

Revisiting Social Network Utilization by Physicians-in-Training

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Abstract

Objective To measure and compare the frequency and content of online social networking among 2 cohorts of medical students and residents (2007 and 2009).

Methods Using the online social networking application Facebook, we evaluated social networking profiles for 2 cohorts of medical students ($n = 528$) and residents ($n = 712$) at the University of Florida in Gainesville. Objective measures included existence of a profile, whether it was made private, and whether any personally identifiable information was included. Subjective outcomes included photographic content, affiliated social groups, and personal information not generally disclosed in a doctor-patient encounter. We compared our results to our previously published and reported data from 2007.

Results Social networking continues to be common amongst physicians-in-training, with 39.8% of residents

and 69.5% of medical students maintaining Facebook accounts. Residents' participation significantly increased ($P < .01$) when compared to the 2007 data. Individuals in the 2009 cohort had significantly more "friends" ($P < .01$), belonged to more "groups" ($P < .01$), and were more likely to limit public access to their profiles through the use of privacy settings ($P < .01$) than the individuals in the 2007 cohort.

Discussion Online social networking application use by physicians-in-training remains common. While most now limit access to their profiles, personal profiles that still allow public access exhibited a few instances of unprofessional behavior. Concerns remain related to the discovery of content in violation of patient privacy and the expansive and impersonal networks of online "friends" who may view profiles.

Editor's Note: The online version of this article includes a policy regarding the use of social networking sites and applications in order to address present and future issues of professionalism in the use of social media.

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Introduction

Online social network applications (SNAs) are the fastest growing mechanism for the exchange of personal and professional information. With 75% of 18- to 24-year-olds and 57% of 25- to 34-year-olds using this communication medium,^{1,2} SNAs have emerged as a significant means of interaction.³ The dramatic popularity of these applications shows little sign of waning as the applications themselves are expanding onto mobile phones and Internet devices.⁴ social networking websites such as Facebook⁵ are popular among all age groups. Use of social networking technology, in some form, is likely to continue in the foreseeable future.

Despite its popularity, online social networking in the world of medicine continues to provide unique challenges both for teaching and demonstrating medical professionalism. While there are advantages associated with instantaneous communication with an unlimited number of contacts, there are also consequences, anticipated or unintended, that extend from misjudgments, unprofessional behavior, or less-than-desirable portrayals of individuals⁶⁻⁸ and privacy violations.⁹ While many medical institutions have expressed concerns related to the use and misuse of social networking applications, only a minority have

developed policies to address the online activities of physicians-in-training.⁹

To our knowledge, we were the first to describe how SNAs confront issues of medical professionalism. In 2007 we studied prevalent use by medical students and residents as well as unprofessional information portrayed via this medium.⁶ Our earlier study provided a preliminary context with which to examine professionalism, and the recommended solutions of increased education related to privacy features may no longer be sufficient. Given the emergent nature of online social networking applications and their rapid growth, this follow-up study revisits the use of SNAs by students and resident physicians to determine if social networking use has changed and to refine the context within which medical educators consider the role of Internet technology as a professional competency.

Methods

To mirror the methods used in the 2007 analysis, eligible participants were all medical students ($n = 528$) enrolled at the University of Florida College of Medicine in Gainesville and associated medical residents ($n = 712$) employed by the Shands Hospital at the University of Florida. From September 2 to October 7, 2009, a study author (E. W. B.) used a personal Facebook account to systematically search for the study subjects' online profiles. The Institutional Review Board at the University of Florida permitted this study as an exempt project.

First, we determined whether each student or resident had a Facebook account and whether that account was "private" or "public," a designation that each user can activate to limit some, or all, of a site's content. Sites were deemed private if the following message appeared on the site of interest: "——— only shares certain information with everyone. If you know ——, add him/her as a friend on Facebook." For accounts that displayed information publicly, we recorded objective information in the following domains: personal information, including address, the presence of a profile photograph of themselves, e-mail address, additional addresses, phone number, and instant messenger address. Other information included field of study, political views, sexual orientation, and relationship status. We also recorded the number of "friends" they had, meaning the number of people the student or resident accepted into his or her network, the number of photo albums, and the number and titles of social groups they joined. Individual characteristics traditionally used in research, such as age and race/ethnicity, could not be recorded unless the study subjects explicitly listed this information. These results of the 2009 analysis were compared to resident ($n = 312$) and medical student ($n = 501$) Facebook data collected in 2007.

Additionally, study authors (E. W. B., L. A. T., and K. D.) performed a joint analysis of the content, with a high degree of interrater reliability and intraclass correlation

(ICC^{1,6} = .9) of the 95 public profiles of medical students and residents to characterize possible unprofessional material. "Unprofessional" material was subjectively defined as anything that could be interpreted to illustrate substance abuse, sexism, racism, or patient privacy violations, even if the content was probably intended to be humorous. Analyses were performed using SPSS PASW Statistics, version 17 (Chicago, IL), and we accepted a level of significance of $P < .05$, using a Student t test for comparison.

Results

We describe all students and residents in TABLE 1, comparing the 2009 cohort with the population in the 2007 study. TABLE 2 describes information available on the Facebook profiles of students and residents, also comparing the 2009 cohort with that from 2007.⁶ Overall, 39.8% of residents and 69.5% of medical students maintained Facebook accounts. Residents' participation in Facebook significantly increased ($P < .01$) compared to participation in 2007.⁶ The 2009 cohort had a significantly increased number of groups, friends, and photo albums compared to the 2007 cohort. However, a significant majority (85.5%) of the Facebook profiles accessed in 2009 made use of available privacy features and were less likely to disclose some personal information, such as a home address. Individuals in the 2009 cohort disclosed information about sexual orientation and relationship status more frequently than in 2007. The increase in listed phone numbers (2009 resident) may reflect an increased reliance on text messaging. Male residents used Facebook more often in 2007, but sex differences disappeared by 2009.

The 95 public profiles collected in 2009 revealed that social networking users were less likely to post unprofessional content on their profiles than users whose profiles were analyzed in 2007. While analyses revealed frequent instances of alcohol consumption ($n = 32$ profiles), most pictures depicted the subjects in groups, potentially holding a beverage, often in an unlabeled cup, assumed to be alcohol, as opposed to photographs of excessive alcohol use such as "keg stands," (drinking alcohol directly from the keg spout while doing a handstand), which was observed in the 2007 sample. There were still instances of arguably unprofessional postings on the "walls" of the public profiles, including, obscenities ($n = 12$), racist remarks ($n = 2$), and descriptions of unprofessional behavior ($n = 6$). However, most of the user-generated content communicated on profile walls consisted of birthday well-wishes and commentary about family. Ten profiles contained pictures from medical mission trips; these pictures depicted physicians-in-training providing care to patients. These patients were identifiable in the pictures; thereby, these postings were in potential violation of patient privacy expectations and statutes.

TABLE 1 USER DEMOGRAPHIC CHARACTERISTICS

	2007			2009		
	Total	Medical Student	Resident	Total	Medical Student	Resident
Individuals with Facebook accounts, n (%)	372 (45.7)	332 (66.2)	40 ^a (12.8)	651 (52.5)	367 (69.5)	284 ^a (39.8)
Sex, % female		50.6	20.0 ^b		48.5 ^o	45.4 ^b
Year in training						
First-year student/first-year resident, %		28.0	30.0		30.3 ^o	30.3
Second year/second-year resident, %		25.5	30.0		26.1 ^o	22.7
Third year/third-year resident, %		23.4	25.0		26.7 ^o	23.4
Fourth year/fourth-year resident, %		20.1	10.0		16.9 ^o	6.2
Fifth-year resident, %		n/a	5.0		n/a	10.3
Sixth-year (resident only), %		n/a	0		n/a	6.2
Seventh-year resident, %		n/a	0		n/a	<1.0
Eighth year and beyond, %		n/a	0		n/a	0

Abbreviations: n/a, not available.

^a Statistically significant difference between 2007 and 2009 cohorts ($P \leq .01$).

^b Statistically significant difference between 2007 and 2009 cohorts ($P \leq .05$).

Discussion

This study reaffirms the expanding popularity of Facebook among medical students and residents. Social networking seems to provide an important outlet for engaging in socially and work-related dialogue, and we are pleased that most students and resident physicians are becoming increasingly aware of using privacy options when using SNAs. In addition, the finding that students and residents are more mindful of their online portrayals is reassuring. After our original publication in 2007,⁶ the College of Medicine at the University of Florida began providing internal communications to medical students and residents regarding the importance of the content of their social networking sites and encouraged the use of privacy features, most likely influencing change in behavior. Students and residents are also probably aware of multiple instances in the mainstream media that document repercussions of unprofessional online behavior, as well as similar reports in physician-oriented publications.⁷⁻⁹ While it is not known which specific intervention prompted these changes, it is heartening to discover reduced access to their online profiles.

The notion of personal privacy in online social networking, already a topic of public debate, requires further discussion.¹⁰ While an overwhelming majority chose to take advantage of Facebook privacy settings in the 2009 cohort, the notion of privacy on SNAs is actually suspect when the mean number of “friends” for any individual in this study was 400 (SE, 13.4). “Friends” in online social

networking communities do not necessarily mean friends in the traditional sense. Online “friendships” are established through mutual agreement between users; other than a simple click, no requirements are necessary.¹¹ Research in cognitive psychology finds that most individuals can only manage approximately 150 social relationships.¹² Comparing this number with the number of relationships online, it is likely that many online friends are little more than minor acquaintances.¹³ Further, as networks expand, evidence supports that individuals lose control of their ability to manage their own information, “each individual’s traditional or absolute discretion is replaced by that of members of his or her social network.”¹⁴ These students and residents may think that their profiles are private, but their trust in these friends may be misplaced. Additionally, in light of Facebook’s recent changes to its privacy policy, which provides a more simplistic user interface and encourages increased sharing of content, there remain many questions and concerns related to Facebook’s commitment to member privacy.¹⁰

Among the findings of our 2009 study, the posting of patient photographs was deeply troubling. Whether these pictures were taken in the United States, or abroad, they may violate patient privacy.¹⁵⁻¹⁷ Students, residents, and faculty who engage in medical mission projects must be made aware that patient privacy must still be protected while providing care abroad and that they may be subjected to privacy laws that could be as stringent as the US Health Insurance Portability and Accountability Act (HIPAA).¹⁵

TABLE 2	INFORMATION AVAILABLE ON STUDENT AND RESIDENT PROFILES					
	2007			2009		
	Total	Medical Student	Resident	Total	Medical Student	Resident
	n = 372	n = 332	n = 40	n = 651	n = 367	n = 284
Data available						
Facebook accounts made private, % yes	37.5 ^a	37.9 ^a	32.5 ^a	85.5 ^a	85.8 ^a	83.6 ^a
Personal photograph, %	77.9 ^a	80.1 ^{a,b}	60.0 ^{a,b}	92.5 ^a	92.1 ^a	93.1 ^a
Friend information						
Mean No. of friends (range, SE)	126 ^a (0–999, 9.9)	140.8 ^{a,c} (0–999, 10.8)	24.0 ^{a,c} (0–195, 7.8)	399 ^a (2–2152, 14.4)	541.4 ^{a,c} (2–2152, 21.0)	241.8 ^{a,c} (2–1251, 12.13)
Personal information available in accounts						
Home address, %	6.1	5.9	7.5	2.1	2.0	2.2
Area of residence, %	31.7	32.5	25.9	14.7	21.2	7.0
E-mail address, %	83.3	88.0	48.1	42.1	46.2	34.9
Instant Messenger, %	41.4	44.0	22.2	33.7	38.5	27.3
Phone number, %	7.5	6.5	14.8	19.0	19.6	18.2
Personal views						
Sexual orientation, %	52.4	51.5	59.3	67.4	67.0	66.7
Relationship status, %	58.6	59.0	55.6	65.3	56.6	77.8
Political perspectives, %	50.2	51.5	40.7	42.1	41.5	44.4
Mean No. of photo albums (range, SE)	2.2 ^a (0–16, 0.2)	2.3 ^a (0–16, 0.2)	1.1 ^a (0–16, 0.6)	5.6 ^a (0–45, 0.9)	5.4 ^a (0–31, 1.1)	5.7 ^a (0–45, 1.4)
Mean No. of social groups (range, SE)	11.2 ^a (0–125, 1.0)	12.2 ^a (0–125, 1.0)	3.3 ^a (0–23, 1.0)	21.5 ^a (0–254, 3.9)	29.3 ^{a,d} (0–254, 6.7)	11.8 ^{a,d} (0–69, 2.0)

^a Statistically significant difference between 2007 and 2009 cohorts ($P \leq .01$).

^b Statistically significant difference between 2007 and 2009 cohorts ($P \leq .05$).

^c Statistically significant difference between medical student and resident data ($P \leq .01$) within the same-year cohorts.

^d Statistically significant difference between medical student and resident data ($P \leq .05$) within the same-year cohorts.

Like other research exploring the utilization of SNAs by physicians-in-training,^{6,8,18,19} our study found evidence of unprofessional behavior on Facebook. At the same time, there are numerous benefits to online social networks for medical professionals, including increased social capital and increased communication between doctors and possibly, even between doctors and patients. Thus, we do not believe censorship of online networking use is warranted. Instead, a mindful, coherent policy related to online professionalism can provide necessary and appropriate guidance to physicians-in-training. In late fall of 2009, after the collection of study data, the University of Florida College of Medicine developed an online policy regarding the use of social networking sites and applications in order to address present and future issues of professionalism in the use of

social media. In addition to drawing upon the published policy statements of other medical and professional institutions,^{20,21} the policy was collaboratively developed and reviewed by a committee of faculty, students, and residents. It is our hope that a formal policy will help guide increased and appropriate use by faculty and physicians-in-training who may be reticent to join online conversations and create online communities.

This study has several limitations. Like our initial study, this study used a cross-sectional sample from a single institution. We believe these students and residents behave similarly to those at institutions across the country, but may, given our personal interest in the subject, have received more guidance about professionalism and online content than most. Second, our study draws attention to

potentially unprofessional content, yet continues to show evidence that many medical students and residents use Facebook in positive ways. We continue to believe that censorship of social networking is unfounded. Nonetheless, the potential privacy violations found in some profiles necessitates prompt interventions in medical education and we are currently addressing this issue. Finally, it is important to note that it has been documented that individuals engage in efforts, as simple as the utilization of a pseudonym to the utilization of software applications, to hide their profiles from unwanted viewers.^{22,23}

In sum, most medical students and residents use Facebook and have become more responsible for their personal content. However, the expanding number of friends, a number too great for one person to know and trust, is an issue medical educators must address with their students and residents. Likewise, patient privacy violations have arisen as an issue since our 2007 study. To date, the Accreditation Council for Graduate Medical Education (ACGME) has yet to formulate specific discourse related to professional standards for online communication, yet formal discussions are necessary to ensure medical professionals are aware of appropriate and positive ways in which to use online social networking sites. While Facebook may not always be the SNA of choice, online social networking is likely to remain a dominant communication channel for the foreseeable future. Importantly, future studies must identify how online activities relate to lifelong professional behavior, and whether and how online resources and social networks could be used to promote lifelong learning. We encourage the ACGME to take a lead in such initiatives, with the aim of enhancing medical education and physicians' professional development in the 21st century.

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