

Demographics, Fracture Characteristics, and Treatment Strategies of Periprosthetic Distal Femur Fractures Compared to Native Distal Femur Fractures

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Introduction

There is a lack of literature that provides clinical comparisons between periprosthetic distal femur fractures (PDFF) and native distal femur fractures (NDFF), as well as the populations affected.

Objective

Analyze the demographics, fracture characteristics, and treatment strategies associated with periprosthetic distal femur fractures (PDFF) compared to native distal femur fractures (NDFF).

Methods

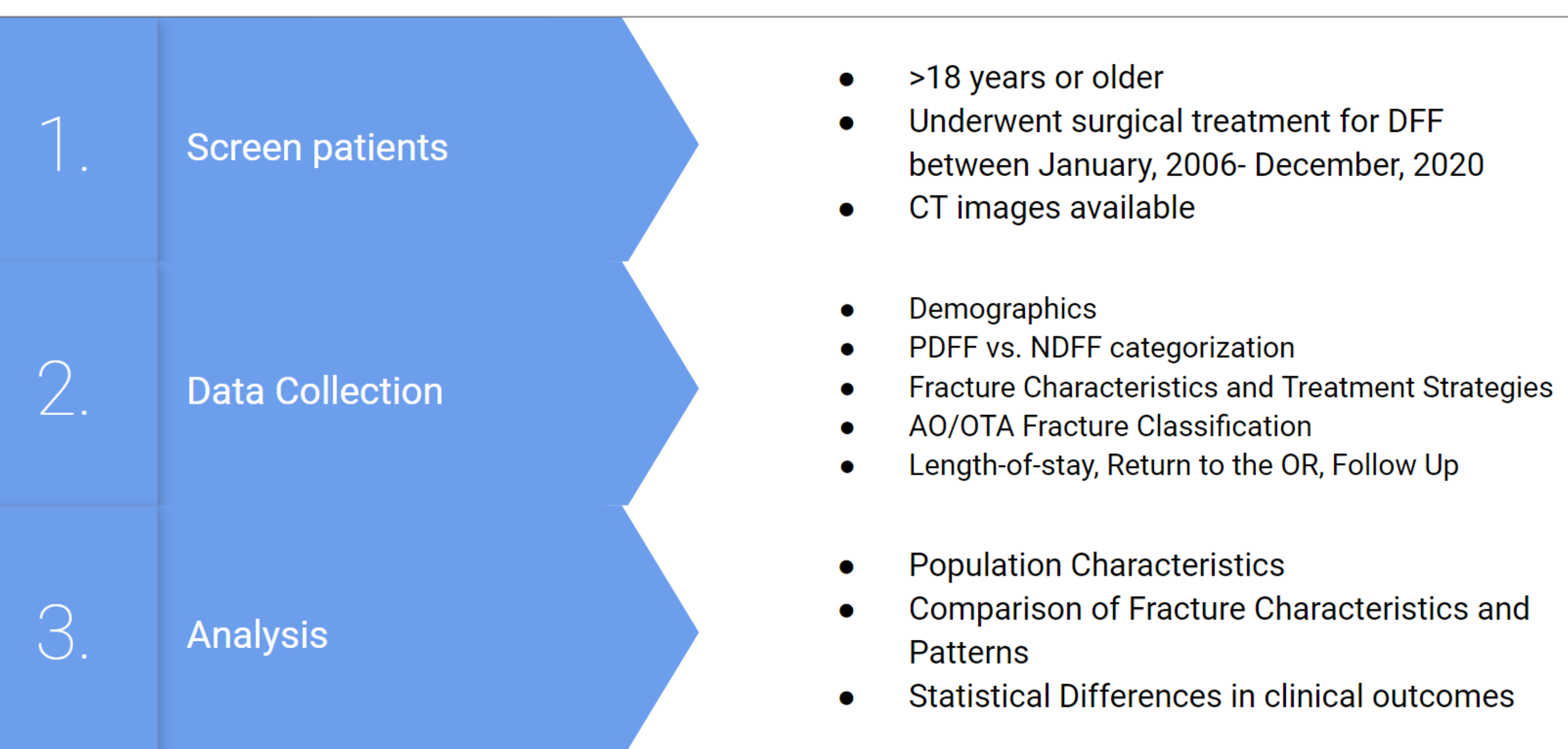


Image A

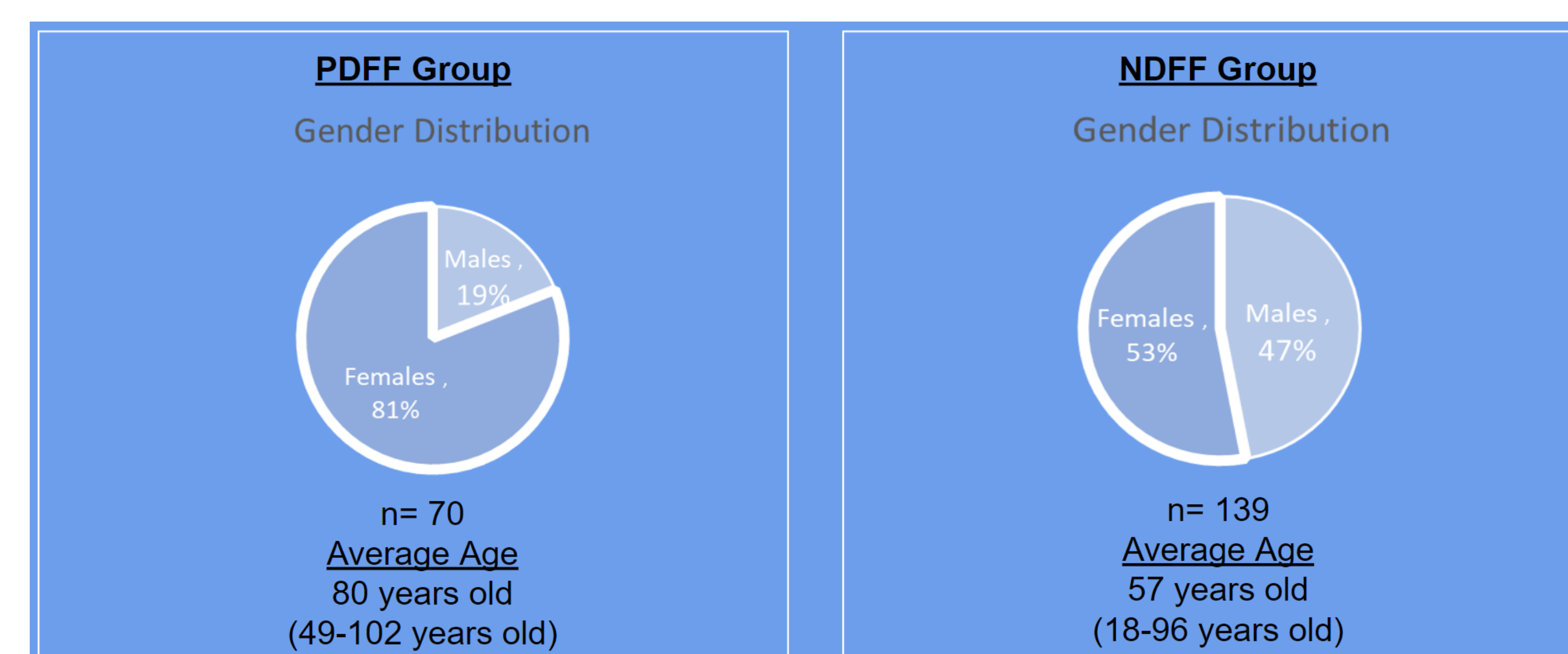


Image B

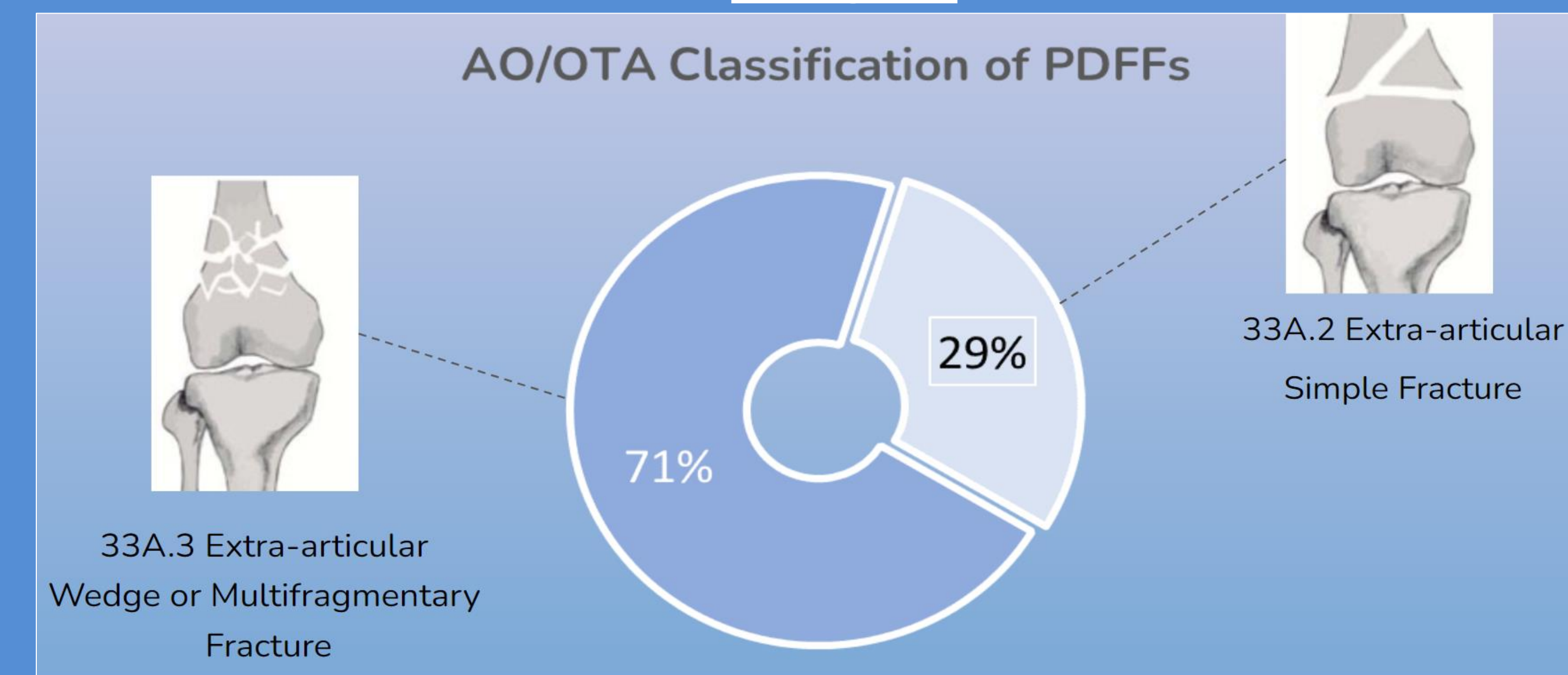
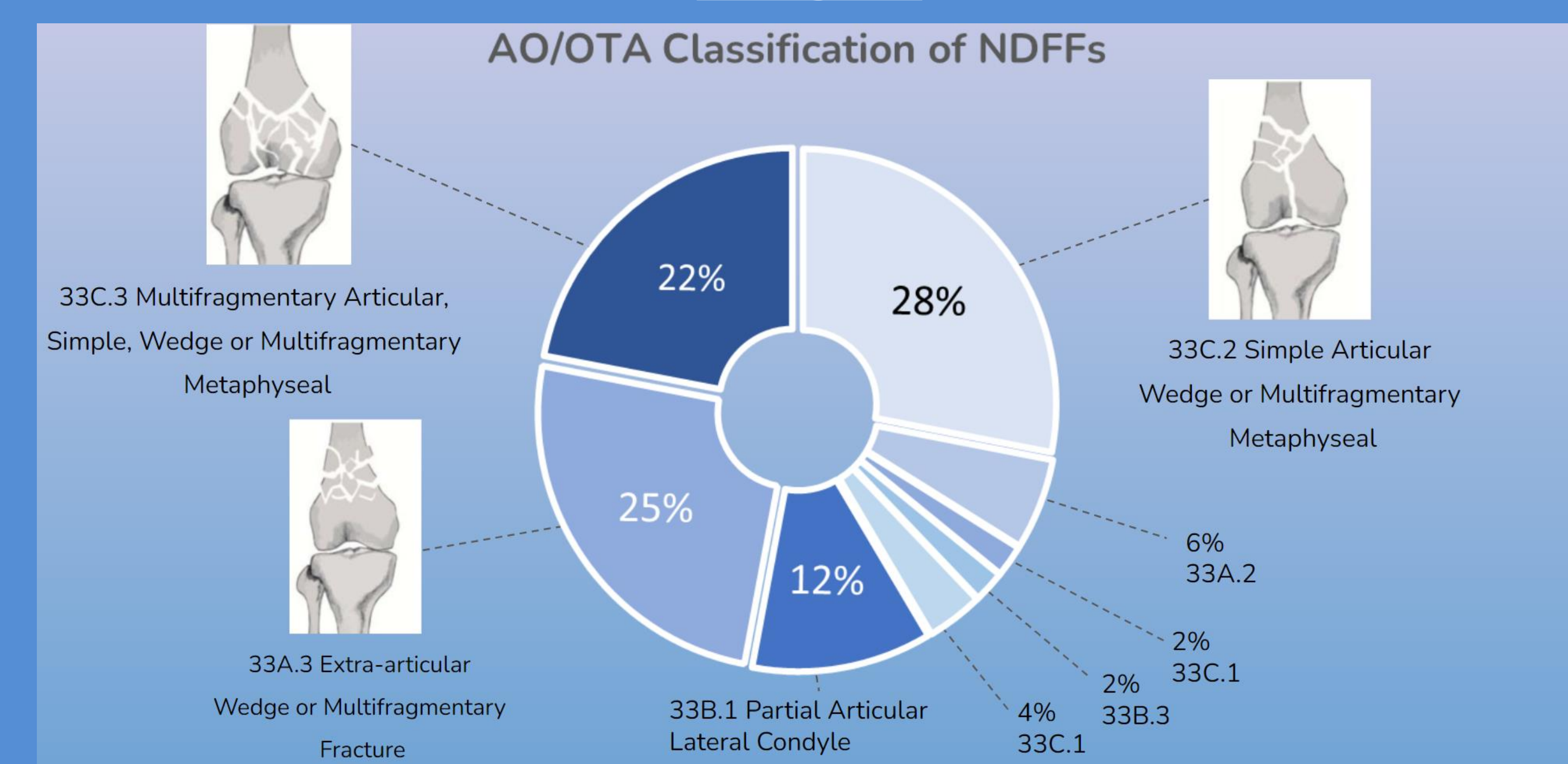


Image C



Results

- Women represented 81% of PDFFs, with an average age of 80 years old (Image A).
- PDFFs were commonly isolated injuries with AO/OTA Classification 33A.3 (Image B).
- NDFFs were often associated with polytrauma (Table A), with AO/OTA Classification 33C.2 (Image C).
- Intramedullary Nailing was the most common fixation for both groups, while nail-plate was the second most common in PDFF (Image D).
- PDFFs experienced significantly shorter length-of-stays but had significantly higher rates of low bone density and higher rates of re-operation compared to NDFF (Table B).

Image D

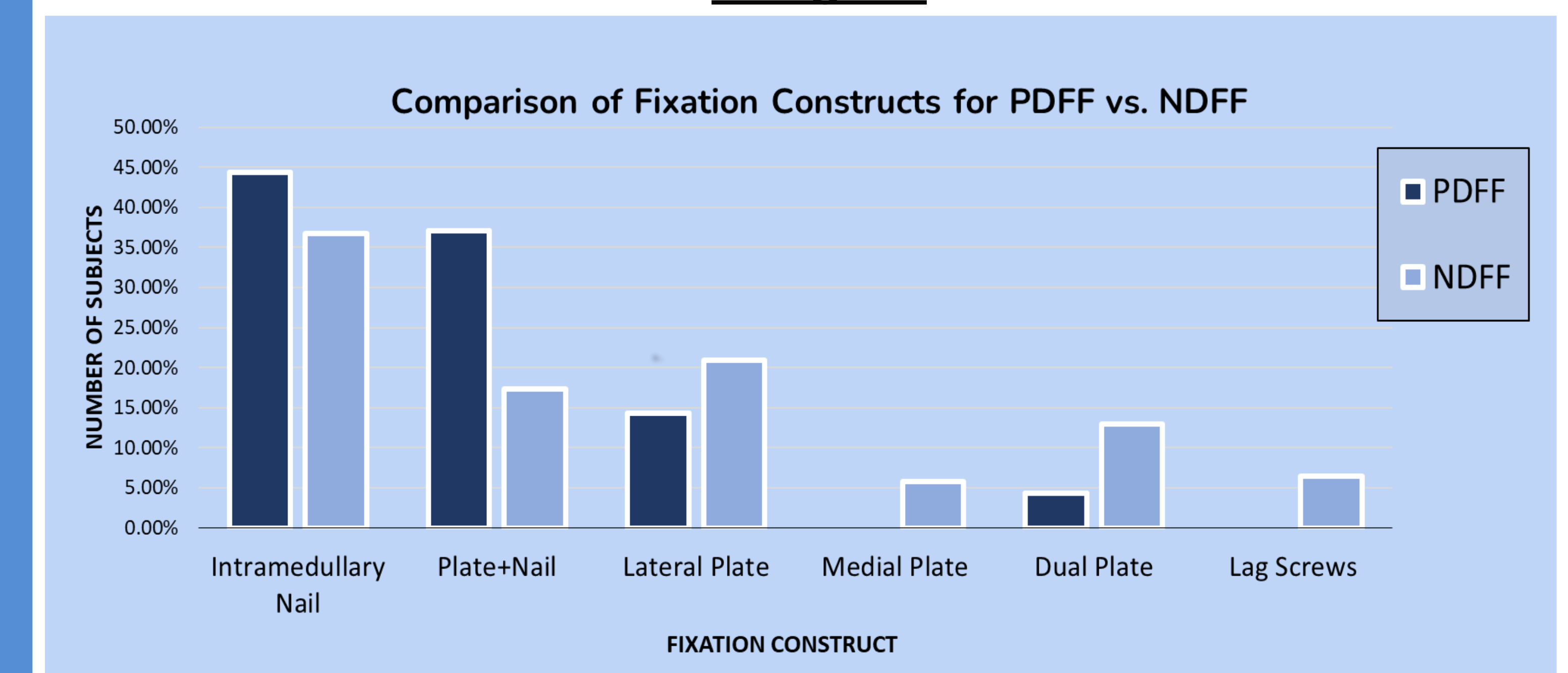


Table A: Fracture Characteristics

	PDFF (n=70)	NDFF (n=139)
Isolated Injury	80.0%	51.8%
Polytrauma	18.6%	41.0%
Comminution	85.0%	92.1%
Interprosthetic Fracture?	24.3%	—

Table B: Length-Of-Stay, Bone Density, and Re-operation

	PDFF	NDFF	α-value	
Length-of-stay	6.36 days	11.4 days	0.05	P-value: 0.00172
Prevalence of Low Bone Density	55.7%	19.4%	0.05	P-value: .00001
Re-operation occurrences	8.57%	13.6%	0.05	P-value: .283804
Most common reason for re-operation	Revise Fixation (3)	I&D (7)		—

Conclusion

- PDFFs frequently occur as isolated, extra-articular or comminuted injuries compared to NDFF.
- While intramedullary nailing was the most common fixation for both groups, hybrid fixation is becoming more common for PDFF.
- Elderly women with knee replacements and poor bone quality are a high-risk group for PDFF.

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References

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- 2) Benkovich, V., Klassov, Y., Mazilis, B., & Bloom, S. (2020). Periprosthetic fractures of the knee: a comprehensive review. *European Journal of Orthopaedic Surgery & Traumatology*, 30(3), 387–399. <https://doi.org/10.1007/s00590-019-02582-5>