

Mental Health Diagnoses Impact Rate of Textbook Outcomes for Operative Management of Distal Radius Fractures with Volar Plating

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INTRODUCTION

Textbook outcomes (TO) are composite metrics that define baseline surgical success across multiple variables, enabling standardized quality comparisons across surgeons and institutions.

Distal radius fractures (DRF) are among the most common fractures treated operatively, with volar plate fixation serving as the current standard of care.

Mental health diagnoses (MHD) have been associated with inferior outcomes following orthopedic procedures, including reduced range of motion, increased complications, and poorer rehabilitation adherence.^{1,2} However, their impact on composite outcome metrics for DRF management remains poorly characterized.

This study aimed to analyze the impact of MHD on the rate of a TO for volar plate fixation of DRFs at a single center.

1- Vranceanu AM, et al. Psychological factors predict disability and pain intensity after skeletal trauma. J Bone Joint Surg Am. 2009;91(11):2734–2741.

2- Bot AGJ, et al. Determinants of disability after upper extremity injuries. J Bone Joint Surg. 2013.

METHODS

Study Design: IRB-approved retrospective review of all DRFs managed with volar plating at our center, July 2022–December 2024.

Textbook Outcome Definition: Defined via a 3-round Delphi survey of 24 hand surgeons with expertise in DRF management.

Inclusion Criteria: Age 18–65, ASA Class <III, no poly-trauma, no open DRFs.

Groups: Patients separated into Mental Health Diagnosis (MHD) and Non-MHD groups based on documented diagnoses. MHD included diagnoses such as depression, anxiety, and bipolar disorder.

Statistical Analysis: Rates compared using Fisher's exact test.

RESULTS

TABLE 1: Baseline Characteristics

Characteristic	MHD (n=27)	Non-MHD (n=71)
Age (mean)	49.6	43.3
Female Sex	88.9%	76.1%
BMI (mean)	25.8	25.6
Hypertension	33.3%	14.1%
T2DM	0.0%	4.2%
Opioid Use	14.8%	19.7%
Autoimmune Disease	3.7%	11.3%



Of 98 patients, 71 (72.4%) met all criteria for a textbook outcome. 27 (27.8%) were placed in the MHD group and 71 (73.2%) in the Non-MHD group.

The MHD group had a significantly lower proportion of textbook outcomes compared to the Non-MHD group (51.9% vs 80.3%, p=0.010). Top reasons for not meeting a TO in the MHD group:

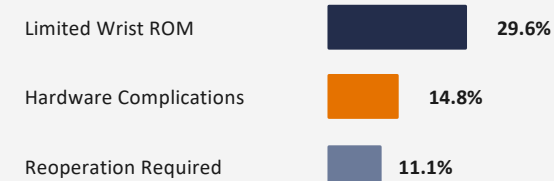


TABLE 2: Textbook Outcome Criteria and Rates

Outcome Criterion	MHD (n=27)	Non-MHD (n=71)
No intraoperative complications	100%	100%
No unplanned reoperation	88.9%	98.6%
No surgical site infection	100%	100%
No systemic complications	100%	100%
No mortality	100%	100%
No readmission	100%	100%
Fracture union by 12 wks	96.3%	100%
Volar tilt change <10°	96.3%	95.8%
Coronal translation <2mm	96.3%	97.2%
Intra-articular step-off <2mm	92.6%	100%
No DRUJ instability	100%	100%
No hardware complications	85.2%	98.6%
No nerve injury/reoperation	100%	100%
Full composite fist ROM	100%	98.6%
Wrist ROM >60° or 75% contralat.	70.4%	87.3%
DRUJ ROM >60° or 75% contralat.	100%	100%
Met ALL TO criteria	51.9%	80.3%

DISCUSSION & CONCLUSION

Patients with mental health diagnoses were significantly less likely to achieve a textbook outcome following volar plate fixation of distal radius fractures (51.9% vs 80.3%, p=0.010).

Limited wrist ROM (29.6%), hardware complications (14.8%), and complications requiring reoperation (11.1%) were the most common reasons for not meeting a TO.

These findings suggest that mental health status should be considered in preoperative counseling and postoperative care planning for DRF patients, with targeted interventions to improve outcomes.