

Author Response: The Incidence of and Demographic Disparities among Fifth Metatarsal Fracture Nonunions

Alexandra Flaherty¹, Bardiya Akhbari², Hamid Ghaednia³, Soheil Ashkani-Esfahani⁴, Lorena Bejarano-Pineda⁵

Journal of Foot and Ankle Surgery (Asia-Pacific) (2023): 10.5005/jp-journals-10040-1298

Dear Dr. Bansal,

Thank you for your comments on our recently published article.¹ We read your response with great interest. You have raised some valid points. We would like to respond to each of them in a pointwise manner below.

Due to the retrospective nature of this study and the limited information provided within the medical records, the associated injuries and extent of soft tissue injury could not be consistently and reliably extracted during data collection. All the fractures included in this study were isolated fifth metatarsal fractures. Specifically, patients with concomitant foot fractures during the healing period of the principal fifth metatarsal fracture were excluded.

Variable		p-value*
Age		0.124
Weight		0.920
Height		0.556
BMI		0.662
Activity level	Athlete	0.283
	Regular	–
Smoking status	Current	0.692
	Former	0.851
	Never	–
Fracture zone	Zone 1	0.058
	Zone 2	0.001
	Zone 3	–
Treatment method	Conservative	0.870
	Operative	–
Gender	Female	0.455
	Male	–
Race	African American	0.813
	Asian	0.104
	Hispanic	0.213
	White	0.464
	Other	–
Displacement	No	0.018
	Yes	–

*Multivariable logistic regression analysis; $p < 0.05$ was considered statistically significant

¹Foot & Ankle Research and Innovation Laboratory (FARIL), Department of Orthopaedic Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, MA; John Sealy School of Medicine, University of Texas Medical Branch, Galveston, TX, United States of America

^{2,3}FARIL-SORG Collaborative, Department of Orthopaedic Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, MA

⁴Foot & Ankle Research and Innovation Laboratory (FARIL), Department of Orthopaedic Surgery; FARIL-SORG Collaborative, Department of Orthopaedic Surgery; Foot and Ankle Center, Massachusetts General Hospital, Newton-Wellesley Hospital, Boston, MA

⁵Foot & Ankle Research and Innovation Laboratory (FARIL), Department of Orthopaedic Surgery; Foot and Ankle Center, Massachusetts General Hospital, Newton-Wellesley Hospital, Boston, MA

Corresponding Author: Alexandra Flaherty, Foot & Ankle Research and Innovation Laboratory (FARIL), Department of Orthopaedic Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, MA; John Sealy School of Medicine, University of Texas Medical Branch, Galveston, TX, United States of America, Phone: +12102518913, e-mail: aflaherty11@mgh.harvard.edu

How to cite this article: Flaherty A, Akhbari B, Ghaednia H, *et al.* Author Response: The Incidence of and Demographic Disparities among Fifth Metatarsal Fracture Nonunions. *J Foot Ankle Surg (Asia-Pacific)* 2023;10(2):105–106.

Source of support: Nil

Conflict of interest: None

To address the potential effect of confounding variables, such as body mass index (BMI) and gender, on the union rates in zone 2 fractures, we performed a multivariable logistic regression analysis with all variables. The results of this analysis indicated that only fracture zone and displacement were significant independent predictors of non-union (see table).

There is a typo in Table 2 we apologize for this mistake. The mean weight of the non-union group should be reported as 79.4 ± 21.4 kg. Although this value demonstrates a statistical significance (based upon one-way analysis of variance), we recognize this difference in patient weights may not be clinically considerable. However, we wanted to report the difference, as this is a factor surgeons may want to consider when managing fifth metatarsal fractures.

While there was a significant difference in union rates of conservative treatment between the three fracture zones, with zone 2 demonstrating the lowest union rate (72%), this study only aimed to identify potential risk factors, not to determine causality. As you mentioned, only 8.9% of the population was treated operatively (approximately 90 patients), and we chose an appropriate analytical method according to this sample size. However, there are a variety of surgical treatment options, which should not be considered equivalent, and the sample size for each of these methods would have been smaller, limiting statistical analysis. In our opinion, another limitation is a lack of details surrounding each treatment method. For example, we were not able to collect data on non-weight bearing protocol or timeframe, activity restrictions, technical specifications of the surgery, or patient compliance. For these reasons, we are not providing recommendations on operative versus nonoperative treatments.

Thank you again for your thoughtful responses and careful consideration of this manuscript.

Sincerely,

Alexandra Flaherty, Bardiya Akhbari, Hamid Ghaednia, Soheil Ashkani-Esfahani, Lorena Bejarano-Pineda

ORCID

Alexandra Flaherty  <https://orcid.org/0000-0003-2474-3119>

Soheil Ashkani-Esfahani  <https://orcid.org/0000-0003-2299-6278>

REFERENCE

1. Flaherty A, Akhbari B, Ghaednia H, et al. The incidence of and demographic disparities among fifth metatarsal fracture nonunions. *J Foot Ankle Surg Asia-Pacific* 2023;10(1):8–12. DOI: 10.5005/jp-journals-10040-1275