



AOA Critical Issues in Education

Orthopaedic Residency Applicants' Perspective on Program-Based Social Media

Joseph C. Brinkman, MD, David G. Deckey, MD, Sailesh V. Tummala, MD, Jeffrey D. Hassebrock, MD, Mark J. Spangehl, MD, and Joshua S. Bingham, MD

Background: Social media and online resources have been used in graduate medical education for years. In addition to an official residency program website, many orthopaedic surgery programs have an established social media presence to interact, educate, and engage with prospective applicants. The role of social media in orthopaedic surgery has significantly expanded in recent years. Despite its increasing use, the specific impact of social media on orthopaedic surgery residency applicants remains unknown.

Methods: Applicants to the home institution's orthopaedic surgery residency program were sent an optional online survey during the 2020 to 2021 application cycle. No incentive was provided in exchange for participation.

Results: Of 812 orthopaedic surgery applicants, 650 (80%) completed the survey. Program-based social media is widely accessed by applicants. Instagram is used by most applicants (61.9%), and nearly a third (28.7%) rely on it as their main resource when researching prospective residency programs. The majority (66.9%) agreed that social media can be successfully used to inform and interact with applicants. Most of the applicants (60.6%) also reported that social media had a positive impact on their perception of the associated program. Only 5.7% of respondents indicated that social media had a negative influence. The most effective uses of social media seem to be in allowing a program to display its culture and transparency.

Conclusion: Social media plays a substantial role in the orthopaedic surgery residency application process, and its use continues to grow. Programs can use it to effectively engage with and inform prospective applicants. The impact of social media is positive on most of the applicants. Instagram is the preferred social media platform used by applicants, and nearly one-third rely on it as their main resource when researching programs. Investing time and resources into a social media presence seems to be a worthwhile pursuit for orthopaedic surgery programs as an important piece to a well-rounded recruitment effort of modern orthopaedic surgery applicants.

Introduction

The orthopaedic residency application process has adapted and evolved over the past 30 years. Beginning in 1988,

residents were able to research programs electronically for the first time with the development of the Fellowship and Residency Electronic Interactive Database Access¹. Since this time, the use

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of online and electronic resources in the residency application process has continued to grow. Throughout the 1990s, residency programs began shifting from paper-based to web-based means to advertise their program. The National Residency Matching Program followed suit by developing the Electronic Residency Application Service (ERAS) in 1995².

Residency program websites have become increasingly popular and informative over the past 20 years. In 2001, it was reported that 113 of 154 (73%) accredited orthopaedic surgery programs had available websites, whereas 183 of 189 (96.8%) programs had published websites as of 2020^{3,4}. The content of these websites has also expanded. Compared with 2001, approximately twice as many websites now have information regarding current residents and application requirements. Similarly, 4 times as many program websites now carry information regarding past resident and rotations/curriculum. Not surprisingly, residency applicants' use of these online resources has grown alongside their popularity. In 2003, 79% of applicants reported that residency program websites were helpful in deciding where to apply and 36% used the sites to assist them in creating their match lists⁵. In 2021, an estimated 96% of orthopaedic surgery applicants used program websites⁶. Despite a high overall use, program websites are reported to regularly lack information highly valued by applicants⁷.

Similar to the internet, social media's integration into society has affected the residency application process. Accordingly, many orthopaedic surgery residency programs have established a social media presence to engage with and inform applicants. More specifically, it has been reported that programs have expanded their use of social media by 69% for Facebook, 177% for Twitter, and 620% for Instagram between March 2019 and July 2021⁸. A separate report in November 2021 demonstrated that of all orthopaedic programs, 20% maintained a twitter presence and 61.5% had Instagram accounts⁹. Such efforts seem to be successful in engaging applicants because up to 50% of residency applicants now use at least 1 social media platform to gain information about prospective programs¹⁰.

Despite a significant growth in popularity and utilization, few studies have formally observed the effects of social media in the graduate medical education process. A 2019 investigation found that most applicants felt social media had at least some impact on their evaluation of anesthesiology programs¹¹. A similar investigation in internal medicine found that nearly half of applicants stated that social media influenced their decision to apply and rank a particular program¹². Both of these studies were limited by relatively small sample sizes and did not characterize the effects of social media. Other investigations have focused on social media because it relates to knowledge attainment, skill development, and professionalism in the medical community or include all levels of medical trainees¹²⁻¹⁴.

There is minimal literature regarding the effects that social media has on residency applicants in orthopaedic surgery. One study surveyed 127 applicants to an osteopathic orthopaedic residency program. These authors report that most applicants use social media, more than half agree that programs have increased their interest by posting something

on social media, and more than three-quarters of applicants believe that orthopaedic programs should maintain social media accounts¹⁵. However, the impact that program-based social media has on applicants' perspectives, differential platform use by applicants, and the perceptions of allopathic applicants have yet to be reported. The aim of this study was to evaluate and characterize applicant utilization of program-based social media across different platforms in the orthopaedic surgery application process.

Methods

The study was approved by the home institution's institutional review board. Applicants to the authors' home orthopaedic residency program during the 2020 to 2021 application cycle were e-mailed a link to the survey, along with details regarding the study methods and goals in October 2020. This was sent through an institutional e-mail and was separate from the official communication from the program. Because completion was anonymous, a reminder notification was sent again to all applicants after 1 month. The e-mails also communicated the optional nature of the survey and that survey completion had no bearing on the applicant's application status or consideration. Applicants were also notified that survey completion was confidential and anonymous. There was no incentive to complete the survey as to not influence study completion or compromise respondent anonymity. The survey was closed on December 31, 2020.

The survey was hosted on and conducted through Qualtrics¹⁶. No personal or identifying information was collected. The survey included questions focused on demographics, social media utilization, and the impressions that program-based social media had on the applicant (Appendix 1, <http://links.lww.com/JBJSOA/A384>). The survey used Likert scale responses where applicable. Descriptive statistics were performed using Microsoft Excel.

Results

Eight hundred twelve applicants were sent the online survey. Six hundred fifty unique responses were obtained, yielding an 80% response rate. Most of the respondents reported as White (60.8%) followed by Asian (17.1%), Hispanic (8.1%), Black (5.4%), and multiracial (4.2%) (Table I). Women comprised 19.1% of all respondents. Eighty-eight percent were between 25 and 30 years, 6.2% between 31 and 35 years, and 3.2% less than 25 years.

The most frequently accessed online resource by applicants was the program's official residency program website (90.6%). Instagram was accessed by 61.9% of applicants, Doximity was accessed by 53.8%, and Twitter was accessed by 23.8% of applicants to learn about prospective programs. Facebook (13.7%) and ResearchGate (9.2%) were less commonly used (Fig. 1). The single most used resource was the official website for 337 applicants (52.5%), Instagram for 184 (28.7%), Doximity for 41 (6.4%), and Twitter for 33 applicants (5.1%).

Survey responses relating to the accessibility and impact of social media are presented in Table II. Most respondents

TABLE I Demographics*	
	n (%)
Sex	
Female	113 (19.1)
Male	472 (79.6)
Transgender, gender variant, and other	8 (1.4)
Age, yrs	
Less than 25	19 (3.2)
25-30	522 (88)
31-25	37 (6.2)
36-40	10 (1.7)
Greater than 40	2 (0.3)
Race/ethnicity	
Native American	2 (0.3)
Native Hawaiian	2 (0.3)
Multiracial	25 (4.2)
Black	32 (5.4)
Hispanic	48 (8.1)
Asian	101 (17.1)
White	360 (60.8)

*Respondent demographics with percentages based on total who answered question, excluding those who preferred not to respond.

(66.9%) agreed that social media can be successfully used to inform applicants about the residency program. Furthermore, 64.4% agreed that social media had an impact on their perception of the associated program, with 23.6% reporting strong agreement. The majority either somewhat (43.4%) or strongly (26.3%) agreed that social media was broadly available and accessible. A total of 473 respondents (74.6%) reported that social media pages were available for most of the residency programs, with 174 (27.4%) and 61 (10.1%) reporting that social media was available between 75% and 90% and greater than 90% of programs, respectively.

More than half (60.6%) of respondents agreed that program-based social media positively affected their perception of the associated program, with 21.6% strongly agreeing (Table III). Regarding image, 49.7% of applicants agreed that a program's professionalism was improved by social media (Fig. 2). Most respondents (54.4%) felt neutral that social media affected their perception of the program's prestige. More than three-quarters (79.1%) of applicants agreed that social media helped exhibit a program's camaraderie and/or culture, with 39.3% reporting strong agreement. Furthermore, 64.8% of applicants agreed that social media seemed to improve a program's transparency. The most commonly top-ranked type of post was social event/camaraderie-based (50.9%), followed by educational (14.3%), faculty/resident biographical (14.1%), resources or facilities (10.1%), geographical location (5.3%), resident hobbies (2.9%), and research production (2.4%) (Fig. 3).

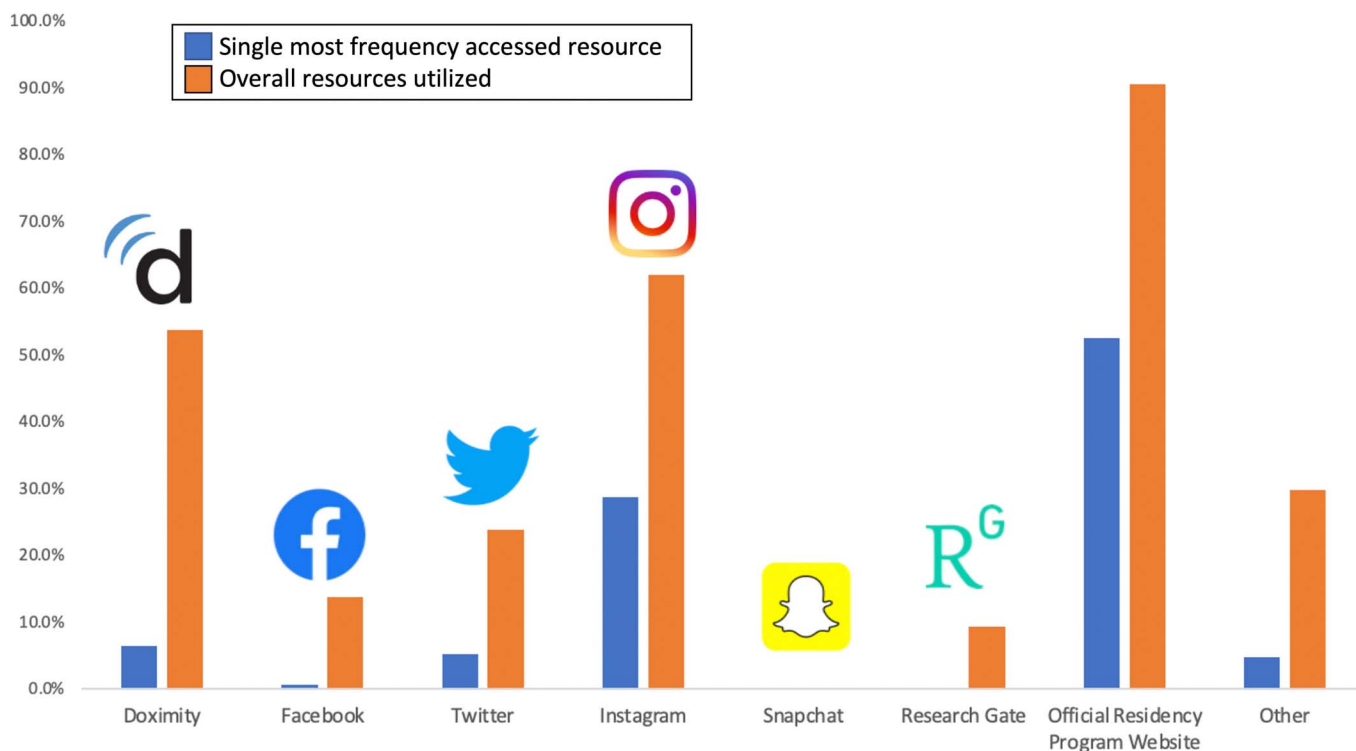


Fig. 1 Single most frequency accessed resource (blue) and overall resources used (orange) shown in percentage of all responses.

TABLE II Availability, Effectiveness, and Positive Impact of Residency-Based Social Media Pages*

	Strongly Agree, n (%)	Somewhat Agree, n (%)	Neither Agree nor Disagree, n (%)	Somewhat Disagree, n (%)	Strongly Disagree, n (%)
Widely available and accessible	156 (26.3)	258 (43.4)	108 (18.2)	58 (9.8)	14 (2.4)
Effective way to inform applicants	150 (25.2)	248 (41.7)	101 (17)	79 (13.3)	17 (2.9)
Impacted perception of the associated program	140 (23.6)	242 (40.8)	135 (22.8)	46 (7.8)	30 (5.1)

*Descriptive statistics regarding availability and accessibility of program-based social media, its effectiveness in informing applicants, and ability to impact perception of associated program.

Discussion

This investigation presents several key findings regarding social media utilization and its impact on prospective orthopaedic residency program selection. Instagram was used by most of the orthopaedic surgery applicants (61.9%), and nearly a third (28.7%) relied on it as their main resource to learn about prospective programs. Applicants consistently felt that program-based social media accounts were broadly available, with 473 (74.6%) reporting that more than half of programs maintained a presence on social media. Most respondents (66.9%) agreed that informing applicants through these accounts is effective. The majority also reported that social media affected their perception of the associated program (64.4%), with a positive impact noted in 60.6% of applicants. Only 5.7% suggested that their perception of the program was negatively influenced by social media. The strongest benefits of social media seem to be in helping a program broadcast its culture and transparency, with posts of resident camaraderie consistently rated as most helpful to applicants.

Social media use by residency programs has had an increasing role in graduate medical education in recent years, and orthopaedic programs are increasingly investing effort into the social media presence^{8,8,9,17}. However, its impact on applicants remains poorly understood. Through studies in internal medicine, anesthesiology, and plastic surgery, it has been suggested that social media can have an impact on applicants and even assist them in deciding where to apply and rank pro-

spective programs^{11,17,18}. Our results demonstrate that social media is increasingly being used by orthopaedic surgery applicants to learn more about programs and that this has had a positive impact in most of the outcomes we studied. It is an effective way to inform applicants and specifically helps a program exhibit its culture, camaraderie, professionalism, and transparency. Accordingly, orthopaedic surgery residency programs can use social media to effectively inform and attract prospective applicants. Social media may have been even more important currently, as well as in the past few years because many applicants have been unable to physically visit/interview at programs of interest. In this respect, it seems to have considerable benefits to programs and may present itself as an important piece in a well-rounded recruiting effort of the modern residency applicant. Investing time and resources into a social media presence seems to be a worthwhile pursuit for orthopaedic surgery residency programs.

The rate of social media utilization by both the applicant and the residency program is important in evaluating its utility. In our series, most applicants used social media to access information for at least half of the programs in which they were interested. Furthermore, more than one-quarter of applicants reported that social media accounts were accessible for greater than 75% of programs. These numbers coincide with the recent report that social media use by orthopaedic programs has grown 300% in recent years⁸. This increase may be explained by improved awareness of the benefits and popularity of program-

TABLE III Impact of Social Media on Applicants*

	Strongly Agree, n (%)	Somewhat Agree, n (%)	Neither Agree nor Disagree, n (%)	Somewhat Disagree, n (%)	Strongly Disagree, n (%)
Positively affected opinion of program	128 (21.6)	229 (38.6)	202 (34.1)	19 (3.2)	15 (2.5)
Improved program's professional image	99 (16.6)	197 (33.1)	250 (42)	36 (6.1)	13 (2.2)
Improved perception of program's prestige	43 (7.3)	116 (19.6)	322 (54.4)	71 (12.0)	40 (6.8)
Helped exhibit camaraderie/culture	232 (39.3)	235 (39.8)	91 (15.4)	23 (3.9)	10 (1.7)
Made program seem transparent	149 (25.3)	233 (39.5)	157 (26.6)	33 (5.6)	18 (3.1)

*Descriptive statistics regarding specific impact of social media on applicants shown by percentage of respondents.

Impact of social media on applicants

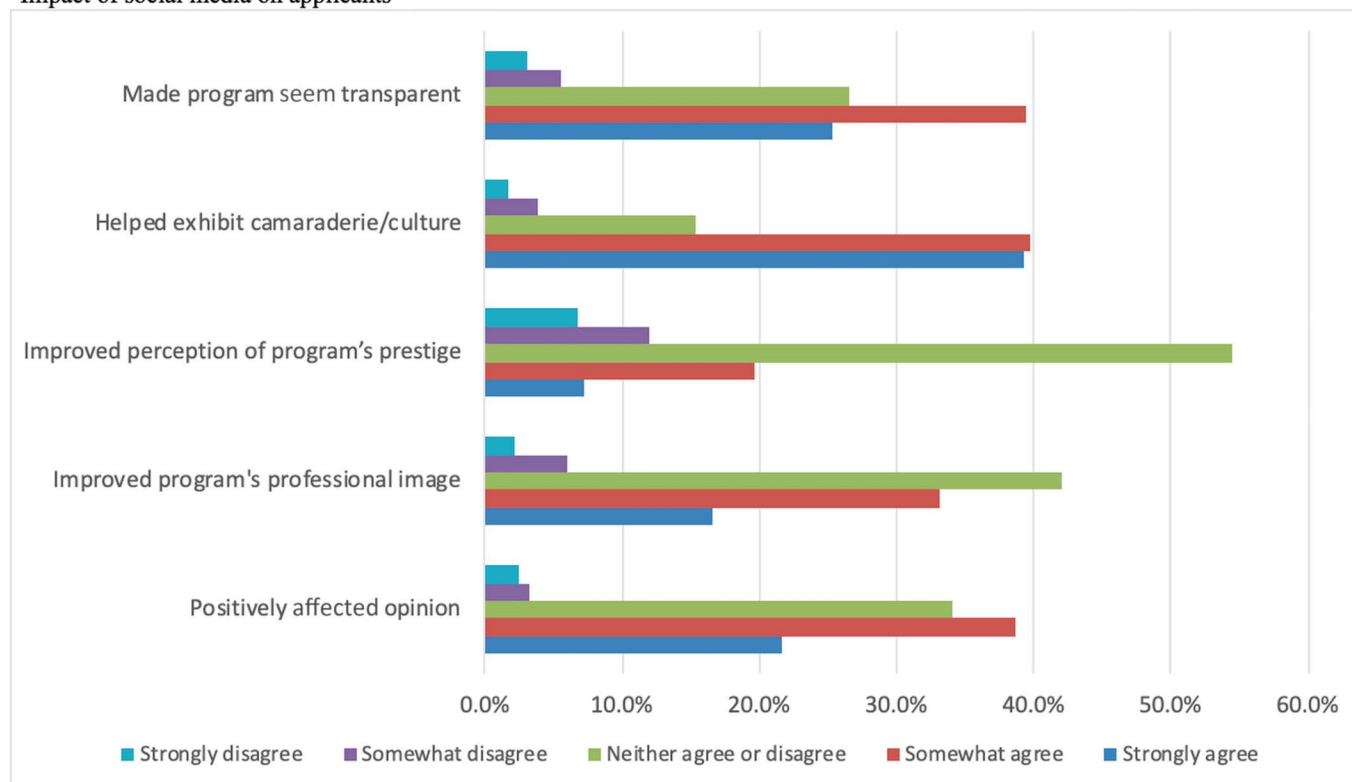


Fig. 2

Graphical representation of descriptive statistics regarding specific impact of social media on applicants shown by percentage of respondents.

based social media activity by program leadership. It may also simply represent an effort to reproduce strategies used by other programs or increasing popularity of these resources in general. The rate of social media use by programs coincides with its use by applicants. In 2014, it was estimated that half of residency applicants used at least 1 form of social media to learn about programs¹⁰. In our study, a greater number of applicants used Instagram alone. Furthermore, nearly a third relied on Instagram as their main source of information superseding an official resi-

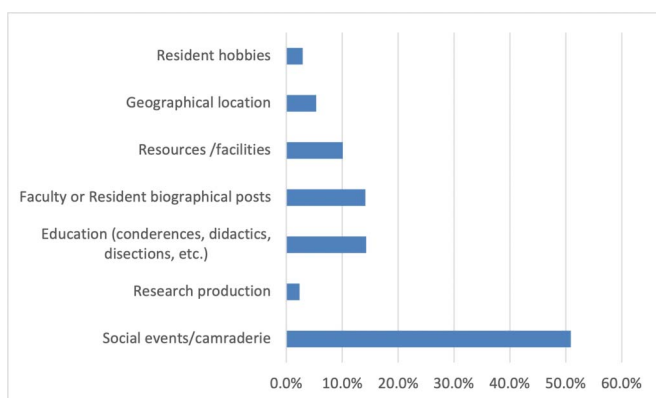


Fig. 3

Percentage of applicants who ranked poststyle as most helpful in learning about the program.

dency program website. Applicants are increasingly relying on social media resources in the residency application process, and programs are reflecting this trend with the improved social media presence. The role of social media in the residency application process role will likely continue to grow in coming years.

Our study also aimed to determine which social media platform is most valuable to applicants. Instagram (61.9%), Doximity (53.8%), Twitter (23.8%), and Facebook (13.7%) were all used by applicants. Only the official residency program was a more used resource than Instagram. Per these results, Instagram seems to be the preferred social media platform for orthopaedic surgery applicants to use in the residency application process. This aligns with previous reports that Instagram is the most used and preferred social media resource by residency applicants^{15,17}. This also aligns with the finding that programs are most likely to be active on Instagram when compared with other platforms^{8,9}. Furthermore, the presence of Instagram has been positively correlated with program ranking to a significant degree¹⁹. Taken together, Instagram seems to be the preferred and most impactful platform for both applicants and programs.

Most of the responding applicants noted that posts focused on social events or resident camaraderie were most helpful. The ability of social media to benefit a program by conveying relationships and conversations within the department to recruit applicants has been reported²⁰. Our results are consistent with previous qualitative reports that social media is effective in

helping a program exhibit its personality and seem more approachable¹⁷. This may suggest that social media offers insight into a program that is less available on a formal residency website. Taken together, our results indicate that efforts directed at Instagram and social event style posts are the highest yield for orthopaedic surgery programs in engaging applicants.

Orthopaedic surgery residency programs should continue to develop and maintain social media presences for the purpose of recruitment. Our data suggest that applicants have come to use Instagram second only to the program's official website to research a program. Yet, as with any investment, there is a cost. Program directors/coordinators should be aware that this can be a large investment of time. Although having a full-time social media coordinator would be ideal, this is likely not realistic for most programs. Appointing a resident to run the program's social media account(s) is likely the most common method, although this has not been previously studied. This may take away from clinical, academic, and personal time, and thus, this should be taken into careful consideration. With all this in mind, we still believe that program-based social media to be a worthwhile investment and tool in the residency recruitment process.

Several limitations should be acknowledged. Our results could have been affected by response bias and depend on truthful reporting by applicants. In addition, applicants may still feel pressured to fill out the survey and do so positively under the notion that it may increase their odds of being offered an interview or matching, despite the optional and anonymous nature of the survey. Despite our large sample size, it does not encompass the complete orthopaedic surgery applicant pool and thus may not be reflective of the entire group. However, we feel that this is a representative sample because nearly half of all orthopaedic applicants during the 2020 to 2021 application cycle were captured and responded to this survey²¹.

Moreover, our respondent's demographic distribution was nearly identical to the Association of American Medical Colleges ERAS Orthopaedic Surgery application demographics²¹.

Conclusion

Social media plays a substantial role in the orthopaedic surgery residency application process, and its use continues to grow. Programs can use it to effectively engage with and inform prospective applicants. The impact of social media is positive on most of the applicants. Instagram is the preferred social media platform used by applicants, followed by Doximity and Twitter. Investing time and resources into a social media presence seems to be a worthwhile pursuit for orthopaedic surgery programs as an important piece to a well-rounded recruitment effort of modern orthopaedic surgery applicants.

Appendix

 Supporting material provided by the authors is posted with the online version of this article as a data supplement at [jbjs.org \(http://links.lww.com/JBJSOA/A384\)](http://links.lww.com/JBJSOA/A384). ■

Joseph C. Brinkman, MD¹
David G. Deckey, MD¹
Sailesh V. Tummala, MD¹
Jeffrey D. Hassebrock, MD¹
Mark J. Spangehl, MD¹
Joshua S. Bingham, MD¹

¹Department of Orthopaedic Surgery, Mayo Clinic Arizona, Phoenix, Arizona

E-mail address for D.G. Deckey: Deckey.David@mayo.edu

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