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Original Research

Social Media Use Among Academic Hand Surgeons

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Purpose: Social media has become increasingly prevalent among the general population in the past decade. We examined the current prevalence of social media use among academic orthopedic-trained and plastic surgery-trained hand surgeons in the United States.

Methods: All publicly available hand surgery faculty across the nation were analyzed for their public social media usage, including Instagram, Facebook, Twitter, LinkedIn, and personal websites. Comparisons of social media usage between orthopedic-trained and plastic surgery-trained hand surgeons, male and female academic hand surgeons, hand surgeons from different regions of the United States (East, West, Midwest, and South), and years of experience were analyzed.

Results: A total of 469 academic hand surgeons were included. Among academic hand surgeons in the United States, LinkedIn was the most common platform used (40.3%), followed by Facebook (15.78%), a personal website (13.86%), Twitter (12.37%), and Instagram (4.05%). Plastic surgery hand surgeons had more of a presence than orthopedic hand surgeons on Instagram (8.26% vs 2.59%, $P < .01$) and Twitter (19.01% vs 10.06%, $P < .01$). Male hand surgeons were more likely than female hand surgeons to use LinkedIn (41.19% vs 34.85%, $P = .04$). Southern (18.89%) and Eastern (14.36%) surgeons used personal websites more than Western (6.52%) and Midwestern (4.60%) surgeons ($P = .03$).

Conclusions: Despite the widely known use of social media among plastic and aesthetic surgeons, this study shows the use of web-based marketing strategies to be quite rare in the academic hand surgery setting.

Clinical Relevance: Our study shows that throughout the United States, academic hand surgeons use social media at low rates. We suggest that academic plastic surgery and orthopedic hand surgeons throughout the United States consider having a larger social media presence to expand advertising, improve patient education, and enhance networking among their practices. Social media can be a valuable tool and will likely only increase in popularity in the coming years.

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Social media has been a dominating force in our society with an increasing frequency of use. Because of social media's prevalence, various fields all over the world and in the United States have adopted it, and medicine has been no different. A study by Samora et al¹ showed that a majority of patients

search for their physicians online and review personal pages and websites, while also reading other patients' reviews prior to their own consultation. This affects both patients and providers, as some patients may be more willing to seek care from providers who have a more patient-friendly internet persona. Another recent study showed that hand surgeons with a personal website received higher Healthgrades scores than those without one, suggesting that social media can be a powerful tool for a physician's own career.² Social media is undoubtedly playing a role in modern health care, and physicians in the United States have begun to adapt to this.

Social media is predicted to be used by approximately one-third of the entire world's population (approximately 3.5 billion people),

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Table 1
Cumulative Data

Category	Cumulative Data	Male Surgeons	Female Surgeons	Orthopedic-Trained Surgeons	Plastic Surgery-Trained Surgeons	Eastern Region Surgeons	Midwestern Region Surgeons	Western Region Surgeons	Southern Region Surgeons	Early-Career Surgeons	Mid-Career Surgeons	Late-Career Surgeons
No. of physicians	469	403	66	348	121	202	87	90	90	62	153	254
% Plastic surgeons	25.80%	25.81%	25.76%	0%	100%	21.78%	24.14%	19.57%	36.67%	32.2%	32.7%	20.1%
% Male	85.93%	100%	0%	85.92%	85.95	89.11%	81.61%	89.13%	88.89%	83.9%	77.8%	91.3%
% Board certified	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Mean years of practicing hand surgery	15.42	20	15.17	20.3	16.86	19.88	19.48	19.02	18.89	3.79	11.6	27.9
Median years of practicing hand surgery	18	19	14	19	15	19	17	17	15	4	12	26
% on Facebook	15.78%	15.88%	15.15%	14.94%	18.18%	15.84%	20.69%	21.74%	13.33%	16.1%	17.6%	14.6%
% on Instagram	4.05%	3.72%	6.06%	2.59%	8.26%	3.97%	2.30%	2.17%	7.78%	6.45%	7.19%	1.57%
% on Twitter	12.37%	11.91%	15.15%	10.06%	19.01%	10.89%	16.09	6.52%	16.67%	24.2%	15.7%	7.48%
% on LinkedIn	40.30%	41.19%	34.85%	38.51%	45.45%	44.55%	39.08%	34.78%	35.56%	43.5%	42.5%	38.2%
% with website	13.86%	14.89%	7.58%	14.08%	13.22%	14.36%	4.60%	6.52%	18.89%	11.3%	11.8%	15.7%

and Facebook alone has more than 2.4 billion users.³ Other popular social media interfaces employed by physicians include Instagram, with a global user base of approximately 1 billion; Twitter, which features approximately 340 million users; personal websites; and LinkedIn.⁴ LinkedIn, which claims to include close to 675 million users worldwide, has been popular in medicine and other professions on the basis of interprofessional networking and connection.⁵

Social media has revolutionized communication in society and has become an important interface between patients, trainees, and physicians for education, networking, and marketing. A growing number of surgeons are embracing this trend by increasing their social media presence. Many studies have investigated the benefits of a surgeon's web presence in plastic and aesthetic surgery, but a paucity of data exists in use among academic hand surgeons.⁶

The purpose of this study was to evaluate social media use in fellowship-trained, academic hand surgeons and to investigate differences between orthopedic- and plastic surgery-trained hand surgeons. Our objectives included providing both quantitative and qualitative analyses of social media use among hand surgeons in the United States and comparing social media usage among hand surgeons based on training background (orthopedic versus plastic surgery) and by region. We hypothesized that plastic surgery-trained hand surgeons would use social media more than orthopedic-trained surgeons because of their training in aesthetics, and that surgeons in the Western region would have higher usage than those in other regions because of their geographic proximity to national media corporations.

Methods

The American Society for Surgery of the Hand maintains a directory of all Accreditation Council for Graduate Medical Education-accredited hand surgery fellowship training programs and includes their respective websites and lists of faculty. Each program that included public information about their faculty was recorded and included. From the directory, we navigated the program websites and obtained lists of faculty. Programs and/or faculty that were not publicly available were not included in this study. A total of 79 programs were included for a total of 469 surgeons. Each faculty member was the subject of a thorough internet and social media search for data collection. Searches were made on Google, Facebook, Instagram, Twitter, LinkedIn, and for personal websites. The respective accounts and/or personal websites were

investigated for any content related to hand surgery; accounts with personal content and/or that were private were not included. Several surgeons operated in group practices and often shared personal websites advertising their collective practice; these were included as personal websites for each respective physician. We used websites such as healthgrades.com, vitals.com, and webmd.com along with faculty pages and publicly available curriculum vitae to obtain information on physician demographics.^{7–9} Physician information was cross-referenced with their faculty profile from their academic institution to confirm their identity; if physician identity could not be confirmed, they were excluded from analysis. Demographic data included the physician's specialty training and background (ie, plastic surgery or orthopedic surgery), gender, publicly-listed years in practice, board certification status (certified or uncertified), and geographic location. Geographic locations were split into 4 regions representing different areas of the United States—East, West, South, and Midwest (Table 1). Comparisons were then made between orthopedic and plastic surgery training background, gender, and area of practice with regard to social media use. The 469 surgeons were also placed into 3 groups based on years of experience. Surgeons practicing for less than 6 years formed an early-career group, whereas surgeons practicing for between 6 and 15 years formed a mid-career group, and surgeons practicing for more than 15 years composed the late-career group. Analysis of variance and *t* tests were performed to evaluate the statistical significance ($P = .05$) of differences between groups for each respective category (Table 2).

Results

A total of 469 fellowship-trained hand surgeons were included. The mean number of years practicing hand surgery was 15.4 years, and the median number of years in practice was 18 years. Of the analyzed hand surgery faculty across the nation, 85.93% were men and 14.07% were women. Orthopedic surgery training was more common than plastic surgery training (74.2% vs 25.8%). All included academic hand surgeons were board certified, although this was not a strict exclusion criterion.

LinkedIn was the most common platform used (40.30%), followed by Facebook (15.78%), a personal website (13.86%), Twitter (12.37%), and Instagram (4.05%). Plastic surgery hand surgeons were more present on Instagram (8.26% vs 2.59%, $P < .01$) and Twitter (19.01% vs 10.06%, $P < .01$) than orthopedic surgeons (Fig. 1). When comparing male hand surgeons and female hand surgeons,

Table 2
Analysis of Variance and Paired *t* Test Results

Region	Facebook	Instagram	Twitter	LinkedIn	Personal Website	
S vs W vs M vs E	0.49778758	0.1976218	0.187603	0.407833	0.0319107	
S vs W	1	0.0881923	0.069338	0.877529	0.6985549	
S vs M	0.19429337	0.0982333	0.918326	0.630129	0.0031245	S > M
S vs E	0.5816314	0.1735753	0.171845	0.150978	0.3279312	
W vs M	0.19429337	0.9728373	0.088187	0.742375	0.0093281	W > M
W vs E	0.5816314	0.1735753	0.41318	0.208819	0.6118161	
M vs E	0.31925062	0.4800947	0.220794	0.390192	0.0166508	E > M
Plastics vs ortho	0.4008774	0.0062837	0.009921	0.180224	0.814608	
		<i>P</i> > 0	<i>P</i> > 0			
Male vs female	0.70546768	0.1982459	0.446092	0.044956	0.501881	
				Male > female		

E, Eastern region of the United States; M, Midwestern region of the United States; Ortho, orthopedic-trained; Plastics, plastic surgery-trained; S, Southern region of the United States; W, Western region of the United States.

male hand surgeons were more likely to use LinkedIn (41.19% vs 34.85%, *P* = .04). Personal website use varied among hand surgeons depending on geographical region. Southern (18.89%) and Eastern (14.36%) surgeons used personal websites more than Western (6.52%) and Midwestern (4.60%) surgeons (*P* = .03) (Fig. 2). Single regions were also compared against each other, and the usage rates differed between Southern and Midwestern region surgeons (*P* = .003), as did usage rates between Eastern and Midwestern region surgeons (*P* = .02) and between Western and Midwestern region surgeons (*P* = .009). Overall, Midwestern region hand surgeons had the lowest use of personal websites.

Social media use was analyzed between the 3 aforementioned age groups, with 62 surgeons included in the early-career category (practicing for less than 6 years), 153 in the mid-career category (6 to 15 years of experience), and 254 in the late-career category (over 15 years of experience). Only 20.1% of late-career surgeons were plastic surgery-trained compared with 32.2% and 32.7% of early-career and mid-career surgeons, respectively (*P* = .0086). Twitter usage varied widely between the 3 groups, with 24.2% of early-career surgeons using Twitter, but only 15.7% of mid-career surgeons and 7.48% of late-career surgeons (*P* = .0005) using it. Instagram usage varied as well, with 6.45% of early-career surgeons and 7.19% of mid-career surgeons on the platform, but only 1.57% of late-career surgeons were on Instagram (*P* = .01). There were no statistical differences in usage of Facebook, LinkedIn, or a personal website between the 3 age groups.

Discussion

Social media has revolutionized marketing strategies globally, and medicine has not been excluded from this phenomenon.¹⁰ Because of the relative newness of social media, an abundance of research investigating social media’s impact on the various fields of medicine has not yet been conducted. Some studies have investigated social media use in various surgical specialties, but a paucity of data exists about academic hand surgeons’ internet presence.⁶ In today’s society, marketing and advertising through internet-based approaches and social media is essential to grow practices and educate patients.

Despite the widely known use of social media among plastic and aesthetic surgeons, our study shows the use of web-based marketing strategies to be quite rare in the academic hand surgery setting. There is a perception that plastic surgeons often use social media in their practices, and there were statistically significant differences in use between plastic surgery- and orthopedic-trained hand surgeons for Instagram and Twitter. Despite this, the overall use, even among academic plastic surgeons, was quite low. Our study showed that social media use was more popular among

younger surgeons. This is consistent with the public perception and national studies. One such study polled oncologists around the United States on their social media use and showed social media use to be highest in physicians between the ages of 25 and 34.¹¹ The overall diminished presence of social media in academia may be attributed to built-in referral systems, rules and regulations within the university, and increased likelihood of having salaried positions versus private hand surgeons.

Despite the possible lower need for marketing within an academic system, a social media presence can still have a positive effect on hand surgery practices. A recently published study explored the impact of social media in hand surgeon practices and found that physicians with personal websites received higher Healthgrades scores than those without one (*P* < .5).² They also showed that physicians with a lower social media index (a scoring system used to estimate one’s social media presence and impact) received lower Healthgrades scores than physicians with a higher social media index. They also determined personal website use to be the single most important social media platform to improve physicians’ Healthgrades scores. Their study helps provide statistical and numerical value to the impact that social media can have for a physician’s practice.

In an analysis conducted on social media trends in dermatology, dermatopathology, and pathology publications, the number of published articles on social media in these specialties has increased since 2009, highlighting the widespread use of social media across various fields of medicine.¹² Cosmetic medicine is an area in which social media has a particularly large influence. A study conducted in Saudi Arabia polled 1,449 patients at a facial plastic surgery clinic; a profound 68% of these patients cited that their decision to receive treatment was influenced, in some way, by social media.¹³ Another group recently analyzed social media trends with patients’ interest in cosmetic procedures and found that online interest in noninvasive cosmetic procedures is also increasing, largely because of social media.¹⁴ These researchers focused on dermatological cosmetic medicine, citing a growing online interest in this field as well. Similar to our study, they noted relatively low rates of social media use among dermatologists and encouraged practicing physicians to expand their online presence.

In March 2020, a guest editorial by Rohrich et al⁶ investigated the potential negative effects that social media has posed to the field of plastic surgery. They warned that plastic surgeons are in danger of losing patients to less-qualified individuals who have taken the time to hone their digital communication and social networking skills, and that social media has become the most influential source in physician marketing and outreach. They link this to another study that showed that many patients who follow physicians and surgeons on social media are unaware of these

Social Media Use Between Plastic Surgery Trained Hand Surgeons & Orthopaedic Trained Hand Surgeons (n = 469)

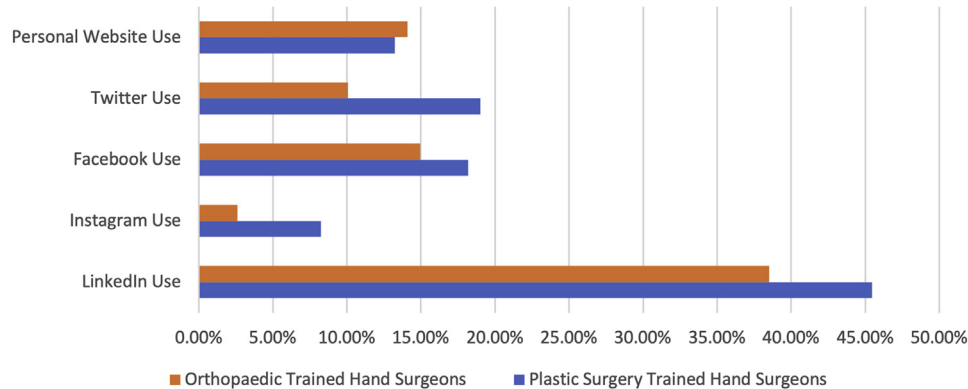


Figure 1. Social media use between plastic surgery-trained and orthopedic-trained hand surgeons.

Personal Website Use is Most Popular Among Hand Surgeons in the Southern Region of USA

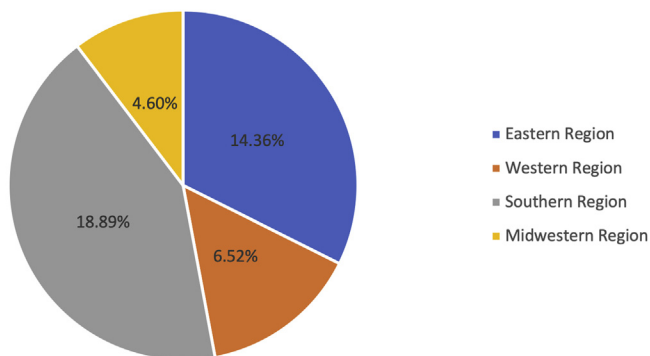


Figure 2. Personal website usage among hand surgeons in various geographic regions of the United States.

physicians' credentials, suggesting many patients currently choose physicians based on online and media presence rather than experience and qualifications. Their piece aligns with this study in highlighting the relatively low rates of social media use among academic surgeons. Dr Rohrich and his team encourage plastic surgeons to focus more on building their social media presence, as internet marketing should not be undervalued in our current society.

Nevertheless, social media has emerging roles beyond marketing and advertising. A recent article analyzed the role of social media, specifically Twitter, in medical education, discussing that Twitter-based journal clubs pose unique advantages over traditional journal clubs.¹⁵ The authors write that Twitter journal clubs might allow for a more comprehensive solicitation of pertinent articles in current literature, facilitate larger and a more diverse communications, expand education and knowledge of a field and topic to those previously unreached, and allow cross-specialty discussions. Social media, like Twitter, also allows for the rapid spread of information. Twitter and other social media platforms will undoubtedly have emerging roles not only in the practice of medicine but also in the education of medical professionals as well.

It is important to note that our study focuses on academic surgeons, which is a limitation of this study. Private practice surgeons

likely have an increased social media presence as these practitioners may focus more on their online visibility to recruit patients to their practices. However, the data on this have not been published, and so this is important to investigate and sets the basis for future research to gain a better understanding of social media usage among surgeons as a whole, rather than just academic surgeons. Another topic to investigate is whether the content of social media publications differs between academic and nonacademic hand surgeons. Private practice surgeons, for example, may focus their social media accounts on patient recruitment, while academic surgeons may focus more on sharing their research findings or engaging in discussions with peers. The geographic disparities identified in our study are also important to note and should be investigated in future studies. Research investigating social media use by geography for other specialties has not been thoroughly described but would allow more clarity into the differences we identified.

Our study shows that throughout the United States, academic hand surgeons use social media at low rates. Plastic surgery training may provide some additional advantage in social media use because of the experience with aesthetic/cosmetic practices during residency/fellowship. It is essential for both orthopedic and plastic surgery residency programs to help trainees familiarize themselves with web-based marketing strategies. We suggest that academic plastic surgery and orthopedic hand surgeons throughout the United States consider having a larger social media presence to expand advertising, improve patient education, and enhance networking among their practices. We encourage surgeons to create social media profiles on the popular media outlets discussed in this study to highlight and share their work. Consistent and frequent use of social media can help surgeons to gain attention to their profiles and build their own network both locally and nationally. Surgeons can increase their social media presence by sharing unique cases and/or procedures, highlighting their research, and interacting with other experts within their field. Social media can be a valuable tool and will likely only increase in popularity in the coming years.

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