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RESEARCH ARTICLE

Comparison between patient-reported and physician-estimated pain and disability in hand and wrist disorders

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Abstract

Background: Pain and disability are important components of the assessment of hand problems, but it is unknown how physician estimates compare to patient self-reports.

Objective: To analyse differences between patient-reported and physician-estimated pain and disability in patients with hand or wrist disorders and to analyse factors influencing these differences.

Methods: Observational study of patients with hand or wrist disorders seen during multidisciplinary outpatient consultations. Patients, rehabilitation medicine (RM) consultants, RM trainees and plastic surgeons completed visual analogue scales (VASs) to rate the level of self-reported (patients) or estimated (physicians) pain and disability. Multilevel analyses were performed to evaluate differences in VAS-pain and VAS-disability scores between patients and physicians and to evaluate the influences of diagnosis, physician experience and medical specialty.

Results: Complete data were obtained for 250 patients. Levels of pain and disability estimated by physicians were lower compared to patient self-reports. Ratings differed among medical specialties. Pain was underestimated to a greater extent by plastic surgeons compared to RM consultants. Disability was underestimated to a greater extent by RM consultants compared to plastic surgeons. Estimates of pain and disability did not differ between consultants and trainees in RM. Type of diagnosis did not influence the degree of underestimation of pain and disability.

Conclusions: Physicians underestimate pain and disability compared to self-reports in patients with hand or wrist disorders. Ratings differ among medical specialties: plastic surgeons underestimate pain more, while RM consultants underestimate disability more. Physician experience and diagnosis do not influence the degree of underestimation of pain and disability.

The study was performed at the Department of Rehabilitation Medicine, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands.

KEYWORDS
clinical medicine, disability evaluation, hand, pain, pain measurement, physical and rehabilitation medicine, rehabilitation

1 | INTRODUCTION

Pain is the most common symptom in patients with hand and wrist problems who visit their general practitioner (Spies-Dorgelo et al., 2009). The prevalence of wrist or hand pain in the general Dutch population is almost 18% (Picavet & Schouten, 2003). Over 32% of people with pain in the elbow, wrist or hand report limitations in daily life and 4% are at least partially incapacitated for work (Picavet & Schouten, 2003). Almost one-third of all unintentional injuries that were treated at an emergency department in the Netherlands were hand injuries (Larsen et al., 2004). The majority (52%) of patients with hand injuries are incapacitated for work for more than 10 weeks (Opsteegh et al., 2009). Hand and wrist injuries are more expensive than any other injury type when considering healthcare and productivity costs combined (de Putter et al., 2012). Therefore, both pain and disability are considered important components of the assessment of hand problems (Myers et al., 2010).

Several instruments are available to assess pain and disability in patients with hand or wrist disorders (Hoang-Kim et al., 2011; van de Ven-Stevens et al., 2009). However, in clinical practice, physicians often do not systematically assess pain and disability using patient self-reports but usually rely on their 'clinical judgement' (Lohr & Zebrack, 2009; Michener, 2011).

Generally, physician estimates of pain and disability differ from patient self-reports in diverse patient groups, ranging from emergency department and burn unit patients to cancer patients and patients with chronic low back pain (Kappesser & Williams, 2010; Prkachin & Rocha, 2010; Rogers et al., 2003; Solomon, 2001; Tait et al., 2009). Physicians generally underestimate pain and disability compared to patients who self-report. Underestimation is thought to be larger in the absence of supportive medical evidence to explain the patient's complaints, for example, in the case of non-specific complaints compared to specific complaints (De Ruddere et al., 2012). Experience and the physician's professional role and personal characteristics are also thought to influence the judgement of symptom severity (Green et al., 2009; Sjöström et al., 1997). As far as we know, it is unknown to what extent patient self-reports on pain and disability differs from physician estimates in patients with hand or wrist disorders.

The primary aim of this study was to analyse differences between patient self-reports and physician estimates of pain and disability in patients with hand or wrist disorders. Based on findings in patients with other disorders, we hypothesized that the levels of pain and disability that are reported by patients are higher than those estimated by physicians. The secondary aim was to analyse the effects of the type of diagnosis, physician experience and medical specialty on these differences.

2 | METHODS

2.1 | Participants

Participants were recruited from newly referred patients with hand or wrist disorders who had an outpatient appointment for a consultation at the rehabilitation medicine (RM) department of the University Medical Center Groningen in Groningen, the Netherlands between 01 January 2011 and 31 December 2012.

All participants had to be 18 years old or over and be able to understand Dutch sufficiently to complete questionnaires. Patients were excluded if they had a hand or wrist disorder with a more variable course of complaints, where changes in severity could be expected over a relatively short period of time (e.g., inflammatory disorders such as rheumatoid arthritis, complaints after trauma that occurred less than 12 weeks ago) as judged by the treating physician during the consultation.

The treating physician recorded the (provisional) diagnosis, based on the patient's medical history, information gathered during the consultation and any optional additional examinations such as imaging studies. Patients were categorized into one of four different groups of diagnoses: (a) specific complaints of the arm, neck and shoulder (CANS), (b) non-specific CANS (according to the CANS model) (Huisstede et al., 2007), (c) post-traumatic complaints (complaints after injuries such as fractures, tendon injury or joint dislocation, secondary osteoarthritis) or (d) primary osteoarthritis.

The study proposal was evaluated by the Medical Ethics Committee of the University Medical Center Groningen. A formal ethics review was not required because usual care was evaluated and the research only posed a minor burden to participants (METc 2010.292).

2.2 | Setting

Patients had an outpatient appointment for a multidisciplinary consultation with several physicians in one of two compositions (consultation type A or B). During a type A consultation, patients were seen concurrently by an RM consultant, an RM trainee and a plastic and reconstructive surgery consultant (plastic surgeon). During a type B consultation, patients were seen by the physicians described in consultation type A and also by an orthopaedic surgery consultant and a trauma surgery consultant.

Consultants had completed specialty training and were listed in the specialist register of their medical specialties. The consultants who were present during the consultations had a specific interest and expertise in hand and wrist disorders.

RM trainees were enrolled in a medical specialty training programme to become RM consultants. In the Netherlands, this training takes 4 years. RM trainees were present during the consultations as part of their specialty training.

Both multidisciplinary consultation types (A and B) were coordinated by the RM department. An RM consultant decided on the type of consultation, based on the referral letter. Generally, more patients with hand disorders were seen at consultation type A and more patients with wrist disorders were seen at consultation type B. The duration of either consultation was 20 min.

2.3 | Patient characteristics

Age, sex, the affected side (unilateral or bilateral), handedness and involvement of the dominant hand were recorded. The presence of relevant comorbidity that possibly influenced functioning (such as other musculoskeletal disorders, neurological disorders and cardiopulmonary disease) was recorded if this was apparent from the medical history or the patient record. Socioeconomic variables that might influence pain and disability ratings were recorded, including marital status, level of education and employment status.

2.4 | Patient self-reports

Pain and disability were assessed using visual analogue scales (VASs) and two questionnaires. Patients were asked to rate their level of pain ('How much pain do you have – on average – in your hand and/or wrist?') and disability ('To what extent do you experience disability due to complaints of your hand and/or wrist?') on two separate 0–100 mm horizontal VAS. The VASs were anchored at the symptom extremes of 'no pain' (score of 0) and 'pain as bad as it could be' (score of 100) for pain and 'no disability' (score 0) to 'most severe disability possible' (score 100) for disability. VASs are unidimensional, easy to administer and have good psychometric properties (Hawker et al., 2011). The severity of symptoms and disability was also recorded using Dutch language versions of the QuickDASH (Beaton et al., 2005; Gummesson et al., 2006) and Patient Rated Wrist/Hand Evaluation (PRWHE) (MacDermid & Tottenham, 2004; MacDermid et al., 1998), both of which have been shown to be valid and reliable. The QuickDASH consists of 11 items to measure physical function and symptoms in people with musculoskeletal disorders of the upper limb. Its total score ranges from 0 to 100, a higher score indicates a higher level of disability. The PRWHE consists of five items that are related to pain and 10 items that are related to function. Both pain and function contribute equally to the total score, ranging from 0 to 100. A higher score indicates more pain and a higher level of disability. Reference values for both QuickDASH and PRWHE are generally low, yet they are higher in women than in men and higher with age (Aasheim & Finsen, 2014; Mulders et al., 2018). Patients completed both VAS and questionnaires immediately after the consultation.

2.5 | Physician estimates

The physicians saw the patient concurrently during the consultation, which means that all physicians made their estimates based on the same information. Physicians estimated the level of pain and disability based on the clinical presentation and other information available during the consultation. While pain and disability were, naturally, important topics to discuss during the consultation, physicians did not ask patients to report the level of pain or disability specifically, for example, using a numeric rating scale. Physicians rated the levels of pain ('According to your estimation, how much pain does the patient experience – on average – in their hand and/or wrist?') and disability ('According to your estimation, to what extent does the patient experience disability due to complaints of their hand and/or wrist?') on two separate 0–100 mm horizontal VAS. These VASs were anchored in the same way as patient self-reports. Patients were not told that the physicians were going to rate their pain and disability levels after the consultation to prevent patient ratings from being influenced by such knowledge. All rating forms were immediately put in an envelope to certify that physicians had no access to patient self-reports or to the ratings of the other physicians.

2.6 | Data analysis

Descriptive statistics were used to calculate the mean and standard deviation for continuous data and frequencies and percentages for categorical data. Patients who attended different types of consultation were compared using independent *t*-tests or Chi-square tests where appropriate. Analysis of variance was used to compare QuickDASH and PRWHE scores between groups of diagnoses. Post hoc testing (Bonferroni) was used to determine between which groups of diagnoses those scores differed significantly.

A multilevel analysis was performed to evaluate differences in VAS-pain and VAS-disability scores between patients and physicians. Two different models were analysed: model 1 analysed the VAS-pain scored by the patient, the RM consultant, the RM trainee and the plastic surgeon; model 2 analysed the VAS-disability scored by the patient, the RM consultant, the RM trainee and the plastic surgeon. The patient's VAS-pain and VAS-disability scores were set as the reference categories. Other factors that potentially influenced the VAS-pain and VAS-disability scores were also included in this analysis, such as patient characteristics and socioeconomic variables (all factors listed in Table 1, as well as the consultation type, but excluding QuickDASH and PRWHE scores). Predictors were entered stepwise into the regression equation. If the model fit increased significantly (−log2 likelihood criterion), the predictor remained in the model. Interaction effects of factors were explored and remained in the model if the model fit increased significantly. Random intercepts and slopes were also explored. The values of $p < 0.05$ were considered statistically significant. Analyses were performed using IBM SPSS Statistics 19 and MLwiN 2.27.

TABLE 1 Patient characteristics

Factor	Total study population ($n = 250$)	Consultation type A[a] ($n = 152$)	Consultation type B[b] ($n = 98$)	p-value
Age (years)	45.5 SD 15.2	46.6 SD 14.2	43.8 SD 16.7	0.15[c]
Sex (male), *n* (%)	105 (42)	63 (41)	42 (43)	0.83
Diagnosis, *n* (%)				<0.001
Specific CANS	54 (22)	44 (29)	10 (10)	
Non-specific CANS	60 (24)	33 (22)	27 (28)	
Post-traumatic complaints	108 (43)	52 (34)	56 (57)	
Primary osteoarthritis	28 (11)	23 (15)	5 (5)	
Relevant comorbidity, *n* (%)	111 (44)	75 (49)	36 (37)	0.05
Handedness (right), *n* (%)	228 (91)	139 (91)	89 (91)	0.86
Affected side, *n* (%)				<0.001
Unilateral	206 (82)	112 (73)	94 (96)	
Bilateral	44 (17)	40 (26)	4 (4)	
Dominant hand affected, *n* (%)	153 (61)	99 (65)	54 (55)	0.11
QuickDASH	46.8 SD 21.4	45.8 SD 21.9	48.5 SD 20.5	0.33
PRWHE	60.2 SD 20.1	59.1 SD 21.0	62.0 SD 18.5	0.28
Marital status, *n* (%)				0.08
Single	61 (23)	30 (20)	30 (31)	
Living together/married	173 (65)	100 (66)	62 (63)	
Divorced/widow/widower	31 (12)	22 (15)	6 (6)	
Level of education, *n* (%)				0.26
Vocational education or lower (lower education)	187 (71)	111 (73)	65 (66)	
Higher education/university (higher education)	78 (29)	41 (27)	33 (34)	
Employment status, *n* (%)				0.40
Unemployed	61 (24)	41 (27)	20 (20)	
Employed (paid employment/self-employed)	161 (64)	93 (61)	68 (69)	
Retired	28 (11)	18 (12)	10 (10)	

Abbreviations: CANS, complaints of the arm, neck and shoulder; PRWHE, Patient Rated Wrist/Hand Evaluation.

[a]Consultation type A: Concurrent presence of a rehabilitation medicine consultant, a rehabilitation medicine trainee and a plastic surgeon.

[b]Consultation type B: Concurrent presence of a rehabilitation medicine consultant, a rehabilitation medicine trainee, a plastic surgeon, an orthopaedic surgeon and a trauma surgeon.

[c]Result of an independent *t*-test, otherwise Chi-square tests.

3 | RESULTS

A total of 321 newly referred patients were potential participants. Of those, 18 patients were excluded due to the nature of their disorder and 9 patients because they did not understand Dutch sufficiently to complete the questionnaires. No self-reports were received from 37 patients and the self-reports of 7 patients missed essential values. Complete data were collected from 250 patients, whose characteristics are presented in Table 1.

The distribution of diagnoses differed between the two consultation types. Patients who had an appointment for a consultation where an orthopaedic surgeon and trauma surgeon were also present had post-traumatic complaints more often, had relevant comorbidity less often and were affected unilaterally instead of bilaterally more often. Mean QuickDASH and PRWHE scores did not differ significantly between the consultation types ($p = 0.33$ and $p = 0.28$, respectively) nor between the groups of diagnoses ($p = 0.14$ and $p = 0.057$, respectively). Therefore, post hoc testing was not performed.

Pain and disability were estimated by one of two RM consultants, one of six RM trainees and by one of five plastic surgeons. In some cases, one or more physicians were absent during the consultation. Pain and disability were estimated by at least one of the physicians.

Out of all 250 patients, 197 were seen by an RM consultant, 183 were seen by an RM trainee and 205 were seen by a plastic surgeon.

3.1 | Pain

Rater, sex, diagnosis, level of education, employment status and consultation type all contributed significantly to the regression equation predicting the level of pain reported (see Table 2). No interaction effects were significant. The mean VAS-pain score of the reference group (male patients with specific CANS, a lower level education and in employment, who attended a type A consultation [where an RM consultant, an RM trainee and a plastic surgeon were present]) was 45.7 mm (SE: 3.5 mm).

Levels of pain reported by patients were higher than those estimated by RM consultants, RM trainees and plastic surgeons. There was no significant difference (mean difference: 2.7 mm [SE: 1.9 mm; $p = 0.15$]) between the level of pain estimated by RM consultants and RM trainees. Levels of pain that were estimated by RM consultants were significantly higher than those estimated by plastic surgeons (mean difference: 6.2 mm [SE: 1.8 mm; $p < 0.001$]).

Patients with primary osteoarthritis reported higher levels of pain than patients with specific CANS (mean difference: 15.2 mm [SE: 4.5 mm; $p < 0.001$]), non-specific CANS (mean difference: 11.2 mm [SE: 4.5 mm; $p = 0.014$]) and post-traumatic complaints (mean difference: 18.1 mm [SE: 4.2 mm; $p < 0.001$]). Levels of pain were higher in female patients, patients with a lower level of education and in unemployed patients compared to both employed patients and retired patients. Furthermore, reported levels of pain were higher in patients who attended a type B consultation (where not only an RM consultant, an RM trainee and a plastic surgeon were present, but also an orthopaedic surgeon and a trauma surgeon).

3.2 | Disability

Rater, level of education and employment status contributed significantly to the regression equation predicting the level of disability reported (see Table 3). No interaction effects were significant. The mean VAS-disability score of the reference group (male patients with a lower level education and in employment) was 57.4 mm (SE 1.9 mm).

Levels of disability reported by patients were higher than those estimated by RM consultants, RM trainees and plastic surgeons. There was no significant difference (mean difference: 2.3 mm [SE: 2.0 mm; $p = 0.25$]) between the level of disability that was estimated by RM consultants and RM trainees. Levels of disability that were estimated by plastic surgeons were significantly higher than those estimated by RM consultants (mean difference: 7.9 mm [SE 1.9 mm; $p < 0.001$]).

Levels of disability were higher in patients with a lower level of education and in unemployed patients compared to both employed patients and retired patients.

TABLE 2 Model 1: Differences in VAS-pain scores (multilevel analysis)

Variable	Mean VAS score (beta)	SE	Lower bound 95% CI	Upper bound 95% CI
Rater (reference: Patient)				
RM consultant	−6.8	1.7	−10.1	−3.5
RM trainee	−9.5	1.7	−12.8	−6.2
Plastic surgeon	−13.0	1.7	−16.3	−9.7
Sex (reference: Male)				
Female	6.3	2.5	1.4	11.2
Diagnosis (reference: Specific CANS)				
Non-specific CANS	4.0	3.7	−3.3	11.3
Post-traumatic complaints	−2.9	3.5	−9.8	4.0
Primary osteoarthritis	15.2	4.5	6.4	24.0
Level of education (reference: Lower education)				
Higher education	−8.5	2.7	−13.8	−3.2
Employment status (reference: Employed)				
Unemployed	7.0	2.9	1.3	12.7
Retired	−2.1	4.1	−10.1	5.9
Consultation type (reference: Type A – RM consultant, RM trainee, plastic surgeon)				
Type B – RM consultant, RM trainee RM, plastic surgeon, orthopaedic surgeon, trauma surgeon	8.3	2.6	3.2	13.4
Constant	45.7	3.5	38.8	52.6

Abbreviations: CANS, complaints of the arm, neck and shoulder; RM, rehabilitation medicine; VAS, visual analogue scale.

TABLE 3 Model 2: Differences in VAS-disability scores (multilevel analysis)

Variable	Mean VAS score (beta)	SE	Lower bound 95% CI	Upper bound 95% CI
Rater (reference: Patient)				
RM consultant	−17.2	1.8	−20.7	−13.7
RM trainee	−14.9	1.9	−18.6	−11.2
Plastic surgeon	−9.3	1.8	−12.8	−5.8
Level of education (reference: Lower education)				
Higher education	−7.6	2.6	−12.7	−2.5
Employment status (reference: Employed)				
Unemployed	14.1	2.8	8.6	19.6
Retired	−3.0	3.8	−10.4	4.4
Constant	57.4	1.9	53.7	61.1

Abbreviations: RM, rehabilitation medicine; VAS, visual analogue scale.

4 | DISCUSSION

The aim of this study was to analyse differences between patient self-reports and physician ratings of pain and disability in patients with hand or wrist disorders and to analyse the effect of the type of diagnosis, physician experience and medical specialty on these differences. Patients with hand or wrist disorders reported higher levels of pain and disability than estimated by their physicians. Estimates of pain and disability did not differ between RM consultants and RM trainees. Plastic surgeons estimated lower pain levels compared to RM consultants. On the other hand, levels of disability that were estimated by RM consultants were lower compared to those estimated by plastic surgeons. Even though the level of pain differed between diagnosis groups, there was no interaction effect between diagnosis group and rater, which means that the difference between the levels of pain estimated by physicians and those self-reported by patients did not differ between groups of diagnoses. Pain and disability ratings were higher in lower educated and in unemployed patients, pain ratings were also higher in female patients and in patients who attended a type B consultation (where an orthopaedic surgeon and a trauma surgeon were also present). None of these factors influenced the difference between the levels of pain or disability that were estimated by physicians and those that were reported by patients.

To our knowledge, this is the first study that assesses the relationship between patient self-reports and physician estimates regarding pain and disability in patients with hand or wrist disorders. The finding that physicians underestimate pain is consistent with numerous previous studies in patients with a diversity of disorders and in a range of healthcare settings (Ruben et al., 2018). Reports about the accuracy of disability assessments in the literature are very scarce but estimates of functional limitations made by healthcare providers are lower compared to self-reports by patients with low back pain (Brouwer et al., 2005; Perreault & Dionne, 2005).

In this study, estimates of pain and disability did not differ between RM consultants and RM trainees. This is contrary to previous studies that have shown that an increase in professional experience is related to the extent of underestimation of pain. Nurses who worked on a burn unit for longer underestimated pain more often than more inexperienced colleagues (Choinière et al., 1990; Iafrati, 1986). Also, certified emergency medicine physicians underestimated pain in patients attending the emergency department to a greater extent compared to emergency medicine trainees and medical students (Marquié et al., 2003). We do not know why we did not find such an effect but comparable clinical judgement methods that are used by RM consultants and RM trainees, due to apprenticeship learning, may play a role. Another explanation might be that plenty of attention is being paid to chronic pain in courses for both RM consultants and RM trainees and such education is believed to diminish underestimation of pain (Tait et al., 2009).

We did, however, find that estimates of pain and disability differed between RM consultants and plastic surgeons. Differences in ratings between consultants from different specialties have been found before in a vignette study, where neurosurgeons rated pain and disability at a lower level compared to internists (Tait et al., 2011). Due to the nature of the medical specialties in our study, plastic surgeons may be more exposed to patients with severe pain, whereas RM consultants are more exposed to patients with severe disabilities. It has been stated that frequent exposure may desensitize physicians (Tait et al., 2009). Another explanation for the extensive underestimation of disability by RM physicians might be that these physicians tend to consider possibilities as opposed to limitations. These explanations correspond with theories stated before about the rating of disability by RM consultants in patients with low back pain (Chibnall et al., 2000).

We did not find differences in the extent of underestimation of pain by physicians between groups of diagnoses. In several vignette studies that described patients with chronic low back pain, both pain and disability were rated at a lower level by laypeople, medical students and internists in the absence of medical evidence (Chibnall & Tait, 1995; Chibnall et al., 1997; Tait & Chibnall, 1994, 1997). In a similar vignette study that described patients with shoulder pain,

laypeople assigned lower pain ratings in the absence of medical evidence (De Ruddere et al., 2012). Therefore, we expected to find that physicians underestimated pain and disability to a greater extent in the group of patients with non-specific CANS, where medical evidence to explain the patient's complaints is often lacking. It is unclear why we did not find such an effect. It is possible that the concept of medical evidence differs between experimental and practical settings. Another explanation might be that, given the frequency with which non-specific CANS was diagnosed during the consultations in this study, physicians did not rely substantially on medical evidence when estimating the levels of pain and disability experienced by patients.

Several factors predicted levels of pain and disability, most of which are consistent with previous literature. Higher levels of pain in females, higher levels of pain and disability in patients with a lower level of education and in unemployed patients and higher levels of pain in patients with primary osteoarthritis compared to patients with other hand disorders have been described previously (Spies-Dorgelo et al., 2007; Unruh, 1996; Van Vliet et al., 2013). Furthermore, we found levels of pain to be higher in patients who attended the consultation where an orthopaedic surgeon and trauma surgeon were present, in addition to an RM consultant, an RM trainee and a plastic surgeon. Even though there are some differences in characteristics of patients who attended the two types of consultation, we did not find an interaction effect between one of those factors and the consultation type. We speculate that, due to the department referral policy, more severely affected patients were seen at a consultation where an orthopaedic surgeon and trauma surgeon were also present. This might be reflected by slightly higher, yet not statistically different, QuickDASH and PRWHE scores in those patients.

4.1 | Strengths and weaknesses

This study describes the differences between self-reported pain and disability and estimates thereof by physicians in a population of patients with hand or wrist disorders. To our knowledge, it is the first study that analyses differences between patient self-reports and physician estimates in this specific population. It is also one of the largest clinical samples in which these differences have been analysed in general, with specific attention paid to clinical experience and medical specialization as potential moderators of pain assessment accuracy. QuickDASH and PRWHE scores of participants in this study are higher than in the general population (Aasheim & Finsen, 2014; Mulders et al., 2018) and similar to those described in other studies that reported on patients with hand or wrist problems (Kachooei et al., 2015; Sorensen et al., 2013; Van Vliet et al., 2013). Even though wide ranges of scores are reported in the literature, depending on diagnosis and treatment phase, this might aid generalization of our results to other settings and populations where similar patients are treated. Possible predictors of pain and disability were selected based on previous studies. However, data were collected on a limited number of predictors for practical reasons. It is conceivable that we missed predictors that might have contributed to one of the models, such as physician characteristics (sex, ethnicity and empathy) (Ruben et al., 2018; Tait et al., 2009). Another limitation of our study might be that groups of physicians were small and inter-rater differences might have influenced the results.

4.2 | Clinical implications and suggestions for further research

It is important to be aware that ratings of pain and disability differ between patients and physicians, and also between physicians from different medical specialties. This might be particularly relevant in multidisciplinary settings, where a patient is assessed and treated by physicians from different medical specialties. Misestimating pain and disability might negatively influence treatment decisions (Prkachin et al., 2007). The discrepancy found between patient self-reports and physician estimates indicates that the use of patient-reported outcome measures should be considered more frequently (Black, 2013). Multiple patient-reported outcome measures are available for use in patients with hand problems. However, it is unknown which measurement instrument is best and whether this affects the diagnostics or treatment decisions (Coenen et al., 2013). Further research is needed to evaluate the benefits of using patient-rated outcome measures in this population and to determine which instrument is favoured.

5 | CONCLUSIONS

Levels of pain and disability that are estimated by physicians are lower than those reported by patients with hand or wrist disorders. Estimates of pain and disability differ between RM consultants and plastic surgeons, but not between RM consultants and RM trainees. The type of diagnosis does not influence the difference between patient-reported and physician-estimated levels of pain and disability.

CONFLICT OF INTEREST

There is no conflict of interest for any author.

ETHICS STATEMENT

The study proposal was evaluated by the Medical Ethics Committee of the University Medical Center Groningen (METc 2010.292).

AUTHOR CONTRIBUTION

All authors meet the ICMJE authorship criteria.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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