MEDICAL EDUCATION

Evolving Role of Social Networking Sites in Undergraduate Surgical Education: Student Perspective

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ABSTRACT

Background: Social Networking Sites (SNSs) like Facebook, YouTube, Twitter, WhatsApp etc. are evolving as an effective tool for content delivery and educational communications in medical field. However, researchers have identified potential concerns about reliability of content, its alignment and synchronization with curricular needs.
Aim: To evaluate student perceptions regarding use of social networking sites through this controlled online platform.
Methods: A paper-based questionnaire was redesigned with required modifications as described previously and was administered among fourth and final year medical students (n=135) at Shalamar Medical & Dental College, Lahore containing both quantitative and qualitative components. The questionnaire evaluated advantages and disadvantages of SNSs use in surgical education.
Results: 92% of the participants agreed that social networking sites are the necessity of today's life. The students overwhelmingly think that SNSs are a source of easy, rapid, timely and up-to-date information on medical issues. These sites are source of effective healthcare communication and can be effectively utilized to promote own self and find career opportunities. Social networking sites are an effective tool for delivering lectures, notes and other study material. 79% of the students thought that SNSs improved their understanding about medical concepts, however only 72% agreed with the notion that SNSs improved their test and exam results. Many students agreed that SNSs work better when embedded within traditional teaching strategies.
Conclusions: Medical students have a significantly positive impression about social networking websites and their role in medical education. Despite some concerns regarding privacy and security, majority of the students have shown willingness to interact through SNSs to improve their educational perspectives.
Keywords: Medical education; Health information; Social Networking Sites; SNSs; FaceBook; Technology;

INTRODUCTION

Traditional undergraduate medical curricula are being rapidly replaced by modern digitalized forms[1]. In this digitalized environment, Social Networking Sites (SNSs) like Facebook, YouTube, WhatsApp and Twitter etc have become necessity of our social life with enormous public and professional presence and utility with almost 1.2 billion people using them[1]. These novel formats have been successfully utilized for content delivery in an informal and formal way for the last decade to promote content delivery and blogging among various communities of practice and this trend is penetrating through our traditional teaching methods (Sattar et al., 2016). Many studies have propagated the use of social media for various educational purposes with positive results. Internationally, many curricula have incorporated these SNSs to promote timely, rapid and effective transfer of educational materials as well as to promote discussion among peers, faculty members and students with encouraging results[3]. A Meta-analysis by Cartledge et al however did not find any convincing evidence to support the role of the social networking sites in medical education[4].

Despite numerous advantages, questions have been raised regarding reliability of the content, interference in social life and privacy[5].. In social networking sites the content quality and its relevance to the required curricular objectives remains suboptimal. Chretien et al have

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previously shown that unprofessional content has to be controlled to improve quality of information transfer[6]. Hence processes must be put in place to ensure that content is in line with the curricular requirements. Similarly, content delivery has to be optimized to fit the availability and convenience of the various participants. Likewise a monitoring system is required to ensure that no undesired content is circulated among the participants and the privacy and ethics of social communication are maintained[7].. Addressing these important questions, the use of SNSs has to be adapted according to social norms, the contents has to be controlled to be productive and in line with curricular goals and blogging has to be supervised to ensure delivery of the required learning outcomes with student privacy in mind[8].

Keeping all above in mind an online portal (Shalamar Surgiomics; www. Surgiomics.org) has been developed in our institution for blending SNSs into our curriculum, in which content delivery though through SNSs, is faculty monitored and controlled. Various blogs (Like *Quiz of the Week, Online Modules, Clinical Skills Videos* and *Shalamar Trauma Support Program*) have been initiated which are faculty driven and monitored. The portal also gives an overview of the surgical curriculum. The aim of this cross-sectional study is to evaluate student perceptions about the role of this online portal of SNSs in delivery of surgical education.

SUBJECTS AND METHODS

Development of SNSs based Web Portal: A web portal, Shalamar Surgiomics (www.surgiomics.org), has been designed which comprises of links to online SNSs. Two faculty supervised blogs are being run on Facebook, namely 'Quiz of the Week' and 'Shalamar Trauma Support Program'. Various 'Online Modules' and 'Clinical Skill Videos' which are a collection of faculty-approved YouTube videos are being used to augment traditional teaching with the help of flipped classroom strategy. The web portal also communicates various components of curriculum. The purpose of the web portal is to disseminate faculty approved instructional material through SNSs and monitor blogs through faculty participation. The students participate in these discussions apart from the traditional teaching with faculty oversight. The issue of privacy has been managed through faculty supervision and monitoring.

Study subjects: This cross-sectional questionnaire-based study was conducted among Fourth and Final Year medical students in the Department of Surgery at Shalamar Medical & Dental College, Lahore. This study was based on self-administered questionnaire assessing student perceptions regarding the use of SNSs for promoting surgical education.

Questionnaire design and preparation: A previously validated and well organized questionnaire in English language was adopted with minor modifications with permission of the corresponding author (Sattar et al., 2016.). It comprises 24 items with responses rated through five-point Likert scale. The survey assessed firstly, general usefulness of SNSs in medical education secondly its specific value in surgical learning, thirdly active participation in novel online techniques and fourthly privacy and social issues. The first part consisted of seven questions for assessing opinions of students regarding the usefulness of medical information provided and shared via SNSs.

The Second part was meant for assessing specifically how the SNSs were beneficial for their surgical learning. Third part was meant to assess student's willingness and conviction to utilize and explore such sites for promoting their medical learning. The fourth part assessed student's privacy & the security concerns while using SNSs. The items were scaled on 5-point Likert scale comprising; strongly agree, agree, do not know, disagree, strongly disagree. Most of the advantages and disadvantages of the SNSs have been measured in these 23 items; however, these items do not specifically evaluate the role of the devised web portal (Shalamar Surgiomics).

The last component, item 24 of the survey, was an open-ended column to find additional thoughts and views of the participants about the advantages, disadvantages and rooms for improvement in the devised web portal. This would be utilized for qualitative study of the student perceptions.

Data collection: 177 paper-based questionnaires were distributed within college premises, among fourth and final year medical students and their perceptions were recorded. Out of 177 distributed questionnaires 135 students responded. 64% females and 36% males responded to the questionnaire.

Data analysis: The data were coded and entered into Microsoft Excel and analyzed with SPSS version 22.0 (IBM Corporation, Armonk, NY, USA) statistical software. The average score for each student was calculated on a 5-point's Likert scale. The 5-point Likert scale responses were combined into three different categorical variables 'agree (strongly agree plus agree)', don't know, 'disagree (strongly disagree plus disagree)'. The qualitative study was performed as described previously on the item 24. The coding for various variables was done and the data was analyzed as described previously.

Ethical approval: All of the participants were verbally informed about aims and objectives of the study and they signed a document declaring any conflict of interest. Throughout the study, participants' anonymity was assured and maintained by assigning each student with a separate code number for the later analysis. The Institutional Review Board of University of Lahore approved the study (See Appendix IV).

RESULTS

The analysis of the data showed that 92% of the participants considered social networking sites as necessity of today's life. Students thought SNSs are a source of easy, rapid, timely and up-to-date information on medical issues. These sites are source of effective healthcare communication and can be effectively utilized to promote own self and find career opportunities. Table 1 clearly shows that SNSs are quite effective in medical communication.

Students were of the opinion that social networking sites are quite effective tool for delivering lectures, notes and other study material. These sites can be used to effectively engage other fellows for better understanding college courses and subjects through blogs. 79% of the students thought that SNSs did improve their understanding about the medical concepts and 72% agreed with the notion that SNSs did improve their test and exam results. An overwhelming number of students agreed that SNSs work better when embedded within traditional teaching strategies. Table 1 gives better idea of the specific roles of the SNSs in promoting the medical education.

A very handsome number of the students shared that they were impressed by this new way of learning and 66% actively sought new ways to use social networking sites to improve their learning, 58% actively participated in such social networks and 55% sought for new social networking methods to engage with medical communities (Table 1).

Students were quite nervous about the possible breach of privacy. 77% of the students thought either they themselves or their colleagues were nervous about participating in such a blog or SNSs portal. Significant number of students feared that their financial information, personal information may be at stake; however, 59% of the students were of the opinion that despite this concern, they would opt to choose SNSs as an effective mode of information transfer. This issue of privacy may be at least partially treated by faculty supervision within discussion groups.

The students like the idea of using social media for educational purposes. According to one student:

'This idea of using social media for education purposes is quite powerful. I have been using it previously for last few years. It is easy to use without putting much effort and I can use anywhere whenever I want without time restriction.'

One student narrated:

'I like the idea because it combines the education with fun.'

Few students however reiterated that they still rely on conventional lectures and techniques and do not like the idea of using social websites for education (Table 2).

Social Networking Sites are flooded with educational material, which cannot be ignored. Unfortunately, most of this material is not peer reviewed and is scientifically suboptimal. Secondly students find it difficult to choose this material appropriately and in this process of exploration consume a lot of valuable time. Another issue is the synchronization of learning material available on SNSs with the learning objectives and curriculum to be assessed as a formal exam. Hence reliability of content, its quality and its alignment with curriculum needs to be ensured for the students. One of the students described this weakness as:

'Social Networking Sites can have lots of material but it may not be correct, reliable and pertaining to what we need for exams.'

To tackle these issues, we have content selected and improvised by the faculty that is delivered in synchrony with conventional teaching. It is quite interesting to note that by merely providing appropriately selected social media content and due to participation of faculty in the blogs, the student satisfaction about the social media has enormously improved. One participant described this transformation as:

'Surgiomics web portal has quite reliable content which we can trust for study. It makes easy for us that we know the links and enjoy material without searching the appropriate one.'

Few students said even though they still rely on conventional learning methods, they have realized that SNSs are an effective medium of instructional transfer. Since our methods of assessment in our educational system are yet to be aligned with these modern modes of information transfer some of the students expressed it as following:

'The lectures, videos etc. are quite good but I am not sure if it would improve my test results.'

Instead of accepting as sole method of instructional methodology, the students prefer blending of various techniques and synchronization of online material with conventional curricular material. Students are reluctant to accept social media material as sole source of instructional format. According to one of the students:

'There is so much material available on YouTube but it does not work for me unless the teachers help me through it. I would like my teachers to combine both materials.'

Another student described it as below:

'I liked when Dr._____ asked us to see the videos before the lectures and ward teaching, and then we discussed the cases. It was very good in clearing my concepts.'

The students liked the idea of using blogs as the source of discussion to clarify their concepts. Surgiomics provides the blogs for the discussion of case scenarios. One of the participants approves this blogging as:

'The blogs are the most interesting part of the web portal. It certainly has improved my vision about various surgical and trauma cases.'

The students pointed towards the need of faculty development and training to ensure smooth synchronization of educational material and curricular need with online available material. That is how it was described by one participant:

There are many faculty members who are not trained for using the website which hinders the quality education. All the faculty members need to be trained through modern techniques.'

The most prominent issue identified in the use of social media is issue of content control and privacy. Our students dubbed these issues as follows:

'I am concerned about participating through social websites, which can create problems for me socially and financially.'

'I am afraid of participating into blogs through social networking sites as someone may harass me.'

'I don't like to share my social life identity into the educational circles.'

Despite these concerns around 59% students were willing to participate in social media-based web portals for educational purposes. Some of the participants said:

'Despite having concerns about privacy and unwanted material, I can contribute and interact in the groups as it need of the hour.'

'Faculty supervision is quite effective in reducing the chances of social media misuse.'

'To address the privacy concerns, I use a dummy account- it serves the purpose.'

When asked about suggestions to improve this web portal, students expressed their thoughts in these words:

The videos and the lectures represent western setup. They need to be recorded from our set up.'

'Although the lectures and videos are from English or American institutions, but they give quite bit information to follow.'

'The topics should be taught in relation with the online material so that we do not lose lots of time.'

'The online content available on Surgiomics is good and it improves my concepts but do we really need this to pass UHS exam?'

'Traditional teaching with lectures and bed side teaching is quite real and effective and required to pass exams and these new online social sites can provide good material but teachers need to combine them.'

'Some of the teachers know and use the Surgiomics material to improve their teaching methods but only few. The teachers need to participate and need to be trained for these new things.'

This whole set of statements suggests that there is room for improvement in our online web portal. It also signifies the need for blending social media sources in a supervised formal fashion (Table 3)

Table 1: Analysis of the general role of SNSs in medical communication

	Survey Item	Agree or Strongly Agree	Neutral	Disagree or Strongly Disagree
	General Role of SNSs			
1	I think Social Networking Sites (SNSs) help me to meet my class friends easily	(125/135) 92%	(7/135) 5.1%	(3/135) 2%
2	I consider social networking sites as a necessity of today world	(129/135) 95%	(6/135) 4%	(3/135) 2%
3	I think that medical and healthcare information is very easier to transfer in social networking sites	(121/135) 89%	(12/135) 8%	(2/135) 1%
4	I am confident that social networking sites share most recent information regarding med science	(121/135) 89%	(14/135) 10%	(1/135) 1%
5	Social networking sites provide enough opportunities to med students to promote their activities	(109/135) 80%	(20/135) 15%	(7/135) 5%
6	Social Networking Sites help students to find better career opportunities	(107/135) 79%	(23/135) 17%	(6/135) 4%
7	Social networking sites improve the quality of healthcare and its communication	(102/135) 75%	(28/135) 21%	(6/135) 4%
	Medical Education Specific Role of SNSs			
8	Social networking sites help in study material like lectures, notes, videos etc	(124/135) 91%	(13/135) 9%	(0/135) 0%
9	SNSs allow me for fastest and easiest access for sharing and understanding the college subjects/courses with a wider audience (fellow students)	(117/135) 86%	(16/135) 11%	(3/135) 3%
10	SNSs have improved my understanding of medical concepts	(107/135) 79%	(20/135) 16%	(7/135) 5%
11	Use of SNSs has improved my test results and performance	(98/135) 72%	(25/135) 20%	(12/135) 8%
12	SNSs work better when coupled and embedded into the traditional teaching like in Surgiomics	(114/135) 84%	(18/135) 13%	(3/135) 3%
	Proactive Utilization of SNSs			
13	I actively seek new ways to use social networking sites in my practice	(90/135) 66%	(34/135) 25%	(11/135) 9%
14	I participate in online medicine community in social networking sites	(79/135) 58%	(38/135) 28%	(17/135) 14%
15	I always find out about new social networking sites to connect our medical friends	(75/135) 55%	(34/135) 25%	(23/135) 20%
	Privacy Issues related to SNSs			
16	I do not think that my personal information is protected on social networking sites	(79/135) 58%	(33/135) 24%	(22/135) 16%
17	I trust on social networking sites for not using my personal information for any other purpose?	(75/135) 55%	(27/135) 20%	(33/135) 25%
18	I do not worry that I will be embarrassed by information others post about on it	(74/135) 54%	(33/135) 24%	(29/135) 22%
19	I would continue to use it regardless of its privacy policy if it is popular	(80/135) 59%	(27/135) 20%	(28/135) 21%
20	I would continue to use it regardless of its privacy policy if it helps me stay in touch with my friends	(88/135) 65%	(25/135) 18%	(23/135) 17%
21	I am quite active in safeguarding the financial information submitted on social networking sites	(94/135) 66%	(30/135) 22%	(12/135) 12%
22	I think my colleagues are concerned about privacy of the lifestyle related information like photos etc.	(105/135) 77%	(17/135) 12%	(13/135) 11%
23	I think that faculty supervision effectively reduce your concerns about privacy?	(108/35) 80%	(19/135) 15%	(7/135) 5%

Table 2: Qualitative analysis of the utility of SNSs-based Surgiomics in medical school environment

Domains	Advantages	Quotes	Disadvantages	Quotes
Ease and Liberty of Contributing	Easy to interact and contribute with liberty of time and place	'This idea of using social media for education purposes is quite powerful. I have been using it previously for last few years. It is easy to use without putting much effort and I can use anywhere whenever I want without time restriction.' 'I like the idea because it combines the education with fun.'	Computer Literacy Required. The use of social networking sites not intended for educational purposes.	'I don't know much about the computer stuff and I still rely on the books and lectures.' 'Social websites are for social hanging and not for education purposes. This destroys the purpose of social media which is fun and only fun.'
Content Reliability and Curricular Alignment	Content is reliable and aligned with curricular needs	'Surgiomics web portal has quite reliable content which we can trust for study. It makes easy for us that we know the links and enjoy material without searching the appropriate one.'	SNSs may not have reliable content.	'Social Networking Sites can have lots of material but it may not be correct, reliable and pertaining to what we need for exams.'
Objective Productivity	Improves my test and exam grades partially	'The lectures, videos etc are quite good but I am not sure if it would improve my test results.'	The exam system is not aligned with the content being propagated	'My fellow always studies through lectures and books and secures better test marks.'
Coupling with Traditional Techniques	The use of online material for Flipped Class Room is quite effective	'I liked when Dr._____ asked us to see the videos before the lectures and ward teaching, and then we discussed the cases. It was very good in clearing my concepts.'	The information needs to be coupled with traditional techniques	'There is so much material available on YouTube but it does not work for me unless the teachers help me though it. I would like my teachers to combine both materials.'
Curricular Communication	Very effective of rapid dissemination of curricular framework	'The web portal gives a good snapshot of the course work and how it would be administered during the whole year.'	Too much information may be confusing for the students.	'The social media has too much information to grasp. Moreover, the website is full of schedules and materials. Oh God! What is all this mess?'
Discussions & Blogs	Discussions in the blogs are quite productive. It improves conceptual clarity.	'The blogs are the most interesting part of the web portal. It certainly has improved my vision about various surgical and trauma cases.'	Time consuming and distracting	'Because of too much information on the website and SNSs, I spend a lot of time on net which certainly eats lot of my time.'
Faculty Training & Development	If faculty is trained for such use of online technology that can be quite helpful for the students.	'Dr._____ is quite effective in utilizing modern online techniques for teaching. I enjoy his lecture.'	Few faculty members trained for it. Faculty development can be quite difficult and cumbersome process.	'There are many faculty members who are not trained for using the website which hinders the quality education. All the faculty members need to be trained through modern techniques.'
Privacy Issues	Privacy concerns are quite genuine. The SNSs account security is at risk	'Despite having concerns about privacy and unwanted material, I can contribute and interact in the groups as it need of the hour.' 'Faculty supervision is quite effective in reducing the chances of social media misuse.' 'To address the privacy concerns, I use a dummy account- it serves the purpose.'	Comments can be encouraging or discouraging	'I am concerned about participating through social websites, which can create problems for me socially and financially.' 'I am afraid of participating into blogs through social networking sites as someone may harass me.' 'I don't like to share my social life identity into the educational circles.'

Table 3: Qualitative analysis of the feedback concerning improvement of web portal (Surgiomics)

Area of Improvement	Improvement Required	Quotes
Content Refinement	Content refinement required	*'The videos and the lectures represent western setup. They need to be recorded from our set up.'* *'Although the lectures and videos are from English or American institutions, but they give quite bit information to follow.'* *'The topics should be taught in relation with the online material so that we do not lose lots of time.'*
Content Alignment	Content should be aligned with the curriculum and the mode of assessment	*'The online content available on Surgiomics is good and it improves my concepts but do we really need this to pass UHS exam?'*
Coupling with Traditional Teaching Approaches	These new techniques and educational material should be embedded into the traditional techniques	*'Traditional teaching with lectures and bed side teaching is quite real and effective and required to pass exams and these new online social sites can provide good material but teachers need to combine them.'*
Faculty Development	Faculty development is required to the changing educational techniques	*'Some of the teachers know and use the Surgiomics material to improve their teaching methods but only few. The teachers need to participate and need to be trained for these new things.'*

DISCUSSION

Times have changed and so should the instructional designs and teaching strategies[9]. In the modern digitalized world we are moving rapidly from a paper based traditional educational environment to a paperless digitalized framework. In this context, according to George et al social networking sites have rapidly infused into our lives and many of the educational experts have tried to blend educational contents and material into the social networking sites with remarkable outcomes[10].. McGowan et al in 2006 reported that 24.1% physicians use social media on daily basis to acquire healthcare related information[11]. According to von Muhlen this figure has risen exponentially[12]. Our study has clearly shown that the trend to utilize SNSs for healthcare related issues has enormously increased. Social media provide opportunities for a wider range of audience to interact and share their opinions and point of views. The students and healthcare professionals utilize these social networking sites for communication among themselves for healthcare and study related issues[13].. Over time students have found these media to be quite helpful in making the process of interaction easy and productive. Students can promote themselves and their projects on these social platforms to gain attention more rapidly and more effectively. Similarly, they can improvise these channels to find career opportunities and to promote career opportunities among their peers and other healthcare workers[14].

Social Networking Sites have enormous potential in content delivery. Many of the lectures, videos, seminars etc. are disseminated through these websites and healthcare professionals including students can significantly improve their base of knowledge and can keep themselves up-to-date about recent advances in their respective fields. Cheston et al have previously shown that social media can improve student learning at all Bloom's domains[15]. Academic content can be easily and freely disseminated through these channels with rapid access to the general public. Students have expressed overwhelmingly that these sites are quite instrumental in clarifying their medical concepts and have significantly impacted on their grades. Some students show concern about the reliability of the content and its alignment with their curricular requirements. To address these issues, we have made the information faculty driven and supervised to make it more meaningful and productive. The students in this study have agreed with this notion that faculty supervision and faculty directed approach is more useful and meaningful and students do not waste their time surfing these sites unnecessarily.

The idea of using social networking sites is so powerful that students take initiatives to acquire more and more information through these portals, actively participate in blogs and try to involve others to accomplish common goals[1]. This proactive attitude is a clear indication that social networking sites have a role to play in upcoming curricula.

Clearly privacy, learner participation and content quality have been the two major hurdles in utilizing this strategy for formal medical education. Kind et al have reported that there are no official policy and guideline on social media use in medical colleges despite a reasonable use of the social media for educational purposes[5].. Similarly Thompson et al have shown that privacy remains an important determinant in the social media use in medical education[16]. We have tried to sort these issues in our newly designed web portal Shalamar Surgiomics with faculty approved online materials and blog supervision by the faculty. Faculty supervision has played a central role in managing these issues. This novel approach to use of SNSs has led to improved student perceptions.

Limitations: The study is limited in few aspects. It is account of opinions and not objective evidence like a randomized controlled trial. In future well designed randomized controlled trials may further elucidate role of the SNSs in propagation of the educational objectives.

CONCLUSIONS

This study provides evidence that social networking sites are quite effective in content delivery. Quality of content, its alignment with curricular requirements and privacy issues have been identified which need to be addressed more professionally. Faculty oversight and supervision may use to at least partially overcome these issues.

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