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Contents lists available at ScienceDirect

Journal of Hand Therapy

journal homepage: www.jhandtherapy.org

Scientific/Clinical Article

The relationship between therapist–rated function and patient-reported outcome measures

Yvonne Braun MD^a, Jos J. Mellema MD^a, Rinne M. Peters MD^a, Suzanne Curley MS, OTR/L, CHT^a, Gae Burchill MHA, OTR/L, CHT^a, David Ring MD, PhD^{b,*}

^a Orthopaedic Hand and Upper Extremity Service, Massachusetts General Hospital – Harvard Medical School, Boston, MA, USA

^b Department of Surgery and Perioperative Care, Dell Medical School, The University of Texas at Austin, Austin, TX

ARTICLE INFO

Article history:

Received 21 September 2015

Received in revised form

12 December 2015

Accepted 18 February 2016

Available online xxx

Keywords:

Hand therapy

Outcome measure

PROMIS upper extremity

Upper limb functional index

ABSTRACT

Study Design: Prospective cohort study.

Introduction: Some third-party payers require hand therapists to rate patient's functional disability based on patient self-rating using patient-reported outcome measures (PROMs), objective measurements of impairment, and observation of functional tasks—hand therapist–rated function (HTRF).

Purpose of the Study: To test the correlation between HTRF and PROMs (upper limb functional index [ULFI] and Patient-Reported Outcomes Measurement Information System upper extremity [PROMIS UE]) and its association with psychological factors.

Methods: In 2014, 100 new patients with upper extremity illness presenting to hand therapists were asked to participate in an observational cross-sectional study. Demographic-, condition-related, and psychological factors were obtained in addition to PROMs and HTRF.

Results: HTRF correlated moderately with PROMIS UE ($r = -0.49, P < .001$) and ULFI ($r = -0.56, P < .001$). Correlation between PROMIS UE and ULFI was strong ($r = 0.78, P < .001$). Psychological factors explained most of the variations in both HTRF and PROMs.

Conclusions: Hand therapists' ratings of patient function correlate less strongly with PROMs than PROMs correlate with one other. The discrepancy between HTRF and PROMs may offer an opportunity to address stress, distress, or ineffective coping strategies that can interfere with recovery—an opportunity for therapists and patients to collaborate and develop goals and for future research to develop effective and feasible strategies for hand therapists.

Level of Evidence: Level II, diagnostic study.

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Introduction

Patient-reported outcome measures (PROMs) quantify symptoms and limitations and may be used for quality improvement initiatives.¹ The upper limb functional index (ULFI) is a PROM that is used for monitoring upper extremity symptoms and disability over time.^{2–4} Another PROM is the recently introduced Patient-Reported Outcomes Measurement Information System (PROMIS) upper extremity physical function instrument developed by the National Institute of Health, which uses computer adaptive testing (CAT) based on item-response theory. Relevant items are selected based on previous responses,⁵ and most patients answer between 4 and

12 questions in fewer than 60 seconds to get a final score. CATs limit patient burden, avoid incomplete questionnaires, and have less administrative costs.^{6–8} Other PROMs such as PROMIS depression CAT, Pain Self-Efficacy Questionnaire-2 (PSEQ-2), and PROMIS pain interference CAT can be used to help therapists to quantify and understand patient mindset. Variation in PROM scores is accounted for more by subjective factors (stress, distress, and coping strategies) than to objective pathophysiology (ie, motion, arthrosis, sensibility).^{9,10}

Medicare (a federal program that provides health insurance for disabled Americans or those aged 65 and older), among other third-party payers, has asked many providers including occupational therapists and hand therapists to apply a categorical rating of patient function based on PROMs, objective measures representing impairments, observed functional capabilities, and other factors influencing condition severity and prognosis, such as comorbidity (referred to herein as hand therapist–rated function [HTRF]). These

* Corresponding author. Orthopaedic Hand and Upper Extremity Service, Massachusetts General Hospital, Yawkey Center, Suite 2100, 55 Fruit Street, Boston, MA 02114, USA. Tel.: +1 617 643 7527; fax: +1 617 724 8532.

E-mail address: DRing@partners.org (D. Ring).

categorical ratings (ie, severity modifiers) are used for evaluating treatment effectiveness and quality of care. In the future, these ratings might be used for value-based purchasing strategies that link performance in quality and cost with Medicare part B payments.¹¹

It would be worthwhile to measure the degree to which the patient's perspective (measured with a PROM) correlates with the therapist's perspective (HTRF).^{12,13} A strong relationship between PROMs and HTRF would support the utility of a therapist's perspective in rating disability, and it might suggest that severity modifiers could be assigned based on either the therapist's expertise or PROMs alone, rather than using both measures. A moderate or weak correlation might indicate opportunities for improved collaboration between patients and therapists, in particular with regard to the cognitive, emotional, and behavioral aspects of illness that tend to explain much of the divide between subjective and objective limitations.^{14–16} One potential advantage of HTRF over PROMs is that it would be less influenced by psychosocial factors and documentation of actual observed and measured functions (impairment) vs patient-perceived function (disability).

Purpose

The purpose of this study is to assess the correlation between HTRF and PROMs and to determine the factors influencing their variation. This study tested the null hypotheses that there is no correlation between HTRF and the PROMIS upper extremity (UE) and the ULFI as well as that PROMIS UE, ULFI, and HTRF are not correlated with psychological factors (ie, ineffective coping strategies and depression) accounting for demographic- and condition-related factors.

Methods

Study design and patients

Between February 2014 and November 2014, new patients presenting to 6 hand therapists in a department of occupational therapy at a large urban teaching hospital were asked to participate in an observational cross-sectional study approved by an institutional review board.

Inclusion criteria were new patients aged 18 years or older with an upper extremity condition scheduled for a 1-hour evaluation, English fluency and literacy, and the ability to provide informed consent. Exclusion criteria were pregnant women and Medicare patients (for time management in the office because the paperwork for these patients takes longer than for other insurances). One hundred eleven patients who met the inclusion criteria were asked to participate, and 11 (10%) eligible patients declined enrollment. Therefore, a total of 100 patients were enrolled. There were 50 men (50%) and 50 women (50%) with a mean age of 42 ± 15 years. Fifty-five percent received hand therapy after trauma and 33% had prior surgery (Table 1).

Data collection

Each patient was enrolled before evaluation. After informed consent, patients were asked to fill out questionnaires for collecting the following data: demographics (sex, age, level of education, marital status, race, occupation, and smoking status), health-related demographics (diagnosis, prior surgery, multiple pain conditions, and duration of symptoms), ULFI score, PROMIS UE (CAT) score, PROMIS pain interference (CAT) score, PROMIS depression (CAT) score, and the PSEQ-2 score. Data were collected through an assessment center (<http://www.assessmentcenter.net>),

Table 1

Patient characteristics ($n = 100$)

Age, mean (SD), y	42 (15)
Sex, n (%)	
Men	50 (50)
Women	50 (50)
Education, mean (SD), y	16 (3.0)
Marital status, n (%)	
Single	49 (49)
Living with partner	8 (8.0)
Married	36 (36)
Separated/divorced	7 (7.1)
Duration of symptoms, mean (SD), mo	20 (47)
Race, n (%)	
White	85 (85)
Asian	8 (8.0)
Other/unknown	7 (7.0)
Diagnosis, n (%)	
Traumatic	55 (55)
Nontraumatic	45 (45)
Prior surgery, n (%)	
Yes	33 (33)
No	67 (67)
Smoker, n (%)	
Yes	7 (7.0)
No	93 (93)
Multiple pain condition, n (%)	
Yes	27 (27)
No	73 (73)
Current occupation status, n (%)	
Working full or part time	74 (74)
Retired	5 (5.0)
Unemployed, able or unable to work	9 (9.0)
Other	12 (12)
Outcome measures, mean (SD)	
PROMIS UE	37 (8.4)
ULFI	27 (5.2)
HTRF	3.0 (1.0)
Psychosocial factors, mean (SD)	
PROMIS pain interference score	56 (7.4)
PROMIS depression score	47 (9.8)
PSEQ-2 score	9.5 (2.4)

SD = standard deviation; PROMIS = Patient-Reported Outcomes Measurement Information System; UE = upper extremity; ULFI = upper limb functional index; HTRF = hand therapist-rated function; PSEQ-2 = Pain Self-Efficacy Questionnaire-2.

a web-based data collection tool for capturing participant data with CAT capabilities, using a portable computer. Immediately after the evaluation, the hand therapists, who were blinded to PROM scores, rated the level of functional limitation for each patient.

Hand therapist-rated functions

For each patient, a hand therapist performed an evaluation and rated function based on medical history, objective measures (eg, range of motion, strength, edema, and sensation), subjective measures of pain, and a patient-reported discussion with the therapist regarding their ability to perform functional tasks (eg, writing, dressing, light hygiene, driving, work, and leisure activities). Observations of patient's function during the evaluation and on specific functional tasks as determined by the therapist were also considered. The hand therapist came up with a percent functional limitation and then categorized it using the scale developed by Medicare for its reporting requirements: less than 1% functional limitation, at least 1% but less than 20% functional limitation, at least 20% but less than 40% functional limitation, at least 40% but less than 60% functional limitation, at least 60% but less than 80% functional limitation, at least 80% but less than 100% functional limitation, and 100% functional limitation.

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