Surgeon Personality, Time Spent With the Patient, and Quality of Facilities Are the Most Important Factors to Patients in Selecting an Orthopaedic Sports Medicine Surgeon

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**Purpose:** To determine the most important factors to patients across the United States in selecting an orthopaedic sports medicine surgeon. **Methods:** In this cross-sectional survey study, adult U.S. residents were surveyed using Amazon Mechanical Turk, a validated survey tool. Data included demographics and the relative importance of both pre-office and in-office factors that determine how patients select an orthopaedic sports medicine surgeon. Results were compiled, and factors were compared by patient demographics. **Results:** Of 1,074 respondents, 56.3% were male, and 60.0% were 25 to 40 years old. Responses were geographically diverse. The most important factors in selecting a sports medicine surgeon (graded on a 0-10 scale) were surgeon professionalism and personality (6.6), quality of the hospital/office facilities (6.4), and how much time the surgeon spends with the patient (6.4). Each of these in-office factors were more important than pre-office factors, the most important of which were reputation of the surgeon’s hospital or group (6.3), surgeon’s reviews on medical review websites (6.2), and surgeon’s educational background (6.0). The least important factors were surgeon’s sex (3.7), marketing of the surgeon (4.2), and surgeon’s social media accounts (4.3). A social media account was taken into consideration at least “a little” by nearly two-thirds of respondents. The most preferred surgeon personality was a balance of professional and lighthearted (66.9%), with strictly professional (27.6%) or largely lighthearted (5.6%) less preferred. **Conclusions:** The most important factors to patients in selecting their orthopaedic sports medicine surgeon, regardless of patient sex, race, or geography, are related to the patient’s in-office experience, including surgeon’s professionalism/personality, how much time the surgeon spends with the patient, and quality of the hospital/office facilities. Surgeons should consider prioritizing a professional office environment and taking the time to get to know patients for the benefit of their patients and their practice. **Clinical Relevance:** The market for orthopaedic sports medicine surgeons is competitive. It is important to know what qualities of a surgeon and his or her practice are important to patients.

As the market for orthopaedic sport medicine surgeons becomes more competitive, increased attention is directed toward recruiting patients. Increasing patient volume is of great interest both to surgeons and to hospitals, and it underpins the financial well-being of health care organizations. Furthermore, increased patient interest in and recruitment by a surgeon lead to greater esteem for the surgeon and their institution. Patient satisfaction with their provider is of great—and growing—interest to health care systems. The patient experience is now one of the most important quality metrics to health care organizations, owing to its role in market share and reimbursement.1

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Table 1. Patient Survey

| 1. Age | a. <25 years | b. 25-40 years | c. 41-60 years | d. >60 years |
| 2. Sex | a. Female | b. Male | c. Non-binary | d. Other |
| 3. Is English your native language? | a. Yes | b. No |
| 4. Where do you live? | a. Northeast | b. South | c. Midwest | d. West |
| 5. What community do you live in? | a. Urban | b. Suburban | c. Rural |
| 6. Highest educational degree | a. Did not finish high school | b. High school degree | c. College degree | d. Graduate degree |
| 7. Annual household income | a. <$30,000 | b. $30,000-$60,000 | c. $61,000-$90,000 | d. >$90,000 |
| 8. Race | a. White | b. African-American | c. Asian | d. Hispanic | e. Other |
| 9. What is your primary health insurance? | a. Private or commercial | b. Medicare | c. Medicaid | d. Military or Veterans | e. None |
| 10. How confident are you at filling out medical forms by yourself? | a. Extremely | b. Quite a bit | c. Somewhat | d. A little bit | e. Not at all |
| 11. How is your overall health status? | a. Poor or fair | b. Good | c. Very good | d. Excellent |
| 12. Do you work in health care? | a. Yes | b. No |
| 13. Do you regularly participate in sports or athletic activities? | a. Yes | b. No |

Table 1. Continued

| 14. Have you seen an orthopaedic sports medicine surgeon before? | a. Yes | b. No |
| Questions 15-26: Regarding factors that would help you choose which orthopaedic sports medicine surgeon to see, how would you rate the following factors on a scale from 0 (not important) to 10 (most important): (Note: it is ok to repeat numbers) |
| 15. Surgeon’s educational background (i.e., schools where they trained) |
| 16. Friends/family recommending the surgeon |
| 17. Reputation of the hospital/group they work in |
| 18. Marketing of the surgeon (e.g., billboards, posters) |
| 19. Surgeon stating that they use new surgical technologies/techniques |
| 20. Surgeon’s website |
| 21. Surgeon’s social media account(s) |
| 22. Surgeon’s reviews on medical review websites (e.g., Healthgrades, Yelp) |
| 23. Surgeon’s presence in the community (e.g., speaking at local events and schools) |
| 24. Surgeon being team physician for a professional team |
| 25. Surgeon being team physician for a local college team |
| 26. Surgeon being team physician for a local high school team |
| Questions 27-33: Regarding factors during an office visit that would help you choose which orthopaedic sports medicine surgeon to get your care from, how would you rate the following factors on a scale from 0 (not important) to 10 (most important): |
| 27. Professionalism of front office staff |
| 28. Quality of the office/hospital facilities and buildings |
| 29. Surgeon’s attire/clothing |
| 30. Surgeon’s sex |
| 31. Surgeon’s professionalism and personality |
| 32. How much time the surgeon spends with you |
| 33. How well the surgeon gets to know you |
| 34. How much would you consider a surgeon’s presence on Instagram when choosing a surgeon? | a. Not at all | b. A little bit | c. A moderate amount | d. A lot |
| 35. How much would you consider a surgeon’s presence on Twitter when choosing a surgeon? | a. Not at all | b. A little bit | c. A moderate amount | d. A lot |
| 36. How much would you consider a surgeon’s presence on Facebook when choosing a surgeon? | a. Not at all | b. A little bit | c. A moderate amount | d. A lot |
| 37. What on a sports surgeon’s social media profile would lead you to seek their care? (Select all that apply) | a. Posts on their scientific work | b. Posts on their surgical/patient cases | c. Posts on popular science | d. Memes | e. Posts on their personal lives | f. Other (short answer) |
Numerous studies have examined variables associated with patients’ perceptions of a medical provider, and several have focused on perceptions of surgeons. However, few studies have specifically evaluated which factors are important to patients in choosing an orthopaedic sports medicine surgeon. The 2 previous studies of several hundred patients were limited in volume and single-center methodology.

The purpose of this study was to determine the most important factors to patients across the United States in selecting an orthopaedic sports medicine surgeon. We hypothesized that (1) the most important factors would include surgeon professionalism/personality and recommendation from family or friends, and (2) the least important factors would include surgeon sex and attire.

### Methods

This was a cross-sectional survey study of United States adults. Inclusion criteria were participation on the survey platform, United States resident aged 18 years or older, and having a social security number. The exclusion criterion was incomplete survey submission. A survey was created by the authors to collect patient demographics, an assessment of familiarity with health and sports medicine, and the relative importance of factors that determine how patients select an orthopaedic sports medicine surgeon. Participants were asked to score the importance of said factors to the patient in selecting a sports medicine surgeon, scored on a 0-10 scale. The participants were not asked to rank the factors in order of preference.

Amazon Mechanical Turk (MTurk; Amazon.com, Inc., Seattle, WA) was used to recruit participants, and the survey was hosted on Qualtrics XM (Qualtrics, Seattle, WA). MTurk is a crowdsourcing platform that allows businesses and researchers to access a wide array of participants to complete various online tasks. Participants number over 500,000 and mostly reside in the United States, with demographics that reflect internet users in the United States. MTurk is a validated survey tool used widely in academics, with responses showing strong internal consistency, test-retest reliability, comparability to conventional survey techniques, and generalizability to the United States population.

MTurk has been used increasingly frequently in the peer-reviewed orthopaedic literature. Surveys were distributed to MTurk participants according to Amazon’s distribution algorithm. Participants who chose to complete the survey were given $0.25 following completion.

### Statistical Analysis

Frequency of survey responses were tabulated and presented. Statistical analysis was used to identify the association between particular patient demographics and patient ranking of importance of factors in selecting an orthopaedic sports medicine surgeon. The associations between demographic factors with more than 2 categories were tested with a one-way analysis of variance. If the one-way analysis of variance test resulted in a significant P value, then each pairwise combination between the categories of the demographic factor was compared with a 2-sample t-test, and the P values were adjusted for multiple comparisons with the Benjamini–Hochberg procedure. The association between demographic factors with only 2 categories were tested with 2-sample t-tests. Statistical significance was set at P < .05. This study received institutional review board approval at our institution (exempt status at University of Pittsburgh; STUDY21080053).

### Results

Of 1,074 respondents, 56.3% were male, and 60.0% were 25 to 40 years old (Table 2). Regarding race, 78.7% identified as White, 10.2% identified as Black, 5.7% identified as Asian, 2.8% identified as Hispanic, and 1.8% identified as American Indian or Alaska Native. Responses were geographically spread across the United States, and 84.4% of participants had at least a college degree. A single question assessment of health literacy found that 75.5% were at least “quite a bit” comfortable filling out medical forms by themselves. Seventy-five percent participate in sports or athletics activities, and the majority had seen an orthopaedic sports medicine surgeon before.

The most important factors in selecting a sports medicine surgeon (grated on a 0-10 scale) were surgeon professionalism and personality, quality of the hospital/office facilities, how much time the surgeon spends with the patient, and how well the surgeon gets to know the patient.

Each of these in-office factors were more important

### Table 1. Continued

38. What clothing worn by the surgeon in the office would make you most likely to choose that surgeon?
   a. Business casual (e.g., dress shirt and tie for men, blouse for women)
   b. Business casual with a white coat
   c. Scrubs
   d. Scrubs with a white coat
   e. No preference

39. What sex would you prefer in an orthopaedic sports medicine surgeon?
   a. Woman
   b. Man
   c. No preference

40. What personality of the surgeon would make you most likely to choose that surgeon?
   a. A combination of professional and lighthearted
   b. Largely lighthearted and humorous
   c. Neither

### Additional Table

| Factor                                           | Importance Score |
|--------------------------------------------------|------------------|
| Highest quality of care                          | 9.7              |
| Surgeon spends time with patient                 | 9.7              |
| Surgeon gets to know the patient                 | 9.7              |
| Surgeon is professional/personable               | 9.7              |
| Patients are comfortable filling out medical forms| 9.7              |
| Patients have seen orthopaedic surgeon before    | 9.7              |

While the importance of factors varied among demographics, the most important factors remained consistent across the United States population.
than pre-office factors, the most important of which were reputation of the surgeon's hospital or group (6.3), surgeon's reviews on medical review websites (6.2), surgeon's educational background (6.0), and family/friends recommending the surgeon (5.8) (Fig 2). The least important factors were surgeon sex (3.7), marketing of the surgeon (4.2), and surgeon's social media accounts (4.3).

A surgeon's social media account was taken into consideration at least "a little" by at minimum 65.2% of respondents depending on the platform. All platforms (Twitter, Instagram, and Facebook) showed similar results, with participants taking them into consideration "a lot" 8.7% to 9.5% of the time, "a moderate amount" 23.8% to 25.5% of the time, and "a little" 31.0% to 34.3% of the time. When asked what type of social media posts patients would want to see, the most popular were posts on surgical/patient cases (30.5%), followed by posts on their scientific work (25.5%) and posts on popular science (21.6%). Posts on memes (10.3%) and their personal lives (9.9%) were less preferred. There was no consensus on preferred surgeon attire, although 43.8% of participants preferred a white coat be present. The most common responses were business casual with a white coat (26.7%), business casual (19.7%), scrubs with a white coat (17.0%), and scrubs (15.1%). Formal (14.4%) was least preferred. Regarding the surgeon's sex, 40.7% of respondents had no preference, 37.0% preferred a man, and 22.3% preferred a woman. The most preferred surgeon personality was a balance of professional and lighthearted (66.9%), with strictly professional/formal (27.6%) or largely lighthearted (5.6%) less preferred.

### Patient Preferences by Demographic

Patients older than 60 years, in comparison to the 24- to 45-year old group, valued friends/family recommending the surgeon (6.6 vs 5.5, \( P = .0002 \)) and hospital/group reputation (7.4 vs 6.1, \( P = .002 \)) significantly more, while valuing social media significantly less (3.3 vs 4.4, \( P = .02 \)). Compared with male participants, female participants were more likely to value surgeon personality (6.9 vs 6.4, \( P = .001 \)), how much time the surgeon spends with the patient (6.7 vs 6.1, \( P = .0003 \)), and how well the surgeon gets to know the patient (6.7 vs 6.1, \( P = .0002 \)). These were the top 3 most important qualities to female participants, and they were 3 of the top 4 most important qualities to male participants, with the other being quality of the office/hospital facilities. Female participants were significantly more likely to prefer a personality type that balanced formal and lighthearted (74% vs 61%, \( P < .0003 \)), whereas male participants were more likely to prefer strictly professional/formal (33% vs 21%, \( P < .0003 \)). Compared with White respondents, Black respondents were significantly more likely to value

| Characteristic                         | Respondents (%) |
|---------------------------------------|------------------|
| Age, y                                |                  |
| <25                                   | 7.2              |
| 25-40                                 | 60.0             |
| 41-60                                 | 27.5             |
| >60                                   | 5.3              |
| Sex                                   |                  |
| Male                                  | 56.3             |
| Female                                | 43.4             |
| Non-binary                            | 0.3              |
| Native language                       |                  |
| English                               | 98.5             |
| Other                                 | 1.5              |
| Region of residence in U.S.           |                  |
| Northeast                             | 27.0             |
| South                                 | 37.3             |
| Midwest                               | 21.8             |
| West                                  | 13.8             |
| Community type                        |                  |
| Urban                                 | 49.2             |
| Suburban                              | 34.9             |
| Rural                                 | 16.0             |
| Highest educational degree            |                  |
| Did not finish high school            | 0.6              |
| High school degree                    | 15.0             |
| College degree                        | 47.0             |
| Graduate degree                       | 37.4             |
| Annual household income               |                  |
| <$30,000                              | 17.3             |
| $30,000-$60,000                       | 45.0             |
| $61,000-$90,000                       | 24.3             |
| >$90,000                              | 13.5             |
| Race                                  |                  |
| White                                 | 79.0             |
| Black                                 | 10.2             |
| Other                                 | 11.2             |
| Health insurance                      |                  |
| Private/commercial                     | 41.8             |
| Medicare                              | 33.6             |
| Medicaid                              | 13.1             |
| Military/veteran                      | 3.6              |
| Other                                 | 5.9              |
| Confidence in completing medical forms independently | |
| Extremely                             | 46.4             |
| Quite a bit                           | 29.1             |
| Somewhat                              | 19.1             |
| A little bit                           | 4.7              |
| Not at all                            | 0.7              |
| Overall health status                 |                  |
| Poor or fair                          | 5.4              |
| Good                                  | 45.8             |
| Very good                             | 34.0             |
| Excellent                             | 14.8             |
| Employed in health care               |                  |
| Yes                                   | 45.3             |
| No                                    | 54.8             |
| Regular participant in sports or athletic activities | |
| Yes                                   | 75.0             |
| No                                    | 25.0             |
| Previously treated by an orthopaedic sports medicine surgeon | |
| Yes                                   | 57.2             |
| No                                    | 42.8             |

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Table 2. Participant Characteristics
the surgeon’s presence in the community (5.7 vs 4.7, \( P = .001 \)) and role as a team physician for a professional team (6.0 vs 5.4, \( P = .03 \)), local college (5.9 vs 5.2, \( P = .01 \)), and local high school (5.9 vs 4.9, \( P = .002 \)).

Geographic location was correlated with how patients valued several factors. The Midwest scored family/friends recommending the surgeon significantly greater than the Northeast (6.2 vs 5.5, \( P = .02 \)), with the South and West between these values. Surgeon reviews on websites were important to respondents in the West than the Northeast (6.8 vs 5.9, \( P = .02 \)). Professionalism of office staff was also more important in the West (6.9) than in the Northeast (5.8, \( P = .001 \)) and the South (6.1, \( P = .01 \)).

Subanalysis of community type showed that patients from suburban settings, compared with urban settings, more highly valued a surgeon’s professionalism and personality (7.2 vs 6.2, \( P < .0003 \)), how much time the surgeon spends with the patient (6.8 vs 6.0, \( P < .0003 \)), how well the surgeon gets to know the patient (6.7 vs 6.1, \( P = .01 \)), and quality of the office facilities (6.8 vs 6.1, \( P = .001 \)). Urban residents were more likely to prefer a formal surgeon personality type than suburban or rural residents (35% vs 17% vs 25%, respectively, \( P < .0001 \)).

Our findings suggest that surgeons and hospital systems should prioritize surgeon-patient interactions in the office. Surgeon personality, including surgeon empathy,\(^1\) being a good listener, and including the patient in decisions,\(^1\) makes a marked difference to the patient and their likelihood of pursuing care with an orthopaedic surgeon. So too does spending more time with the patient, which the surgeon must balance with patients also preferring shorter wait times in the orthopaedic sports medicine clinic.\(^1\)

The most important non-surgeon factors to our respondents were quality of the hospital/office facilities and reputation of the surgeon’s hospital or group. Of all factors evaluated, the hospital system likely has the most control over quality of facilities, and this can have a significant impact on patient recruitment. This in turn may feed into increasing the reputation of the hospital, further facilitating patient recruitment. Surgeon reviews on medical review websites were also highly valued, suggesting that surgeons and practices should direct efforts toward obtaining positive patient reviews. While online reviews have had a longer standing presence in the restaurant industry and elsewhere, they have entered the mainstream for surgeon evaluation as well.\(^2\)

Interestingly, marketing of the surgeon and surgeon’s social media accounts were 2 of the 3 least important factors. While millions of dollars are devoted toward direct-to-consumer marketing each year,\(^2\) notably in plastic surgery,\(^2\) this may not have a substantial impact on orthopaedic sports medicine patients. Social media is unquestionably a rising force in society, particularly for the younger generation, and surgeons feel an increasing pressure to take part.\(^2\) Gross et al.\(^2\) found that nearly two-thirds of orthopaedic surgeons did not have a social media presence, although nearly one-half of younger surgeons did. In our study, social media appears to not yet have a large role in surgeon selection.

Fig 1. Survey results of the importance of in-office factors in selecting an orthopaedic sports medicine surgeon, scored on a 0-10 scale.
Although younger patients were more likely to value social media, it remained relatively low in importance compared with other factors.

Previous literature on patient preferences regarding an orthopaedic sports medicine surgeon is limited. In a survey study of 382 patients at a single urban sports medicine institution, Manning et al.\textsuperscript{10} reported that the most influential factors in choosing a physician were board certification, being “well known” for a specific area of expertise, and in-network status. The authors noted the generalizability of these results was limited due to the single-center methodology of the study. Beck et al.\textsuperscript{11} surveyed 280 adolescents and 256 guardians in sports medicine clinic at a single tertiary care center with a focus on shared decision-making. They found that involving the child in the decision-making process was very important to both parties. Our study focused more on the patient experience, whereas the other studies had a greater focus on the logistical aspects of care or specific surgeon personality traits. Our study also has the strength of generalizability given that it uniquely samples a large population across the United States.

**Limitations**

Our study has several limitations. Our participants were not actively seeking a sports medicine surgeon in a clinic, so they may not exactly reflect the population of sports medicine patients. This was necessary to achieve a very large sample size. The study population was less racially and educationally diverse than the United States population, likely as a result of the demographics of Amazon MTurk workers. Though we found statistically significant differences, the clinical significance of magnitudes of differences in patient preference ratings is unknown. There are myriad other factors involved in the surgeon selection process, such as logistics of insurance coverage and convenience of office location, but we could not capture all factors.

**Conclusions**

The most important factors to patients in selecting their orthopaedic sports medicine surgeon, regardless of patient sex, race, or geography, are related to the patient’s in-office experience, including surgeon’s professionalism/personality, how much time the surgeon spends with the patient, and quality of the hospital/office facilities. Surgeons should consider prioritizing a professional office environment and taking the time to get to know patients for the benefit of their patients and their practice.

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