

Australian orthopaedic surgeons and social media: The future of education and communication?

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RESEARCH

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ABSTRACT

Background

For health care professionals, utilisation of social media provides numerous potentially useful opportunities. To the author's knowledge, no study to date has quantified the use of social media among orthopaedic surgeons in Australia.

Aims

To assess the use of popular social media platforms by all practicing orthopaedic surgeons in Australia and determine other potential correlations.

Methods

Orthopaedic surgeons currently practicing in Australia as of November 2019 were identified using the Australia Orthopaedic Association (AOA) surgeon directory. A comprehensive search of websites and social media platforms including Facebook, Twitter, LinkedIn, ResearchGate, Instagram and YouTube was undertaken to assess the level of uptake of these platforms for each surgeon. Further analysis in relation to surgeon gender, geographical location, and 'years in practice' was also undertaken.

Results

A total of 1039 Australian orthopaedic surgeons were included in the study, of which 776 (74.4 per cent) had at least one type of social media account. Overall, 10 surgeons (0.96 per cent) were found to have accounts on all six social media platforms investigated. LinkedIn proved the most popular platform, with a total of 637 (60.3 per cent) surgeons having accounts on the platform, followed by Facebook (463 (44.5 per cent)) and Twitter (210 (20.2 per cent)). There was no statistically significant correlation between surgeon gender and uptake of social media platforms.

Conclusion

The uptake of social media platforms by Australian orthopaedic surgeons is varied. As the role of these platforms becomes increasingly relevant years to come, it is important for surgeons to remain aware of the guidelines governing the utilisation of these platforms.

Key Words

Orthopaedic surgery, social media, education

What this study adds:

1. What is known about this subject?

Utilisation of social media among the general population has increased exponentially in recent years, however the healthcare system has adapted relatively slowly in comparison.

2. What new information is offered in this study?

This study explores the uptake and engagement with various social media platforms by Australian orthopaedic surgeons which has not been previously been studied to date.

3. What are the implications for research, policy, or practice?

As utilisation of social media by surgeons increases in

coming years, regulation by professional bodies of the content and information shared will have increasing importance.

Background

Social media has changed the way that we interact with the world.¹ Popular platforms including Facebook, Twitter and Instagram provide a means for individuals to share information in real-time, reaching audiences around the world.² Its use has expanded rapidly, with an almost tenfold increase in social networking use from 2005–2015.³ The impact of social media on modern society is undeniable, with the average person under the age of 35 spending almost four hours on social media platforms every day⁴ and Facebook totalling 2.45 billion monthly active users worldwide.⁵ In most business models, social media is now well accepted and considered a vital resource for marketing and customer engagement.⁶ Despite its rapid rise, the health care system in general has adapted relatively slowly to the influence of social media,⁷ however, some medical subspecialties have begun to successfully utilise it for educational and commercial purposes.⁸⁻¹¹

There are a number of ways in which orthopaedic surgeons can benefit from the use of social media. Social media platforms have expanded to become valuable networks for patients and doctors to communicate with each other, while providing medical practitioners a tool for educational and personal collaboration.¹² Doctors are also beginning to utilise social media platforms as a way of attracting prospective patients.¹³ Social media has increasingly been shown to serve as a useful source of health-related information for patients,¹⁴ while also being utilised by the community as a method of researching their healthcare providers.¹⁵

Despite the potential benefits that professional use of social media platforms provide, doctors are often reluctant to engage with them in this capacity. This behaviour is often driven by unfamiliarity with their use, confusion surrounding ethical guidelines and responsibilities along with concerns regarding medicolegal challenges which may reflect negatively on their practice.¹⁶ This has led to the formation of guidelines for social media use by doctors, published by medical regulatory bodies in Australia, including the Australian Medical Association (AMA), the Royal Australasian College of Surgeons (RACS), and the Australian Orthopaedic Association (AOA), which govern their use.¹⁷⁻¹⁹

Previous studies have investigated the use of social media

among orthopaedic surgeons from other countries, however to the authors knowledge, no study has specifically looked at the uptake of a variety of social media platforms by Australian orthopaedic surgeons.

Method

An online search of the Australia Orthopaedic Association (AOA) surgeon directory was undertaken to identify all listed orthopaedic surgeons in Australia as of November 2019. Each surgeon was then cross-referenced with the AHPRA register of medical practitioners with all unregistered practitioners and surgeons who are no longer practicing excluded from the dataset.

A google search was performed with the surgeon's name, followed by the term 'orthopaedic surgeon' in order to determine whether the surgeon had a private practice website and whether the website represented an individual surgeon or a group of surgeons.

A comprehensive search of social media platforms including Facebook, Twitter, LinkedIn, ResearchGate, Instagram and YouTube was undertaken to assess the individual level of uptake and engagement with these platforms for each surgeon. An account was deemed to belong to a particular surgeon only if the name matched the listed surgeons name in its entirety. Facebook accounts were categorised as either 'personal' or 'professional' based on the content presented on this platform. Data was also collected in regards to the level of engagement with each platform in the form of number of 'followers/connections' and accounts 'followed' as well as the number of 'tweets/posts/videos/reads' on each platform by the surgeon.

A further analysis of the information in relation to surgeon gender, geographical location, and years in practice were also examined in order to assess their correlation to the observed level of uptake.

Data was tabulated using Microsoft Excel for Windows 2016 (Microsoft, Redmond WA, USA) and statistical analysis performed using SPSS version 20 (IBM, New York NY, USA). A P-value of <0.05 was deemed statistically significant.

Results

In total, there were 1039 Australian Orthopaedic surgeons listed on the AOA surgeon directory who were registered with AHPRA as of November 2019 and currently practicing. Of the 1039 surgeons identified, 762 (73.3 per cent) had a website with 443 (42.6 per cent) representing a single

surgeon and 319 (30.7 per cent) belonging to a group practice with more than one surgeon listed on the website.

A total of 776 orthopaedic surgeons (74.4 per cent) had at least one type of social media account with an average of 1.69 accounts per surgeon. Overall, 10 surgeons (0.96 per cent) were found to have accounts on all six social media platforms investigated (Table 1). There was a negative correlation with respect to 'years of practice' and adoption of social media among Australian orthopaedic surgeons (Figure 1). In particular, surgeons with 10–19 years in practice had an average of 2.22 social media accounts, while surgeons with 50–59 years in practice had an average of 0.51 accounts.

LinkedIn proved the most popular platform, with a total of 637 (60.3 per cent) Australian orthopaedic surgeons having LinkedIn account (Table 2). Of those using LinkedIn, there was an average of 231.8 'connections' and only 2.06 posts per account. This indicated that while the majority of users have a large base of professional 'connections', they tend to use the platform sparingly to convey information to other users on the platform.

Facebook was the second-most popular platform, with a total of 463 (44.5 per cent) surgeons having an account (Table 2). Of these, 348 (75.2 per cent) were personal accounts and only 115 (24.8 per cent) were used for business purposes. In total, 77.3 per cent of surgeons with Facebook accounts also had a LinkedIn account according to this study. Victorian surgeons were more likely to be present on Facebook than surgeons from other states (53.8 per cent) and this was statistically significant ($p=0.001$) (Table 2).

The number of surgeons with a Twitter account was 210 (20.2 per cent) with an average of 181 'tweets', 307 'followers' and 102 'accounts followed' among users of the platform.

There were a total of 209 (20.1 per cent) surgeons with a ResearchGate account and on average, account holders had 18 'followers' and were 'following' 17 accounts. There was a strong positive correlation between 'years of practice' and the average number of ResearchGate 'reads'. The average number of 'reads' for surgeons with ResearchGate accounts who have been practicing for 10–19 years was 1409, while the average of 'reads' for surgeons practicing for 50–59 years was 7819, and this was statistically significant ($p<0.001$). State-specific data suggested that Victorian surgeons were more likely to be represented on

ResearchGate with 25.2 per cent having an account and this was statistically significant ($p=0.027$).

There was significantly less engagement on Instagram with a total of 127 (12.2 per cent) surgeons having an Instagram account (Table 2). Of these, only 30 (23.6 per cent) were professional or business accounts, with the remaining 97 (76.4 per cent) exclusively personal accounts. This indicates that the adoption of Instagram as an educational and promotional tool for orthopaedic surgeons in Australia is limited at present with only 2.89 per cent adopting the platform for orthopaedic surgery education and business related purposes.

Similarly, YouTube displayed a relatively low uptake with only 122 (11.7 per cent) surgeons holding an account. Of these, an average of just four videos per account were uploaded indicating that engagement on the platform is limited.

In total, there were 997 male orthopaedic surgeons and 42 female orthopaedic surgeons registered in Australia, with female surgeons slightly more likely to engage with a number of social media platforms than male surgeons (mean social media level 1.93 vs. 1.68 respectively), however this was not statistically significant ($p=0.16$).

Overall, of the 1039 Australian orthopaedic surgeons identified in this study there were 137 (13.2 per cent) who had neither a website, nor any social media platforms linked to their orthopaedic practice.

Discussion

As demonstrated in this study, the majority of Australian orthopaedic surgeons (74.4 per cent) utilise at least one social media platform in their practice which correlates well with previously reported data for the wider medical community in Australia.²⁰

The widespread adoption of social media in everyday life and increasingly in the medical profession indicates that its use is likely to progress significantly in the years to come. Curry et al.,¹⁴ found that 51 per cent of patients utilise social media to research their medical condition. This is evident in everyday practice, with 85 per cent of surgeons having experienced a patient bringing information with them to a consultation sourced from the internet.²¹ It is important that the community uses social media for these purposes cautiously, as a large proportion of health-related information published on social media platforms tends to be of poor-quality owing to a lack of regulatory review.²² There

is good evidence to suggest that patients who have access to accurate information about their conditions over the internet display higher motivation and treatment compliance.²³

An observational study in the USA published by Ramkumar et al.,²⁴ explored the presence of Anterior Cruciate Ligament (ACL) reconstruction patients, orthopaedic surgeons and orthopaedic hospitals on Instagram and Twitter and found that over a 6-month period, 3,145 public posts were shared by patients, 92 per cent of which were personal recovery stories. In their study population of Orthopaedic Surgeons listed in the National Football League (NFL) Physician's Society Register, 16 per cent had public Twitter accounts and no public Instagram accounts were found. This correlates well with the data from our study for individual surgeons with only 20.1 per cent of surgeons having a twitter account and 2.89 per cent having an Instagram accounts linked to their orthopaedic practice. Of the hospitals, 96 per cent had Twitter accounts and 32 per cent had Instagram accounts, likely due to the fact that hospitals as an organisation were more likely to have a specific staff member tasked with managing these social media accounts.

Lander et al.,²⁵ quantified the utilisation of individual social media platforms amongst paediatric orthopaedic surgeons in North America. They found 95 per cent had a professional webpage, 36.8 per cent a LinkedIn profile, 33 per cent at least one YouTube account, 25.8 per cent a ResearchGate profile, 14.8 per cent a professional Facebook page and 2.2 per cent a professional Twitter page. Similarly, in the case of Australian orthopaedic surgeons, the majority employ a practice website (73.3 per cent), with LinkedIn representing the most popular social media platform (60.3 per cent). Surprisingly, North American paediatric orthopaedic surgeons were significantly more likely to have a YouTube account than Australian orthopaedic surgeons (11.7 per cent).

Justinia et al.,²⁶ found that 53.7 per cent of orthopaedic surgeons across 15 healthcare centres in Saudi Arabia use social media partly or entirely for professional purposes. Of the surgeons that used social media professionally, only 21.8 per cent were consultant level surgeons, with the majority being residents and under the age of 40. Twitter was reported as the most widely used social media platform and similar to Lander et al, they found utilisation of social media for commercial purposes such as advertising to be of more interest to those working in the private sector.

Duymus et al.,²⁷ conducted a cross-sectional descriptive

study based in Turkey by sending a questionnaire to orthopaedic surgeons to assess and identify the prevalence of social media and internet usage of orthopaedic surgeons. Of all participants, 73.2 per cent had Facebook accounts, while only 23.3 per cent reported using Facebook as a tool for patient-physician communication. Similarly, the majority of Australian orthopaedic surgeons were found to utilise Facebook (75.2 per cent), however a significantly smaller proportion employ the platform for professional purposes (24.8 per cent). Sale et al.²⁸ provided one possible explanation for the underutilisation of social media by surgeons for professional purposes, which stems from the fact that a negative patient review or comment on posts made by that physician may prove detrimental and affect the physicians' ability to recruit new patients.

Perhaps the most evidence-based social media platform outlined in this study is ResearchGate which is a largely academic social network through which scientists and researchers can share information and peer-reviewed publications. Despite this, only 20.1 per cent of Australian orthopaedic surgeons have accounts on the platform and as such may be missing a valuable opportunity to share useful information with their colleagues and the wider scientific community relating to their field of expertise. Further to this, a move towards allowing peer-reviewed information from sources such as ResearchGate to be made more publicly accessible may serve to improve the accuracy of available information, and generally improve health outcomes for patients.

Employment of social media platforms may also provide surgeons with a relatively inexpensive avenue for marketing their services to potential new patients as outlined above. Historically, patients have relied solely on a primary care referral in order to make contact with a medical specialist. The advent of the internet and social media, has ensured that the path to identifying a suitable specialist physician or surgeon has become more straight-forward with many patients actively researching their doctor before an initial consultation.¹⁵ Increasingly we may see patients 'researching' their surgeon by exploring their social media profiles for this purpose. Given that LinkedIn was the platform with the highest uptake in this study (60.3 per cent) it stands to reason that patients will look to utilise this resource in order to make educated decisions on which surgeon they may choose in the future.

In light of the marketing opportunity that social media provides, it is unsurprising that private practice orthopaedic surgeons tend to utilise social media more than their

hospital-based colleagues,²⁶ with Lander et al.²⁵ suggesting those working in the private sector are twice as prominent on social media platforms. This is likely due to a need for 'self- promotion' in order to make potential referrers and patients aware of their presence and the surgical services they offer. In particular, the prospect of building a private practice is a difficult one for newly qualified Orthopaedic surgeons as they are competing for a finite number of patients and referrals with an array of experienced and well-established senior colleagues. Less commonly utilised platforms such as Facebook (44.5 per cent), Instagram (12.2 per cent), Twitter (20.2 per cent) and YouTube (11.7 per cent) are likely to be employed as avenues to potentially attract a new demographic of patients by these surgeons in the years to come. Our research suggests that this trend may have already begun, with data in Figure 1, above, showing a significantly greater mean social media level for surgeons with fewer years in practice. In addition, given the speed at which technology has evolved in this area it is unsurprising that established surgeons with long-standing practices and referral bases have not felt the need to incorporate social media into their surgical practice.

Despite the extensive potential applications of social media to orthopaedic practice, the benefits of its use must be weighed against the potential risks. Many questions and concerns have arisen regarding ethics and professionalism within the social media realm. These include concerns among physicians regarding the maintenance of patient confidentiality and the potential for litigation,²⁶ which may reflect negatively on their practice. These concerns have led to the publication of written standards and guidelines around the safe use of social media in medical practice by the AMA, RACS and AOA in Australia.¹⁷⁻¹⁹ Many medical schools and universities also have guidelines for the safe use of social media and provide education on the topic. Specific to orthopaedics, the American Academy of Orthopaedic Surgeons has published a comprehensive document advising Orthopaedic surgeons on how to build a successful social media presence while avoiding many common pitfalls.²⁹ Currently, the recommendations in the recently updated AOA code of conduct¹⁹ with respect to social media usage is very limited and this will likely require further development in the years to come as the utilisation of social media by orthopaedic surgeons continues to increase. There are some limitations to consider in this study, with accounts likely missed due to the use of alternate names often employed by medical professionals on social media in order to maintain personal privacy. This technique is most likely used for personal accounts and as such is not likely to have impacted significantly on the results specific to the use

of social media platforms for professional purposes. In addition, while every attempt was made to exclude inactive accounts, time since last post or last login was not readily available from our search, and as such some identified accounts may not have been active at the time of our data collection. Despite this, all of the data obtained in our study represents information which is readily available to the public online and is representative of how members of the public may employ social media to search for a prospective surgeon. As such, it provides a more accurate reflection of social media uptake among orthopaedic surgeons than other studies in the literature^{25,27} which have relied on questionnaires and surveys that are prone to non- response and recall bias.

Conclusion

It is evident that social media will play an increasingly important role for Australian orthopaedic surgeons in the future, as the widespread adoption of such platforms by the general public continues to grow. At present, orthopaedic surgeons in Australia employ a variety of different online platforms to their practice for both educational and commercial purposes, with the majority favouring traditional websites and LinkedIn at present. As surgeons move towards exploring alternative methods of engaging with patients and colleagues there is likely to be a significant increase in the uptake of social media platforms such as Facebook, Instagram and Twitter for professional purposes. With this in mind it is important that regulatory bodies and surgeons alike remain up to date with current developments in the field to ensure the responsible implementation of such platforms in order to fully utilise their extensive applications. While this study focussed on the uptake of social media platforms by Australian orthopaedic surgeons in particular, it is likely that these results may be extrapolated to other surgical specialties and more widely, to Australian doctors in general. Future studies in this area are likely to provide greater insights into the adoption of social media platforms by a range of health professional in the years to come.

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

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Figure 1: Adoption of social media among Australian Orthopaedic surgeons

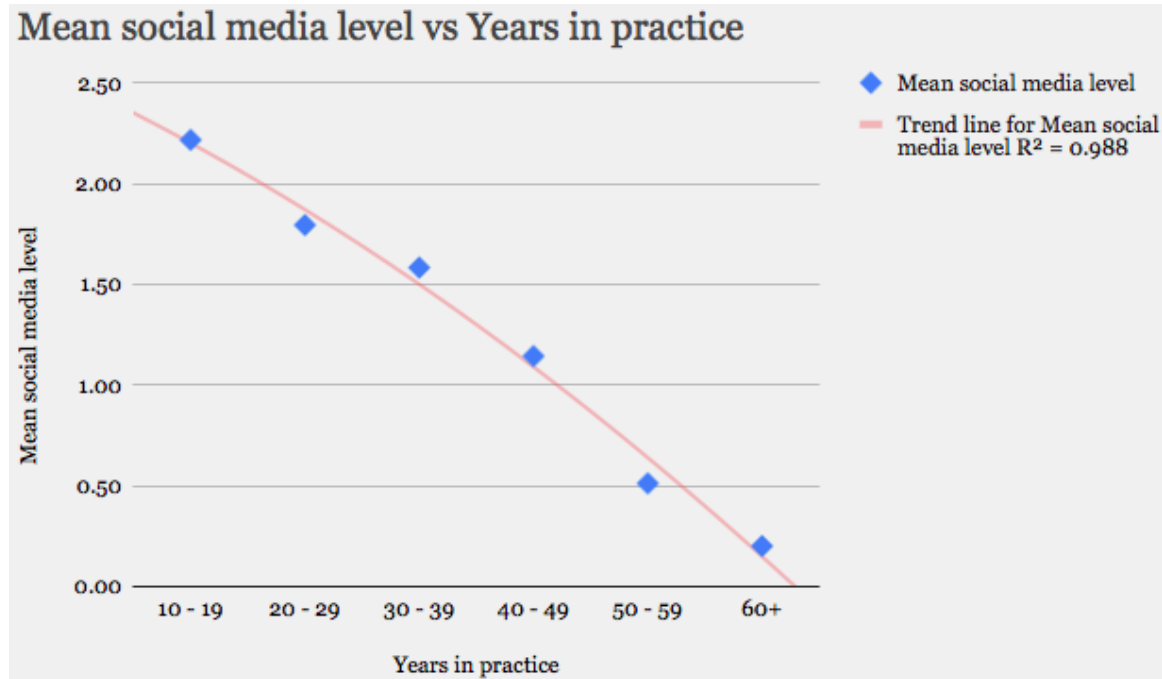


Table 1: Number of social media platforms utilised by surgeons in each state

State	Level of social media presence (Facebook, Twitter, LinkedIn, ResearchGate, Instagram, Youtube)							Mean social media level	Total number of Orthopaedic surgeons	Percentage
	0	1	2	3	4	5	6			
NSW	100	81	47	47	28	16	3	1.63	322	31%
VIC	54	49	57	40	20	11	3	1.86	234	22.50%
QLD	65	63	43	29	16	7	2	1.54	225	21.70%
WA	23	39	24	12	8	4	1	1.63	111	10.70%
SA	16	28	27	13	7	7	0	1.88	98	9.40%
TAS	4	5	8	3	1	0	1	1.82	22	2.10%
ACT	2	9	7	3	2	0	0	1.74	23	2.20%
NT	2	1	0	1	0	0	0	1	4	0.40%
All	266	275	213	148	82	45	10	1.69	1039	1

Table 2: Number of surgeons utilising each social media platform by state

State	Facebook		Twitter		LinkedIn		ResearchGate		Instagram		YouTube		Number of surgeons
	N	%	N	%	N	%	N	%	N	%	N	%	
NSW	119	37%	78	24.20%	190	59%	54	16.80%	32	9.90%	53	16.50%	322
VIC	126	53.80%	49	20.90%	144	61.50%	59	25.20%	39	16.70%	19	8.10%	234
QLD	96	42.70%	38	16.90%	131	58.20%	40	17.80%	20	8.90%	22	9.80%	225
WA	45	40.50%	18	16.20%	66	59.50%	22	19.80%	15	13.50%	15	13.50%	111
SA	51	52%	17	17.30%	67	68.40%	26	26.50%	17	17.30%	6	6.10%	98
TAS	14	63.60%	5	22.70%	13	59.10%	4	18.20%	2	9.10%	2	9.10%	22
ACT	11	47.80%	5	21.70%	14	60.90%	4	17.40%	1	4.30%	5	21.70%	23
NT	1	25%	0	0%	2	50%	0	0%	1	25%	0	0%	4
All	463	44.60%	210	20.20%	627	60.30%	209	20.10%	127	12.20%	122	11.70%	1039