

# Conservatively Treated Distal Radius Fractures. Who Is Referred?

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## ABSTRACT

This was a retrospective review of 394 patients with distal radius fractures referred to hand therapy from a fracture clinic service provided by a 24 hr acute medical care facility. Only those fractures treated conservatively with closed reduction and cast immobilisation were included. Age, gender, and the number of treatments received prior to discharge from hand therapy were identified, as well as whether patients received hand therapy treatment alone or if they were referred for specialist opinion. Men with conservatively managed distal radius fractures received significantly less treatment than women (rate ratio 0.67; 95% confidence interval [0.60–0.75];  $p < 0.001$ ) and there was a significant difference between the number of treatments received by those who were referred to a specialist and those who were not ( $p < 0.001$ ). Both genders received an increasing number of treatments with age, with a peak in the number of treatments for patients aged 40–60 years, followed by decline. Global trends of an ageing population signal that the incidence of distal radius fracture will continue to increase. The findings of this study suggest relatively low rehabilitation timeframes and treatment numbers for uncomplicated, conservatively managed fractures. Results give some insight as to which patients are accessing rehabilitation post distal radius fracture but further research is warranted to understand the criteria that trigger referral to hand therapy and how best to provide equitable care for men.

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## INTRODUCTION

Distal radius fractures (DRF) are one of the most common fractures sustained in the body (Handoll & Elliott, 2015). The top five fracture sites in adults are the distal radius, proximal femur, ankle, proximal humerus, and metacarpals (Bergh et al., 2020). In the elderly population, vertebral, hip, and distal radius fractures make up the three most commonly broken bones (Southerland et al., 2014). New Zealand data suggest that for children aged three to 15 years the incidence of DRF is approximately 20 per day (Jones et al., 2000). Distal radius fractures account for around 25% of fractures in the paediatric population and up to 18% of all fractures in the elderly age group (Nellans et al., 2012).

For reasons not yet fully understood, the incidence of DRF appears to be on the rise. Data from the past 40 years have documented a trend towards an overall increase in the prevalence of this injury (de Putter et al., 2011; Thompson et al., 2004). Population ageing is a global phenomenon and virtually every country in the world is experiencing growth in the number and proportion of older persons in their population (United Nations, 2019). The growth of the elderly population and a rise in the number of active older people are thought to be responsible for the increased incidence of DRF seen in this age group.

The focus of rehabilitation post DRF is to help people achieve the best possible recovery from their injury by restoring range of motion, reducing swelling, pain, and other complications and restoring function. In a cohort of 87,313 patients, researchers found that only 21% of patients received hand therapy (HT) following primary DRF treatment (Trinh et al., 2021). To date, there appears to be no research investigating what criteria is utilised in referral of patients to HT or the number of HT

treatments patients are receiving post DRF. The purpose of this study was to analyse the data of patients referred to a HT fracture clinic service for rehabilitation post DRF, with the goal of identifying trends in age, gender, number of treatments received and number of patients referred onwards for specialist opinion.

## METHODS

A retrospective review was conducted of patients who were referred to HT from a fracture clinic service provided by a 24 hr acute medical care facility. This multidisciplinary service was provided by emergency medicine specialists, nursing staff and a registered hand therapist. Radiography was available on-site. The period of inclusion was from April 2015 to December 2020. Patients included in the study were those treated conservatively with closed reduction and cast immobilisation. The first HT consult was provided after cast removal and medical review. This appointment was conducted on-site, at the fracture clinic service. Subsequent HT appointments were scheduled at a hand therapy clinic. Patients referred for surgical fixation of their DRF were excluded from this review as they were referred directly to the orthopaedic department at the local public hospital for treatment and follow-up.

Age, gender and the number of treatments received prior to discharge were identified from the data collected. It was also recorded whether patients received only HT or whether they were referred for specialist opinion (orthopaedic or plastic surgeon, or pain specialist). Types of treatment received and patient and/or radiographic outcomes were beyond the scope of this study and were not investigated.

A scatter plot and summary statistics were used to describe the associations between the number and duration of treatments and patient demographics. The categorical variables were tested

using logistic regression and continuous variables were assessed using the Wilcoxon Mann Whitney test. Poisson regression was used to further explore these associations, including the effect of age and sex on the mean number of treatments. Natural splines (using the `ns()` function in R, with knots at the 25th, 50th, and 75th centile of the data) were used to permit flexible specification of the association between age and the outcome of interest. The Akaike Information Criterion was used to identify the most parsimonious model that adequately described the data. Logistic regression was used to explore associations between demographic variables and referral for specialist treatment. A *p* value of < 0.05 was considered statistically significant. Statistical analysis was performed in R (version 4.2.2 (2022-10-31)) implemented in the RStudio IDE (2022.07.2 Build 576 for MacOS); figures were produced using the `ggplot2` package.

## RESULTS

A total of 394 patients with DRF were referred to HT over the study period. Thirty-two percent (*n* = 125) of those referred were male and 68% (*n* = 269) female. Seventy percent of patients referred were over the age of 40 years. Overall 178

(45%) patients were aged 60 years or older, 97 (25%) were between 40 and 59 years of age, 51 (13%) were aged 20–39 years old and 68 (17%) were under the age of 20 (see Table 1). The median number of HT treatments received post DRF was four, with a median treatment duration of 31.5 days or one month. The vast majority of patients (91%, *n* = 359) received HT input only.

Exclusion of those lost to follow-up from data analysis had a negligible effect on associations between age, number of treatments and duration of treatment (see Table 1). A total of 81 patients (20.6%) were lost to follow-up. Of those, 49 (60.5%) did not attend their scheduled follow-up appointment (reason unknown), 15 (18.5%) failed to schedule another appointment, 13 (16%) were referred to a HT clinic in their home town or to a clinic more conveniently located and four (5%) had their treatment disrupted by COVID lockdown and were lost to follow up. A total of 263 patients (66.8%) completed treatment and a further 50 (12.7%) were provided with a splint and home exercise programme and asked to return for review if they had any problems or concerns.

**Table 1**

*Characteristics of Patients with Distal Radius Fracture Referred to Hand Therapy*

Variable	Mdn <sup>a</sup>	IQR
Patients referred to HT	<i>n</i> = 394	
Age (years)	57.0	[31.0, 72.0]
Treatment duration (days)	31.5	[4.0, 73.5]
Number of treatments	4.00	[1.25, 7.00]
Patients referred to HT, excluding those lost to follow-up	<i>n</i> = 313	
Age (years)	57.0	[31.0, 72.0]
Treatment duration (days)	31.5	[4.5, 73.5]
Number of treatments	4.00	[2.00, 7.00]
HT appointments prior to specialist review <sup>b</sup>	8.00	[6.00, 12.00]
HT appointments after specialist review <sup>b</sup>	1.00	[0.00, 4.00]
	<i>n</i>	%
Referred to specialist	35	8.9
Referred to HT only	359	91.1
Gender ( <i>n</i> = 394)		
All patients		
Female	269	68.3
Male	125	31.7
< 20 years (17%)		
Female	30	7.6
Male	38	9.6
20–39 years (13%)		
Female	23	5.8
Male	28	7.1
40–59 years (25%)		
Female	69	17.5
Male	28	7.1
> 60 years (45%)		
Female	146	37.1
Male	32	8.1

Note. HT = hand therapy; IQR = interquartile range.

<sup>a</sup> Except where indicated. <sup>b</sup> Only refers to patients who were referred for specialist review (*n* = 35).

Table 2 summarises cohort characteristics according to loss to follow-up status. There was no association between lost to follow-up status and age ( $p = 0.50$ ) or gender ( $p = 0.38$ ). As expected, there was strong evidence that those lost to follow-up received fewer treatments ( $p < 0.001$ ) and had a shorter duration of treatment ( $p < 0.001$ ). The median number of treatments received by those lost to follow up was 1.00 [interquartile range (IQR) 1.00, 2.00] compared to 5.00 [IQR 3.00, 7.00] for those completing treatment and median treatment duration was 1.00 [IQR 1.00, 10.00] versus 45.00 [IQR 17.00, 93.00] days.

Thirty-five (8.9%) patients were referred onwards for specialist opinion. The three most common conditions that required referral were carpal tunnel syndrome ( $n = 10$ ), ulnar sided wrist pathology ( $n = 8$ ), and post-traumatic de Quervain's tenosynovitis ( $n = 4$ ). Others included complex regional pain syndrome (CRPS) ( $n = 3$ ), first carpometacarpal joint aggravation ( $n = 3$ ), trigger finger ( $n = 2$ ), and one case each of extensor pollicis longus rupture, flexor pollicis longus rupture, scapholunate ligament high grade tear and loss of forearm supination.

There was a significant difference between the number of HT treatments received by those who were referred to a specialist and those who were not ( $p < 0.001$ ). Patients who required specialist opinion received four times more treatment than those who did not (see Table 3). The median number of treatments received by patients who received HT input only was 3 (range 1–27). The median number of treatments of patients referred for specialist opinion was 12 (range 4–50). Time to discharge from HT was also significantly longer for those referred to a specialist (138 days) compared to those who were not (28 days) ( $p < 0.001$ ). The median age of those receiving HT alone was 57 years [IQR 27.5, 72.0], while the median age of those referred to a specialist was 60 years [IQR 51.5, 73.5] ( $p = 0.13$ ). Female patients accounted for 66.9% ( $n = 240$ ) of patients receiving HT only and 82.9% ( $n = 29$ ) ( $p = 0.08$ ) of those referred for specialist opinion. Male patients accounted for 33.1% ( $n = 119$ ) of those receiving HT alone and 17.1% ( $n = 6$ ) ( $p = 0.06$ ) of those referred to a specialist. Therefore, no statistically significant difference was identified in the age and gender of those referred to a specialist versus those who were not.

**Table 2**

*Cohort Characteristics According to Loss to Follow-up Status*

Variable	Not lost to follow-up ( $n = 313$ )		Lost to follow-up ( $n = 81$ )		$p$
	<i>Mdn</i> <sup>a</sup>	IQR	<i>Mdn</i> <sup>a</sup>	IQR	
Age (years)	58.0	[31.0, 72.0]	54.0	[27.0, 73.0]	0.50
Gender, $n$ (%)	Female	217 (69.3)	52 (64.2)		0.38
	Male	96 (30.7)	29 (35.8)		
Treatment duration (days)	45.00	[17.00, 93.00]	1.00	[1.00, 10.00]	< 0.001
Number of treatments	5.00	[3.00, 7.00]	1.00	[1.00, 2.00]	< 0.001

Note. IQR = interquartile range.

<sup>a</sup> Except where indicated.

**Table 3**

*Comparison of Patients Treated by Hand Therapy Alone Versus Specialist Referral*

Variable	Referred to specialist				$p$
	No ( $n = 359$ )		Yes ( $n = 35$ )		
	<i>Mdn</i> <sup>a</sup>	IQR	<i>Mdn</i> <sup>a</sup>	IQR	
Age (years)	57.0	[27.5, 72.0]	60.0	[51.5, 73.5]	0.13
Gender, $n$ (%)	Female	240 (66.9)	29 (82.9)		0.08
	Male	119 (33.1)	6 (17.1)		
Treatment duration (days)	28.0	[1.0, 60.0]	138.0	[100.5, 234.0]	< 0.001
Number of treatments	3.0	[1.0, 6.0]	12.00	[7.0, 14.5]	< 0.001

Note. IQR = interquartile range.

<sup>a</sup> Except where indicated.

A non-linear association between age and the number of treatments is displayed in Figure 1, showing gender and mean number of HT treatments received with 95% confidence intervals, based on the natural spline model. Both male and female patients show an increasing number of treatments with age, with a peak in number of treatments between 40 and 60 years of age, followed by a decline. This was supported by the data in Table 4, which show that the median number of treatments peaks at approximately 8.0 for women between the age of 40–50 years, and at 5.4 for men in the 50–60 years of age category.

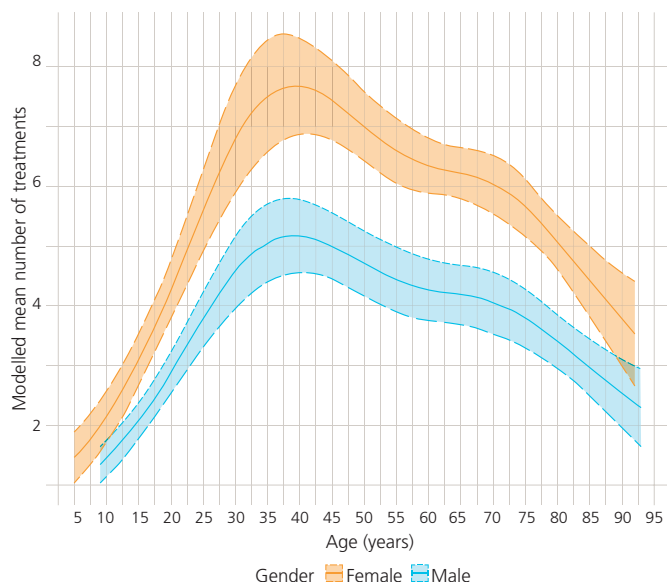
There was strong evidence of a difference in the number of treatments according to gender, with male patients receiving an average of 33% fewer treatments than females (rate ratio 0.67; 95% confidence interval [0.60–0.75];  $p < 0.001$ ). Treatment numbers received by age group and gender are displayed in Table 4. The mean number of treatments received was higher

in female patients versus male patients for every age range (e.g., 6.4 versus 3.2 in the 20–30 age group). The number of HT treatments received post DRF was highly correlated with duration of treatment (see Figure 2).

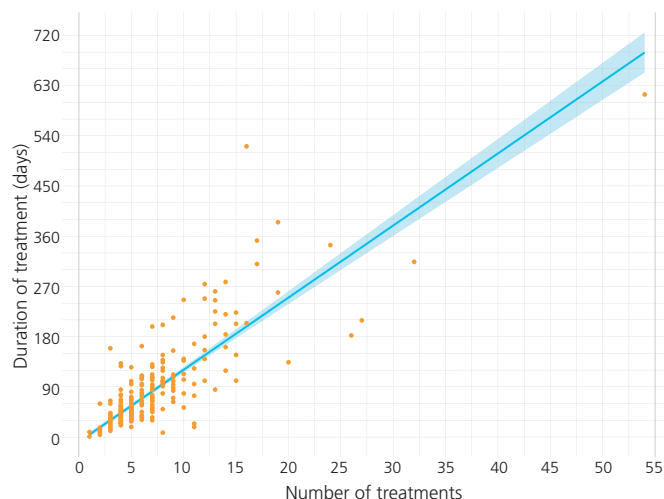
## DISCUSSION

Patients over the age of 60 years were the largest group to be referred to HT for rehabilitation post DRF, accounting for 45% of study participants (37% female, 8% male). Women are known to have a significantly greater risk of sustaining this injury than men in the over 65 age group (Baron et al., 1996; Handoll & Elliott, 2015). Research has also shown that women over 65 years are almost five times more likely than men to sustain a DRF (Baron et al., 1996; Brogen et al., 2007; Raudasoja et al., 2022). Results of this study support these findings, showing that in the over 60 age group women referred for HT outnumbered men by 4.6 to 1, which matches published incidence rates.

**Figure 1**  
Gender and Mean Number of Treatments Received



**Figure 2**  
Number of Treatments Versus Duration of Treatment



**Table 4**  
Comparison of Gender, Age, and Number of Treatments to Discharge From Hand Therapy

Age (years)	Female				Male			
	<i>M</i>	<i>Mdn</i>	25th percentile	75th percentile	<i>M</i>	<i>Mdn</i>	25th percentile	75th percentile
0–10	1.40	1	1	1.75	1.00	1	1	1
10–20	2.96	2	1	3.5	2.37	1	1	3
20–30	6.36	6	3	9.5	3.18	3	2.5	4
30–40	4.75	4	2	5.75	4.56	3.5	1	6
40–50	8.05	4	3	6.25	3.63	3	2.75	3.25
50–60	6.58	4.5	2	9	5.38	6	3	7
60–70	6.43	6	3	8	3.33	3	2	4
70–80	5.57	5	2	8	4.62	3	1	8
80–90	4.44	4	3	6	1.67	1	1	1
90+	2.00	1.5	1	2.5	1.00	1	1	1

Men in this study received significantly fewer treatments than women across all age groups and while the reasons for this are not clear, one hypothesis is that men have less severe fractures, meaning they are quicker to recover. Research results are inconclusive. A study by Brogen et al. (2007) utilising the AO fracture classification found that the Type-A simple extra-articular fractures accounted for 79% of the fractures in women and 64% in men. This would seem to indicate women are more likely to sustain simple extra-articular fractures versus their male counterparts. In comparison, Harper et al. (2014) found that men sustained less severe fractures than women (a Type-C fracture rate of 20% for men compared with 40% for women;  $p = 0.014$ ). However, Type-C fractures (complete articular) are generally treated by open reduction and internal fixation (Twigt et al., 2013) and patients with these fractures would not have been included in this study. Future research could further explore fracture classification by gender, treatment (conservative versus surgical management), complication rate, patient outcomes and time to discharge.

Another hypothesis is that men with DRF are under-treated. Research has shown that significantly fewer men (over the age of 50 years) receive evaluation for osteoporosis following a DRF, with rates of evaluation unacceptably low according to published guidelines (Harper et al., 2014; Trinh et al., 2021). While 53% of the women had a bone density scan after injury, only 18% of the men were evaluated ( $p < 0.001$ ) (Harper et al., 2014). Not only are men under-screened for osteoporosis compared with women, but they are also less likely to receive medical treatment for osteoporosis (Alswat, 2017). This is of concern because DRF in the active elderly population can signal underlying osteoporosis and presents a perfect opportunity for screening and intervention. As clinicians striving to achieve equitable and fair treatment, it is important to be aware of this imbalance.

Twenty percent ( $n = 81$ ) of patients in this study were lost to follow-up. Of those, 80% received only one treatment (60.5% did not attend their scheduled follow-up appointment and 18.5% failed to schedule another appointment). Therefore, it would appear that loss to follow-up will most likely occur after the initial consult. Data show that 16% of those lost to follow-up were referred to a HT clinic in their hometown or to one more conveniently located to their home or place of work, but it is not known how many of the patients who failed to attend a scheduled follow-up went on to receive further HT or physiotherapy input from another clinic. Further research could help identify whether these patients went on to self-manage their rehabilitation or if they sought follow-up elsewhere.

Results of this study show that both genders received an increasing number of treatments with age, with a peak in number of treatments in middle age, followed by a decline (Figure 1). Those under 20 years of age are rarely referred to HT and appear to require and receive very little treatment. A peak in treatment numbers that occurs between the ages of 40 to 60 years (Figure 1, Table 4) likely correlates with active, working adults who are still heavy users of their hands. This group may be more invested in rehabilitation of their injury for practical reasons such as work, sport and participation in activity. As

patients become more elderly, they tend to place less functional demand on their wrists. While elderly patients may take longer to heal and recover following fracture, their functional demands are less, so they appear to receive less rehabilitation.

A small number of patients required significantly more HT treatment post DRF, due to complications. A total of 8.9% of patients referred to HT post DRF required a specialist opinion. These patients received on average four times more treatment, over a much longer period (138 days) than those who did not need specialist input (28 days). The higher percentage of women referred for specialist review of complications reflects existing data that middle-aged women are more likely to be affected by carpal tunnel syndrome (Stephenson & Barry, 2014), trigger digits (Jeanmonod et al., 2022) and de Quervain's tenosynovitis (Sheppard & Barry, 2014). Therefore, it would be difficult to conclude whether these were all complications of the DRF or occurred through natural causes.

A report published by the Accident Compensation Corporation (ACC) states that carpal tunnel syndrome has an estimated prevalence in the general population of 3.7–5.8% and may be up to three times more common in women than men, with the prevalence highest in the 40–55-year-old age group (Stephenson & Barry, 2014). The incidence of acute carpal tunnel syndrome post DRF has been reported in the literature as affecting 4.3% of patients (Leow et al., 2021). In the current study the incidence of patients with carpal tunnel syndrome referred to a specialist was 2.5% ( $n = 10$ ; out of 394 total). The total incidence of acute carpal tunnel syndrome may have been higher as night splinting can be sufficient treatment for some patients with nocturnal symptoms (Halac et al., 2015; Lewis et al., 2020). Therefore, this incidence represents only those patients who did not respond to night splinting and conservative management, requiring onward referral to a specialist. Failure to record total incidence of acute carpal tunnel syndrome is a limitation of this study.

A study by Pons (2019) of the physiotherapy management of CRPS found that fractures were the inciting event for CRPS in 42% of patients, followed by soft tissue injury (36%), and surgery (21%). The incidence of CRPS reported in this study was low (0.8%). The estimates of the incidence of CRPS after radius fracture vary widely, from 1% to 37% (Dijkstra et al., 2003; Jellad et al., 2014; Mathews & Chung, 2015; Sane et al., 2021). The fracture clinic service in this study follows guidelines published by Gillespie et al. (2016). In that study a hospital department reduced the incidence of CRPS post DRF from 25% to less than 1% through staff and patient awareness, vigilance for warning signs and minor modifications to the traditional management of DRF. These include avoiding excessive or unnecessary immobilisation, ensuring that plasters are well-fitting and there is no restriction to metacarpophalangeal joints, hourly full range composite grip/release exercises to control swelling in elevation, light function and attention to limb while in plaster, supporting all verbal information given with a patient information leaflet, documentation of advice given in patient notes, change of cast for patients reporting tight and/or restrictive plasters and patients requesting repeated change of plaster or reporting "claustrophobia in plaster" to trigger



immediate referral to HT. It was not the purpose of this study to investigate CRPS post DRF, but adherence to published guidelines (Gillespie et al., 2016) appears to have reproduced a similar (low) incidence of CRPS.

### Opportunities for further research

This study has raised many questions. Men in this study received significantly less (33% less) HT treatment post DRF. Further research could look towards the experiences of men in a HT treatment setting to further inform clinicians of disparities that may exist. Potential contributing factors to consider include availability of appointment times outside of working hours, ability to attend appointments during working hours and a “she’ll be right” attitude – a frequently used idiom in New Zealand culture that expresses the belief that “whatever is wrong will right itself with time” (Keyworth, 1990).

During the time of the COVID-19 pandemic, stress placed on health systems globally caused some to recommend that all DRFs be treated conservatively (non-operatively), irrespective of the fracture geometry or age of the patient and to question the feasibility and/or need for physiotherapy sessions for non-life-threatening fractures like DRF (Bhan et al., 2021). There are no highly powered studies to support this recommendation and no studies on the long-term impact, outcomes, or complications resulting from treating all fractures this way. However, it is well recognised that DRF can result in long-term functional impairment, pain, and deformity (Edwards et al., 2010; Handoll & Elliott, 2015). This study identified that an average of four HT treatments were received post DRF, with an average treatment duration of 31.5 days. This reflects relatively low rehabilitation timeframes and treatment numbers for uncomplicated DRFs and is important to present to external stakeholders (such as ACC and accredited employers) in order to advocate for HT services. Should future research be undertaken that replicates these results, it would add to strength of evidence.

It has been reported that only 21% of patients receive HT after primary DRF treatment (Trinh et al., 2021). The percentage of patients referred to HT via fracture clinic was not able to be established in this study and there was no definitive criteria triggering referral to HT. Referral was at the discretion of the attending emergency medicine specialist. Criteria triggering referral to HT could include high pain scores, swelling, reduced active range of motion, the requirement for further splint support, suspicion of early CRPS or reduced function on removal of cast. Further studies could investigate what percentage of patients are referred to HT post DRF and identify the triggers/criteria for referral.

The majority of DRFs are treated conservatively with closed reduction and cast immobilisation (Lee et al., 2019; Rundgren et al., 2020). Surgical treatment commonly involves open reduction and internal fixation for difficult to reduce, or unstable fractures (Lee et al., 2019). Future research could establish HT treatment numbers and duration for patients treated surgically with open reduction and internal fixation and compare them with the results of HT treatments received following closed reduction of DRF. In addition, further research into the duration of cast immobilisation periods could be analysed with regards to the number of treatments received and time to discharge from HT.

A Cochrane review (Handoll & Elliott, 2015) states there is currently insufficient evidence from randomised controlled trials to determine how best to manage rehabilitation following DRF. It is yet to be determined what rehabilitation intervention is necessary, who should provide this care, how long this care should be provided for or in what circumstances it should be provided. Further research could investigate the outcomes of patient groups managed by HT versus physiotherapy versus no treatment. While it was beyond the scope of this study to investigate the types of treatment provided and patient outcomes at discharge, the results give insight as to which patients are accessing rehabilitation post DRF, the average duration of treatment received and variables affecting duration of treatment.

### Limitations

This study was conducted at a single site, and it may not be possible to generalise the results to other 24 hr acute medical care clinics across New Zealand, which have different patient demographics.

Referral onwards to a specialist was at the discretion of the treating therapist. This could have led to unintended biases in decision-making or implicit bias. Research suggests that implicit bias can contribute to health care disparities by shaping physician behaviour and producing differences in medical treatment along the lines of race, ethnicity, gender or other characteristics (Chapman, 2013). A study by Harris et al. (2018) found implicit and explicit ethnic bias favouring New Zealand Europeans was apparent among medical students, although overall this was not associated with clinical decision-making. Race and ethnicity were not tracked variables in this study.

A high percentage of patients were lost to follow-up (20.6%). The outcomes for these patients is unknown. Patients who missed scheduled appointments were sent a message and asked to reschedule. A telephone call to these patients may have reduced the number lost to follow-up. Similarly, there was no record of how many patients cancelled appointments because they had returned to a functional status and treatment was no longer required. Recording reasons for cancellation would have helped establish reasons patients were lost to follow-up.

The total incidence of patients presenting with acute carpal tunnel syndrome following DRF was not recorded; rather the incidence reported here represents only those who required referral to a specialist. The neural symptoms of some patients will have settled with night splinting alone. Hence, this was a limitation of the study that could have been addressed by recording incidence of all patients presenting with median neuropathy on removal of cast post DRF and comparing it with those later requiring referral to a specialist.

Types of treatment received were not investigated in this study. However, the higher percentage of women referred for specialist review of complications post DRF reflects existing data that middle-aged women are more likely to experience comorbidity such as carpal tunnel syndrome, first carpometacarpal osteoarthritis, trigger digits and de Quervain's tenosynovitis. Treatment for associated sequelae would increase treatment numbers and skew data in regard to rehabilitation from DRF. This is a potential confounder to the study results.

Similarly, the fact that men received significantly less treatment post DRF could be attributable to the fact middle-aged women experience more comorbidities such as carpal tunnel syndrome. However, men received less treatment across all age brackets and not just from middle age onwards, which indicates that comorbidity alone cannot account for the differences found.

## CONCLUSION

The highest number of referrals to HT from the fracture clinic following DRF were women over the age of 60 years. The number of treatments received peaked in the middle-aged population (40–60 years) and gradually declined with age. Men receive significantly less (33%) treatment post DRF among all age groups. A small percentage of patients with complications post DRF (8.9%) required significantly more rehabilitation, over a longer period.

Global trends of an ageing population signal that the incidence of DRF will continue to increase. Despite acknowledgment that these injuries can result in long-term functional impairment, pain and deformity, the pressure placed on health systems globally has resulted in some questioning the need for physiotherapy sessions for non-life-threatening fractures like DRF. The relatively low rehabilitation timeframes and treatment numbers provided by HT for uncomplicated DRFs in this study indicates timely and cost-effective intervention to our external stakeholders.

The results give insight as to which patients are accessing rehabilitation post DRF, the average duration of treatment received, and variables affecting duration of treatment. Further research is required to understand the criteria that trigger referral to HT and how best to provide equitable care for men.

## KEY POINTS

1. Sixty-eight percent of patients referred to HT post DRF were female and 70% of all patients referred were over the age of 40 years.
2. The median number of treatments received was 4 and median treatment duration was 31.5 days.
3. Men received significantly less (33%) treatment than women across all age groups.
4. Nine percent of those referred to HT had complications requiring specialist referral. These patients received on average four times more treatment, over a much longer time period (138 days).

## DISCLOSURES

The author received no financial support for the research, authorship, and/or publication of this article. There are no conflicts of interest that may be perceived to interfere with or bias this study.

## PERMISSIONS

Observational study (retrospective review). Out of scope and not requiring ethical approval.

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