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Social Media in Pediatric Orthopedics

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Abstract

Background—Internet searches and social media utilization in healthcare has exploded over the past five years, and patients utilize it to gain information on their health conditions and physicians. Social media has the potential to serve as a means for education, communication, and marketing in all healthcare specialties. Physicians are sometimes reluctant to engage due to concerns of privacy, litigation, and lack of experience with this modality. Many surgical subspecialties have capitalized on social media but no study to date has examined the specific footprint of pediatric orthopedic surgeons in this realm. We aim to quantify the utilization of individual social media platforms by pediatric orthopedic surgeons, and identify any differences between private and hospital based physicians, but also regional differences.

Methods—Using the POSNA Member Directory, each active member's social media presence was reviewed through an Internet search. Members were stratified based on practice model and geographic location. Individual Internet searches, social media sites, and number of publications were reviewed for social media presence.

Results—Of 987 POSNA members, 95% had a professional webpage, 14.8% a professional Facebook page, 2.2% a professional Twitter page, 36.8% a LinkedIn profile, 25.8% a ResearchGate profile, 33% at least one YouTube. Hospital based physicians had a lower mean level of utilization of social media compared to their private practice peers, and a higher incidence of Pubmed publications. Private practice physicians had double the social media utilization. Regional differences reveal that practicing Pediatric Orthopaedists in the Northeast had increased utilization of ResearchGate and LinkedIn and the West had the lowest mean social media utilization levels.

Conclusion—The rapid expansion of social media usage by patients and their family members is an undeniable force impacting the health care industry. The Internet and social media platforms provide all physicians with a means to educate patients, collaborate with colleagues, and promote their practice and areas of interest. Our survey indicates that pediatric orthopedic surgeons may be underutilizing their potential social media presence.

Levels of Evidence—Level IV

Introduction

When the World Wide Web was established in the early 1990s, it was initially utilized as a communication tool for scientists, but was then expanded to freely share and distribute information among the public (1). The expansion and dominance of the Internet could not have been anticipated, and it now infiltrates every aspect of modern life, both professional, political, and personal. The social media phenomenon is a good example of the intertwining of these aspects, and has 1.96 billion current users with an anticipated increase to 2.95 billion by 2020 - it is clearly a powerful and influential medium (2). In its simplest terms, social media can be perceived as the dissemination of information. Thus all aspects of society, including health care are affected and influenced by interactions through it. Sixty percent of North America and 78% of the US population has at least one social media account and thus has the highest social media penetration rate in the world (3). Social media provides a unique opportunity for health care providers to not only connect and provide accurate information to patients, but for the patients to research their conditions and their providers. It serves as a portal for communication and education from physician to physician, physician to patient and patient to patient. .

Historically, patients have learned about their physicians by referral from other physicians. With the Internet, its vast search engines, and the advent of medical physicians ranking sites, a depth of knowledge about a physician as well as patient critiques are just one click away. This has the potential to be both advantageous and harmful. Recent surveys revealed over 75% of patients are researching their physicians, health care institution, and disease process prior to choosing a health care provider (2). Pediatric practice adds an additional dimension of intensity as the patient's parents diligently research their physicians or look for support from other parent/patient experiences. Up to 89% of parents of children with chronic disease are noted to search the Internet for information (4).

Many surgical and medical specialties are capitalizing on social media to interact and inform their colleagues and patients. (5, 6). The purpose of our study was to quantify the utilization of practicing Pediatric Orthopaedic Surgeons of popular social media platforms such as Facebook, Twitter and Youtube, LinkedIn, ResearchGate and PubMed from the perspective of a patient searching for a specific physician. Our second goal was to evaluate differences in social media usage between private practice and hospital base practice physicians as well as geographical differences. The aim of this study is to provide important data and insight into who, as well as, how pediatric orthopedic surgeons are utilizing social media and to discuss how we can do better as a subspecialty.

Methods

The population surveyed was as listed on the Pediatric Orthopaedic Society of North America (POSNA) website membership directory. POSNA is the professional society for orthopaedic surgeons whose practice is mainly pediatric in nature. Members are recognized as being dedicated to improving the musculoskeletal health of children . The analysis

included all of the current candidate, active, and senior members. Candidate members who were unable to be located after fellowship and senior members who had retired or passed away were excluded from the study.

A comprehensive online social media search and review of each member name was carried out as follows; utilizing Google, we searched using the members professional name, including “MD” or other professional title, then again with MD removed, and then if applicable we removed the member’s middle name/initial to search. If the member’s name was hyphenated, it was searched two additional times, once with each last name. In cases where the member was not found, the term ‘orthopedics’ was added in the search query. The first search utilized Google to identify a professional online profile and indicate if they were associated with a hospital or private practice.

A social media analysis was then conducted utilizing Facebook, Twitter, LinkedIn, Research Gate, and YouTube. Only professional Facebook and Twitter account were included. Each member was individually searched on each website using the same name searching protocol as for Google. A member was only considered to have a social media profile if it was deemed to represent that orthopedist. Thus, the account could be verified by a photograph, location/institution affiliation, or have at least two follower/friends that were pediatric orthopedic related personnel or patients. They were then deemed active vs. inactive based on activity within the prior six months.

Statistical Analysis

Results were evaluated based on regional and practice model differences in social media presence. Regional differences were analyzed through a one-way analysis of variance (ANOVA) as well as the Kruskal-Wallis test. Fisher’s exact tests were used to examine the relationship between region and social media type.

The level of Social Media by Practice Model utilized the t-test and Wilcoxon test to determine significance through P value <0.05. Two negative binomial regression models were used to model the YouTube and PubMed count variables (unadjusted) against the type of practice and for gender. The negative binomial model was used in order to account for the over-dispersion (variance greater than mean) in the dependent variables of interest.

Results

Demographics

Of the nine-hundred and eighty seven POSNA members identified, 81.3% were male and 18.7% female, 604 worked in hospital setting (61.2%) and 248 in private practice (25.2%), 76 were retired (7.7%) and 58 unknown (5.88%). POSNA membership was separated by active member 601 (60.9%), associate 26 (2.63%), candidate 235 (23.81%) and senior 125 (12.66%). The United States was separated by region into Northeast, Midwest, South and West with 199 (22.2%), 180 (20.1%), 327(36.5%), 191 (21.3%) respectively.

Overall Social Media Presence

Of all physicians identified 14.8% had a professional Facebook page, 2.2% a Twitter account, 36.8% a LinkedIn profile, and 25.8% had a Research Gate profile. 33% of the POSNA members identified had at least one practice related video on YouTube.

Private vs Hospital Practice Difference in Social Media Presence

There was statistically significant evidence utilizing both the t-test and Wilcoxon p-value to conclude that there are differences in the utilization of social media between surgeons practicing in private practice and surgeons practicing in academic institutions. The mean social medial level of private practice physicians is significantly higher than those of hospital practicing physicians (Table 1).

According to our statistical model, the odds of having Facebook for surgeons in private practices are two times more likely to have a professional Facebook account than surgeons in academic institutions. Therefore, the odds of having Facebook for surgeons practicing in hospitals is estimated to be 0.508 (0.346, 0.745) times the odds of having Facebook for surgeons practicing in private practices, holding gender constant ($p = <0.01$). (Table 2). In addition, hospital practice physicians are significantly more likely to be active on Research Gate and have additional publications in PubMed. Thus, Pediatric Orthopaedic Surgeons who have a lower utilization of social media have a significantly higher number of PubMed publications and presence on Research Gate (Table 3).

Regional Differences in Social Media Presence

There is statistically significant evidence to conclude there are differences in the mean social media levels of geographic regions with the Midwest having the highest mean social media utilization level at 0.55 and the West with the lowest at 0.35. (Table 4)

Fisher's exact tests were used to examine the relationship between region and social media type. The Northeast leads with the predominate usage of Research Gate at 33.3% and LinkedIn at 45.0% compared to the other geographic groups in comparison to the South with Research Gate usage of 17.4% and and LinkedIn presence at 32.1%. There is insufficient evidence to detect geographic differences in Facebook, Twitter, and YouTube social presence. (Figure 1).

Discussion/Conclusion

Social Media platforms provide physicians with a means to educate patients, collaborate and network with colleagues, and promote their practice. It is being recognized that academic Orthopaedic Departments are under-utilizing the Internet to provide clinical and educational services (7). Our study confirms that the subset of pediatric orthopedic surgeons are also not reaching their potential target market or customer base. Our analysis of POSNA members, the leading professional group for Pediatric Orthopaedic Surgeons in the US shows that only 14.8% had a professional Facebook page, 2.2% a professional Twitter page, 36.8% a LinkedIn profile, 25.8% a ResearchGate profile, and a third active on YouTube. Private

practice physicians are twice as active as their hospital based practice physicians in social media utilization.

The inevitable rapid expansion of Internet and social media usage by patients and their family members will, and already has had a large impact on health care, and we need to embrace this opportunity. While private practice physicians are utilizing social media to a larger degree than their hospital based practice peers, they still do not compare to utilization by other medical specialties. Seventy percent of primary-care physicians and oncologists use social media at least once a month (8). Almost half of all plastic surgery physicians are actively utilizing social media to educate patients or market their practice (9). This group has much written on the influence and impact of social media on their practice.

There has been an understandable controversy with regard to physicians utilizing social media as a professional mode of communication or education, due to concerns of privacy and medicolegal challenges (10,11). Many orthopedists have concerns about utilizing social media which may be based on beliefs that their involvement could have negative ramifications on their practice due to issues of privacy or medical legal complications, however this has not been founded in literature (12). To the contrary, of the 50% of plastic surgeons actively involved in social media only 1.5% reported a potential negative impact on their practice (13). Thus, physicians and health care workers, and their leading societies have evaluated these concerns and developed guidelines for safe and appropriate use of social media by their members (14).

Regional differences reveal the Northeast has a significantly higher rate of utilizing ResearchGate and LinkedIn and a trend that the Midwest has higher usage of Facebook. These results most likely have to do with the culture of the individual hospital or private practice. Some practices require physicians to develop a professional Facebook page or help them create Youtube videos and therefore help facilitate their online presence.

The next phase of advancing social media in health care, and specifically in Pediatric Orthopaedics are already underway with the live orthokids.org site. It will be interesting to see if physicians and or hospitals/private practices with increased social media presence are ranked higher, have higher patient satisfaction scores, larger patient populations, or higher income than their counterpart physicians or practices who decide to not partake in a social media.

Limitations of our study include that this study is a specific point in time and does not take into account the fluidity of members joining or leaving POSNA, and indeed advancing their use of the social media since the survey. Through the survey we saw many physicians with personal social media account, or who were mentioned in a professional means on another social media site but did not have a professional account themselves. Also physicians who are employed by a hospital system may have seemingly higher Internet presence due to the specific hospital's initiative which may automatically create an online presence of the physicians in their system.

Social Media platforms provide physicians with a novel and unique opportunity, one that can benefit both patients and providers. Pediatric orthopedic surgeons who opt to engage in the

social media community can share medical knowledge and insight, which may help guide patients and families to navigate pediatric orthopedic conditions. In addition, they may opt to promote their own practice/career, collaborate with colleagues, and educate the consumer.

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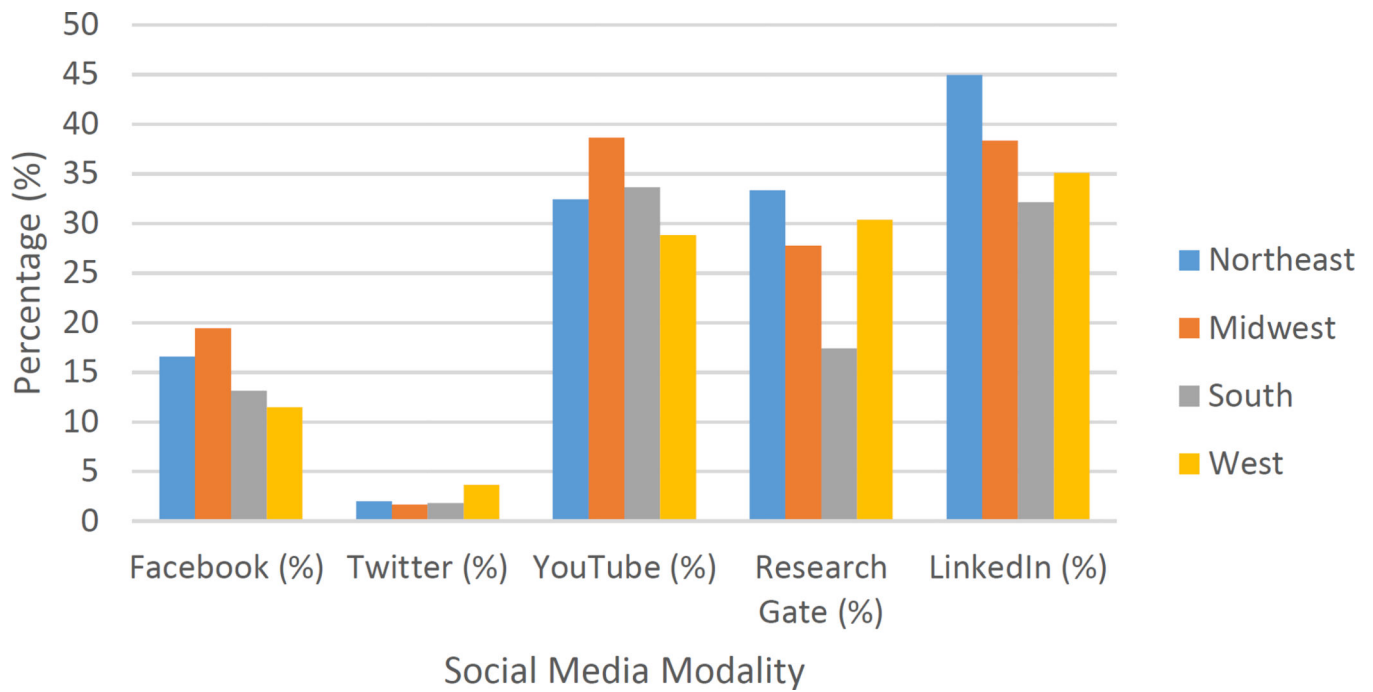


Figure 1.
 Regional Difference in Social Media Presence
 Northeast - CT, MA, ME, NH, RI, VT, NJ, NY, PA
 Midwest – IL, IN, MI, OH, WI, IO, KA, MN, MS, NE, ND, SD
 South – DE, FL, GA, MD, NC, SC, VA, Washington D.C., WV, AL, KY, MI, TN, AR, OK, TX, LA
 West – AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA
 Note: Puerto Rico not included.

Table 1

Level of Social Media Presence by Type of Practice

	0	1	2	3	Mean Social Media Level	Total Pediatric Orthopedic Surgeons
Private	142	82	21	3	0.54	248
Hospital	383	190	29	2	0.42	604

t-Test P-Value = 0.0153

Wilcoxon P-Value = 0.0439

Table 2

Odds Ratio for Hospital vs Private by Social Media Platforms

Hospital vs. Private by Social Media Type	Odds Ratio Estimate	95% CI		P-Value
Facebook*	0.508	0.346	0.745	<0.01
Twitter	0.566	0.225	1.427	0.23
LinkedIn	0.869	0.640	1.180	0.36
Research Gate*	2.300	1.567	3.377	<0.01
YouTube	0.983	0.707	1.368	0.92
PubMed*	4.477	3.041	6.591	<0.01

* Significant differences between Private and Hospital practicing physicians.

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Table 3

Private vs. Hospital in Social Media Presence, Difference in Proportions

	Private	Hospital	Difference	SE	95% CI		P-value
Facebook*	0.2258	0.1275	0.0983	0.0298	0.0399	0.1568	0.0010
Twitter	0.0323	0.0182	0.0140	0.0125	-0.0104	0.0385	0.2600
LinkedIn	0.3871	0.3532	0.0339	0.0365	-0.0378	0.1055	0.3541
Research Gate*	0.1573	0.3002	-0.1429	0.0297	-0.2011	-0.0847	<.0001
YouTube	0.2811	0.2748	0.0063	0.0338	-0.0599	0.0725	0.8523
PubMed*	0.6908	0.9073	-0.2165	0.0316	-0.2784	-0.1546	<.0001

* Significant differences between Private and Hospital practicing physicians.

Table 4

Level of Social Media Presence by Region

	0	1	2	3	Mean Social Media Level	Total Pediatric Orthopedic Surgeons
Northeast	122	65	11	1	0.45	199
Midwest	98	65	17	0	0.55	180
South	204	110	12	1	0.42	327
West	140	38	10	3	0.35	191
						ANOVA P-Value = 0.0193 Kruskal-Wallis P-Value = 0.0037