%)	113 (13.2%)	34.3%	
I use it a lot	22 (2.6%)	59 (6.9%)	9.5%		51 (6%)	30 (3.5%)	9.5%	
<i>The main source for my treatment decisions is</i>								
Specialist Physician	295 (34.7%)	526 (61.9%)	96.6%	.824	543 (63.7%)	280 (32.8%)	96.5%	.498
Advices commonly shared on social media	11 (1.3%)	18 (2.1%)	3.4%		18 (2.1%)	12 (1.4%)	3.5%	
<i>I follow some medical sites and/or forums on the internet</i>								
No	87 (10.1%)	142 (16.8%)	26.9%	.447	155 (18.1%)	76 (8.8%)	26.9%	.668
Yes	217 (25.4%)	400 (46.7%)	73.1%		405 (47.3%)	213 (24.8%)	73.1%	

*The total number might slightly differ between columns because it is based on available values (excluding missing)

Table 3: Relationship of demographic data and social media usage with online medical information inquiry.

	OR	P value	CI (95%)
^a <i>I believe that social media is a trusted source for medical information: I don't agree</i>			
Spend less than 3 h per day on SM	3.48	.001	(1.25–8.82)
Spend 3–5 h per day on SM	1.83	.084	(.94–3.55)
Spend more than 5 h per day on SM	1		
^b <i>I use social media to inquire medical information: Rarely</i>			
Medical	.617	.022	(.408–.932)
Dental	1		
Years completed of education: 2 or less	2.457	.003	(1.36–4.44)
Years completed of education: 2–4	.932	.772	(.577–1.51)
Years completed of education: 4 or more	1		
^b <i>I use social media to inquire medical information: Sometimes</i>			
Medical	.62	.018	(.416–.922)
Dental	1		
Years completed of education: 2 or less	3.118	<.001	(1.701–5.72)
Years completed of education: 2–4	2.072	.003	(1.290–3.33)
Years completed of education: 4 or more	1		
Spend less than 3 h per day on SM	.323	<.001	(.193–.54)
Spend 3–5 h per day on SM	.810	.401	(.496–1.324)
Spend more than 5 h per day on SM	1		

(continued on next page)

Table 3 (continued)

	OR	P value	CI (95%)
^b I use social media to inquire medical information: A lot			
Spend less than 3 h per day on SM	.398	.014	(.190–.883)
Spend 3–5 h per day on SM	.836	.608	(.421–1.56)
Spend more than 5 h per day on SM	1		
I follow some medical sites and/or forums on the internet: Yes			
Years completed of education: 2 or less	.439	.006	(.299–.827)
Years completed of education: 2–4	.852	.339	(.514–1.502)
Years completed of education: 4 or more	1		

SM: Social Media.

^a I agree is the reference category.

^b Never used it is the reference category.

Discussion

Medical and dental students are considered the best in academic performance in Jordan due to their high school academic achievement and the social attention they acquire from the public. Their time is limited during their college education because of the magnitude of information they need to acquire, demanded by the overwhelming load of courses and lengthy hours of training. Therefore, their time is precious and should be wisely used to ensure the success of completing the requirements of their degrees. While findings of this study showed that most students use 2 or more sites and spend several hours a day on SM: 1) few of them expressed their trust in SM as a source of medical information, 2) over half of them rarely or never used SM to acquire medical information, and 3) the majority did not rely on recommendations posted on SM to make their treatment decisions. Therefore, the high usage of SM among medical and dental students did not necessarily indicate a high usage for medical information inquiry. This possibly could be explained by the sceptical belief of students toward SM as a source of valid information.⁶

Studies illustrated variability in students' opinions about the advantages of using SM in education. Some findings showed a positive impact on the successive development of students, including higher grades, better communication skills, empathy toward patients, and better engagement with the community.^{7,14,15} However, others found a reluctance among students in using SM for learning purposes because of the negative image associated with the influence of SM on academic performance and the representation of professionalism.^{14,16} The advantages of using SM in education is not affirmative, and many studies have indicated a lack of a correlation or even a negative association between SM usage and academic performance.^{17–19} Paul et al., (2012) have shown that attention span decreased as the time spent on online social networking increased, which negatively impacted the academic performance of students.²⁰ In addition, there are a number of studies which revealed that excessive SM usage had significantly adverse effects on personality and social behaviors.^{21–23}

Students' usage of SM for purposes other than education, such as socialisation and entertainment, could be associated with beliefs that SM is a place of imposing opinions and not

scientific facts, which might include false or unreliable information, and presenting conflicting or confusing thoughts.¹⁶ Nonetheless, around 44% of students in this study reported using SM to inquire about medical information, and almost 3 out of 4 of them followed a medical website or forum. The convenience of using SM to inquire about medical information could be the cause of those using it, but it is obvious that medical forums/sites were considered more legitimate and valid in scientific context than SM, and therefore, more students reported using them. The reported numbers of medical and dental students who followed medical forums/sites were equal, implicating a similar trust in such sources unlike in the case of SM usage. Research has shown that medical information and medical professional discourse were much more profound on the internet than the dental online literature²⁴; a factor which might have made dental students rely more on SM than medical students in their inquiry about scientific materials since the availability of dental information on the internet is limited compared to medical information. Moreover, the availability of information could be a possible explanation for the significant relationship of the students completing fewer years of college with higher use of SM to inquire about medical information because they were less experienced with informative sources other than SM; using SM was habitual and comfortable to many of them.

Conclusion

The limited usage of SM among medical and dental students to inquire about medical information could be influenced by negative beliefs about the validity of information posted on SM. Nevertheless, evidence on the positive impact of using SM and other online sources on the intellectual, social, and professional development of students is not well established and thereby, changes in the medical and dental curricula to incorporate SM usage in the learning process should be considered with caution. Thus, further research that evaluates the effects of SM on students' performance and instructors' ability to enrich the educational material is necessary before changes to the curricula can take place.

Source of funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

There is no conflict of interest.

Ethical approval

This study was approved by the Institutional Review Board of Jordan University of Science and Technology.

Authors contributions

RAS developed the idea, methods, and the questionnaire, in addition to analysing the data, and was the main contributor in writing the manuscript. NAS helped to prepare the first draft of the manuscript, and MdeT critically reviewed and edited the final version of the manuscript. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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How to cite this article: Saadeh RA, Saadeh NA, de la Torre MA. Determining the usage of social media for medical information by the medical and dental students in northern Jordan. *J Taibah Univ Med Sc* **2020**;15(2):110–115.