

Cross-sectional study on utilisation of social media by regional anaesthesia and acute pain medicine fellowship programs in the United States

Janet Hong, Usama Siddique, Ghislaine Echevarria, Alopi Patel, Yan H. Lai, Poonam Pai B.H

Department of Anesthesiology, Perioperative, and Pain Medicine, Icahn School of Medicine at Mount Sinai Medical Center, Mount Sinai West and Morningside Hospitals, Tenth Avenue, New York, NY, USA

Abstract

Background and Aims: Social media provides a platform for physicians helping them change the practice in anaesthesiology as it promotes both personal and professional growth. In this cross-sectional study, we identify social media presence and engagement of Accreditation Council for Graduate Medical Education (ACGME)-accredited Regional Anesthesia and Acute Pain Medicine (RAAPM) fellowship programs, specifically on Twitter (Twitter Inc., San Francisco, CA) and Instagram (Meta Platforms Inc., Menlo Park, CA). This article presents current evidence about social media presence and engagement of ACGME-accredited RAAPM fellowship programs on Twitter and Instagram. These findings could potentially help cultivate greater social media engagement in the RAAPM community and improve recruitment of prospective applicants.

Material and Methods: The list of ACGME-accredited RAAPM fellowship programs for the academic year 2020–2021 was obtained from the ACGME website. Accounts were searched by reviewing each program's website for profile links and by querying for the name of the program directly on Twitter and Instagram. Department of Anesthesiology, Perioperative and Pain Medicine accounts were analysed for posts pertaining to RAAPM elements, and RAAPM fellowship-specific accounts were investigated. Accounts that were solely focused on an anaesthesiology residency were excluded. All posts over the academic year period of 1 July 2020 to 30 June 2021 were analyzed.

Results: While many programs had active departmental social media accounts during our study, there was a dearth of RAAPM-related output (3.4% of tweets and 2.7% Instagram posts). Furthermore, only 10% of programs had RAAPM fellowship-specific Twitter accounts, of which only 5% of programs were active. Finally, there were no RAAPM fellowship-specific Instagram accounts.

Conclusions: While there is robust use of social media by departmental accounts, there is a paucity of RAAPM-related content and RAAPM fellowship-specific social media accounts. The current gap provides valuable opportunities for future investigations into the cyber footprint and innovative engagement strategies for the RAAPM community.

Keywords: Graduate medical education, Instagram, Regional Anaesthesia and Acute Pain Medicine fellowship, social media, social media in medicine, Twitter

Introduction

Social media refers to interactive platforms for sharing user-generated content and has become a method of branding,

communication, networking, and dissemination of information. As social media use has proliferated over time, many individuals and groups have found these interactive tools to be valuable for professional use. Several studies have highlighted

Address for correspondence: Dr. Poonam Pai B.H,
Department of Anesthesiology, Perioperative, and Pain Medicine,
1000 Tenth Ave New York, NY 10019, USA.
E-mail: janet.hong@mountsinai.org

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Access this article online	
Quick Response Code:	Website: https://journals.lww.com/joacp
	DOI: 10.4103/joacp.joacp_149_23

How to cite this article: Hong J, Siddique U, Echevarria G, Patel A, Lai YH, Pai BH. Cross-sectional study on utilisation of social media by regional anaesthesia and acute pain medicine fellowship programs in the United States. *J Anaesthesiol Clin Pharmacol* 2023;39:571-6.

Submitted: 06-Apr-2023

Revised: 08-Jun-2023

Accepted: 13-Aug-2023

Published: 20-Dec-2023

the steady growth of social media utilisation by academic training programs in a variety of medical specialties for the purposes of recruitment, branding, and collaboration.^[1-5] This article examines the hypothesis about social media presence and engagement of Accreditation Council for Graduate Medical Education (ACGME)-accredited Regional Anesthesia and Acute Pain Medicine (RAAPM) fellowship programs on Twitter and Instagram. In this cross-sectional study, we analysed the social media presence and engagement of ACGME-accredited Regional Anesthesia and Acute Pain Medicine (RAAPM) fellowship programs, specifically on Twitter (Twitter Inc., San Francisco, CA) and Instagram (Meta Platforms Inc., Menlo Park, CA) as our primary outcome.

Material and Methods

This study was exempt from the Icahn School of Medicine at Mount Sinai Institutional Review Board approval as all information is publicly available. The list of ACGME-accredited RAAPM fellowship programs for the academic year 2020–2021 was obtained from the ACGME website. Accounts were searched by reviewing each program's website for profile links and by querying for the name of the program directly on Twitter and Instagram. Department of Anesthesiology, Perioperative and Pain Medicine accounts were analysed for posts pertaining to RAAPM elements, and RAAPM fellowship-specific accounts were investigated. Accounts that were solely focused on an anaesthesiology residency were excluded. All posts over the academic year period of 1 July 2020 to 30 June 2021 were analysed.

For all social media accounts identified, the number of posts (total in the account and within the study period) and followers were recorded. Each post was categorised as medical education, branding, or social interactions. Medical education posts were information to instruct or disseminate to house staff, faculty, or the community at large (i.e., clinical photo or ultrasound image). Branding posts were associated with promotion of departmental merits or achievements (i.e., awards or research grants). Social interaction posts highlighted social activities (i.e., holiday group photos, personal events such as birthdays).

The Shapiro–Wilk test was used to test normality. Linear regression was used to assess the relationship between number of followers and number of tweets, and exact logistic regression was used to study the relationship between number of fellows and the presence of social media accounts. Data were expressed as number (percentage), median (inter-quartile range, IQR), or odds ratio [95% confidence interval (CI)], unless otherwise

stated. A two-sided *P* value less than 0.05 was considered significant. All statistical tests were performed using R v. 4.1.2 (<https://www.R-project.org/>).

Results

Department of Anesthesiology, Perioperative and Pain Medicine accounts

Out of the 38 ACGME-accredited RAAPM fellowship programs, 16 (42.1%) had both a departmental Twitter and Instagram account, 8 (21.0%) had only a Twitter account, 5 (13.2%) had only an Instagram account, and 9 (23.7%) had neither [Table 1].

Of the 24 (63.2%) departments with a Twitter account, 23 (95.8%) were considered active, defined as posting at least one tweet in the last year. The median number of tweets was 161 (IQR 87, 228), and the median number of followers was 870 (IQR 362, 1776). Of all tweets posted during the academic year (*n* = 4357), 3.4% were RAAPM-related. Of those, 1.1% were medical education tweets (32.4% of RAAPM-related tweets), 2.0% branding tweets (58.8% of RAAPM-related tweets), and 0.3% social tweets (8.8% of RAAPM-related tweets) [Figure 1a]. There was a linear relationship between the number of followers and total tweets. For every 10-follower increase, the number of tweets was predicted to increase by 6.3 (95% CI 4.5–8.1; *P* < 0.001).

All 21 (55.3%) departments with an Instagram account had at least one post in the last academic year. The median number of posts was 58 (IQR 39, 74), and the median number of followers was 1111 (IQR 997, 1425). Of all posts during the academic year (*n* = 1297), 2.7% were RAAPM-related. Of those, 0.2% were medical education posts (7.4% of RAAPM-related posts), 2.0% branding (74.0% of RAAPM-related posts), and 0.5% social posts (18.5% of RAAPM-related posts) [Figure 1b]. A significant but weaker relationship was also present, where for every 50-follower increase, the number of Instagram posts was predicted to increase by 3.25 (95% CI 0.82–5.68, *P* = 0.01).

RAAPM fellowship-specific accounts

Four (10.5%) out of the 38 ACGME-accredited RAAPM fellowship programs had a fellowship-specific Twitter account [Tables 1 and 2], and only two were considered active (Stanford and UPMC). The median number of tweets was 35.5 (IQR 4, 67), and the median number of followers was 62.5 (IQR 14, 317.5). Of all tweets posted during the academic year (*n* = 71), 39.4% were medical education tweets, 35.2% branding tweets, and 25.4% social tweets [Figure 1c]. There was a linear relationship between the number of followers and total tweets. For every 10-follower

Table 1: Characteristics and social media presence of anaesthesia departments with ACGME-accredited regional anaesthesia fellowships

Programs with ACGME-accredited regional anaesthesia fellowships	# of Fellows	Department Twitter	Department Twitter Followers	Fellowship Twitter	Fellowship Twitter Followers	Department Instagram	Department Instagram Followers	Fellowship Instagram
Brigham and Women's Hospital Program	3	T	901	-	-	I	3376	-
Cedars-Sinai Medical Center Program	6	-	-	-	-	-	-	-
Cleveland Clinic Foundation Program	2	-	-	-	-	-	-	-
Dartmouth-Hitchcock/Mary Hitchcock Memorial Hospital Program	2	T	539	-	-	-	-	-
Duke University Hospital Program	4	T	10400	T	19	I	1696	-
Icahn School of Medicine at Mount Sinai (Mount Sinai Hospital) Program	2	T	855	-	-	I	2092	-
Icahn School of Medicine at Mount Sinai (West) Program	2	-	-	-	-	I	1023	-
Johns Hopkins University Program	4	T	2448	T	106	I	1171	-
Los Angeles County-Harbor-UCLA Medical Center Program	1	-	-	-	-	I	1111	-
Massachusetts General Hospital Program	2	T	815	-	-	I	3328	-
Mayo Clinic College of Medicine and Science (Jacksonville) Program	2	-	-	-	-	-	-	-
Mayo Clinic College of Medicine and Science (Rochester) Program	2	T	3797	-	-	-	-	-
McGaw Medical Center of Northwestern University Program	2	T	340	-	-	I	1004	-
Montefiore Medical Center/Albert Einstein College of Medicine Program	2	-	-	-	-	-	-	-
National Capital Consortium Program	2	-	-	-	-	-	-	-
New York Presbyterian Hospital (Columbia Campus) Program	3	T	985	-	-	I	1390	-
New York Presbyterian Hospital (Cornell Campus) Program	2	T	1331	-	-	-	-	-
NYU Grossman School of Medicine Program	1	-	-	-	-	-	-	-
Ochsner Clinic Foundation Program	2	T	184	-	-	-	-	-
Ohio State University Hospital Program	2	-	-	-	-	I	504	-
Oregon Health & Science University Program	2	T	1012	-	-	I	560	-
Penn State Milton S Hershey Medical Center Program	1	-	-	-	-	-	-	-
Stanford Health Care-Sponsored Stanford University Program	4	T	5289	T	529	I	3047	-
University of California (San Francisco) Program	1	T	2255	-	-	I	2190	-
University of California Davis Health Program	1	T	384	-	-	I	1472	-
University of Cincinnati Medical Center/College of Medicine Program	1	-	-	-	-	-	-	-

Contd...

Table 1: Contd...

Programs with ACGME-accredited regional anaesthesia fellowships	# of Fellows	Department Twitter	Department Twitter Followers	Fellowship Twitter	Fellowship Twitter Followers	Department Instagram	Department Instagram Followers	Fellowship Instagram
University of Illinois College of Medicine at Chicago Program	1	T	154	-	-	-	-	-
University of Iowa Hospitals and Clinics Program	2	T	101	-	-	I	851	-
University of Nebraska Medical Center College of Medicine Program	1	T	987	-	-	I	1003	-
University of New Mexico School of Medicine Program	2	-	-	-	-	I	810	-
University of Texas Southwestern Medical Center Program	1	T	150	-	-	-	-	-
University of Virginia Medical Center Program	2	T	818	-	-	I	1419	-
UPMC Medical Education Program	15	T	543	T	9	-	-	-
Vanderbilt University Medical Center Program	2	T	2221	-	-	-	-	-
Virginia Mason Medical Center Program	3	T	202	-	-	I	909	-
West Virginia University Program	1	-	-	-	-	I	1122	-
Westchester Medical Center Program	2	-	-	-	-	-	-	-
Yale-New Haven Medical Center Program	3	T	885	-	-	I	1425	-

Note: T indicates the presence of a Twitter and I indicates the presence of an Instagram account

Table 2: Distribution of tweets from active departmental accounts, distribution of tweets from RAAPM fellowship-specific Twitter accounts within the last year and distribution of Instagram posts from active departmental accounts

Social Media Platforms	Twitter (n=4357) Tweets in 365 days from all active department accounts	Twitter (n=71) Tweets in 365 days from all active departmental fellowship accounts	Instagram (n=1297) Posts in 365 days from all active department accounts
Medical education	48	28	3
Branding	85	25	26
Social	13	18	6

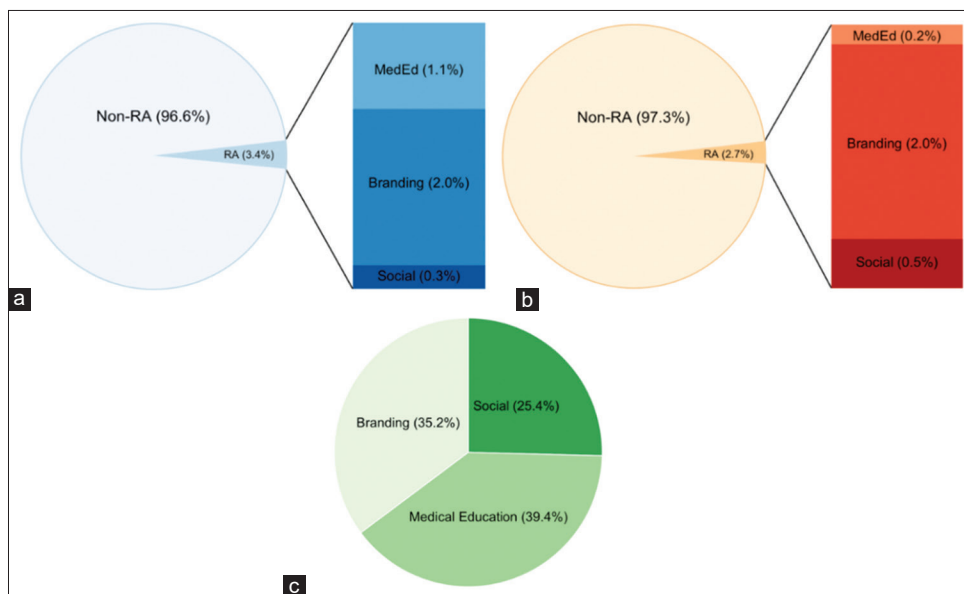


Figure 1: (a) Distribution of tweets from active departmental accounts, (b) distribution of Instagram posts from active departmental accounts, and (c) distribution of tweets from RAAPM fellowship-specific Twitter accounts within the last year. RA, Regional Anesthesia; MedEd, Medical Education

increase, the number of tweets was predicted to increase by 1.33 (95% CI 0.72–2.59; $P = 0.045$).

The median number of fellows in the programs with and without RAAPM fellowship-specific Twitter accounts was 4 (IQR 4, 9.5) and 2 (IQR 1, 2), respectively. Moreover, for every 1-fellow increase in the program, the odds of having a fellowship-specific Twitter account were estimated to increase by 3.74 times (exact logistic regression 95% CI 1.25–27.9).

None of the programs had a RAAPM fellowship-specific Instagram account.

Discussion

The utilisation of social media in the general American public has grown exponentially from 5% in 2005 to 72% in 2021.^[6] Concurrently, many academic medical programs have developed platforms and profiles for professional networking, primarily targeting an audience of physicians and other healthcare professionals. Particularly, these networks are valuable for prospective applicants to gather information about training programs, especially as the COVID-19 pandemic has adversely affected the fellowship selection and recruitment process.

This is the first cross-sectional study to analyse the use of social media amongst U.S. ACGME-accredited RAAPM fellowship programs. While many programs had active departmental social media accounts during our study, there was a dearth of RAAPM-related output (3.4% of tweets and 2.7% Instagram posts). Furthermore, only 10% of programs had RAAPM fellowship-specific Twitter accounts, of which only 5% of programs were active. Finally, there were no RAAPM fellowship-specific Instagram accounts.

The current limited presence of RAAPM fellowship on these large social media platforms can ignite future opportunities for promotion, leadership, innovation, and transformation of academic culture. Our data revealed that an increase in fellowship size may be associated with greater adoption and utilisation of social media platforms for further engagement. In terms of the categories of Twitter and Instagram posts, there was an inclination towards branding messages in departmental accounts versus a higher proportion of educational content in fellowship-specific accounts. This pattern could be consistent with departmental visions for showcasing fellowship features for general recruitment purposes, while individual fellowship programs focus on advancing educational goals. These highlight some of the strengths of our study.

One of the limitations or weaknesses of this study was that only two social media platforms were analysed. We

selected these networks based on prior research^[2,3] along with the simplicity, focus, and length of posts that were more adaptable for analysis. Another limitation was our exclusion of non-ACGME-accredited programs. While these programs may have inherent motivation to increase visibility on social media, they introduce organisational variability and heterogeneity in our study cohort. Also, even though our canvassing search strategy was quite comprehensive, we could have missed programs lacking crucial information in our databases. Moreover, we recognise that the selection and categorisation of posts is a non-objective process. Our methodologies were determined *a priori* and were consistent with published research in this arena.^[1-5] Our two independent assessors are also well versed in both social media and medical education environments. Last, a limitation that is common to cross-sectional studies is that they do not provide interval comparisons over time. We acknowledge that providing a trend of how program size, number of active accounts, tweets, or posts behave over time (i.e., 2016 versus 2021, especially with the potential increase in social media utilisation during the pandemic) could be more insightful than our snapshot. This undertaking and how social media impacts academic recruitment, department standings and recognition, and multi-institutional collaboration are interesting pursuits for future studies.^[1,2,6-10]

In recent decades, RAAPM has experienced an exponential expansion of fellowship training programs. In 2016, 9 fellowships received the first round of accreditation by the ACGME, and by 2020–2021, this number grew to 38. This growth in RAAPM training may have coincided with the expansion of social media utilisation. Future studies that explore social media activity over time, as well as how social media impacts academic recruitment, department standings and recognition, and multi-institutional collaboration, would be helpful for the RAAPM community.^[7,9,10] Furthermore, it may spark innovative engagement strategies for professional collaboration between programs and enhance transparency in recruitment processes.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Yong TM, Pappas MA, Ray GS, McManus TG, Coe MP. Analyzing the proliferation of social media use among orthopaedic surgery residency programs. *JB JS Open Access* 2021;6:e21.00017. doi: 10.2106/JBJS.OA.21.00017.
2. Gandotra S, Stewart NH, Khateeb D, Garcha P, Carlos WG, Carroll CL, *et al.* Understanding the “social” in “social media”.

- An analysis of twitter engagement of pulmonary and critical care fellowship programs. *ATS Sch* 2021;2:202-11.
3. Feinstein MM, Mercedes CR, Sison M, Kim J, Shin DW, Katz D, *et al.* #anesthesiology: An assessment of social media usage by anesthesiology residency programs. *J Clin Anesth* 2021;75:110502. doi: 10.1016/j.jclinane.2021.110502.
 4. Holderread BM, Liu J, Wininger AE, Harris JD, Liberman SR. The effect of the COVID-19 pandemic on orthopaedic residency program social media utilization. *JB JS Open Access* 2021;6:e21.00104. doi: 10.2106/JBJS.OA.21.00104.
 5. Azoury SC, Mazzaferro DM, Piwnica-Worms W, Messa CA 4th, Othman S, Stranix JT, *et al.* An update on social media in academic plastic surgery training programs: The rising trend of likes, shares, and retweets. *Ann Plast Surg* 2020;85:100-4.
 6. Demographics of Social Media Users and Adoption in the United States. 2021 Pew Research Center. Available from: <https://www.pewresearch.org/internet/fact-sheet/social-media/>. [Last accessed on 2022 Dec 01].
 7. Shekane P, Echevarria G, Irizarry G, Dumbroff J, Rosenblatt MA, Patel A. A cross-sectional study of the social media presence of ACGME-accredited pain medicine fellowship programs: Time to get online? *Pain Physician* 2022;25:E1021-5.
 8. Amini R, Wang JB, Trueger NS, Hoyer R, Adhikari S. Use of social media in emergency ultrasound fellowship programs. *AEM Educ Train* 2017;1:27-33.
 9. 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;9:421-5.
 10. Miles RC, Patel AK. The radiology twitterverse: A starter's guide to utilization and success. *J Am College of Radiol* 2019;16:1225-31.