The Laryngoscope

Otolaryngology Residency Programs' Rising Social Media Presence During the COVID-19 Pandemic

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INTRODUCTION

This year, the otolaryngology residency applicants are facing unprecedented pandemic-caused challenges such as the cancellation of most sub-internship rotations and in-person interviews,[1–3] and programs are instead promoting virtual townhalls/meet-and-greets and online sub-internships.[4–7] This has also warranted programs to strengthen their online reach through social media, especially Instagram and Twitter.

This rapid communication investigated otolaryngology residency departments' Instagram/Twitter activities and contents. Institutional Review Board approval was not required due to data's publicly accessible nature. All U.S. otolaryngology programs (excluding Military/Osteopathic and official department accounts with no mentions of residents/residency programs) were queried on Instagram and Twitter. All online posts (excluding Instagram stories) during January–August 2020 were evaluated on 8/26/2020–9/5/2020 and thematically categorized.

DISCUSSION

Of the 105 otolaryngology programs meeting inclusion criteria, 81 (77.1%) were either on Instagram (n = 67) or Twitter (n = 40). Program size (P = .33) and geography (P = .80) did not predict social media presence. Forty-five (67.2%) of the Instagram accounts did not exist before March 2020 (timeline corresponding to COVID-19's U.S. expansion) and 37 accounts (55.2%) were started recently between June and August. This contrasts with Twitter where most programs (80.0%) already had a presence before March 2020. On independent t-test analysis, total posts increased from January to April versus May to August in both Instagram (5.5 ± 12.6 vs. 22.2 ± 18.3 posts, $P < .01$) and Twitter (36.8 ± 47.0 vs. 44.9 ± 63.5 posts, $P < .01$); these were also statistically significant on paired t-test analysis only including pages that existed in both timelines (both $P < .01$). The significant temporal increase in programs' social media presence/activity and user-engagements (likes/comments) is further depicted in Supporting Figure 1. Averaged user-engagement also significantly increased from January to April versus May to August in both Instagram (44.1 ± 20.9 vs. 56.7 ± 20.5 likes/comments-per-post, $P < .01$) and Twitter (5.9 ± 4.0 vs. 8.1 ± 4.7 likes/retweets-per-post, $P < .01$), suggesting a reciprocating increase in viewer/applicant interest.

Larger-sized programs (>15 residents) had significantly more Instagram followers (785.7 ± 365.1 vs. 576.4 ± 274.0, $P < .01$) and posts (27.7 ± 35.8 vs. 11.6 ± 13.6, P = .01), partly due to having more members and alumni to follow their accounts. Program size did not associate with Twitter followers and frequency of posting (all $P > .05$), which can be due to its more established and seasoned nature. Instagram user-engagement positively correlated with number of followers (R = 0.53, $P < .01$) but not with frequency of posting (P = .73); Twitter user-engagement did not correlate with either (P = .33 and P = .43, respectively). Programs with the highest user-engagement were Michigan and Columbia/Cornell (Twitter) and Georgetown and Ohio State (Instagram). Hashtags are another important tool for recruitment and encouraging social media engagement.[8] The most common hashtags used by Twitter/Instagram accounts are demonstrated in Supporting Table 1. Although no significant correlations were identified between overall hashtag use and engagement ($P > .05$), future studies are warranted to evaluate the influence of each individual hashtag on recruitment/engagement.

The online posts were thematically categorized in Figure 1A. Compared to Twitter, a significantly lower proportion of Instagram posts were about research or education/advocacy, while a significantly higher proportion showed elements of OR/Clinic, attending/resident highlights, and hobbies/life (all $P < .05$). This is likely because of the different formats of the two platforms (textual vs. visual). Posts during August-2020 were compared for user-engagement per content category (Fig. 1B-C) demonstrating significantly different engagement between certain contents. Twenty-six (65.0%) of the Twitter accounts and 35 (52.2%) of the Instagram accounts posted promotional posts about virtual townhalls/meet-and-greets/happy-hours/sub-internships, with better

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Additional supporting information may be found in the online version of this article.

Editor's Note: This Manuscript was accepted for publication on November 17, 2020. The authors have no funding, financial relationships, or conflicts of interest to disclose.

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DOI: 10.1002/lary.29299

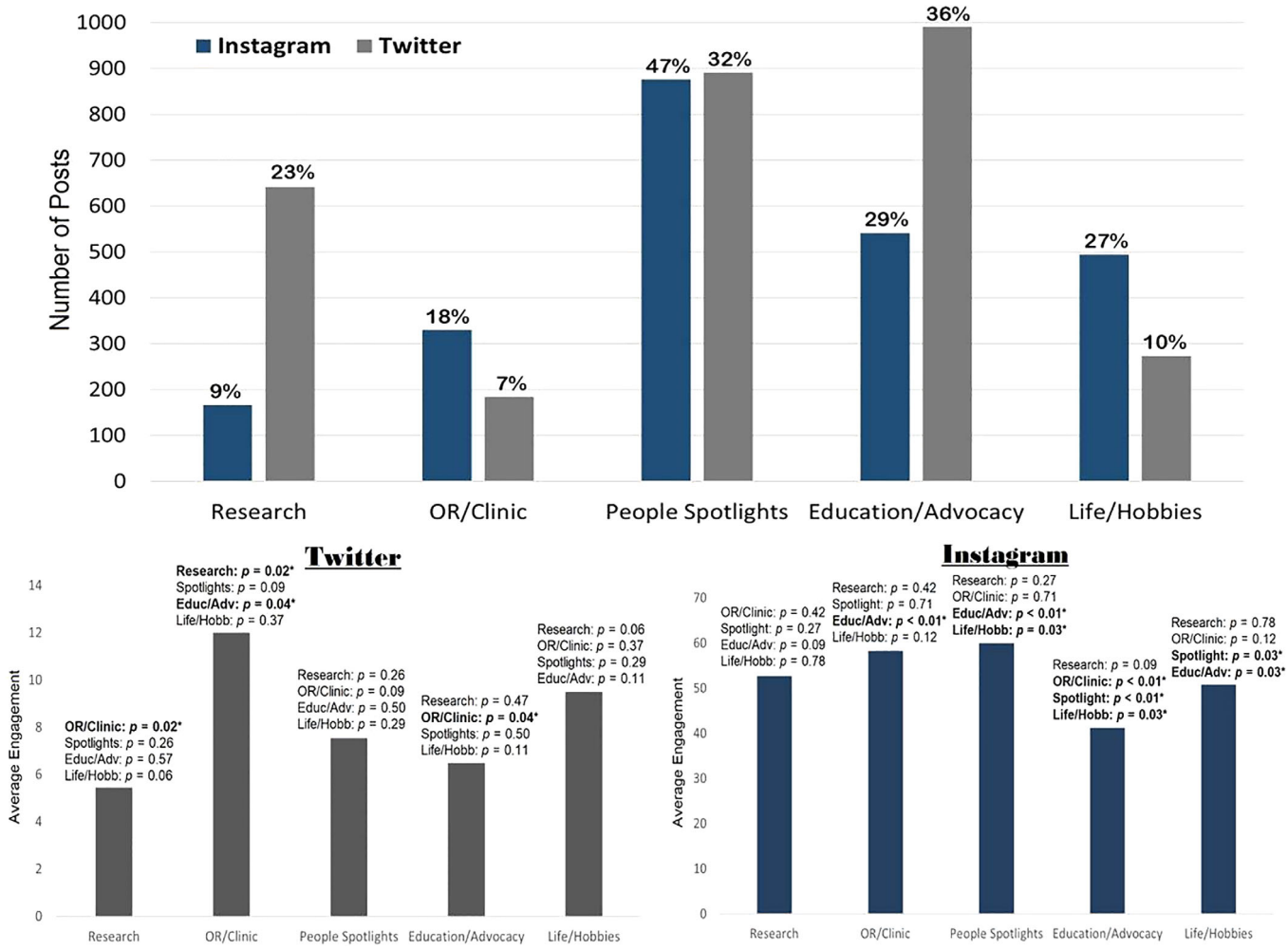

Fig. 1. Thematic analysis of otolaryngology programs' Instagram and Twitter contents (A) during January to Augusts 2020 (percentages reflecting the proportion of total number of posts: Instagram N = 1856, Twitter N = 2742) and (B-C) analytic comparison of user engagement per category for August 2020 posts (Likes/Comments for Instagram and Likes/Retweets for Twitter), analyzed via Fishers Least Significant Difference (LSD) of ANOVA. *P*-values for such analyses comparing each category to all other categories are demonstrated above the columns, for instance, Twitter posts about research had significantly less engagement than posts about OR/Clinic ($P = .02$). Of note, each post could contain multiple themes (e.g., highlighting a resident's recent research).

relative engagement compared to overall May–August posts on Twitter ($P < .01$) but lower relative engagement on Instagram ($P < .01$).

To our knowledge, this is the first study to demonstrate the strong influence of COVID-19 on the residency departments' social media activities. This is likely influenced by programs' effort to provide information (e.g., resident success/wellness, program culture, city/hospital highlights) that could usually be highlighted during in-person interactions in past years. Moreover, witnessing other programs increase their online participation (i.e., group pressure) during the pandemic could also play a role in these results. We observed that the accelerated social media presence was met with reciprocating increased user engagement, as the applicants are also trying to learn more about the training programs and make educated decisions.

Prior to COVID-19, programs across all specialties were slowly adopting a social media profile,[9–12] which has rapidly expanded in recent months. Matching into otolaryngology has been a volatile and multi-faceted process,[13–15] now facing COVID-19's ramifications as an unexpected change. Although some of the demonstrated statistical significances may not equate to social media significance or necessarily translate into change in applicants' interest level, it is clear that social media use is on the rise due to the pandemic allowing the applicants to virtually learn about various programs. Continued studies to examine ways through which applicants and training programs are countervailing the pandemic-caused barriers through virtual means, including other online outlets (e.g., Facebook and Otomatch), are warranted.

CONCLUSION

COVID-19 has caused a significant increase in the social media presence and activity of otolaryngology residency departments with reciprocating increases in user

engagement. These accounts are mainly posting about attending/resident spotlights, education/advocacy topics, research, and lifestyle/hobbies, with different respective user-engagements, to reach potential residency candidates.

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