



Hand Posturing Is a Nonverbal Indicator of Catastrophic Thinking for Finger, Hand, or Wrist Injury



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Aims

This study tested proposed nonverbal indicators (such as flexion of the wrist during attempted finger flexion or extension of uninjured fingers as the stiff and painful finger is flexed) for their association with less effective coping strategies.

- (1) Do patients with specific hand postures during physical examination score higher on questionnaires assessing pain interference, limitations, symptoms of depression, catastrophic thinking, and kinesiophobia?
- (2) Do greater numbers of hand postures correlate with limitations or psychological factors?

Methods

We included 149 patients with stiff or painful fingers within 2 months after sustaining a finger, hand, or wrist injury. All patients completed Patient Reported Outcomes Measurement Information System (PROMIS) Depression, Upper Extremity Physical Function, and Pain Interference (CAT) questionnaires. We used the Abbreviated Pain Catastrophizing Scale (PCS-4) to measure catastrophic thinking and the Tampa Scale of Kinesiophobia (TSK) to assess fear of movement. The occurrence of protective hand postures during the physical examination was noted by both the physician and researcher.

Table 1. Description of specific hand postures among 55 patients (n = 81)	Number (%)
A. Detachment: presenting the hand as if it is detached	3 (4)
B. Uninjured fingers extend as stiff/painful finger is flexed	14 (17)
C. Uses opposite hand to move the injured finger when asked to demonstrate motor strength	3 (4)
D. Wrist flexion during attempted finger flexion	24 (30)
E. Thumb obstructs path of finger flexion	11 (14)
F. Avoiding use of uninjured fingers	14 (17)
G. Avoiding all flexion of the stiff/painful finger	12 (15)

Results

Patients with one or more protective hand postures did not score higher on:

- **PROMIS Pain Interference** CAT (hand posture: **59** [56-64]; no posture: **59** [54-63]; difference of medians: 0; p = 0.273)
- **PROMIS Physical Function** CAT (**32** ± 8 versus **34** ± 8; mean difference: 2 [confidence interval (CI), 29-34 versus 32-35]; p = 0.107)
- **PROMIS Depression** CAT (**48** [41-55] versus **48** [42-53]; difference of medians: 0; p = 0.662).

However, having at least one hand posture was associated with

- a higher degree of **catastrophic thinking** (PCS scores: **13** [6-26] versus **10** [3-16]; difference of medians: 3; p = 0.0104)
- a higher level of **kinesiophobia** (TSK: **40** ± 6 versus TSK: **38** ± 6; mean difference: 2 [CI, 39-42 versus 37-39]; p = 0.0420).

Greater catastrophic thinking was associated with a greater number of protective hand postures on average (rho: 0.20, p = 0.0138).

Conclusion

Protective hand postures and (based on prior research) specific words and phrases are associated with catastrophic thinking and kinesiophobia, less-effective coping strategies, that hinder recovery.

Surgeons can learn to recognize these signs and begin to treat catastrophic thinking and kinesiophobia starting with compassion, empathy, and patience and prepared to add formal support (such as cognitive-behavioral therapy) to help facilitate recovery.

