Global Pandemic and PRS Residency Match: Can Social Media Fill the Void?

Sofia Duque, BA; Vincent Riccelli, MD; Sydney Mulqueen, BS; and Andrew Y. Zhang, MD

From the Department of Plastic Surgery, University of Texas Southwestern Medical Center, Dallas, TX.

Corresponding Author: Dr Andrew Y. Zhang, Department of Plastic Surgery, UT Southwestern Medical Center, 4th floor, 1801 Inwood Rd., Dallas, TX 75390, USA.
E-mail: Andrew.Zhang@UTSouthwestern.edu

Disclosures: The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding: The authors received no financial support for the research, authorship, and publication of this article.

Abstract

Background: The type of content that influences plastic and reconstructive surgery (PRS) residency program selection and attracts applicants is everchanging and not clearly understood. Further, the COVID-19 pandemic had a major impact on residency selection that is undetermined.

Objectives: The purpose of this study was to determine to what degree and the type of PRS SM content that drives prospective applicants' interest of a residency program, especially in the context of COVID-19.

Methods: Prospective PRS residency applicants were surveyed anonymously.

Results: An average of 60% of respondents reported that PRS social media (SM) content influenced their perception of a program. Fifty-eight percent reported that resident lifestyle content made them gain interest in a program. Separately, 32% reported that resident lifestyle content influenced them to rank a program higher. Seventy-two percent of respondents claimed SM content did not make them lose interest in a program. Rarely posting, outdated content, and lack of engagement were cited as factors for loss of interest in a program. A majority of respondents (53%) reported wanting to see more resident life and culture content on SM. Of the existing PRS SM content, respondents were most interested in resident lifestyle, followed by clinical and program-specific content.

Conclusions: The COVID-19 pandemic amplified the importance of SM PRS residency selection. Resident lifestyle content was consistently indicated as more likely to make respondents gain interest in a program, rank a program higher, and as the most desired content. PRS programs will benefit from highlighting resident camaraderie, quality of life, hobbies, and lifestyle to attract applicants.

Plastic and reconstructive surgery (PRS) residency programs use several methods to attract prospective applicants and display their distinguishing features. Residency program websites, the Fellowship and Residency Electronic Interactive Database Access (FREIDA), visiting student clerkships, faculty mentorship, and faculty and resident outreach are among many modern methods in the residency recruitment toolbox.[1,2] Social media (SM) recently emerged as an additional tool for recruitment and for program marketing.[3–6] SM has become a powerful, even necessary, strategy since the COVID-19 pandemic forced residency-applicant engagement online.[7]

The influence of SM on academic PRS is growing. Over half of academic PRS programs[3] have Instagram (Menlo Park, CA) accounts, and the number of academic PRS programs with SM accounts has grown exponentially since 2015.[4] PRS program websites have been found by applicants to be, at best, "moderately" useful in informing them about programs. Based on recent trends, one would expect the role of SM to expand to fill this void, but the precise influence of SM on applicants in this cycle is unknown. As a result of the COVID-19 pandemic, and cancellation of away rotations and in-person interviews for the 2020-2021 application cycle, applicants and PRS programs were forced to connect virtually to find a satisfactory match.

The factors that applicants find most attractive in a PRS program have been well-studied. Multiple authors have highlighted the importance of impressions made at interviews, and experiences on away rotations, as crucial to applicants and programs determining the best fit for each other.[8,9] The content applicants find most useful on PRS program websites has been documented.[10–13] The use of social media by applicants, programs, and trainees has been extensively studied,[14] but to date no study has evaluated what features of a PRS program applicants find favorable on SM in the COVID-19 cycle. The 2020-2021 prospective applicant cohort presents a unique opportunity to study the influence of SM on applicants' perceptions of programs, as its effect is likely magnified in the absence of away rotations and in-person interviews.

The purpose of this study was to determine what factors prospective PRS applicants find most important in SM content from PRS programs. Understanding this medium of communication can provide information for PRS program directors to attract more applicants and potentially gain higher applicant rank; on the other hand, when content is tailored to applicant desires, applicants can gain an intimate view of the program and have more clarity in their ranking decision.

METHODS

After institutional board approval, an anonymous, cross-sectional survey was distributed to medical students interested in and applying to PRS residency. Respondents primarily came from our institution's PRS-interest electronic mailing list and targeted online crowdsourcing.

Our institution's PRS-interest electronic mailing list was created for students who wish to receive information about the program, research opportunities, and upcoming events. Sign-up was voluntary.

Targeted online crowdsourcing included posting on the official 2020-2021 PRS applicant google spreadsheet. This is an online spreadsheet used by current and prospective PRS residency applicants to share and obtain anecdotal information about programs, ask questions, and discuss personal experiences.

The link to the online survey was distributed on three different dates. Each distribution included an email to the PRS-interest electronic mailing list and a crowdsourcing post on the PRS applicant google spreadsheet. Responses were accepted from October 1, 2020 to January 5, 2020. The survey was open during this timeframe to minimize bias from residency interviews, which were conducted starting December 2020.

Participants were not asked to name specific programs or SM accounts in this study. This was deliberate to ensure respondents would not be concerned about possible repercussions for the Match if they named specific programs in their responses. Our goal was to ensure responses were as unfiltered and truthful as possible, therefore anonymity on both sides was essential. Eligible respondents included current medical students interested in PRS. The survey was programmed to automatically close for those who did not meet these criteria.

Online Survey

The online survey was designed using a secure electronic data storage and distribution platform (REDCap, Vanderbilt University, Nashville, TN). It was distributed as an anonymous, twenty-six question instrument (Appendix, available online at www.aestheticsurgeryjournal.com). It was reviewed and approved by a department statistician.

The survey asked about demographic data, use of social media, and use of online sources. It also asked questions about the preferred PRS program social media content, content that made respondents gain or lose interest in programs, and the impact of the COVID-19 pandemic on ability to make decisions about residency programs. The questions included various formats including free response, multiple choice, Likert scale, and checkboxes.

Data Analysis

Data analysis was both descriptive and comparative. Nominal variables were described using percentages and frequencies. Ordinal and continuous variables were described using medians and percentages. Data analysis was conducted using SPSS Version 27.0 (IBM Corp., Armonk, N.Y.).

RESULTS

Fifty-three respondents completed the survey, resulting in a 30% response rate. All respondents were medical students, with 79% applying in the current cycle. The majority of respondents identified as female (60%) and were ages 25-27 (59%) (Table 1).

Top Resources for Researching PRS Residencies

Medical students use a wide spectrum of resources to obtain information about PRS residency programs.[3,10,11,15] The COVID-19 pandemic shifted the typical resources used to find this information. A majority of respondents selected program SM, program website, online meet and greets, PRS applicant google spreadsheet, home-program faculty, and PRS professional societies when asked what resources they currently use to research PRS programs (Figure 1). The three resources ranked as "most useful" for obtaining PRS residency information were program website, social media page, and meet and greets, in order (Figure 1).

Social Media Use by Prospective PRS Residency Applicants

One hundred percent of respondents reported using SM for general purposes. A majority of respondents (85%) reported using SM specifically to find information about PRS residency programs. Instagram was the most-used social media platform (94%), followed by Facebook (Menlo Park, CA) (77%), Twitter (San Francisco, CA) (38%), YouTube (San Bruno, CA) (30%), Reddit (San Francisco, CA) (26%), and LinkedIn (Sunnyvale, CA) (21%) (Figure 2).

Ninety-four percent of respondents followed at least one PRS program on Instagram, compared to 23% who followed at least one program on Twitter and 9% who followed at least one program on Facebook. The average number of PRS programs followed varied by SM platform (Table 2). The highest average number of PRS programs followed (30) corresponded to Instagram, compared to 8 and 5 on Twitter and Facebook, respectively. The majority of respondents (57%) spent between 1 and 2 hours daily on SM, with an average of 2 hours among all respondents (Figure 3). Respondents spent an average of 32% of their total SM time on PRS social media (Figure 3).

Social Media Content That Matters

Although many programs had social media pages prior to the pandemic, it is not known what content attracts, disinterests, or is desired by students. An average of 60% of respondents reported that PRS SM content influenced their perception of a program either positively or negatively. Fifty-eight percent reported that resident lifestyle content made them gain interest in a program. Separately, 32% reported that resident lifestyle content influenced them to rank a program higher. Seventy-two percent of respondents claimed SM content did not make them lose interest in a program. Rarely posting, outdated content, and lack of engagement were cited as factors for loss of interest in a program.

When asked to rank what aspects of a residency program they are looking for specifically through SM, the majority of respondents (53%) wrote-in "resident life and culture." This was followed by "program-specific information" and "clinical content." When asked to rank three categories of PRS SM content (clinical, program-specific distinction, and resident lifestyle), resident lifestyle was the most popular followed by clinical and program-specific content.

Impact of COVID-19 on PRS Residency Programs

The PRS residency selection process relies on visiting student clerkships and in-person interviews. Because of the loss of these in-person opportunities, respondents were asked to rank PRS residency programming and virtual meetings to evaluate which types of programming filled the gap in the absence of in-person activities. The scale was from 1 to 5, with 1 signifying "made no difference" and 5 signifying "equivalent to an in-person experience." Home program faculty earned the highest mean ranking (4.2), followed by residents (4), and meet and greets (3.8) (Figure 4). Other categories with rankings above 3 included social media, PRS societies, program website, and PRS applicant google spreadsheet.

When asked what virtual programming (either on SM or any other medium) respondents want to see, the top three categories were "virtual meet and greets," "resident-applicant engagement opportunities," and "resident training curriculum information." These were followed by "program-specific information," "clinical and educational opportunities for applicants," and "resident life and culture information."

Respondents were asked to rank the negative impact of COVID-19 on their PRS program selection on a scale of 1 to 5, with increasing severity of negative impact. A score of 3 was the mean ranking, which reflects "moderate negative impact." Forty-seven percent of respondents indicated that they intend to apply to more programs than they otherwise would due to COVID-19. The majority of those who said they will not apply to more programs stated that they originally planned to apply to all programs even before the pandemic.

DISCUSSION

Historically, away rotations and in-person interviews have played a dominant role in the PRS residency Match.[9] In past Match cycles, almost 50% of applicants matched at either their home program or a program at which they did an away rotation, and program directors have reported that strong away rotation performance is the most important selection criteria for applicants.[16] Applicants use away rotations to inform their decision on which PRS program is the "best fit" for them, and to improve their chances at matching at their program of choice. Away rotations left a gap which is being filled by SM and online programming.

In the last four years, the percentage of residency programs with active Instagram accounts grew from 21%[4] to 85%.[5] Among medical students, use of SM is almost ubiquitous; studies from 2012 and 2013 report that more than 90% of medical students have at least 1 type of SM account.[17,18] In our study, 100% of respondents reported SM use. The current literature evaluates the use of SM among medical students and PRS programs prior to the COVID-19 pandemic.[3–5] The need for virtual interaction created by the pandemic during the 2020-2021 application cycle creates impetus to study the new role of SM in PRS program selection.

One year after Chandawarkar et al. found that only 21% of integrated PRS residency programs had active Instagram accounts,[4] Azoury et al. reported that the number more than doubled to 57%.[3] In May 2020, 85% of PRS training programs had Instagram accounts.[5] The low usage of SM platforms and infrequent updates by PRS programs prior to the pandemic would make it difficult for any applicant to rely on SM to learn about programs. In Irwin et al.'s study prior to the pandemic, only 20% of PRS residency applicants reported that SM accounts influenced their perception of a program. SM was ranked as the "least useful" resource for learning about a program.[15]

Our study shows that the role of SM in the PRS residency Match has significantly increased during the COVID-19 pandemic. Eighty-five percent of respondents reported using SM to learn about PRS programs, making it the most frequently used source of information among all respondents. When respondents were asked what their "most used" source was, SM was second only to PRS program websites in influence. Compared with 20% prior to the pandemic,[15] an average of 60% of respondents reported that PRS program SM made them gain or lose interest in a program. The influence of PRS program SM on applicants' decisions in the Match has increased in the absence of away rotations. SM provides a window into programs that allows students to make decisions about applying to and ranking certain programs. Further study is needed to determine if this level of influence will persist once away rotations are reinstated.

The secondary aim of this study was to ascertain what SM content applicants find most appealing. The majority of respondents (53%) reported that the content they looked for on PRS program SM accounts was content related to resident lifestyle and culture. Over one-third of those surveyed reported that content related to resident lifestyle influenced them to rank a program higher, while 58% stated this content made them gain interest in a program. After coding of free text responses, the most common responses to the question "List the top three aspects of a PRS program you are looking for specifically through social media" were "resident life and culture," "program-specific information," and "resident training curriculum." This finding mirrors those of studies from prior to the pandemic. A survey of medical students applying to the University of Toronto PRS residency program in 2019 found that the two most important factors to applicants on away rotations were the overall impressions of "collegiality and relationship between residents and staff" and the "happiness of the residents" at the program.[16] Another study in newly-matched PRS applicants from 2012-2013 found that the most positive factor influencing a program ranking was resident happiness, followed by operative volume, faculty mentorship and research. The most negative influence on program ranking in that study was perception of a program as "malignant".[19] These findings suggest that the importance of resident lifestyle and culture in PRS applicants' decisions to rank programs has not changed. However, as a result of the COVID-19 pandemic, the avenues by which applicants obtain this information has been drastically altered. This signals a major shift in the pre-Match exchange of information between applicants and programs.

From the PRS program perspective, the ability to tailor SM content to fit what prospective applicants are looking for presents additional opportunities for programs to attract the applicants they deem to be the best fit for them. By advertising desirable content on SM, programs can attract more applicants and increase their likelihood of a successful match. The potential benefit to applicants is the ability to screen a large number of programs for features they find desirable with relative ease, increasing the likelihood that they find the "best fit" for them. Although 72% of respondents stated that PRS SM content did not make them lose interest or rank a program lower, one respondent stated that "it is unfortunate to see programs focusing only on the academic aspect of the program via social media, because they completely miss the mark on letting students get to know the people within the program," while another stated "some programs very rarely post, not really a negative, but makes it impossible to learn more about the program." SM posts about resident life and culture and frequent posting in general are likely to have a positive, rather than negative, outcome in terms of attracting applicants.

Medical students and PRS programs using SM as a resource to formulate their rank lists should exercise caution. As Irwin et al. cited from their survey responses, "social media portrays only the best aspects of anything and can thus give a falsely grandiose appearance."[15] If the most important factor to applicants' decision-making is something as subjective as resident lifestyle and culture, reliance on SM for this information can potentially be misleading. Maintaining resident wellness across a program is a challenge for all residency programs, regardless of specialty. Depicting resident wellness and happiness on a social media account is relatively easy. This creates the opportunity for applicants to be misled about the culture of a given residency program if they rely too heavily on SM for their information. Overreliance on SM for information about resident lifestyle could lead to increased dissatisfaction with match outcomes on both the program and applicant side. Applicants should be encouraged to use SM as a platform to network with current residents and faculty to gain more information about a program rather than simply relying on what programs post on their SM accounts. The effect of the influence of SM on Match outcome satisfaction in this and future cycles remains to be studied.

The significance of this study lies in its implications for Match outcome satisfaction. While the influence of SM on the PRS Match was steadily increasing prior to the pandemic, the absence of away rotations and in-person interviews has accelerated this process. It remains to be seen what the role of SM will be in applicant decision-making once away rotations are permitted after the pandemic; it is unlikely that its influence will decrease as quickly as it has risen.

This study has several limitations. While the response rate is on par with other similar studies, additional responses would be beneficial for showing statistical significance of the trends observed in this study. Additionally, we acknowledge that not all of the respondents in our study are applying in the 2020-2021 application cycle. This could potentially influence their level of engagement with PRS programs on SM. Also, it is possible the majority of respondents are more likely to use technology

and therefore SM. Finally, this study population was limited to only medical students, and residents and program directors were not surveyed. Future studies could focus on how SM accounts of applicants influence their position on program rank lists.

CONCLUSION

The aim of this study was to determine the influence of SM on the PRS residency match in the context of the COVID-19 pandemic. To our knowledge, this is the first study evaluating the SM and PRS residency dynamic during the pandemic. SM is the most common source used by applicants to learn about a PRS program. Resident lifestyle and culture remains the most important factor in determining applicant's perceptions of a program, regardless of whether or not away rotations are permitted. The majority of respondents in our study reported that SM content made them either gain or lose interest in a program. With the increasing influence of SM on applicants' perceptions of programs, future research is needed to determine the effect this will have on Match satisfaction going forward.

REFERENCES

1. Rowley BD. AMA—Fellowship and Residency Electronic Interactive Database Access (AMA-FREIDA):: A Computerized Residency Selection Tool. *JAMA*. 1988;260(8):1059. doi:10.1001/jama.1988.03410080029004

2. Renew JR, Ladlie B, Gorlin A, Long T. The Impact of Social Media on Anesthesia Resident Recruitment. *J Educ Perioper Med JEPM*. 2019;21(1):E632.

3. Azoury SC, Mazzaferro DM, Piwnica-Worms W, 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(2):100-104. doi:10.1097/SAP.0000000000002289

4. Chandawarkar AA, Gould DJ, Stevens WG. Insta-grated Plastic Surgery Residencies: The Rise of Social Media Use by Trainees and Responsible Guidelines for Use. *Aesthet Surg J*. 2018;38(10):1145-1152. doi:10.1093/asj/sjy055

5. Chartier C, Chandawarkar AA, Gould DJ, Stevens WG. Insta-Grated Plastic Surgery Residencies: 2020 Update. *Aesthet Surg J*. Published online June 20, 2020. doi:10.1093/asj/sjaa172

6. McHugh SM, Shaffer EG, Cormican DS, Beaman ST, Forte PJ, Metro DG. Use of social media resources by applicants during the residency selection process. *J Educ Perioper Med JEPM*. 2014;16(5):E071.

7. Final Report and Recommendations for Medical Education Institutions of LCME-Accredited, U.S. Osteopathic, and Non-U.S. Medical School Applicants. Accessed March 20, 2021. https://www.aamc.org/media/44736/download

8. Sinno S, Mehta K, Squitieri L, et al. Residency Characteristics That Matter Most to Plastic Surgery Applicants: A Multi-Institutional Analysis and Review of the Literature. *Ann Plast Surg*. 2015;74(6):713-717. doi:10.1097/SAP.0000000000000511

9. Drolet BC, Brower JP, Lifchez SD, Janis JE, Liu PY. Away Rotations and Matching in Integrated Plastic Surgery Residency: Applicant and Program Director Perspectives. *Plast Reconstr Surg*. 2016;137(4):1337-1343. doi:10.1097/PRS.0000000000002029

10. Chen VW, Hoang D, Garner W. Do Websites Provide What Applicants Need? Plastic Surgery Residency Program Websites Versus Applicant Self-reported Needs. *Plast Reconstr Surg Glob Open*. 2018;6(10):e1900. doi:10.1097/GOX.0000000000001900

11. Silvestre J, Tomlinson-Hansen S, Fosnot J, Taylor JA. Plastic Surgery Residency Websites: A Critical Analysis of Accessibility and Content. *Ann Plast Surg*. 2014;72(3):265-269. doi:10.1097/SAP.0000000000000125

12. Hashmi A, Policherla R, Campbell H, Khan FA, Schumaier A, Al-Mufarrej F. How Informative are the Plastic Surgery Residency Websites to Prospective Applicants? *J Surg Educ*. 2017;74(1):74-78. doi:10.1016/j.jsurg.2016.08.002

13. Silvestre J, Vargas CR, Ho O, Lee BT. Evaluation of the content and accessibility of microsurgery fellowship program websites. *Microsurgery*. 2015;35(7):560-564. doi:https://doi.org/10.1002/micr.22445

14. Sterling M, Leung P, Wright D, Bishop TF. The Use of Social Media in Graduate Medical Education: A Systematic Review. *Acad Med J Assoc Am Med Coll*. 2017;92(7):1043-1056. doi:10.1097/ACM.0000000000001617

15. Irwin TJ, Riesel JN, Ortiz R, Helliwell LA, Lin SJ, Eberlin KR. The Impact of Social Media on Plastic Surgery Residency Applicants. *Ann Plast Surg*. Published online April 27, 2020. doi:10.1097/SAP.0000000000002375

16. Zuo KJ, Retrouvey H, Wanzel KR. Factors That Affect Medical Students' Perception and Impression of a Plastic Surgery Program: The Role of Elective Rotations and Interviews. *Ann Plast Surg*. 2019;82(2):224-228. doi:10.1097/SAP.0000000000001525

17. Strausburg MB, Djuricich AM, Carlos WG, Bosslet GT. The Influence of the Residency Application Process on the Online Social Networking Behavior of Medical Students: A Single Institutional Study. *Acad Med*. 2013;88(11):1707-1712. doi:10.1097/ACM.0b013e3182a7f36b

18. Schweitzer J, Hannan A, Coren J. The role of social networking web sites in influencing residency decisions. *J Am Osteopath Assoc*. 2012;112(10):673-679.

19. Atashroo DA, Luan A, Vyas KS, et al. What Makes a Plastic Surgery Residency Program Attractive? An Applicant's Perspective. *Plast Reconstr Surg*. 2015;136(1):189-196. doi:10.1097/PRS.0000000000001365

Table 1. Demographics – Gender, Age Group, Class Year, and 2020-2021 Cycle Distribution

Factor	Percentage
Gender	
Male	40%
Female	60%
Age	
22-24	6%
25-27	59%
28-30	22%
31-33	11%
34-36	2%
Class year	
2021	70%
2022	13%
2023	2%
2024	2%
Other	13%
Applying 2020-2021 cycle	79%

Class year category “other” includes individuals who are re-applying.

Table 2. Number of PRS Programs Followed by SM Platform

SM platform	Mean (N)	Range (min to max)
Instagram	30 (50)	1 to 82
Twitter	8 (12)	1 to 28
Facebook	5 (5)	2 to 10

Mean, minimum, and maximum PRS programs followed on Instagram, Twitter, and Facebook by respondents who use these platforms (N).

Figure Legend

Figure 1. Bar graph depicts percent of respondents who accessed various resources for PRS residency information. Labeled bars include three resources ranked as "most useful" for learning about PRS programs.

Figure 2. Bar graph depicts which social media platforms are used by respondents for general purposes. Instagram is the most used platform.

Figure 3. Time Spent on Social Media. Bar graph depicts the percent of respondents per daily time spent on social media. Mean daily time spent on social media was 2 hours. Orange line depicts the average percent of daily SM time spent specifically on PRS content.

Figure 4. Impact of virtual PRS programming during COVID-19 pandemic. One to five scale, with 1 signifying "made no difference" and 5 signifying "equivalent to an in-person experience."

Figure 1

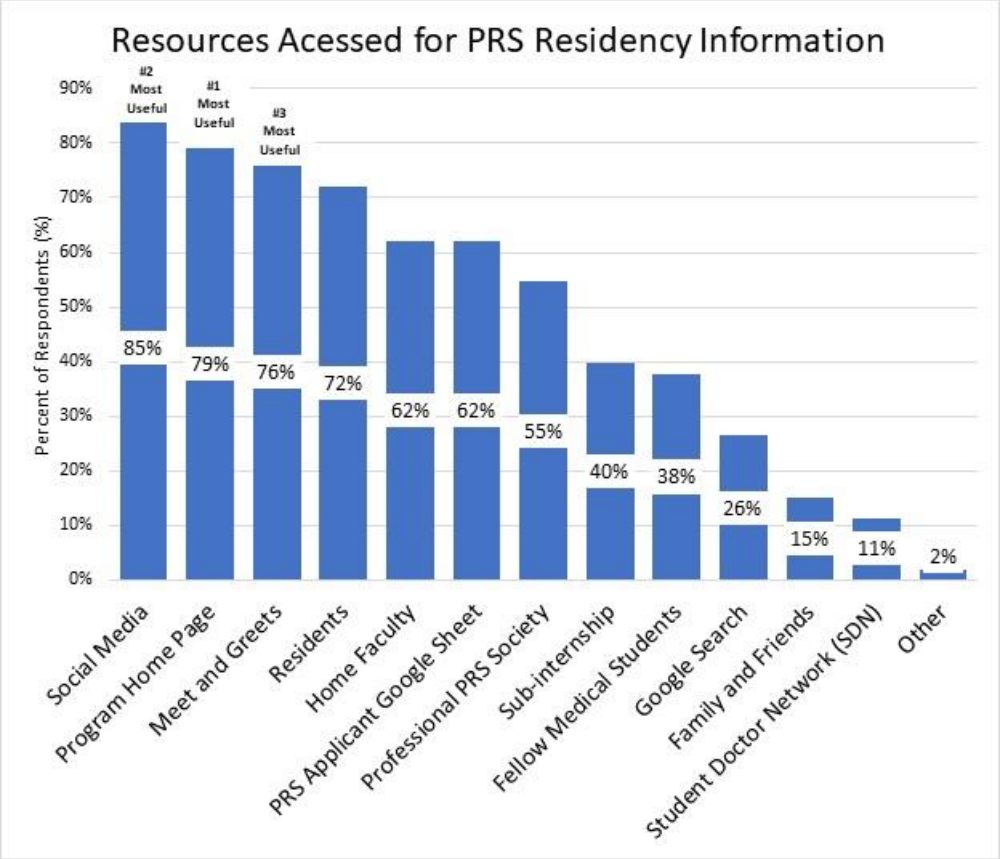

Figure 2

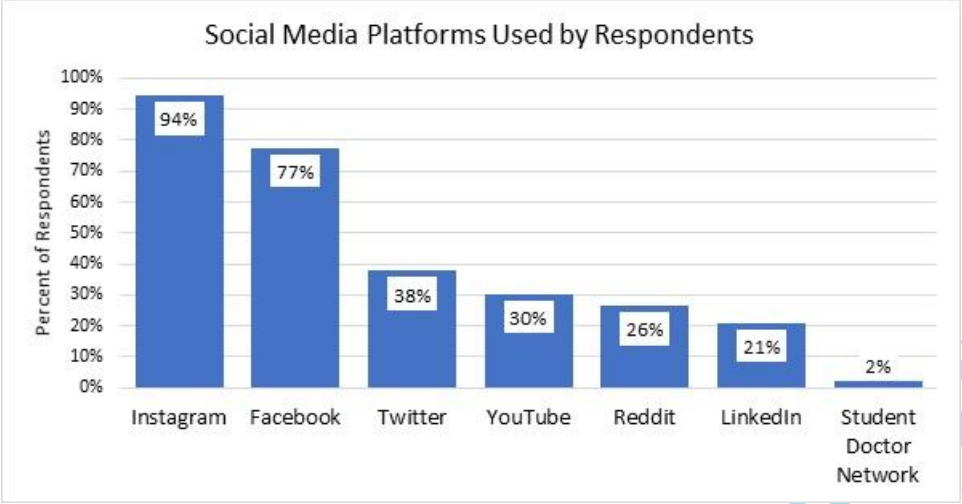

Figure 3

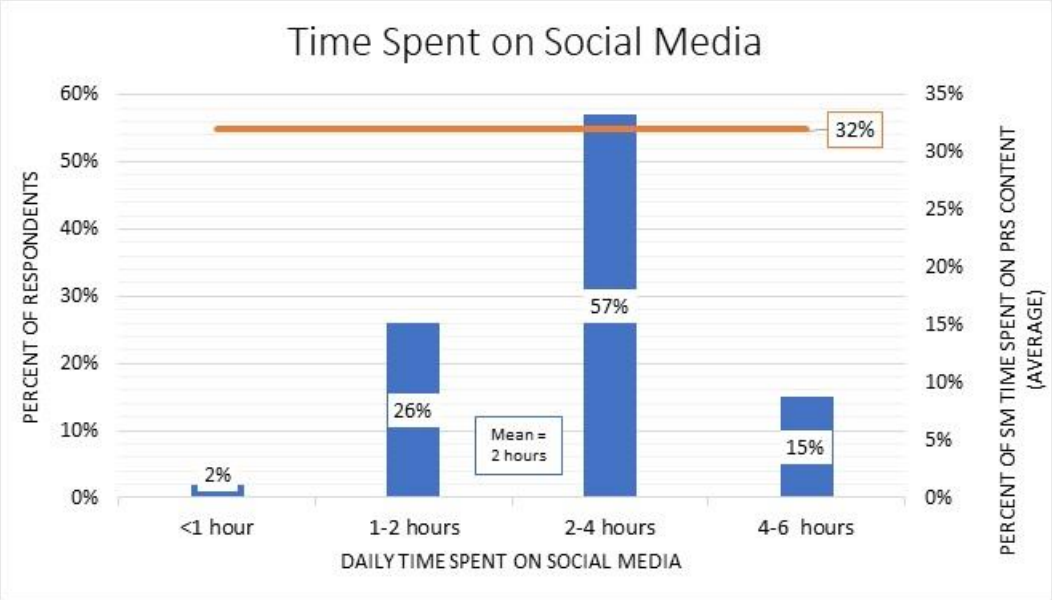

Figure 4