


Internal Medicine Physicians and Social media: Knowledge, Skills, and Attitudes

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Abstract

Objective: Increasing adoption of social media have revolutionized communications between individuals, groups, and organizations. This research study was designed to assess the knowledge, skills, and attitudes of internal medicine physicians' awareness and engagement with social media (sometimes referred to as #SoMe) within the digital landscape of healthcare delivery. **Methods:** An audience-response survey focused on social media "Social media in Healthcare: Physician Survey," was administered during the "A Systematic Approach to Medically Unexplained Symptoms" continuing medical education conference. The Conference took place between August 22, 2019 and August 24, 2019. Data was collected on August 23, 2019. A range of 103 (59.5%) to 112 (64.7%) of the total 173 attendees participated in this cross-sectional audience-response survey, depending on the questions answered. **Results:** Most responders were between the ages of 35 and 65 years (79.6%) and female (60.2%). A majority of responders were aware of social media terminology (88.7%), and many had used it personally (46.7%), but only 12% knew how to use social media to search medical topics, 18% used it to network professionally and most (68.9%) had a distrust of social media when it came to the protection of their privacy or their patients' privacy. Overall, about 29.6% indicated an interest in future continued medical education focused on social media (and 27.4% were neutral). **Conclusions:** Approximately half of the responders used social media but far less engaged its platforms for professional use likely due to privacy related concerns. Distance from academic institutions, where professional social media use is more common likely, played a role in aversion. Awareness of social media's role in healthcare has increased among physicians in practice, however their participation and knowledge of opportunities remains limited.

Keywords

social media, healthcare, twitter, facebook, podcasts, primary care

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Introduction

The digital age and increasing adoption of social media have revolutionized communications between individuals, groups, and organizations. Approximately 70% of people in the United States use social media, with the majority accessing Facebook, Twitter, Instagram, or LinkedIn daily.¹ Podcasts and blogs (first forms of social media) are increasing in prevalence as a means of propagating thoughts and ideas.² The reach and impact of social media platforms on society is limitless, including politics, marketing, and entertainment, and there is increased recognition of its role and impact in healthcare.³ Physicians, in particular, are becoming increasingly aware of their digital presence as a part of their professional identity.³ Remaining up to date with

medical knowledge that nearly doubles every 73 days can be a source of stress for physicians.⁴ Twitter, considered a "micro-blogging" platform, is perfectly suited to leverage learning through incremental knowledge gains, especially in the setting of increasing time constraints in professional lives of physicians. Tweeterials (tweet-length tutorials) serve as brief, informative, and sometimes comprehensive

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mini-lectures.⁵ Consequently, medical students, residents, fellows, and practicing physicians are using Social media to consume and generate educational content. There are numerous applications of Social media besides acquisition of medical knowledge.⁶ The ability to connect with an online community of peers and learners of all levels while gaining knowledge within minutes has the potential to generate sense of community.⁷ As a result, dissemination of medical knowledge and literature via Social media is expanding at a rapid pace. Several medical journals have developed Social media accounts to ensure timely release of and ability to share publications and emerging guidelines. Furthermore, they encourage engaging authors in online forums and discussions. Many journals now track and generate metrics (Altmetrics) of uptake and engagement of published scholarly work based on social media platform engagements such as tweets, retweets, likes, and shares to in case of twitter.⁸ Physician organizations, such as the American College of Physicians (ACP), are now offering continuing medical education (CME) credits for listening to podcasts.⁹ Medical conferences develop hashtags so that content from their presentations has a common place to be quickly reviewed, followed, and disseminated worldwide.⁷ The use of hashtags developed by conference committees allow for a method of rapid review of related content generated on Social media.¹⁰ This can provide a strong platform for advocacy, and physician and other healthcare leaders it to champion and advocate for important issues in healthcare such as diversity and inclusion, patient safety, antimicrobial stewardship, mental health, and physician burnout.¹¹ Many graduate medical education training programs have created official Social media accounts as a strong recruitment tool to widely share timely information about their residency program with potential future and current trainees.¹²

While the potential benefits of social media seem to be expanding within medicine, what remains unclear is the extent of awareness of its benefits and opportunities among physicians. The purpose of this study was to determine the knowledge, skills and attitudes regarding Social media within the digital landscape of healthcare among clinicians attending an internal medicine continuing medical education conference.

Methods

We conducted a cross-sectional survey of clinicians attending an international conference on “A Systematic Approach to Medically Unexplained Symptoms” between August 22, 2019 and August 24, 2019 in Marina Del Rey, California. Clinicians in attendance on August 23, 2019 completed a survey presentation, “Social media in Healthcare: Physician Survey.”

This study was reviewed by The Institutional Review Board (IRB) and determined to be exempt under section 45 CFR 46.101, item 2.

Survey Development

The survey focused on knowledge, skills and attitudes around social media use by conference attendees. It consisted of 18 questions created by the project team and developed via several rounds of peer review and internal validation among co-investigators utilizing the Knowledge-Skills-Ability (KSA) framework.¹³

Survey length was approximately 10 min. The majority of the questions had Likert scale responses (“strongly agree,” “agree,” “neutral,” “disagree,” and “strongly disagree”). The 5 overarching components of the survey were: (1) Demographics; (2) Type of practice; (3) Knowledge/Awareness; (4) Skills; and (5) Ability/Attitudes.

Data Collection and Response Rate

The conference attendees consisted of 140 physicians and 33 non-physicians and came from 26 different US States and 5 International Countries.

Survey responses were collected via audience-response system participation. Respondents had the option to opt out at any point during the survey. A range of 103 (59.5%) to 112 (64.7%) of the total 173 attendees participated in this audience-response survey, depending on the individual questions.

The questions could not be linked together nor could they be linked to an individual responder due to the nature of its anonymity.

Data Analysis

Baseline demographics and practice background information provided by the responders were summarized using frequencies and percentages. All questions assessing respondent attitudes and behaviors were assessed using a 5-point Likert scale (answers ranging from “strongly disagree” to “strongly agree”). All analyses were performed in JMP® 14.01 (SAS institute, Cary, NC).

Results

Among the responders, 79.6% were between the ages of 35-65 and 60.2% self-identified as females. In addition, 72% had been in practice for greater than 11 years, 40% were in private practice, and 75.5% had mostly an outpatient clinical practice (Table 1).

Among the participants, 89% were aware of social media terminology and 61.6% were aware that social media could be used for professional development and academic

Table 1. Demographics.

	Participants N (% participating of total 173 attendees)	Responses N (%)
Age	103 (59.5)	
18-34		6 (5.8)
35-55		48 (46.6)
56-65		33 (32.0)
>65		16 (15.5)
Gender identity	103 (59.5)	
Male		41 (39.8)
Female		62 (60.2)
Other		0 (00.0)
Chose not to disclose		0 (00.0)
Time since residency (years)	108 (62.4)	
1-5 years		15 (13.9)
6-10 years		15 (13.9)
11-20 years		25 (23.15)
21-29 years		30 (27.8)
>30 years		23 (21.3)
Type of practice	105 (60.7)	
Private		42 (40.0)
Academic center/teaching institution		19 (18.1)
Other		44 (41.9)
Type of patients in practice	110 (63.6)	
Outpatients		83 (75.5)
Inpatients		11 (10.0)
Combined		16 (14.6)

promotion/advancement. Less than half of the participants used personal social media accounts within the week prior to the conference, and 18.7% of responders indicated that they had professional profiles present on social media platforms, while 74% of participants did not have or actively use a professional social media account. Only 12.8% agreed and 16.6% strongly agreed that they possessed the skills to engage in searching and curating social media for medical topics of interest and 18% agreed that they used it for professional networking and collaboration. Importantly, 68.9% did not feel comfortable navigating Social media while simultaneously protecting their own personal and patients' privacy. Finally, 29.6% were interested in future CME activities related to Social media education with 27.4% being neutral on the concept. These data are summarized on Table 2.

Discussion

These results indicate that many practicing physicians are aware of the concept of Social media and its increasing adoption by medical societies, journals and professionals. Awareness regarding specific medical hashtags and potential CME opportunities is much lower. Fewer than half of the participants use Social media for personal or professional reasons and, not surprisingly, almost three-quarters

of participants lacked the skillset to create and curate content for Social media. The Social media skills deficiencies reported by participants seems to be mirrored in the primarily negative attitudes towards using Social media, due to concerns about patient and personal privacy, and little confidence in the ability to use Social media for professional networking and scholarly projects. These concerns of privacy were more pronounced with increasing age and years out of training.

This data infers that some physicians lack comfort with the platforms and thus, even among physicians who engage in Social media, it is an infrequent engagement.¹⁴ This trend has been observed in other health professionals. When asked, many professionals indicate that lack of skills and perceived inefficiency are main barriers to use or more frequent use of Social media.¹⁵ A study of Johns Hopkins public health officials revealed near universal awareness of social media tools and platforms but significant hesitation in regards to professional engagement.^{16,17} This reservation is not without cause. Even with efforts to de-identify patients, privacy violations can occur. There are policies in Health Insurance Portability and Accountability Act (HIPAA) and the American Medical Association (AMA) for guidance and consultation with practice or organizational social media/public relations for official guidance is highly recommended social media.¹⁷ Additionally, it is important to note that

Table 2. Knowledge, Skills and Attitude.

	Participants N (% participating of total 173 attendees)	Responses N (%)				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Knowledge						
Awareness of social media terminology	110 (63.6)	12 (11.2)	0 (00.0)	0 (00.0)	18 (16.82)	77 (72.0)
Awareness that many institution/societies/journals have a social media presence	112 (64.7)	6 (5.4)	7 (6.3)	10 (8.3)	39 (34.8)	50 (44.5)
There is the ability to utilize elements of social media to promote professional accomplishments	107 (61.8)	6 (5.6)	16 (15.0)	19 (17.8)	34 (31.8)	32 (29.9)
Use of hashtags for medical education	109 (63.0)	32 (29.4)	29 (26.6)	20 (18.4)	12 (11.0)	16 (14.7)
Skills						
Currently hold a Social media account	109 (63.0)	41 (37.6)	11 (10.1)	6 (5.5)	10 (9.2)	41 (37.6)
Currently interacted with social media account	109 (63.0)	73 (67.0)	8 (7.3)	5 (4.6)	9 (8.3)	14 (12.8)
Search for medical content	108 (62.4)	40 (37.0)	22 (20.4)	12 (11.1)	16 (14.8)	18 (16.7)
Create and curate for medical topics within social media	107 (61.8)	79 (73.8)	13 (12.1)	5 (4.7)	3 (2.8)	7 (6.5)
Attitudes						
Preference toward specific social media platforms	104 (60.1)	38 (36.5)	8 (7.7)	22 (21.2)	22 (21.2)	14 (13.5)
Significant portion of professional profile present on social media	107 (61.8)	52 (48.6)	23 (21.5)	12 (11.2)	13 (12.2)	7 (6.5)
Interact with other physicians through social media	105 (60.7)	74 (70.5)	7 (6.7)	5 (4.8)	13 (12.4)	6 (5.7)
Comfortable navigating social media while protecting personal and patient privacy	106 (61.3)	61 (57.6)	12 (11.3)	12 (11.3)	9 (8.5)	12 (11.3)
Wish to learn more about social media to enhance skills	106 (61.3)	26 (24.5)	9 (8.5)	29 (27.4)	24 (22.6)	18 (17.0)

concerns for personal privacy can be addressed in the settings of many social media applications.³

Many institutions have Social media policies that generally outline what they determine to be “responsible use,” but perhaps there may be more benefit from guided education for clinicians with case studies demonstrating efficient, protective Social media use. A recent qualitative study including 44 physicians who used Social media for their research recruitment, observed that awareness and visibility of social media had increased among physicians; however, the top cited disadvantages of Social media use were administrative burden and risk of misinformation, as well as lack of evidence that Social media was a benefit to the medical professional.¹⁸ During an interview study, physicians reported a need for more training on the use of social media using evidence-based approaches, facilitators for professional social media use, a need to address the lack of time, as well as lack of evidence of benefit.¹⁹

Some organizations are addressing this need with opportunities for certification in Social media and healthcare with provision for in depth training on these topics, including privacy.²⁰ The Mayo Clinic Social media Network offers online and in-person training opportunities to address this need through the Social media Residency and Fellowship.²¹ The Journal of Hospital Medicine offers a year-long Digital Healthcare fellowship to chief residents and early career faculty.²² Furthermore, Boston University has a graduate program structured around digital health care.²³ As more healthcare organizations recognize the value of their clinicians and employees engaging meaningfully in social media, these types of trainings should be disseminated and made more accessible. A recent study found that among physicians who engage in Social media daily, only about 24.1% of physicians scan or explore medical information, 14.2% contribute new information daily, 46.0% contribute new information less than daily. However, over 57.5% view the benefits of engaging in Social media as a way of obtaining medical information, 57.9% view Social media engagement as a way to more effectively care for their patients, and over 60.0% felt it improved the quality of patient care.²⁴ This suggests that physicians are increasingly identifying ability to effectively navigate Social media for knowledge as valuable

One of the most prominent features of social media is the ability to connect individuals and groups across great distances.²⁵ This has the potential to allow physicians working in private settings and rural communities to have timely access to up-to-date medical information, content, and ongoing discussions generated in academic medical centers. It is important to highlight that there is tangible career-related value in academic contributions on Social media beyond those previously mentioned. Medical journals are tracking circulation via shares, tweets, and likes as a measurement of impact factor. A recent perspective article

demonstrates how and why online scholarly activity should be documented and considered for academic promotion. Traditional currency of academics includes research grants, journal publications, and conference presentations; scholarly contributions on Social media can be collated in to portfolios documenting content creation and impact through data analysis. This in turn has the potential to be utilized in conjunction with traditional means of promotion.²⁶ With the potential impact of information shared on social media in health care, it is extremely important to be cautious about misinformation and confirm accuracy of content.²⁷

Several groups of physicians, such as radiologists, already have a prominent presence and community on social media.¹⁰ The importance of this study is that it investigates the engagement of practicing internal medicine physicians, where there is limited data. Additionally, the survey questions delineate between personal and professional use. This is a significant undertaking in trying to understand why those with skills would avoid professional social media activities. Comprehension of the barriers will lead to improved studies and strategies on how to engage internal medicine physicians with the digital healthcare community.

In addition to the small numbers, one of the limitations of this study was the inability to track individual responses for each question. Anonymous audience-response design guaranteed anonymity and hopefully truthfulness, as well as ease of data collection (increased responses); but prevented us from linking and better understanding potential associations of demographics, years of experience etc. with Social media knowledge, skills and attitudes. Each response in our survey was independent of another, thereby limiting the analysis of this data. This study also had an inherent limitation in generalizability because the data was collected during a CME conference and CME participants audience are active knowledge seekers; additionally the participants were predominantly women, therefore the cohort may not be fully representative of the general internal medicine population. To address these limitations, in the future we would need to design surveys and other studies that would have a larger reach of medical professionals.

Conclusion

The awareness and knowledge around social media in healthcare is increasing across all career stages. However, it appears that the depth of social media knowledge and participation remains limited, demonstrating the need for increased training of the medical professional on meaningful professional use of social media.

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Authors' Contributions

All the authors participated in at least one of the following: the project concept and design, analysis and interpretation of data, and/or drafting and revising the paper. They have all seen and approved the final version of the manuscript.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Ethics and Consent to Participate

This project utilized passive consent for participant participation. All participants had the option of not participating/responding to any or all questions.

Ethical Standards

This study was determined to be EXEMPT under 45 CFR 46.101, item 2 by the Institutional Review Board which had ethical oversight for this study. In addition, the authors assert that all procedures contributing to this work comply with the ethical standards of the Institutional Review Board guidelines on human experimentation in accordance with the Declaration of Helsinki of 1975, as revised in 2008. Protocol-approved passive consent was obtained from all study participants prior to study initiation.

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Availability of Data and Materials

All data supporting the project findings are contained within this manuscript.

References

- Perrin A, Anderson M. Share of U.S. adults using social media, including facebook, is mostly unchanged since 2018. Fact tank: news in the numbers web site. Published 2019. Accessed December 23, 2019. <https://www.pewresearch.org/fact-tank/2019/04/10/share-of-u-s-adults-using-social-media-including-facebook-is-mostly-unchanged-since-2018/>
- Grajales FJ III, Sheps S, Ho K, Novak-Lauscher H, Eysenbach G. Social media: a review and tutorial of applications in medicine and health care. *J Med Internet Res*. 2014;16:e13.
- Ventola CL. Social media and health care professionals: benefits, risks, and best practices. *P T*. 2014;39:491-520.
- Corish B. Medical knowledge doubles every few months; how can clinicians keep up? A smart clinical search engine helps staff at Blackpool Teaching Hospitals NHS foundation trust access the latest information. Elsevier connect. Updated 2018. Accessed January 10, 2020. <https://www.elsevier.com/connect/medical-knowledge-doubles-every-few-months-how-can-clinicians-keep-up>
- Breu AC. Why is a cow? Curiosity, tweeterials, and the return to why. *N Engl J Med*. 2019;381:1097-1098.
- Wetsman N. How twitter is changing medical research. *Nat Med*. 2020;26:11-13.
- Pemmaraju N, Mesa RA, Majhail NS, Thompson MA. The use and impact of twitter at medical conferences: best practices and twitter etiquette. *Semin Hematol*. 2017;54:184-188.
- Tomblinson CM, Wadhwa V, Latimer E, Gauss CH, McCarty JL. Publicly available metrics underestimate AJNR twitter impact and follower engagement. *AJNR Am J Neuroradiol*. 2019;40:1994-1997.
- American College of Physicians. Internal medicine podcasts. Accessed February 15, 2020. <https://www.acponline.org/cme-moc/cme/internal-medicine-podcasts>
- Kohli MD, Daye D, Towbin AJ, Kotsenas AL, Heilbrun ME. Social media tools for department and practice communication and branding in the digital age. *Radiographics*. 2018;38:1773-1785.
- Shillcutt SK, Silver JK. Social media and advancement of women physicians. *N Engl J Med*. 2018;378:2342-2345.
- Bergl PA, Narang A, Arora VM. Maintaining a twitter feed to advance an internal medicine residency program's educational mission. *JMIR Med Educ*. 2015;1:e5.
- Reh JF. KSA: using the knowledge, skills and abilities model. The balance careers web site. Accessed July 1, 2019. <https://www.thebalancecareers.com/understanding-knowledge-skills-and-abilities-ksa-2275329>
- Fuoco M, Leveridge MJ. Early adopters or laggards? Attitudes toward and use of social media among urologists. *BJU Int*. 2015;115:491-497.
- Antheunis ML, Tates K, Nieboer TE. Patients' and health professionals' use of social media in health care: motives, barriers and expectations. *Patient Educ Couns*. 2013;92:426-431.
- Keller B, Labrique A, Jain KM, Pekosz A, Levine O. Mind the gap: social media engagement by public health researchers. *J Med Internet Res*. 2014;16:e8.
- Jain K, Fuoco MB, Fervaha G, Leveridge MJ. A new wave of urologists? Graduating urology residents' practices of and attitudes toward social media. *Can Urol Assoc J*. 2018;12:E298-E313.
- Sedrak MS, Sun V, Liu J, et al. Physician perceptions of the use of social media for recruitment of patients in cancer clinical trials. *JAMA Netw Open*. 2019;2:e1911528.
- D'Souza K, Henningham L, Zou R, et al. Attitudes of health professional educators toward the use of social media as a teaching tool: global cross-sectional study. *JMIR Med Educ*. 2017;3:e13.
- Brown J, Ryan C, Harris A. How doctors view and use social media: a national survey. *J Med Internet Res*. 2014;16:e267.
- Mayo Clinic. Social for healthcare certificate from mayo clinic and hootsuite. Published 2020. Accessed January 15, 2020. <https://socialmedia.mayoclinic.org/social-media-basics-certification/>

22. Society of Hospital Medicine. Digital media fellowship. Published 2020. Accessed January 24, 2020. <https://www.journalofhospitalmedicine.com/content/editorial-fellowships-digital-media-and-editorial>
23. Online Visual & Digital Health Communication Graduate Certificate. Boston University's Graduate Certificate in Visual & Digital Health Communication web site. Published 2019. Accessed January 24, 2020. <https://www.bu.edu/online/programs/certificate-programs/visual-digital-health-communication/>
24. McGowan BS, Wasko M, Vartabedian BS, Miller RS, Freiherr DD, Abdolrasulnia M. Understanding the factors that influence the adoption and meaningful use of social media by physicians to share medical information. *J Med Internet Res.* 2012;14:e117.
25. Katz MS, Anderson PF, Thompson MA, et al. Organizing online health content: developing hashtag collections for healthier internet-based people and communities. *JCO Clin Cancer Inform.* 2019;3:1-10.
26. Cabrera D, Vartabedian BS, Spinner RJ, Jordan BL, Aase LA, Timimi FK. More than likes and tweets: creating social media portfolios for academic promotion and tenure. *J Grad Med Educ.* 2017;9:421-425.
27. Merchant RM. Evaluating the potential role of social media in preventive health care. *JAMA.* 2020;323:411-412.