

FACTORS INFLUENCING FEMALE PATIENTS' SELECTION OF CARE THROUGH WOMEN'S SPORTS MEDICINE PROGRAMS

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BACKGROUND: To describe physician- and clinic-specific factors that may influence female patients' selection of care in a multidisciplinary women's sports medicine program.

METHODS: A cross-sectional anonymous survey was distributed to female patients evaluated by female physicians in a women's sports medicine clinic over a 2-month time period. Patient demographics, referral sources, influence of physician gender on selection of physician (1-7 Likert scale), and potential contributing factors (binary scale) were recorded. Patient interest in various ancillary multidisciplinary services (each on a binary scale, as below) were recorded and analyzed.

RESULTS: A total of 178 female patients (mean age 44.3 +/- 16.6 years) were included in this study. Patients reported 5.4 +/- 4.8 hours of weekly exercise. Physician selection was moderately influenced by a physician's female sex (4.2 +/- 2.2; 1 being "not influential", 7 being "most influential"). 75.3% noted some preference (> 1), and 35.3% noted strong preference (6 or 7) for a female physician, with 20.6% reporting female physician sex as the most influential factor in their selection (7). Among self-referred patients, female physician sex played a stronger influence on selection than those referred from other sources (5.3 vs 3.9, $p < 0.001$) with 59.5% reporting strong preference. The most frequently cited reason was "I feel more comfortable with a female physician" (52.0%). Nearly 80% of patients requested access ancillary services, including injury prevention training (50.0%), exercise counseling (48.9%), nutrition counseling (35.4%), sleep specialists (16.9%), hormonal specialists (16.3%), sports psychology (7.3%), and sports cardiology (4.5%). Younger patients (< 40 years) more frequently requested sports psychology compared to older patients (40+ years) (12.2% vs 3.1%, respectively; $p = 0.020$).

CONCLUSION: Female patients who were evaluated by female sports medicine physicians in the women's sports medicine program frequently cited physician sex as a contributing factor in their selection, more so among patients who were self-referred. The majority of patients were interested in access to at least one ancillary service, highlighting the need for multidisciplinary sports medicine care in women's sports medicine programs.

INTRODUCTION

With the growth and expansion of patient-centric healthcare delivery, there is rising pressure within hospital systems to attain and optimize quality metrics, including patient satisfaction ratings and outcomes. Historically, female patients have been underrepresented in medical literature.¹ The same is certainly true in the world of sports medicine, leading to the perpetuation of sex disparities in the care of female athletes.² The

number of female athletes is continually growing, and the types of sports that women are playing continues to evolve as well.³ The myriad of sex-specific differences in anatomy, biomechanics, and physiology must be considered as active female and male patients will likely have varying needs related to injury prevention and treatment, as well as performance optimization.^{4,7} Female athletes are at greater risk for certain types of injuries, including bone stress injuries, which may require

multidisciplinary treatment teams and access to ancillary services, such as sports nutrition, sports endocrinology, psychology, and more. Women's sports medicine programs have been developed to address such differences while supporting multidisciplinary care, and this may influence patients' selection of healthcare providers and sports medicine clinics.

Additionally, some evidence suggests that female athletes may have different preferences and comfort levels related to clinician sex compared to their male counterparts. Drummond et al surveyed a cohort of 685 Division I athletes, asking male and female athletes to rate their comfort level from 1-5 based on hypothetical clinical scenarios. Female athletes reported greater comfort levels with female athletic trainers, while male athletes reported minimal or no difference. There is also evidence to suggest that physician referral patterns to subspecialists may be influenced by both physician and patient sex. Sex-concordant referral patterns have been demonstrated among both referring male and female physicians, though referring male physicians have been found 20 times more likely to refer to a male surgeon than female physicians to a female surgeon.⁸ Additionally, patient sex appears to affect physician referral patterns as well, with female patients being 2.3 times more likely to be referred to a female surgeon than male patients.⁸

While women's sports medicine programs have been designed to address the multifactorial needs of female sports medicine patients, to our knowledge, no reports exist to date evaluating factors that influence female patients' selection of care in comprehensive women's sports medicine programs. With the growth of patient-centered healthcare, it is critical to understand female patients' priorities to optimize patient satisfaction and care, and to further bridge sex disparities in the world of sports medicine. The purpose of this study was to characterize physician- and clinic-specific factors that may influence female patients' selection of care in a multidisciplinary women's sports medicine program.

METHODS

Patient Cohort

Data presented in this cross-sectional study are the result of a quality improvement initiative approved by Massachusetts General Hospital with waiver of Institutional Review Board approval. A survey was designed to assess factors contributing to female patients' selection of care within our

women's sports medicine program. The voluntary, anonymous survey in Appendix 1 was distributed to all adult female patients seen in a single outpatient sports medicine clinic by three female physicians (two primary care sports medicine, one orthopedic surgeon) in the women's sports medicine program over a two-month period in 2021. Exclusion criteria were incomplete or illegible survey data.

Patient demographics including age and weekly exercise (hours) were collected, along with referral source (physician/provider, online search, word of mouth, other). Binary responses were collected related to interest in access to various ancillary clinical services, including injury prevention training, exercise counseling, nutrition counseling, sleep specialists, hormonal specialists, sports psychology, and sports cardiology. A 7-point Likert Scale was used to assess the influence of female physician sex on selection of physician (1 representing *not influential*, and 7 representing *most influential*). Binary scales were utilized to assess for potential contributing factors, represented by statements such as, "I feel more comfortable with a woman physician in general," "I feel more comfortable with a woman physician for my specific injury or problem," "I prefer the communication styles of women," "I feel a female would understand female injuries better," and more. Additional space was provided for optional comments. Responses were collected in a secure Excel spreadsheet. Incomplete surveys were excluded from analysis.

Descriptive statistics were utilized to report on patient demographics, referral source, interest in access to ancillary services, influence of female physician sex on selection, and contributing factors. Independent samples t-tests were used to evaluate the relationships between patient demographics (age, activity level, surgical versus non-operative clinic) and referral source on influence of physician sex and interest in access to various ancillary services. Sub-group analysis was performed for age <40 years versus age 40+ years to investigate possible differences in desired ancillary services among pre- versus peri- and post-menopausal athletes given the average age of perimenopause in mid-40s. Statistical analyses were performed with IBM SPSS® Statistics software platform (Version 28.0, Armonk, NY). P-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 178 female patients (mean age 44.3 +/- 16.6 years) completed the survey over a two-month period, of which 100 were seen in non-operative clinics and 78 in a surgical clinic. Mean

weekly exercise reported was 5.4 +/- 4.8 hours (Table 1). The most common referral sources to our physicians reported by patients included other physicians or providers (59.6%), online search (24.2%), and word of mouth (9.0%).

Table 1. Patient demographics for females evaluated by non-operative physicians and surgeons in a women's sports medicine clinic

	<i>Non-operative</i>	<i>Surgical</i>	<i>Combined</i>
Age [years ($\pm$ SD)]	48.6 (17.4)*	38.9 (13.7)*	44.3 (16.6)
<i>Age group [n (%)]</i>			
<20	3 (3.0)	0 (0)	3 (1.7)
20-29	17 (17.0)	22 (28.2)	39 (21.9)
30-39	15 (15.0)	25 (32.1)	40 (22.5)
40-49	15 (15.0)	12 (15.4)	27 (15.2)
50-59	16 (16.0)	12 (15.4)	28 (15.7)
60+	34 (34.0)	7 (9.0)	41 (23.0)
<i>Total</i>	100 (100)	78 (100)	178 (100)
Weekly exercise [hours ($\pm$ SD)]	5.7 (5.3)	5.1 (4.1)	5.4 (4.8)
<i>Age group [hours ($\pm$ SD)]</i>			
<20	15.3 (13.1)	N/A (N/A)	15.3 (13.1)
20-29	6.0 (4.6)	5.6 (5.0)	5.8 (4.8)
30-39	4.8 (3.7)	4.8 (3.1)	4.8 (3.3)
40-49	3.3 (2.5)	4.7 (2.6)	4.0 (2.6)
50-59	7.4 (8.4)	6.5 (5.5)	7.0 (7.2)
60+	5.0 (3.0)	2.9 (3.8)	4.7 (3.2)

SD=standard deviation; n=number

*p<0.001

On average, physician selection was moderately influenced by female physician sex (4.2 +/- 2.2; 1 being "not influential", 7 being "most influential") with 75.3% of patients noting at least some preference for a female physician (> 1). A total of 35.3% of patients reported female physician sex as one of the most influential factors (6 or 7) in physician selection, with 20.6% reporting this as the most influential factor (7) in their selection (Figure 1). Among patients that were self-referred via

online search, physician sex played a stronger influence on selection than those referred from other sources (5.3 +/- 1.8 vs 3.9 +/- 2.3, p<0.001) with over 90% reporting some influence (>1), 59.5% reporting strong influence (6 or 7), and 29% reporting most influence over their selection (Figure 1). There were no correlations between patient age or activity level and influence of physician sex.

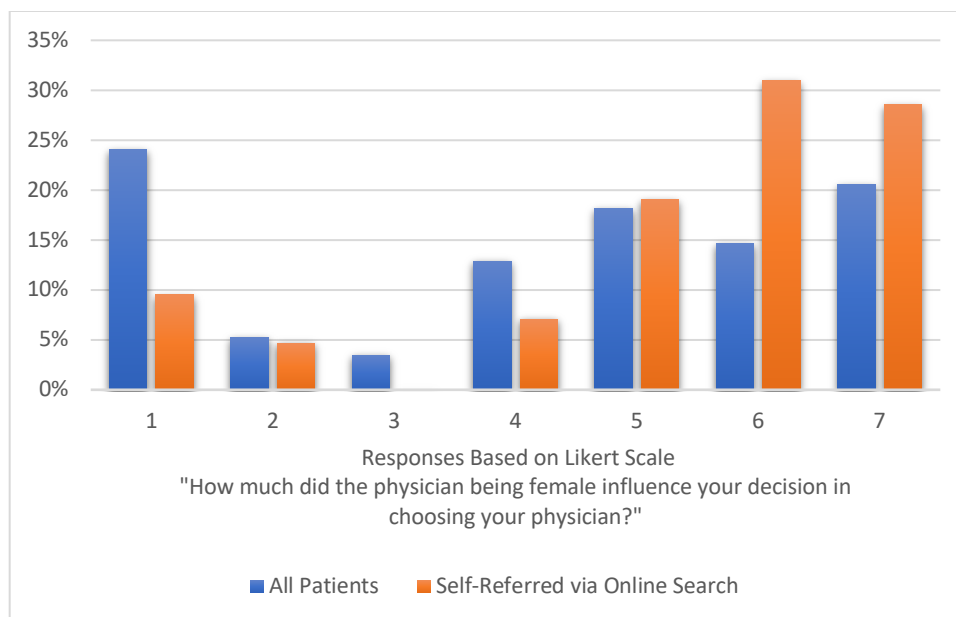


Figure 1. Importance of female physician sex on selection of a sports medicine physician among all female patients and among those who were self-referred (1 being “not influential”; 7 being “most influential”)

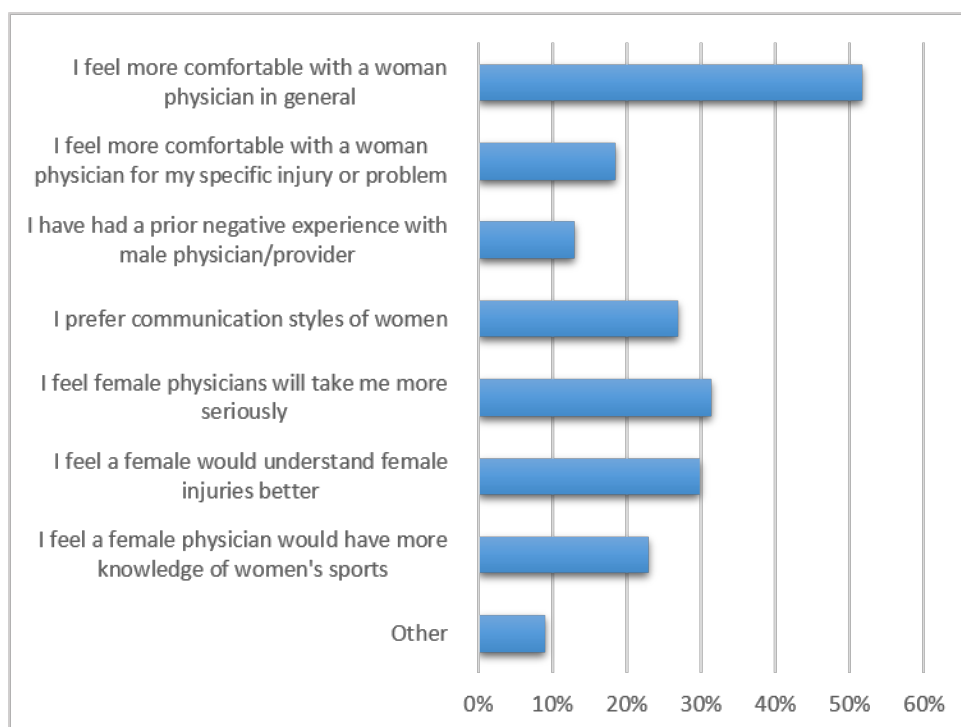


Figure 2. Commonly identified reasons for preferring a female sports medicine physician

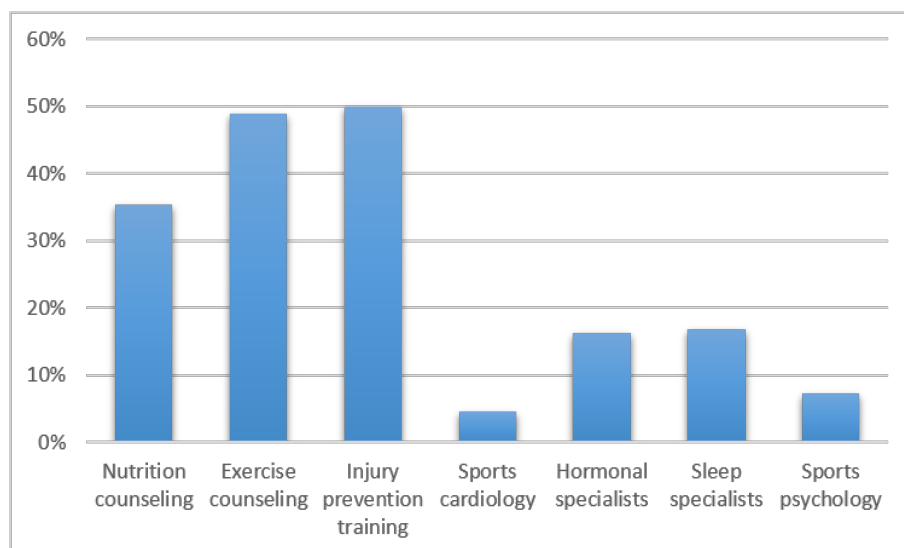


Figure 3. Ancillary services requested by female patients in sports medicine clinics

Table 2. Frequency of requested ancillary service among patients less than 40 years old (n=82) compared to those 40 years and older (n=96)

<i>Ancillary Service</i>	<i><40 years (%)</i>	<i>40+ years (%)</i>	<i>p-value</i>
<i>Injury prevention training</i>	51.2	49.0	0.765
<i>Exercise counseling</i>	46.3	51.0	0.534
<i>Nutrition counseling</i>	32.9	37.5	0.527
<i>Sleep specialists</i>	14.6	18.8	0.340
<i>Hormonal specialists</i>	20.7	12.5	0.140
<i>Sports psychology</i>	12.2	3.1	0.020
<i>Sports cardiology</i>	6.1	3.1	0.343

DISCUSSION

This study describes factors that may be important to female patients seeking care in a center with a Women's Sports Medicine Program. Within this cohort, access to both female sports medicine physicians and multidisciplinary care were found to be priorities for many female patients, further supporting the development of such programs nationwide.

Of the 178 female patients included in this study, 75.3% noted at least some preference for a female sports medicine physician, with over 20% reporting female physician sex as the most influential factor in their selection. Among patients who were self-referred via online search, this influence was even stronger with 90% reporting at

least some preference and nearly 30% reporting female physician sex as their most influential factor in selection. This is somewhat predictable given the fact that this subgroup of patients had self-selected a female sports medicine physician compared to other patients who were referred by different sources. However, even among those female patients who were referred directly, 72% reported some preference for a female physician and 16.5% reported female physician sex as most influential. Among those seen in orthopedic surgery clinic, patients were younger on average with a trend toward stronger preference for a female orthopedic surgeon compared to patients seen in non-operative sports medicine clinics. This further reinforces the value of programs directed specifically toward

young female athletes who may be undergoing surgical evaluation.

These findings expand on prior studies that highlight the influence of physician sex on patient selection across a variety of specialties. Dineen et al. described male and female patient preferences related to physician sex in an emergency room or urgent care setting and observed that, while most patients reported no preference, 14.5% preferred a female orthopedic surgeon and 1.6% preferred a male.² Of patients that reported a preference regarding physician sex, 90% were female, nearly all of whom preferred a female orthopedic surgeon (92.6%).² This emphasizes the importance of distinguishing female compared to male preferences in a healthcare setting and is congruent with the present study, which also indicates that some female patients may prefer a female physician.

Similarly, sex-concordant physician preference has been demonstrated in cohorts of primary care patients and, in a more limited way, among athletes in a training room setting. Fink et al. found that both male and female patients in a university-based healthcare system preferred a primary care physician of their same sex.¹⁰ Other primary-care based studies have found stronger preferences for sex-concordance for medical care surrounding sexual/reproductive and mental health.^{11,12} This has been reflected in limited cohorts of collegiate student-athletes. Across all varsity sports at a single university, Wesner et al. found that 48% of female athletes preferred a female team physician, and nearly half of all female athletes would be uncomfortable seeing a male physician for sexual or reproductive health concerns.¹³ It is important to note in the present study that, while patients primarily present to sports medicine clinics for musculoskeletal concerns, common injuries including stress fractures or bone stress injuries often require assessment of menstrual status and reproductive health to ensure optimal care. This is in addition to routine gynecologic care that a team physician may also provide in some cases and may help to further explain female patient preference for a female sports medicine physician. Collegiate male football players have similarly been found to have a stronger preference for male athletic trainers for the treatment of general medical and genitourinary injuries, but prefer female athletic trainers when it comes to the treatment of depression.¹⁴ Qualitative data from this same study suggested that athletes more frequently attributed female athletic trainers

with gender-role stereotypes, such as being more nurturing, caring, and understanding, that may lead to the care of sensitive issues.¹⁴

Other factors contributing to sex-specific patient preferences are likely multifactorial and have not been well studied. In the present study, a variety of reasons were cited for preferring a female sports medicine physician. Over half of patients reported feeling more comfortable with a female physician, and nearly a third felt they would be taken more seriously by a female physician. Better understanding of female-specific injuries, favorable communication style, and knowledge of women's sports were also frequently cited. A total of 13% of patients noted a prior negative experience with a male physician as a contributing factor. A systematic review evaluating patient preferences and satisfaction in an OBGYN setting found that most patients preferred a female OBGYN due to their patient-centered communication style.¹⁵ While concrete physician-specific factors including board certification, area of expertise, years in practice, and surgical outcomes have all been shown to influence patient preference, additional intangible factors, such as bedside manner and emotional intelligence, also influence a patient when selecting a physician. Prior experiences and other underlying biases inevitably affect patient preferences as well. Such complexities reinforce the concept that medical clinics, including sports medicine practices, must continue to strive to understand patient priorities to optimize patient care and satisfaction. Further research efforts are needed to better understand patient-physician interactions in sports medicine, similar to efforts investigating this relationship in other specialties and sub-specialties.

In the present study, nearly 80% of surveyed female patients requested access to at least one ancillary service as part of their sports medicine care, with nearly 50% requesting two or more services and over 25% requesting three or more services. These findings reflect the necessity for multidisciplinary care in sports medicine to better meet patients' needs. The application of a multidisciplinary approach to patient care has been set into practice across various medical sub-specialties, including women's musculoskeletal health. As of March 2018, nineteen Women's Sports Medicine Programs have been identified in the United States.¹⁶ Prior studies have demonstrated the role and benefits of a team approach to caring for the musculoskeletal needs of female patients.¹⁶⁻¹⁸ Such teams generally consist of a wide variety of

specialists including non-operative/primary care sports medicine, orthopedic surgery, endocrinology, sports cardiology, OBGYN, sleep specialists, physical therapy, sports nutrition, sports psychology, and more. Through greater understanding of the role of sex differences in certain musculoskeletal injuries/conditions and in the context of increasing athletic and exercise opportunities for women, a paradigm shift is occurring to provide more comprehensive and equitable care in women's musculoskeletal health, and meeting this need expressed by patients will help tailor the growth of such programs.

This study has several limitations that should be noted. First, weaknesses characteristic to the survey-based, cross-sectional study design include selection bias and recall bias, among others. In terms of recruitment, this is likely an inherently biased population as it includes only female patients who are being seen by female physicians. As such, the authors recognize that these data may be skewed in the direction of increased preference for a female physician. With that in mind, however, these findings remain important and reflective of a subgroup of female athletes looking for more specialized care in multidisciplinary Women's Sports Medicine Clinics, many of which employ greater female clinician representation than a typical sports medicine clinic. The study was completed over a two-month period at a single academic sports medicine clinic, possibly limiting generalizability to larger populations or different geographic regions. Further studies are necessary including larger sample sizes and more diverse patient populations to better address such limitations.

CONCLUSION

Female patients who were seen by female sports medicine physicians in a Women's Sports Medicine Program frequently cited physician sex as a contributing factor in selection of their sports medicine specialist. Specifically, over 75% of patients noted at least some preference for a female physician and over 35% identified female physician sex as one of the most influential factors in their selection. Additionally, a vast majority (nearly 80%) of patients preferred access to at least one ancillary service, with nearly 50% requesting two or more and over 25% requesting three or more services. Such findings suggest that female patients may benefit from increased access to female sports medicine providers and highlight the importance of

access to multidisciplinary sports medicine care for their unique musculoskeletal needs. Understanding the priorities of female patients is essential for optimizing care and combating sex disparities in sports medicine. Sports medicine practices should better understand and replicate the desired clinician characteristics and increase incorporation of multidisciplinary services to meet patient demand. Future studies are needed to identify contributing factors to patient selection of sports medicine physicians among female patients of various backgrounds, to monitor for longitudinal effects on quality metrics and patient satisfaction, and to develop strategies to deliver more equitable care.

Conflict of Interest Statement

The authors declare no conflicts of interest with the contents of this study.

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APPENDIX 1.

Survey questions administered to female patients

1. Age: _____
2. Sports/Exercise in which you participate: _____
3. Hours of exercise per week: _____
4. Why did you choose your physician/surgeon today? (Check all that apply)
 - ☐ Referred by another physician
 - ☐ Online search
 - ☐ Word of mouth
 - ☐ Other: _____
5. On a scale of 1 to 7 (7 being the most influential), how much did the physician being female influence your decision in choosing your physician? (Please circle your response)

1 2 3 4 5 6 7
6. Which of the following statements apply to you and influenced your decision in choosing a physician? (Please check all that apply)
 - ☐ I feel more comfortable with a woman physician in general
 - ☐ I feel more comfortable with a woman physician for my specific injury or problem
 - ☐ I have had a prior negative experience with male physician/provider
 - o Please describe: _____
 - ☐ I prefer communication styles of women
 - ☐ I feel female physicians will take me more seriously
 - ☐ I feel a female would understand female injuries better
 - ☐ I feel a female physician would have more knowledge of women's sports
 - ☐ None
 - ☐ Other (Please describe): _____
7. What other services would you utilize or find helpful if provided in conjunction with your care? (Please check all that apply)
 - ☐ Nutrition counseling
 - ☐ Exercise counseling
 - ☐ Injury prevention training
 - ☐ Sports cardiology
 - ☐ Hormonal specialists
 - ☐ Sleep specialists
 - ☐ Sports psychology

Thank you for helping us to improve our care! Please feel free to leave any additional comments in the space below.