



A Characterization of Ophthalmology Residency Program Social Media Presence and Activity

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Abstract

Objective To determine the presence and activity of ophthalmology departments associated with residency programs on social media platforms and the use of these social media platforms by residency applicants.

Design Cross-sectional online assessment of ophthalmology training program departments' presence and activity on Facebook, Twitter, and Instagram.

Participants A total of 120 accredited ophthalmology residency training programs and 498 ophthalmology residency applicants.

Methods Each department was evaluated by (1) searching for social media links on the department's Web site, (2) searching for the department on Facebook, Twitter, and Instagram, and (3) searching on Google. A simultaneous survey was conducted to assess social media platform use of 2019 to 2020 ophthalmology residency application cycle candidates.

Main Outcomes The presence of ophthalmology departments on Facebook, Twitter, and Instagram, as well as the total number of followers and posts during January 2020.

Results Of 120 programs evaluated, 45 programs (37.5%) had a Facebook page, 29 (24.3%) were on Twitter, and 22 (18.3%) had an Instagram page. Among top 20 Doximity-ranked ophthalmology programs, 80% had at least one social media page on Facebook, Twitter, or Instagram compared with 33% among the remainder of programs (chi-square test = 15.2, $p < 0.001$). Top 20 programs also had more followers compared with others on Facebook (4,363 vs. 696, respectively, $p < 0.0001$) and Twitter (3,673 vs. 355, respectively, $p = 0.007$) but not on Instagram (1,156 vs. 1,687, respectively, $p = 0.71$). Among 498 residency applicants to Bascom Palmer Eye Institute from the 2019 to 2020 cycle, 159 (31.9%) responded to a survey regarding their use of social media during the application process. In total, 54 (34%) responded that they used social media to evaluate residency programs.

Conclusion Departments of top 20 ophthalmology residency had both a greater presence and following on social media compared with other departments. While Facebook was the most used platform by ophthalmology departments, applicants most commonly used Instagram. As applicants come to use these social media resources more frequently, ophthalmology residency programs may increasingly benefit from maintaining an active social media page.

Keywords

- ▶ social media
- ▶ residency education
- ▶ residency training

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Social media platforms are becoming increasingly popular for both personal and professional use. In 2017, there were 2.48 billion worldwide social media users.¹ Within ophthalmology, social media has been used to market practices, disseminate educational material, track conjunctivitis epidemics, communicate with patients, and connect colleagues.²⁻⁸

Another emerging use of social media across medicine is the marketing of residency training programs.⁹ Ophthalmology training program rankings such as Doximity incorporate “reputation” data when compiling their rankings.¹⁰ The exposure offered by social media platforms may influence training programs’ reputations and rankings. Additionally, many studies have shown that younger health care providers are more likely to use social media,¹¹⁻¹³ and that residency applicants, specifically, utilize social media when evaluating residency programs.¹⁴

Despite the potential importance of social media in affecting the reputation of residency programs, the use of social media by these institutions has not previously been reported. The present study aims to characterize the presence of ophthalmology departments with residency training programs on various social media platforms, as well as trends of use of social media by ophthalmology residency applicants.

Methods

A list of accredited ophthalmology residency programs was obtained from Doximity and cross-referenced with the Accreditation Council for Graduate Medical Education. The social media presence of each department was evaluated by (1) searching for social media links on the program’s Web site, (2) searching on Facebook, Twitter, and Instagram for the name of the program, and (3) multiple Google searches including the name of the program and “Facebook,” “Twitter,” and “Instagram.” The number of followers for each ophthalmology department on Facebook, Twitter, and Instagram was recorded along with the number of posts made during January 2020.

A three-question survey (► **Supplementary Data**) regarding social media use was distributed to the applicants to the Bascom Palmer Eye Institute during the 2019 to 2020 application cycle. Responses were collected from April 17, 2020, to April 24, 2020. Fischer’s exact test was used to compare the rate of social media use between ophthalmology departments. Student’s *t*-test was used to compare the number of followers between programs. Linear regression was used to determine correlations between the number of posts and followers on each platform. Data analysis was performed using Stata/IC 15 (StataCorp, LLC, College Station, TX). A *p*-value of <0.05 was considered statistically significant. The research adhered to the tenets of the Declaration of Helsinki. Research was performed with approval from the Institutional Review Board at the University of Miami.

Results

In total, 120 ophthalmology departments with residency programs were evaluated. Of these, 45 programs (37.5%) had an account on Facebook, 29 (24.3%) were on Twitter, and 22 (18.3%) were on Instagram. Among the departments, 66

(55%) had a link to a Facebook page on their Web site that led to a general hospital or university page, 66 programs (55%) had a link to a general Twitter feed, and 55 (45.8%) had a link to a general institutional Instagram page. Only 17 (14.2%) had a Facebook link on their Web site that led to a departmental-specific page, 14 (11.7%) had a departmental-specific Twitter link, and 6 (5%) had a departmental-specific Instagram link.

Among departments with a page, the average number of followers on Facebook was 1,999.8 (range: 1–10,650; standard deviation [SD]: ± 2,944.2), 1,728 (range: 2–13,600; SD: ± 3,409.1) on Twitter, and 1,397.4 (range: 0–14,900; SD: ± 3,172.9) on Instagram (► **Fig. 1**). The most followed programs are listed in ► **Table 1**. Programs on social media posted a mean of 7.4 times (range: 0–42) on Facebook over the month of January 2020, 12.7 times (range: 0–55) on Twitter, and 4.2 times (range: 0–15) on Instagram. Regression analysis demonstrated a statistically significant correlation between the number of posts on Facebook and number of followers (coefficient 189.8, *p* < 0.001) as well as the

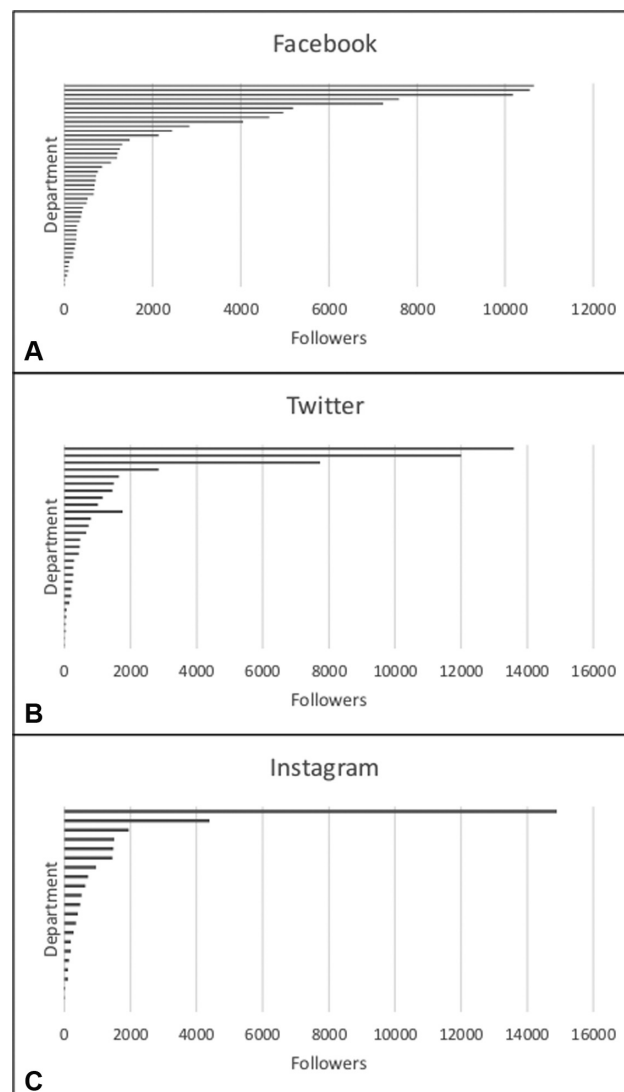


Fig. 1 Range of followers among ophthalmology departments with a social media page on (A) Facebook, (B) Twitter, and (C) Instagram.

Table 1 Top 10 most followed ophthalmology programs on Facebook, Twitter, and Instagram as of January 2020

Facebook		Twitter		Instagram	
Program	Followers	Program	Followers	Program	Followers
Massachusetts Eye and Ear Infirmary/Harvard University	10,650	Wills Eye Hospital/Thomas Jefferson University	13,600	Hamilton Eye Institute/University of Tennessee	14,900
Dean McGee Eye Institute - Oklahoma Health Center	10,561	Massachusetts Eye and Ear Infirmary/Harvard University	12,000	Bascom Palmer Eye Institute/University of Miami	4,390
Duke Eye Center	10,172	Bascom Palmer Eye Institute/University of Miami	7,732	Roski Eye Center/University of Southern California	1,943
New York Eye and Ear Infirmary/Mount Sinai	7,595	Kellogg Eye Center/University of Michigan	2,853	Massachusetts Eye and Ear Infirmary/Harvard University	1,501
Bascom Palmer Eye Institute/University of Miami	7,228	Roski Eye Center/University of Southern California	1,756	Wills Eye Hospital/Thomas Jefferson University	1,473
Kellogg Eye Center/University of Michigan	5,184	Moran Eye Center/University of Utah	1,643	Kellogg Eye Center/University of Michigan	1,450
Wills Eye Hospital/Thomas Jefferson University	4,962	University of Iowa Hospitals and Clinics	1,490	Dean McGee Eye Institute - Oklahoma Health Center	954
Roski Eye Center/University of Southern California	4,652	Hamilton Eye Institute/University of Tennessee	1,447	Moran Eye Center/University of Utah	722
Callahan Eye Hospital/University of Alabama - Birmingham	4,055	Duke Eye Center	1,156	Byers Eye Institute/Stanford University	630
Moran Eye Center/University of Utah	2,841	Byers Eye Institute/Stanford University	1,019	University of Iowa Hospitals and Clinics	512

number of tweets and followers on Twitter (coefficient 141.7, $p < 0.001$). The number of followers on Instagram did not correlate with the number of posts ($p = 0.938$).

Among top 20 ophthalmology training programs on Doximity, 16 (80%) had at least one social media page on either Facebook, Twitter, or Instagram compared with 33 (33%) among the remainder of programs (chi-square test = 15.2, $p < 0.001$). Specifically, among top 20 programs, 16 (80%) had a Facebook page compared with 29 (29%) of the remaining programs (chi-square test = 18.5, $p < 0.001$). For Twitter, 12 (60%) of the top 20 programs had a page compared with 17 (17%) of the remaining programs (chi-square test = 16.8, $p < 0.001$). Finally, 12 (60%) of the top 20 programs had an Instagram page compared with 10 (10%) of the remaining programs (chi-square test = 27.8, $p < 0.001$).

There was also a statistically significant difference in the mean number of Facebook followers among top 20 ranked ophthalmology programs and the remainder of programs (4,363 vs. 696, respectively, $p < 0.0001$) (→ Fig. 2). Top 20 programs also had significantly more Twitter followers compared with the remainder of programs (3,673 vs. 355, respectively, $p = 0.007$). A statistically significant difference in Instagram followers was not seen between top 20 programs and others (1,156 vs. 1,687, respectively, $p = 0.71$). However, when one outlier program (University of Tennessee Hamilton Eye Institute) with 14,900 Instagram followers was removed from analysis, a statistically significant difference was seen

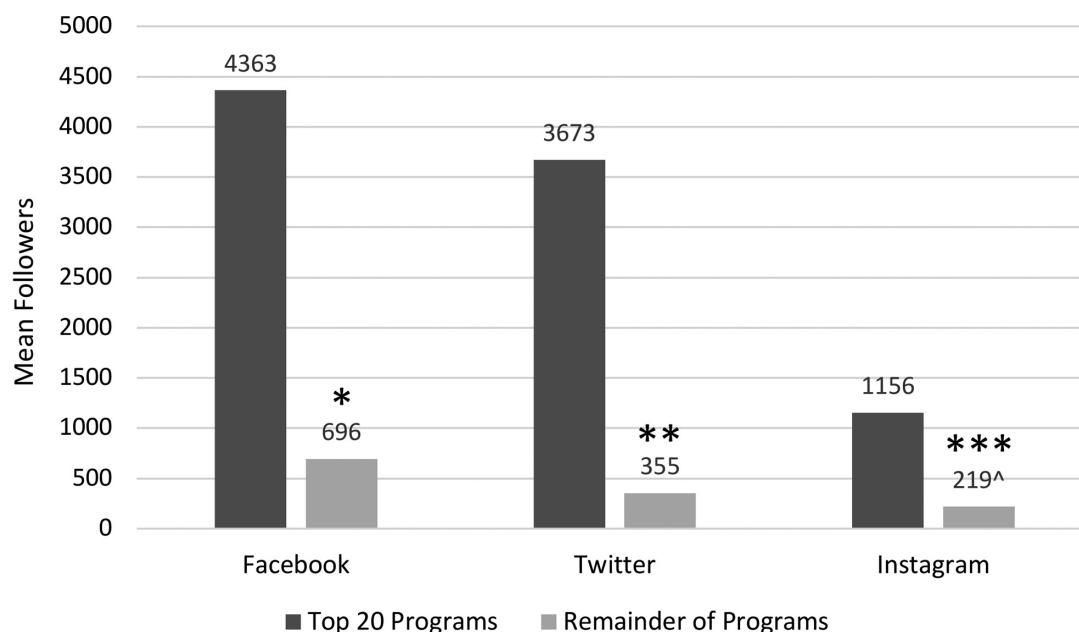
between top 20 programs and others for Instagram as well (1,156 vs. 219 followers, respectively, $p = 0.032$).

In terms of posts during the month of January 2020, on Facebook, top 20 programs posted an average of 13.6 times during the month, while the remainder of programs posted 4 times ($p < 0.001$). On Twitter, the difference between top 20 programs and the remainder was 21.8 versus 6.3 times, respectively ($p = 0.009$). A statistically significant difference in the number of posts was not seen on Instagram between top 20 programs (5.2 posts) and the remainder (3.1) ($p = 0.302$).

Among the 498 residency applicants to the Bascom Palmer Eye Institute from the 2019 to 2020 cycle, 159 (31.9%) responded to a survey regarding their use of social media during the application process. In total, 54 (34%) responded that they used social media to evaluate residency programs. Instagram was the most commonly used (35 users, 64.8%), followed by Facebook (21 users, 38.9%), and Twitter (14 users, 25.9%). Fifteen users (27.8%) indicated they used another social media resource such as Reddit and Student-DoctorNetwork.com.

Discussion

Social media offers a new means of exposure for ophthalmology departments and their affiliated residency programs and may serve as a tool for applicants to evaluate programs. Our study evaluating 120 departments with ophthalmology



[^]One outlier program (University of Tennessee Hamilton Eye Institute) was removed from the calculation as it significantly skewed (higher) the mean followers of programs outside of the top 20.

* $p < 0.0001$ comparing Facebook followers of Top 20 programs and the remainder

** $p < 0.01$ comparing Twitter followers of Top 20 programs and the remainder

*** $p = 0.032$ comparing Instagram followers of Top 20 programs and the remainder

Fig. 2 Followers of ophthalmology programs on Facebook, Twitter, and Instagram.

residency programs represents the most extensive study of departmental social media use to our knowledge.

Our study revealed that ophthalmology departments most commonly used Facebook followed by Twitter and Instagram. The number of followers correlated with the number of posts on Facebook and Twitter but not on Instagram. This finding may be explained by the fact that Instagram also includes “story” posts, which are temporary posts lasting 24 hours that are not permanently recorded. Thus, the number of archived posts on Instagram likely underestimated the true activity of the Instagram pages, influencing the analysis.

A great disparity was found in ophthalmology departments' presence on social media. Top 20 residency programs as ranked by Doximity had greater presence than the remainder of programs on Facebook, Twitter, and Instagram. Additionally, top 20 programs had statistically significantly more followers on Facebook, Twitter, and—after removing one outlier—on Instagram as well. The larger following for departments of top 20 residency programs on social media is likely due to a combination of several factors. First, on Facebook and Twitter, top 20 programs were found to post more frequently than the remainder of programs. This likely influenced the number of followers as regression analysis demonstrated that the number of followers on these platforms correlated with the number of posts. Additionally, the label as a top residency program may

drive people to these programs' departmental social media pages. Finally, top 20 residency programs may have access to greater funding or resources to establish and maintain social media pages. Given that program rankings in part depend on reputation, more prominent social media pages may lead to greater exposure and higher reputational scores on program ranking surveys.

Our study also evaluated the use of these social media pages by ophthalmology residency applicants. Given the high rates of social media use among medical students, residency training program's social media pages offer a new avenue of communication with potential applicants.¹⁵ While many prior studies have evaluated residency program Web sites, sparse literature exists focusing specifically on programs' departmental social media presence.^{16,17} Much of the existing literature examining social media use surrounding residency education focuses on internal medicine and anesthesia.¹⁸ In one review of 29 studies examining the use of social media in graduate medical education, most (13, 44.8%) examined the effects of these platforms on resident education.¹⁸ Many studies evaluating social media use in resident recruitment focused on program director reviews of applicants' social media rather than program accounts.¹⁸

In our survey of ophthalmology residency applicants, approximately one-third indicated that they had viewed at least one departmental social media page. In a study by

McHugh et al evaluating the role of social media in the anesthesia residency application process, nearly half of the survey respondents had viewed the author's residency program on Facebook page.¹⁴ As social media use increases, the proportion of applicants using social media to evaluate programs will likely continue to rise.

Interestingly, while Facebook was the most widely used social media platform by ophthalmology departments, applicants in our survey most commonly visited programs' Instagram pages. Meanwhile, fewer departments had an Instagram presence compared with Facebook and Twitter. The reason for the greater use of Facebook by departments may be that Facebook offers an interface more closely resembling a traditional web page more familiar to and less time intensive to maintain for administrators. Additionally, of these three platforms, Facebook was founded first. Meanwhile, Instagram is the newest of the three platforms and focuses on posts or temporary "stories" based largely on images.

Limitations of this study include the evaluation of account activity for the month of January 2020 only. A single month may lead to a sampling bias and misrepresent activity. However, given that the ophthalmology match falls during the month of January, we felt that if programs were to be active on social media, they would do so during this month. An additional review of individual departmental resources allocated for social media accounts would also help clarify whether top 20 programs invest more resources into social media accounts or whether their higher following is due to their institution's broader reputation. Finally, there are several other platforms that we did not evaluate that are also being used by residents such as StudentDoctor. However, despite these limitations, the study offers important insights into the use of social media by ophthalmology departments.

Conclusion

In summary, our study of ophthalmology residency departments' social media use offers several important insights. There was a disparity between programs in their use of social media. Top 20 ranked ophthalmology residency programs were more likely to have a social media page across all platforms. Additionally, top 20 programs had greater followings and activity on Facebook and Twitter. Our survey of residency applicants demonstrated that these social media pages are visited by at least one-third of applicants. Though departments were most likely to have a Facebook page, Instagram was the most popular site with applicants. As applicants come to use these social media resources more frequently, ophthalmology residency programs may increasingly benefit from maintaining an active social media page.

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Conflict of Interest

J. S. reports personal fees from Alcon, Alimera, Regeneron, and Oxurion, outside the submitted work.

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