

Original Article

Patients Prefer Medical Facts and Educational Videos From Sports Medicine Surgeons on Social Media

Christina Freiburger, M.S., Nisha N. Kale, B.A., Madeleine E. Gallagher, B.S., Victoria K. Ierulli, M.S., Michael J. O'Brien, M.D., and Mary K. Mulcahey, M.D.

Purpose: To provide updated information on which sports medicine patients are most influenced by provider presence on social media, as well as their preferences in social media platforms and content. **Methods:** Between November 2021 and January 2022, an anonymous online, voluntary, self-administered questionnaire containing 13 questions was distributed to patients who had a clinic visit with 1 of 2 orthopaedic sports medicine surgeons at the same institution. Descriptive statistics were used to analyze the data. **Results:** A total of 159 responses were received for a response rate of 29.5%. The most common platforms used by patients were Facebook (110; 84%), YouTube (69; 53%), and Instagram (61; 47%). Most participants indicated that it did not make a difference if their sports medicine surgeon was on social media (N = 99, 62%), and they indicated they would not travel further to see a physician who was active on social media (N = 85, 54%). Compared with other age groups, significantly more respondents over the age of 50 years used Facebook to follow their physicians (47 of 60, 78%, $P = .012$). Seventy-eight (50%) patients noted that they were interested in seeing medical facts, whereas 72 (46%) were interested in seeing educational videos on their physician's social media page. **Conclusions:** In this study, we found that sports medicine patients prefer to see educational videos and medical facts from their surgeons on social media, most predominantly on Facebook. **Clinical Relevance:** Social media is a popular way to connect in our modern world. As the influence of sports medicine surgeons on social media grows, it is important to understand how this is perceived by patients.

Introduction

There are nearly 3 billion users on social media.¹ Sites such as Facebook, Instagram, and Twitter enable instant communication between people all over the world. This direct out-of-office communication has created both challenges and opportunities for physicians in connecting with their patients.² Given the finding that more than 50% of orthopaedic patients use social media, researchers have begun studying the effects of social media on orthopaedic patients' perceptions of their surgeons.³

Recent studies have shown a correlation between social media presence and higher ratings for orthopaedists on physician review websites.^{4,5} This trend may be due in part to the U.S. health care system shifting towards a quality-centered reimbursement structure.^{6,7} As a result, younger surgeons may place a greater emphasis on social media out of concern for their online image being built solely off of patient reviews. This theory is supported by Sama et al.'s findings that sports medicine surgeons with active social media accounts had higher overall online physician ratings.⁸

From the Department of Orthopaedic Surgery, Tulane University School of Medicine, New Orleans, Louisiana (C.F., N.N.K., V.K.I., M.J.O., M.K.M.); and Department of Orthopaedic Surgery, Texas Christian University School of Medicine, Fort Worth, Texas (M.G.), U.S.A.

The authors report the following potential conflicts of interest or sources of funding: M.J.O. reports stock or stock options from Aevumed; board or committee member, American Shoulder and Elbow Surgeons and Arthroscopy Association of North America; paid consultant, Exactech, Smith & Nephew, paid consultant, research support; board or committee member, Southern Orthopaedic Association; and paid consultant, Wright Technology. M.K.M. reports paid consultant and paid presenter or speaker for Arthrex; board or committee membership for American Academy of Orthopaedic Surgeons, the American Orthopaedic Association, American Orthopaedic Society for Sports Medicine, Arthroscopy Association of North America, International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine, Ortho Info., the

Ruth Jackson Orthopaedic Society, and The Forum; and editorial or governing board membership in the Arthroscopy Association of North America, American Journal of Sports Medicine Electronic Media, Arthroscopy, and Ortho Info. Full ICMJE author disclosure forms are available for this article online, as supplementary material.

Received October 23, 2022; accepted March 9, 2023.

Address correspondence to Mary K. Mulcahey, M.D., 1430 Tulane Ave., #8632, New Orleans, LA 70112. E-mail: mary.mulcahey.md@gmail.com

© 2023 THE AUTHORS. Published by Elsevier Inc. on behalf of the Arthroscopy Association of North America. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). 2666-061X/221339

<https://doi.org/10.1016/j.asmr.2023.03.004>

Additionally, Duymus et al⁹ found that 39.4% of orthopaedic patients reported that the internet had an influence on their choice of physician.

Among all orthopaedic subspecialties, sports medicine patients reportedly have the highest social media use.³ In studying this population, Curry et al³ concluded that patients who use social media are more likely to be younger in age, research their condition before arriving for their appointment, and travel a greater than average distance to see a physician. In another study published in 2010, Rozental et al¹⁰ found that among a cohort of upper extremity patients, there was an association of younger age, higher level of education, and computer ownership with social networking use. Among the reported users, Facebook was the most popular site, followed by YouTube. Given the historical tendency of social media platforms to shift in popularity, updated studies are warranted.

The purpose of this study was to provide updated information on which sports medicine patients are most influenced by provider presence on social media, as well as their preferences in social media platforms and content. We hypothesized that patients who favored seeing their sports medicine surgeons on social media were more likely to be younger in age and have a higher education level, however they would be less likely to travel a further distance for an appointment with a physician they knew from social media.

Methods

Survey Content and Statistical Analysis

After we obtained approval from the institutional review board at our institution for this prospective study (Tulane institutional review board reference #: 2021-661), an anonymous 13-question online survey using Qualtrics (Seattle, WA & Provo, UT) was distributed via e-mail to 590 patients (Appendix Table 1, available at www.arthroscopyjournal.org). These patients were ≥ 18 years of age and completed a sports medicine clinic visit with 1 of 2 of the co-authors who are fellowship-trained sports medicine surgeons between November 1, 2021, and January 31, 2022. Follow-up e-mails were sent 2 and 4 weeks after the initial e-mail to encourage participation. Of the 590 e-mails distributed, 51 were returned as undeliverable, leaving a total of 539 e-mails delivered to patients. General questions included age range, sex, race, education level, travel distance to appointment, social media usage and preferred platforms (including Instagram, Twitter, Facebook, Tik Tok, and YouTube). Patients also were asked if they liked seeing their physician on social media and whether that influenced their decision to make an appointment and travel a further distance. Patients also were asked what social media platform they are most likely to follow their

Table 1. Demographics of Respondents

Demographics	N	%
Age, y		
18-29	9	6%
30-39	13	8%
40-49	22	14%
50-59	39	25%
60-69	42	26%
≥ 70	34	21%
Sex		
Male	82	52%
Female	77	48%
Education		
High school	44	28%
College graduate	67	42%
Graduate degree/masters	37	23%
Doctorate: MD, DO, DDS, DPT, PhD	11	7%
Race		
White	109	69%
Black/African American	44	28%
Asian/Pacific Islander	3	2%
Indian	1	1%
Hispanic/Latino	5	3%
Other	2	1%
Distance traveled to appointments		
Less than 30 miles	114	72%
30-60 miles	31	20%
60-120 miles	12	8%
120-180 miles	1	1%
Greater than 240 miles	1	1%

physician on and their preferred content (e.g., videos, pictures, live Q&A, news). Four questions were in multiple response format, where respondents could choose more than one option. Therefore, percentages may not add up to 100%.

Statistical Analysis

The deidentified survey data were analyzed with SPSS Statistics version 27 software (IBM Corp., Armonk, NY). Categorical thresholds were investigated by examining distributions of the raw data. Binomial logistic regressions were used to determine the effects of demographic variables on outcome variables. Univariate analysis of categorical variables was performed using the chi-square test, and univariate analysis of dichotomous variables was performed using Fischer's exact test. Ordinal variables were analyzed using a Mann-Whitney *U* test. Statistical significance was set at an alpha level of .05.

Results

Respondent Characteristics

Of the 539 e-mails sent, 159 patients responded to the survey (response rate: 30%). One hundred fifteen (72%) of our patients were older than the age of 50 years. Respondents were evenly split between male ($N = 82$, 51%) and female ($N = 77$, 48%). One

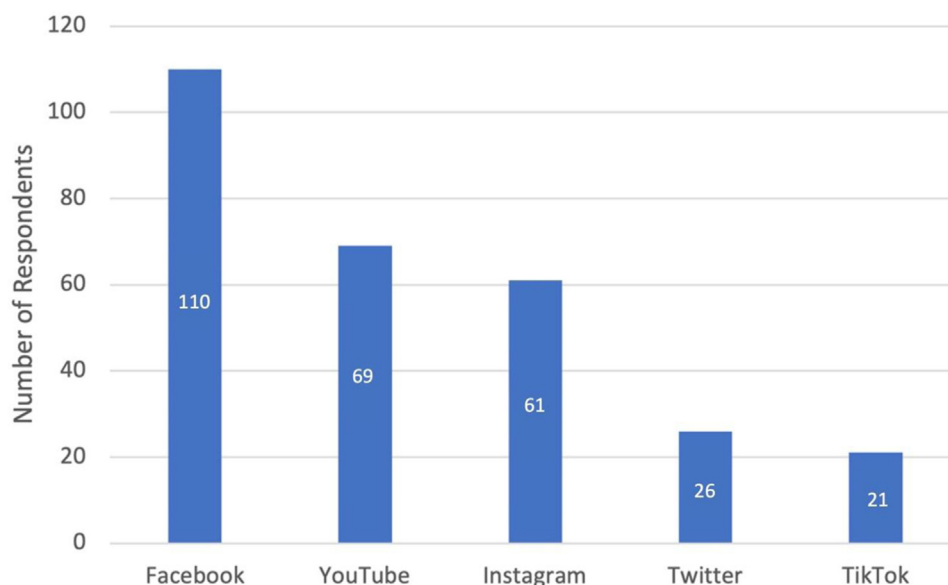


Fig 1. Total distribution of sports medicine patients' social media usage.

hundred nine (67%) patients were White, whereas 44 (28%) were Black. Forty-four respondents (28%) of our sample indicated their highest level of education was a high school degree, whereas 67 (42%) had college degrees, and 48 (30%) had a graduate degree, masters, or doctorate degree (Table 1). Most respondents (N = 114, 72%) indicated they traveled less than 30 miles to their appointments.

Preferences for Sports Medicine Surgeons on Social Media

Most patients indicated that it did not make a difference to them if their physician was on social media (N = 99, 62%), and they indicated they would not travel further to see a physician who was active on social media (N = 85, 54%). Ninety-three (59%) patients did not find a physician on social media more credible. A

smaller portion of patients noted that they would try to get to know their physician better by searching them on social media prior to their appointment (N = 46, 29%).

More women (17 of 45, 49%) than men (9 of 25, 36%) indicated they would like to see their physician on social media, although this difference was not statistically significant ($P = .095$). Significantly more women (28 of 54, 52%) than men (18 of 55, 33%) said they would try to get to know their physician better by searching for them on social media prior to their appointments ($P = .034$).

There was a significant difference between the education levels of participants and their desire to see their physicians on social media. Significantly more patients with high school education (12 of 17, 71%, $P = .031$) said they were interested in seeing their physician on social media compared to individuals who were college graduates (9 of

Table 2. Physician Preferences Among Facebook, YouTube, And Instagram Users*

		Facebook	YouTube	Instagram
Would you like to see your physician on social media	Yes (N = 25)	23 (92%)	17 (68%)	14 (56%)
	No (N = 21)	14 (67%)	6 (29%)	8 (38%)
Would you be more likely to schedule an appointment with a physician you saw on social media	Yes (N = 16)	14 (93%)	8 (53%)	8 (53%)
	No (N = 66)	42 (78%)	23 (43%)	27 (50%)
Would you travel farther for an appointment to see a physician from social media	Yes (N = 21)	18 (86%)	14 (67%)	11 (52%)
	No (N = 67)	57 (85%)	34 (51%)	30 (45%)
Would you find your physician more credible if he/she was on social media	Yes (N = 9)	7 (78%)	7 (78%)	5 (56%)
	No (N = 75)	63 (84%)	33 (44%)	33 (44%)
Would you try to get to know your physician better by searching from them on social media before your appointment	Yes (N = 38)	36 (95%)	25 (66%)	19 (50%)
	No (N = 52)	41 (79%)	28 (54%)	28 (54%)

*Respondents used multiple response sets to indicate what social media sites they used. Some social media sites (Twitter, Tiktok, and other) are not represented in this table due to low responses. As a result, values may not add up to 100%.

Table 3. How Respondent's Feelings and Behavior Towards Physicians on Social Media Compares With the Specific Type of Content on Social Media They Are Interested in Viewing

Content	Travel further to See Physician From Social Media?		Like to See Your Physician on Social Media?		Search Physician on Social Media Before Appointment?		Physician More Credible if on Social Media?		More Likely to Schedule Appointment With Physician on Social Media?	
	Yes (N = 23)	No (N = 83)	Yes (N = 26)	No (N = 32)	Yes (N = 46)	No (N = 61)	Yes (N = 9)	No (N = 91)	Yes (N = 16)	No (N = 66)
Educational videos	14 (61%)	37 (45%)	16 (62%)	10 (31%)	23 (50%)	29 (48%)	2 (22%)	40 (44%)	7 (44%)	30 (46%)
Medical pictures	9 (39%)	14 (17%)	13 (50%)	4 (13%)	14 (30%)	12 (20%)	3 (33%)	15 (17%)	6 (38%)	12 (18%)
Medical facts	13 (57%)	38 (46%)	16 (62%)	15 (47%)	31 (67%)	26 (43%)	6 (67%)	39 (43%)	7 (44%)	33 (50%)
Behind scenes as physician	5 (22%)	14 (17%)	11 (42%)	4 (13%)	12 (26%)	8 (13%)	5 (56%)	12 (13%)	5 (31%)	8 (12%)
Behind scenes personal	2 (9%)	5 (6%)	4 (15%)	0 (0%)	4 (9%)	3 (5%)	2 (22%)	4 (4%)	2 (13%)	3 (5%)
Live Q&A	9 (39%)	17 (21%)	12 (46%)	5 (16%)	16 (35%)	13 (21%)	6 (67%)	20 (22%)	7 (44%)	15 (23%)
News-worthy research	5 (22%)	22 (27%)	7 (27%)	4 (13%)	12 (26%)	16 (26%)	1 (11%)	22 (24%)	3 (19%)	16 (24%)
Motivational posts	2 (9%)	11 (13%)	5 (19%)	0 (0%)	6 (13%)	5 (8%)	0 (0%)	9 (10%)	1 (6%)	7 (11%)
Work-life balance	4 (17%)	9 (11%)	4 (15%)	0 (0%)	4 (9%)	7 (12%)	2 (22%)	5 (6%)	2 (13%)	5 (8%)
Clinical cases	7 (30%)	14 (17%)	8 (31%)	3 (9%)	12 (26%)	12 (20%)	2 (22%)	12 (13%)	3 (19%)	10 (15%)
Path to becoming a physician	3 (13%)	6 (7%)	1 (4%)	2 (6%)	3 (7%)	6 (10%)	1 (11%)	6 (7%)	1 (6%)	6 (9%)
No preference	4 (17%)	31 (37%)	4 (15%)	15 (47%)	10 (22%)	22 (36%)	0 (0%)	37 (41%)	5 (31%)	23 (35%)

28, 32%), those with graduate/masters degrees (5 of 12, 42%), or those with doctorate degrees (0 of 3, 0%).

Social Media Use Among Respondents

As reported by a multiple response set, Facebook was the most popular social media platform among our survey participants. One hundred ten (84%) patients reported using Facebook, 69 (53%) YouTube, and 61 (47%) Instagram. Fewer participants used Twitter (20%, N = 26) or TikTok (16%, N = 21) (Fig 1).

Social Media Influence on Patient Perception of Providers

Patients stated they would be most likely to follow a sports medicine surgeon on Facebook (N = 60, 38%) or YouTube (N = 26, 16%). Compared with other age groups, respondents who were older than 50 years of age were significantly more likely to use Facebook to follow their surgeons (47 of 60, 78%, P = .012). Most respondents who used Facebook had a college graduate education or higher (37 of 60, 62%).

Twenty-three of 25 (92%) patients who indicated they would like to see their surgeon on social media used Facebook and 17 (68%) used YouTube. The majority of patients who stated they were more likely to schedule an appointment with a surgeon they saw on social media used Facebook (14 of 15, 93%). Most patients who indicated they would try to get to know their physician better by searching for them on social media before their appointment used either Facebook (36 of 38, 95%) or YouTube (25 of 38, 66%).

Compared with other social media platforms, a significant majority of patients who used Facebook to follow their physicians indicated they would search for their physicians on Facebook prior to their appointments (23 of 44, 52%, P = .012). When compared with other social media platforms, a significant majority of respondents indicated they would travel further to see a physician who they knew from Facebook (13 of 22, 59%, P = .004). While most respondents who indicated they would find their physician more credible if he/she were on social media used Facebook (7 of 9, 77%) and YouTube (7 of 9, 77%), this difference was not statistically significant (P = .29) as most respondents overall (75 of 84, 89%) did not find physician credibility to be influenced by social media presence (Table 2).

Patient Social Media Content Preferences

As reported by multiple response set, 78 (50%) patients were interested in seeing medical facts, whereas 72 (46%) were interested in seeing educational videos on their physician's social media pages. In addition, 42 (27%) patients were interested in seeing live question and answer (Q&A), 42 (27%) were interested in seeing news-worthy research, and 40 (26%) were interested in seeing medical pictures (Figure 2). Patients were

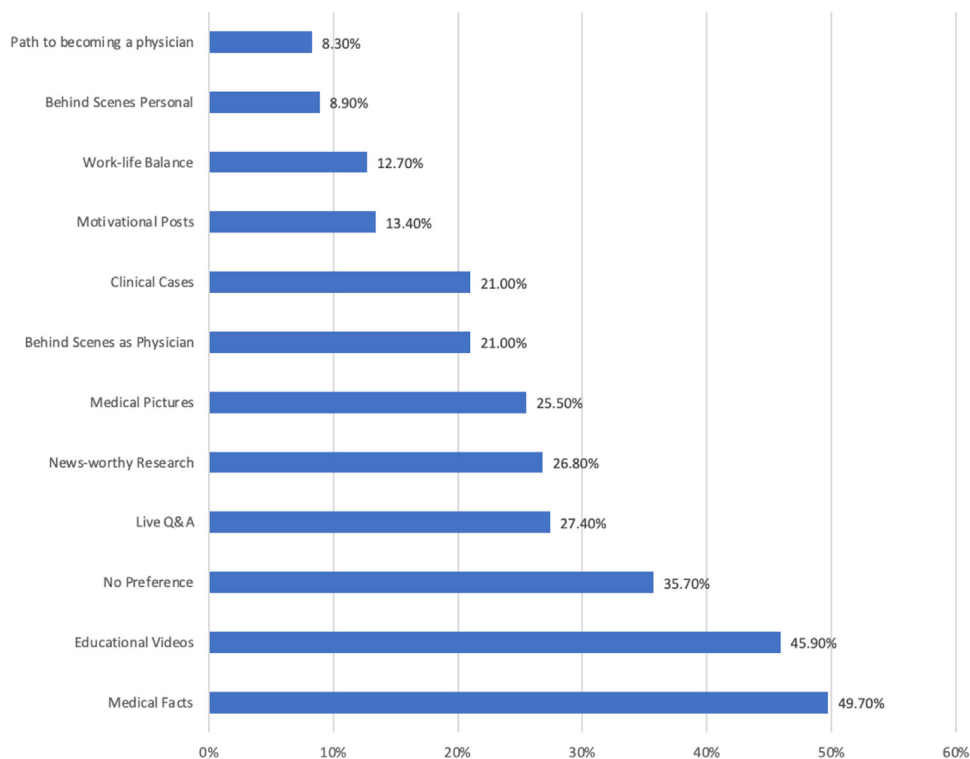


Fig 2. Sports medicine patients' preferences on content they are interested in seeing on their social media.

most interested in seeing educational videos on YouTube (42 of 69, 61%) and TikTok (13 of 21, 62%). Patients were more interested in seeing medical facts on Instagram (40 of 61, 66%), Facebook (64 of 110, 58%), and TikTok (13 of 21, 62%).

More than one half of patients who were interested in seeing their sports medicine surgeons on social media were interested in educational video content (16 of 26, 62%) and medical facts (16 of 26, 62%). Most patients who were willing to travel further for an appointment to see a physician who was active on social media were most interested in educational videos (14 of 23, 61%) and medical facts (13 of 23, 57%). Patients who stated they were more likely to schedule an appointment with a physician they saw on social media were interested in educational videos (7 of 16, 44%), medical facts (7 of 16, 44%) and live Q&A (7 of 16, 44%). Patients who would search for their physician on social media prior to their appointment were most interested in seeing medical facts (31 of 46, 67%), educational videos (23 of 46, 50%), and live Q&A (16 of 46, 35%). Patients who found their physicians more credible if they were on social media were most interested in seeing live Q&A content (6 of 9, 67%) and medical facts (6 of 9, 67%) (Table 3).

Discussion

Our study found that the majority of respondents did not have a preference as to whether their physician was on social media (62%). Of those that did use social

media, most respondents used Facebook (84%), especially patients older than age 50 years, and many used Facebook to search for physicians before their appointment (52%). Most patients were interested in seeing educational video content (62%) and medical facts (62%).

Most of the patients' responses indicated that the presence (or lack thereof) of their orthopaedic sports medicine surgeon on social media did not influence their opinion of that physician, or how far they would travel for appointments. This may provide some relief to those surgeons concerned about their online image following physician review websites. However, for the surgeons who elect to use social media as a means of communicating with their patients, it is important to identify and discuss which patients they are most likely to reach on social media, which platforms they are most likely to reach patients on, and what patients' preferred content is. Our study found that for patients who use social media to search for their physicians, most respondents used Facebook and most were interested in seeing medical facts and educational videos on their physician's social media pages.

In contrast to previous research demonstrating that younger age and higher education level were associated with social media use,^{3,10} this study found that significantly more respondents older than 50 years of age used Facebook to follow their physicians. However, interestingly, this study found that patients with a high school

diploma as their highest degree were significantly more likely to prefer seeing their physicians on social media and to search their physicians on social media prior to their appointments. Furthermore, neither women nor men favored seeing their physician on social media, although women were significantly more likely to try to get to know their physician better by searching for them on social media before their appointments. These findings suggest that surgeons may not benefit from targeting a specific gender on social media platforms; however, surgeons should continue to provide content that can be understood by all education levels.

It is also worth highlighting that, in contrast to previous research, most sports medicine patients in this study reported they were not more likely to travel further to see a physician they knew from social media.³ It may be speculated that this change is due in part to the coronavirus disease 2019 travel restrictions. Regardless, this updated insight may guide providers to post content more relevant to patients in their location.

Among all platforms, Facebook was reported as the most popular among sports medicine patients, which is consistent with results of previous studies.¹⁰ Patients older than the age of 50 years were more likely to follow their physicians on Facebook and if they did this, they were more likely to search their physicians on Facebook before their appointments and travel further to see a physician they knew from Facebook. Based on these findings, it may be most advantageous for sports medicine surgeons to actively post content geared towards patients on Facebook.

In addition to understanding patient preferences on social media platforms, it is important that surgeons learn what type of content their patients prefer to see. In gathering this information, surgeons will be able to create posts that are geared toward patients. The results from this study indicated that patients were most interested in seeing educational videos on YouTube and TikTok and medical facts on Instagram, Facebook, and TikTok. Furthermore, patients who found their physicians more credible if they were on social media, and patients who were more likely to schedule an appointment with a physician they saw on social media, were interested in seeing live Q&A.

Future studies should examine the influence of other sport medicine patient demographics, such as younger age, geography, or economic status, on social media use, and whether social media preferences continue to evolve alongside internet trends.

Limitations

This study has several limitations. The response rate was relatively low (30%), and thus results may not be generalizable to all patients in an orthopaedic sports medicine practice. Although the survey was distributed

to all patients in a specific period, there were a minimal number of bounce-back emails and non-responses which has potential to bias the data. In addition, the low response rate could be due to the fact that a large percentage of nonresponders are not on social media, which is a specific population that was unable to be analyzed in this study. Some survey variables were re-recorded into dichotomous variables (yes/no) for the purposes of analysis so any participants who answered "it doesn't make a difference to me" had to be eliminated. In addition, most respondents were over 50 years of age. Therefore, the included population may not be representative of the average sports medicine practice. Finally, this study is a cross-sectional survey and causal relationships cannot be inferred from the data.

Conclusions

In this study, we found that sports medicine patients prefer to see educational videos and medical facts from their surgeons on social media, most predominantly on Facebook.

References

1. *Global social media ranking*. Statista. <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>. Published 2022. Accessed August 8, 2022.
2. Ventola CL. Social media and health care professionals: Benefits, risks, and best practices. *P T* 2014;39:491.
3. Curry E, Li X, Nguyen J, Matzkin E. Prevalence of internet and social media usage in orthopedic surgery. *Orthop Rev* 2014;6(3).
4. Damodar D, Donnally III CJ, McCormick JR, et al. How wait-times, social media, and surgeon demographics influence online reviews on leading review websites for joint replacement surgeons. *J Clin Orthop Trauma* 2019;10:761-767.
5. Donnally III CJ, McCormick JR, Pastore MA, et al. Social media presence correlated with improved online review scores for spine surgeons. *World Neurosurg* 2020;141:e18-e25.
6. Squitieri L, Bozic KJ, Pusic AL. The role of patient-reported outcome measures in value-based payment reform. *Value Health* 2017;20:834-836.
7. Swayne LC. Pay for performance: Pay more or pay less? *J Am Coll Radiol* 2005;2:777-781.
8. Sama AJ, Matichak DP, Schiller NC, et al. The impact of social media presence, age, and patient reported wait times on physician review websites for sports medicine surgeons. *J Clin Orthop Trauma* 2021;21:101502.
9. Duymus TM, Karadeniz H, Çağan MA, et al. Internet and social media usage of orthopaedic patients: A questionnaire-based survey. *World J Orthop* 2017;8:178.
10. Rozental TD, George TM, Chacko AT. Social networking among upper extremity patients. *J Hand Surg* 2010;35:819-823.e811.

Appendix Table 1. Anonymous Survey Distributed to Sports Medicine Patients

1. What is your age?
 - 18-29 years
 - 30-39 years
 - 40-49 years
 - 50-59 years
 - 60-69 years
 - >70 years
2. What is your sex?
 - Male
 - Female
3. What is your race?
 - White/Caucasian
 - Black/African American
 - Asian/Pacific Islander
 - Indian
 - Hispanic/Latino
 - Other (please specify)
4. What is your level of education?
 - High School
 - College graduate
 - Graduate degree/Masters
 - Doctorate: MD, DO, DDS, DPT, PhD
5. How far did you travel to your appointment?
 - Less than 30 miles
 - 30-60 miles
 - 60-120 miles
 - 120-180 miles
 - 180-240 miles
 - Greater than 240 miles
6. Would you like to see your physician on social media?
 - Yes
 - No
7. Would you be more likely to schedule an appointment with a physician you saw on social media?
 - Yes
 - No
8. As a new patient, would you try to get to know your physician better by searching for them on social media before your appointment?
 - Yes
 - No
9. Would you travel farther for an appointment to see a physician you know from social media?
 - Yes
 - No
10. What social media sites do you use?
 - Instagram
 - Twitter
 - Facebook
 - Tik Tok
 - YouTube
11. How long do you spend on each of these social media sites every day?
 - Instagram
 - Less than 30 minutes
 - 30 minutes – 1 hour
 - 1 -2 hours
 - 2 – 3 hours
 - More than 3 hours
 - Twitter
 - Less than 30 minutes
 - 30 minutes – 1 hour
 - 1 -2 hours
 - 2 – 3 hours
 - More than 3 hours
 - Facebook
 - Less than 30 minutes
 - 30 minutes – 1 hour
 - 1 -2 hours

- 2 – 3 hours
 - More than 3 hours
 - Tik Tok
 - Less than 30 minutes
 - 30 minutes – 1 hour
 - 1 -2 hours
 - 2 – 3 hours
 - More than 3 hours
 - YouTube
 - Less than 30 minutes
 - 30 minutes – 1 hour
 - 1 -2 hours
 - 2 – 3 hours
 - More than 3 hours
12. Which social media site would you be most likely to follow a physician on?
- Instagram
 - Twitter
 - Facebook
 - Tik Tok
 - YouTube
13. What content would you be most interested in seeing on your physician's social media page?
- Educational videos
 - Medical Pictures
 - Medical Facts
 - Behind the scenes as a physician
 - Behind the scenes personal
 - Live Q&A
 - Newsworthy research
 - Motivational posts
 - Work–life balance
 - Clinical cases
 - Path to becoming a physician
-