

Analyzing the growth in social media proliferation in academic urology: Associations between program ranking and social media footprint

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INTRODUCTION

Social media (SM) platforms are being increasingly utilized by academic urology departments for promoting their residency programs and for connecting with prospective applicants.^[1] The use of SM in academic urology has garnered significant interest in light of the COVID-19 pandemic, which had resulted in the cancelation of away rotations, in-person interviews, and other events for prospective applicants.^[2] Due to travel restrictions and the need to limit COVID-19 exposure, many applicants in the most recent residency application cycle were unable to meet with faculty face to face, making SM an important avenue by which institutions could connect with applicants and host virtual events.^[3, 4]

Given the unpredictable future of the COVID-19 pandemic and its effects on future residency application cycles, it is important to understand how academic urology departments are responding by expanding their use of SM. We aimed to describe the growth in SM use by academic urology programs over time. Additionally, we explored differences in SM use between higher and lower ranked programs. Previous urologic literature has focused on the utilization of Twitter, noting increased activity in a modern timeframe and correlations with academic productivity and program ranking.^[5-7] With the knowledge that Twitter use by urology departments has increased since the onset of COVID-19, we sought to expand upon these findings by describing the presence of urology programs on additional SM platforms including the four most popular SM platforms (Twitter, Facebook, Instagram, and YouTube).

METHODS

We identified departmental Twitter, Facebook, Instagram, and YouTube accounts for each U.S. accredited academic urology program. We collected engagement metrics from each SM platform, including total number of posts, likes, views, comments, and followers. Doximity Residency Navigator (Doximity) reputation rankings for each urology program were recorded. Doximity is a widely used ranking system for residency programs of many different specialties, and is cited as a significant source of information by the majority of U.S. medical students when preparing their residency rank lists.^[8] Doximity rankings are derived from nomination survey responses of board-certified urologists. The results of the past three years of nomination surveys, weighted to account for alumni and the size of the program, are pooled in order to calculate ranking.

For evaluations between programs, departments were stratified into quartiles based on their rankings and compared between groups. For our bivariate comparisons, we used Student's t-test for normally distributed continuous variables, Mann-Whitney U test for non-normally distributed continuous variables, and chi-squared testing for proportions. Multivariate linear regression was calculated to test whether individual SM platforms were independently associated with higher program rankings.

RESULTS

Among the 145 U.S. urology residency programs, 128 programs (88%) utilized at least 1 SM platform. The most commonly used platform was Twitter (86% of programs having an account), followed by Instagram (39%), Facebook (34%), and YouTube (26%). In total, 268 SM accounts are operated by the 145 academic urology departments. Of these 268 accounts, 119 (44%) were created since the beginning of the COVID-19 pandemic (Figure 1). The year 2020 represented the single largest increase in Twitter, Instagram, and YouTube account creation since 2009. The overall utilization of all SM platforms among academic urology programs is described in Table 1.

When evaluating the association between program ranking and SM use, we found that urology departments with higher program rankings were more active on SM and significantly more likely to operate Twitter ($p<0.01$), Facebook ($p<0.01$), Instagram ($p<0.01$), and YouTube ($p=0.01$) accounts. Among SM platforms, we found that Twitter was the most associated with higher program ranking. Our multivariate linear regression model identified programs with a Twitter account as being ranked on average +27.4 (95% CI 8.0-46.8) spots higher on Doximity than programs without a Twitter account.

Regarding SM engagement, we found that higher ranked programs had more Twitter followers ($p<0.01$), more total Tweets ($p<0.01$), and more average Tweets per day ($p<0.01$) than lower ranked programs. Additionally, higher ranked programs had more total followers on Instagram ($p=0.02$) and more total views on YouTube ($p<0.01$). No significant differences were detected in Facebook use among higher and lower ranked programs (Table 2).

DISCUSSION

The use of SM among academic urology programs has several benefits. For example, the way that residency programs promote themselves on SM has been found to be an important contributing factor for prospective medical student applicants when constructing their rank lists.^[9] Factors which are commonly cited as being the most important to modern urology applicants include diversity of faculty, research, program culture/collegiality, and surgical training.^[10] SM can be an effective tool for promoting these key features of a program.

A key finding of our work was the association between SM use and program rankings. Higher ranked urology residency programs are more active on SM compared with lower ranked programs. Additionally, we found that Twitter use was the most significantly associated with higher program ranking. This is an important observation as program rankings are cited as a significant consideration by medical students when creating their residency rank lists.^[8] Although Twitter use was independently the most associated with higher program ranking within our model, we observed similar associations with Instagram, Facebook, and YouTube engagement. This suggests that further expansion into platforms other than Twitter may also serve an important role in improving how urology departments may be viewed by their peers.

Our comprehensive analysis demonstrates a rapid expansion in the use of SM among urology residency programs in response to the COVID-19 pandemic. The use of SM has provided an easy and effective platform to share information, host virtual open houses, and connect with applicants.^[3] In addition to the rise of departmental SM use, urology applicants also saw a rise in their professional use of SM to connect with faculty, learn about programs, and become informed about events.^[9] A recent survey found that both urology program directors and applicants felt that SM played an important role in the most recent application cycle.^[1]

The impact of the COVID-19 pandemic on future residency application cycles continues to remain unclear. Given the effective transition to virtual engagement in response to the COVID-19 pandemic, it is likely that the use of these SM platforms will continue beyond the COVID-19 era, and will continue to serve as an important avenue by which faculty can connect with applicants, colleagues, and the overall general population.

One possible limitation of our study methodology was that we did not evaluate the content of SM posts and thus we are unable to determine how departments are utilizing their SM accounts, such as for academic or recruitment purposes, and who they are attempting target. Additionally, although Twitter use is independently associated with ranking, this relationship may also be due to confounding variables such as program size and funding.

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Figures and Tables

Figure 1. Total number of new Twitter, Facebook, Instagram, and YouTube accounts created by United States urology residency departments from 2008–2020.

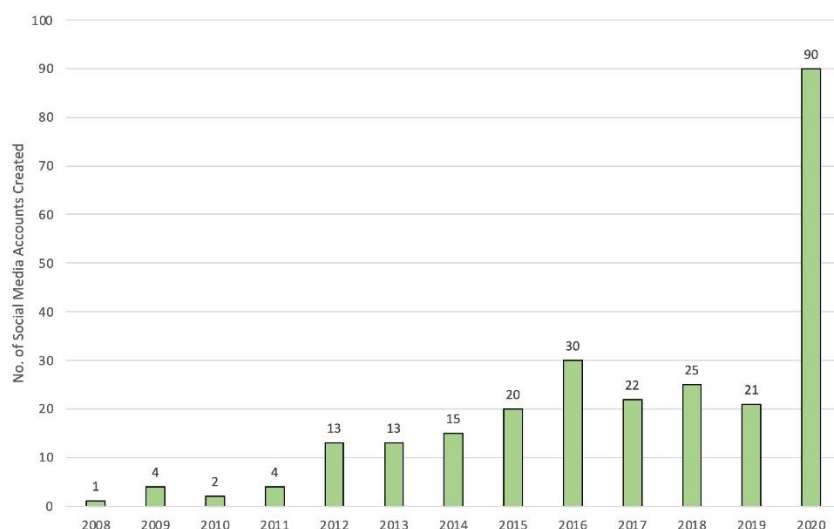


Table 1. Overall social media use among U.S. academic urology residency programs	
	Values (n=145)
Overall social media use, n (%)	
Twitter account	124 (86%)
Facebook account	50 (34%)
Instagram account	57 (39%)
YouTube account	37 (26%)
No. of accounts, median (IQR)	2.0 (2.0)
Account-specific variables	
Twitter, median (IQR)	
No. of followers	1121.5 (1198.5)
No. of tweets	323.0 (717.8)
Tweets per day	0.2 (0.4)
Facebook, median (IQR)	
No. of followers	198.5 (545.5)
No. of likes	223.0 (531.5)
Instagram, median (IQR)	
No. of followers	590.0 (293.0)
No. of posts	41.0 (58.5)
Posts per year	28.7 (32.8)
YouTube, median (IQR)	
No. of subscribers	15.0 (145.5)
No. of views	1900.0 (22200.5)
No. of uploads	10.0 (24.5)
Uploads per year	4.0 (10.1)

Categorical data are presented as frequency, n (%). Continuous data are presented as median (IQR). IQR: interquartile range.

Table 2. Social media use among urology residency programs stratified by Doximity Navigator reputation ranking

	1 st Quartile (n=37)	2 nd Quartile (n=36)	3 rd Quartile (n=36)	4 th Quartile (n=36)	p for trend across groups
Overall social media use, n (%)					
Twitter account	36 (97)	31 (86)	33 (92)	24 (33)	<0.01*
Facebook account	22 (59)	8 (22)	11 (31)	9 (25)	<0.01*
Instagram account	20 (54)	15 (42)	16 (44)	6 (17)	<0.01*
YouTube account	15 (41)	11 (31)	4 (11)	7 (19)	0.01*
No. of accounts, mean (SD)	2.5 (1.1)	1.8 (1.2)	1.8 (1.0)	1.3 (0.9)	0.56
Account-specific variables					
Twitter, median (IQR)					
No. of followers	2014 (1807)	1274 (966)	879 (722)	726 (593)	<0.01*
No. of tweets	916 (1466)	339 (750)	187 (417)	46 (131)	<0.01*
Tweets per day	0.5 (0.6)	0.2 (0.3)	0.1 (0.2)	0.1 (0.1)	<0.01*
Facebook, mean (SD)					
No. of followers	110 (589)	412 (530)	249 (683)	146 (186)	0.73
No. of likes	106 (542)	395 (525)	260 (627)	147 (212)	0.74
Instagram, median (IQR)					
No. of followers	746 (440)	661 (226)	592 (145)	379 (235)	0.02*
No. of posts	40 (52)	42 (50)	49 (73)	35 (45)	0.72
Posts per year	28 (27)	30 (8)	36 (43)	20 (10)	0.88
YouTube, median (IQR)					
No. of subscribers	111 (255)	10 (19)	398 (931)	4 (16)	0.06
No. of views	18664 (34662)	914 (3167)	7448 (18101)	293 (827)	<0.01*
No. of uploads	18 (24)	8 (51)	20 (145)	3 (11)	0.06
Uploads per year	5 (8)	5 (17)	2 (91)	2 (13)	0.54

*Statistically significant. IQR: interquartile range.