



# Gender Differences in Seeking Healthcare and Post-Intervention Pain Outcomes in Foot and Ankle Orthopedic Patients

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## BACKGROUND

- Pain is subjective, amorphous, difficult to quantify, and highly individualized
- Musculoskeletal pain is one of the leading causes of healthcare and economic expenditure, resulting in missed workdays, disability, and inability to perform recreational activities
- Women on average report greater musculoskeletal and joint pain than men, and present at a later disease state, resulting in an increased pain burden at baseline than their male counterparts.<sup>1-4</sup>
- Even when an intervention such as arthroplasty is performed, there is less functional recovery and more pain post-surgically for women compared to men.<sup>3-6</sup>
- Unconscious bias of PCPs and specialists may influence consultation and surgical recommendation, barriers exist that prevent women from obtaining care for these conditions.<sup>1,7-10</sup>
- Foot and ankle complaints are one of the most common orthopedic conditions, with up to 20% of the adult population reporting foot or ankle pain, and nearly two thirds of those reporting significant pain that limits their daily activities.<sup>11</sup>
- There has been limited focus on studying the differences between men and women regarding seeking help for their foot or ankle pain.
- Objectives:** To determine whether a disparity existed in the rates at which women and men were referred to our practices for common complaints of foot and ankle pain, whether an intervention occurred, the time it took for an intervention to occur, and how effectively the intervention treated patients' pain.
- Hypothesis:** There are differences in the time it takes for women to first see a primary care provider, get referred to orthopedic specialist care, and time to surgical intervention. Also, there would be significant differences in both pre- and post-operative pain scores, with women having higher scores and less pain resolution following intervention. Finally, we hypothesized that more women would have chronic foot and ankle conditions compared to men.

## METHODS

- Retrospective review of 137 patients (87 females, 50 males) who were seen in outpatient clinics of our Orthopedic Foot and Ankle Surgeon between 1/1/2007 and 1/1/2015
- Patients with fractures, cancers, and other associated diagnoses were excluded.
- Study specific data included acute or chronic pain source, lag time from pain onset until seen by the primary care physician, referral time to get to an orthopedic surgeon, if surgery was done, delayed time until surgical procedure, and pain scales at the pre-operative and post-operative visits.
- Chronicity was defined by symptoms existing for more than 3 months before visiting their primary care provider.
- Two-way ANCOVAs were used to compare the differences between sex, chronicity of the injury, and in the time it took to get to a PCP from the time of injury, time from PCP to orthopedic surgeon, time from orthopedic surgeon to surgical intervention (if there was one).
- Chi-squared tests were used to determine if there were any differences between the sexes in chronicity of injuries; differences in sex, chronicity, and racial/ethnic identification; and if there were any gender differences in which patients underwent a surgical intervention.

## RESULTS

Table 1. Average pain scores by gender pre- and post-intervention from 0 (no pain) to 10 (maximum pain).

	Avg Pain Pre-Intervention (±SD)	Avg Pain Post-Intervention (±SD)	Min	Max
Women	6.08 ± 2.55	2.97 ± 3.16	0	10
Men	6.19 ± 2.75	4.25 ± 3.42	0	10

Table 2. Average time by gender from symptom onset to primary care physician (PCP) visit, PCP visit to orthopedic surgeon referral visit, and orthopedic surgeon referral visit to intervention (measured in days).

	Average time to primary care physician visit from symptom onset (±SD)	Average time from primary care physician visit to Orthopedic referral (±SD)	Average time from Orthopedic referral to surgery (±SD)
Women	363.14 ± 1380.01	55.06 ± 73.65	119.88 ± 173.45
Men	284.49 ± 632.51	68.67 ± 121.45	109.82 ± 143.14

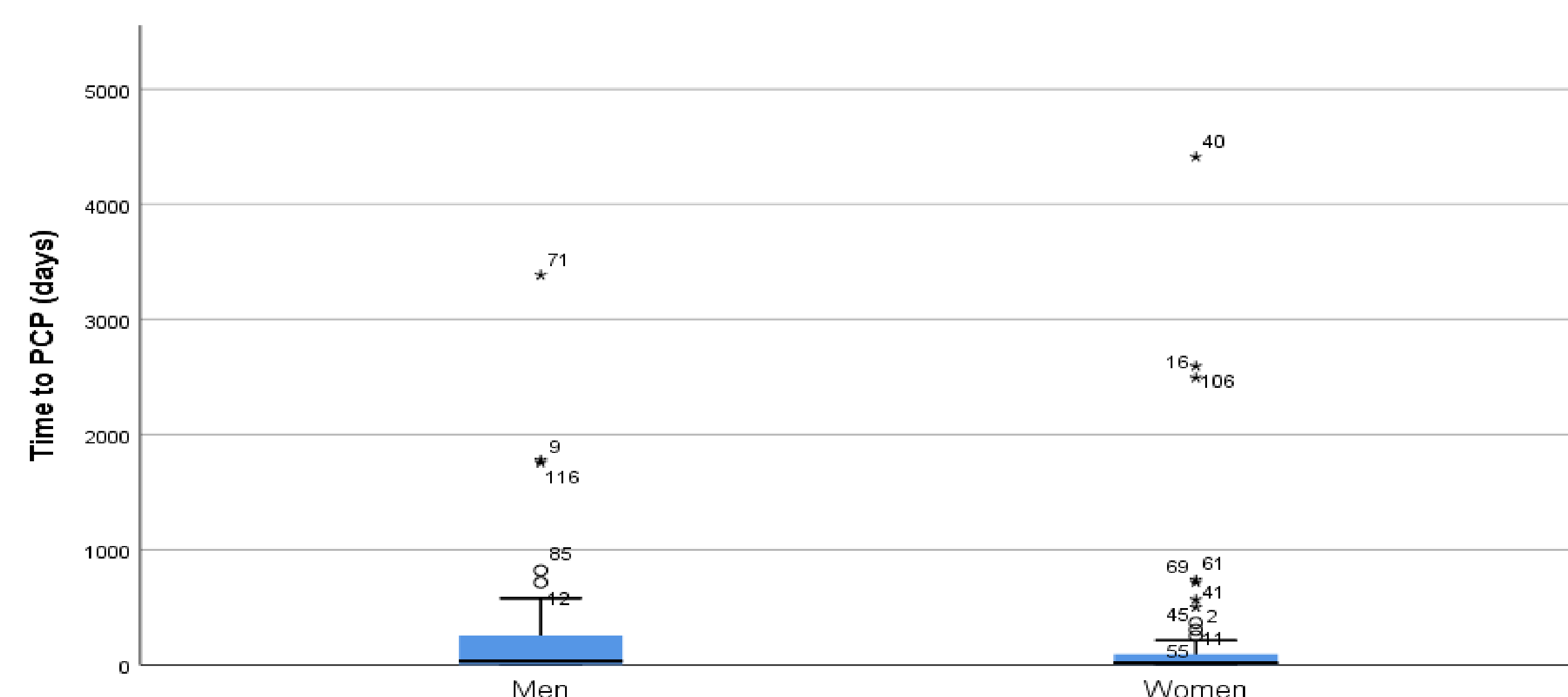


Figure 1: Boxplot of time from onset of injury to being seen by primary care physician by gender.

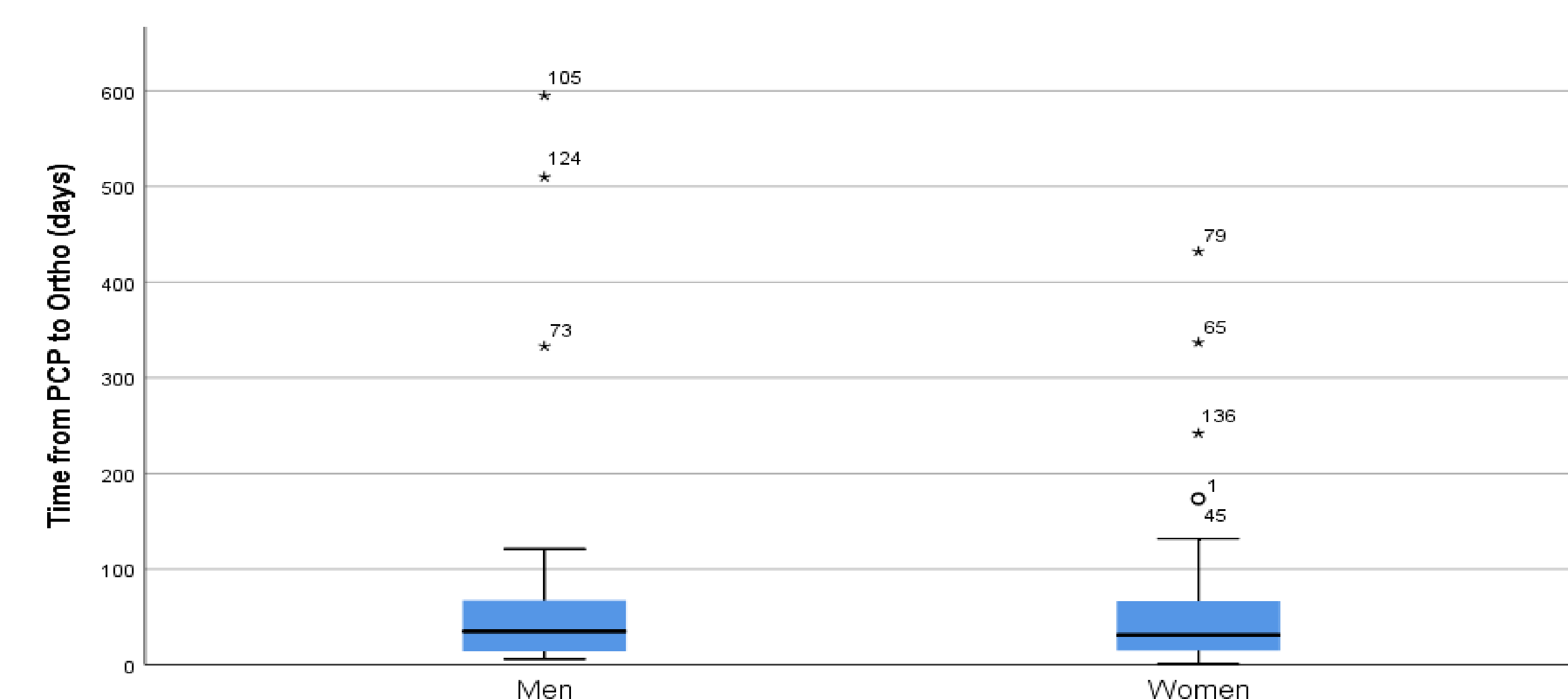


Figure 2: Boxplot of time from visit with primary care physician to being seen by orthopedic surgeon by gender.

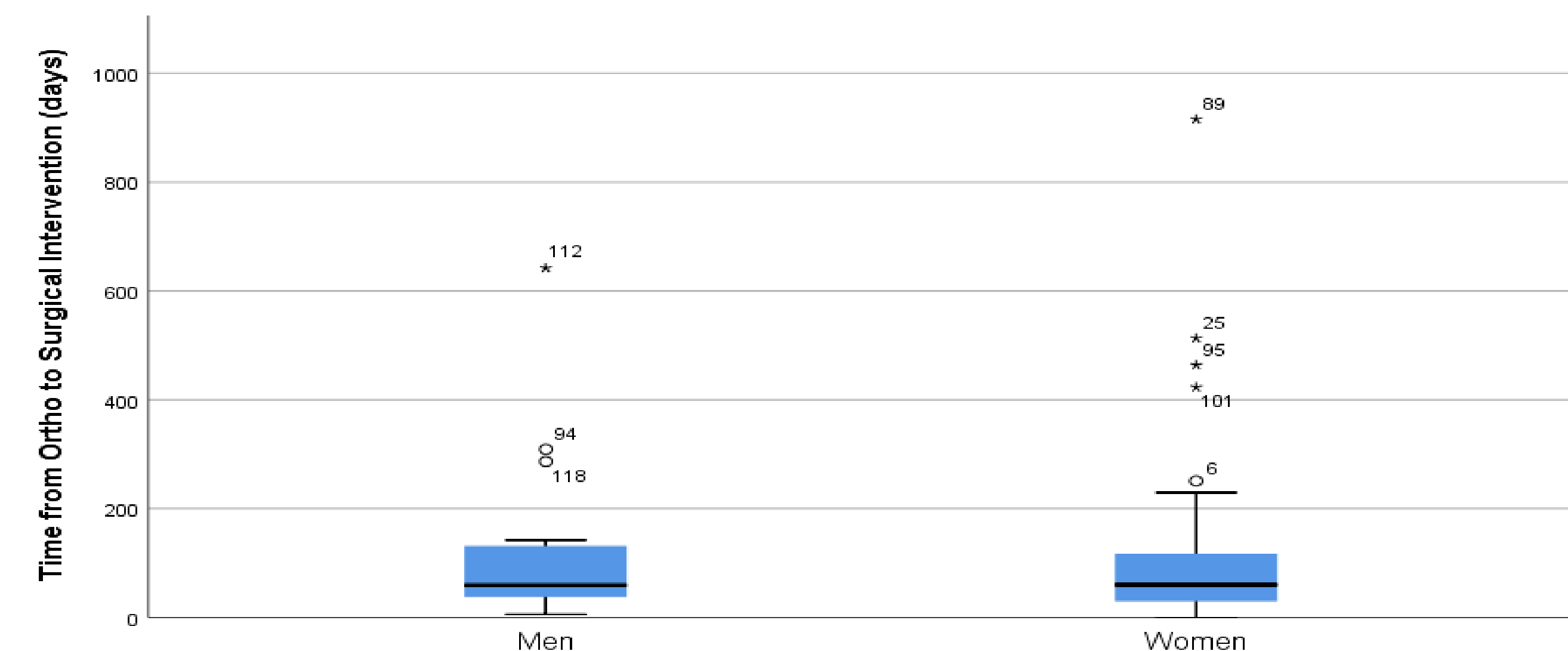


Figure 3: Boxplot of time from initial visit with orthopedic surgeon to surgical intervention (if there was one) by gender.

## RESULTS

- There are no significant differences or disparities between men and women in the time from symptom onset to PCP visit, PCP visit to orthopedics referral visit, and from orthopedic visit to surgical intervention (if applicable).
- There were also no significant reported pain differences between men and women, both pre intervention and post intervention.
- Women were found to have chronic injuries more often than men did (48.3% vs. 30%), a difference that was statistically significant ( $\chi^2=4.365$ ,  $df=1$ ,  $p = .037$ )

## DISCUSSION/CONCLUSIONS

- Similar healthcare seeking behaviors may be explained by how musculoskeletal pain in the ankles and feet significantly hinder a patient's ability to walk and proceed with daily activities.<sup>12,13</sup> Patients may be constantly reminded of their foot and ankle pain, which may lead to earlier physician visits for both genders.
- Limitations of this study include being limited to one institution in West Texas, therefore, generalizability may be limited in larger, more urban settings. There were also limitations in sample size and that pain intensity scores may have poor sensitivity.
- This study is unique because it focuses on foot and ankle pain, which has a high prevalence but has been given very little attention. Additionally, many of our patients come from rural areas, and results may differ from densely urban areas. Healthcare access barriers may hinder proactive behavior, and more focus on rural settings is warranted for examining sex differences in seeking treatment.
- It is important that physicians and public health advocates understand the differences in the healthcare needs not only of men and women, but also age, race/ethnicity, socioeconomic status, and rural/urban living and how we can use those to encourage positive healthcare seeking attitudes.
- Further investigation on sex disparities and the cause of these disparities can help develop sex specific treatment regimens that may improve outcomes.

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