



**Service Priorities and Programmes**  
**Electronic Presentations**

**Convention ID:** 331

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**Post title:** Physiotherapist I, QEH, KCC

**The Influence of Patients' Characteristics, Radiographic Parameters, Psychological Status and Objective Outcomes in Distal Radius Fractures on Functional Disabilities**

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**Keywords:**

1. Distal Radius Fracture
2. Disabilities

**Introduction**

Distal Radius fractures (DRF) are the most common fractures of the upper extremity. They account for 14% of all skeletal fractures, in which 16% report DRF-related complications at 1-year post-fracture. The functional outcome is unpredictable as it may not be related to the severity of injury. Early identification of patients likely to develop adverse outcomes would allow health care workers to modify the treatment regime so as to reduce the risk of complications. Stratified care for patients with DRF could allow more targeted use of health care resources. Although separate predictors have been revealed in previous literatures, studies on multiple predictors as a comprehensive evaluation were limited.

**Objectives**

To investigate the potential predictors of developing chronic functional disability in DRF patients

**Methodology**

A prospective study was conducted to evaluate the functional outcomes of patients over 18 years old with radiographic evidence of an acute unilateral DRF treated by closed reduction and cast immobilization. All participants received out-patient within two weeks after injury. The frequency and duration of treatment session was dependent upon the patients' need. Information on 1) patient's characteristics, 2) radiographic parameters - dorsal tilt, ulnar variance and radial inclination, 3) pain level - Numeric Rating Scale, 4) psychological status - Hospital Anxiety and Depression Scale (HADS), 5) self-perceived disability - Disability of the Arm, Shoulder and Hand questionnaire (DASH) and 6) physical outcomes - range of motion and grip strength, were evaluated at 4 time-point, at baseline, the time when cast was removed, 10 weeks and 24 weeks after injury respectively.

## **Result**

63 patients (mean age=66.2±14.0 years) were recruited. All outcomes showed significant improvement over time from baseline to 24 weeks after injury. HADS at baseline ( $r=0.430$ ,  $p=0.001$ ) and handgrip strength at week 10 ( $r=0.329$ ,  $p=0.009$ ) showed moderate significant correlation with DASH at 24 weeks, and were used in regression analysis to predict DASH at week 24. The prediction model was statistically significant,  $F(6, 51)=10.158$ ,  $p<0.001$ , and accounted for 49% of the variance of DASH at week 24 ( $R^2=0.544$ , Adjusted  $R^2=0.491$ ). In conclusion, psychological status and handgrip strength are useful predictors of functional disability at 24 weeks after DRF and may be important targets of intervention during the course of rehabilitation.