

Factors Associated with Greater Pain Intensity



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KEYWORDS

• Pain intensity • Nociception • Pathophysiology • Impairment • Illness • Magnitude of disability

KEY POINTS

- The intensity of pain reported for a given nociception is highly variable.
- Variation in pain intensity is best accounted for by stress, distress, and ineffective coping strategies.
- Among orthopedic surgery patients, greater intake of opioids is associated with greater pain intensity and decreased satisfaction with pain control, irrespective of pathophysiology or nociception.
- The single most effective pain reliever is self-efficacy (the sense that one can manage and that everything will be alright).

INTRODUCTION

Nociception is the physiology of actual or potential tissue damage. Pain is the cognitive, emotional, and behavioral response to nociception. Pain intensity for a given nociception varies substantially depending on mindset and circumstances (stress, distress, and coping strategies).

Pinch the back of your hand. Notice the pain. Stop pinching and the pain dissipates. Pinching creates changes in the hand that signal potential tissue damage (nociception). Pinching the back of your hand does not hurt that much. But if an ant at a picnic bit the back of your hand and you noticed that you had put your hand down by an ant hole and there were several ants crawling on your hand, that might hurt more. If you had an ant phobia—myrmecophobia—or an allergy to ant bites, you would be frightened and that bite might be extremely painful.

The most common symptoms patients bring to a hand surgeon are pain and numbness. We surgeons spend our days meeting patients in pain and hearing their stories. Even the most junior hand surgeons are aware of the substantial

variation in pain for a given nociception. Consider trigger finger: some patients can snap a severe trigger finger repeatedly and report no pain, whereas others find it difficult to demonstrate even a single triggering event.

Hand surgeons are biased to believe that there is a pathophysiologic explanation for the differences in pain intensity; that there is some biochemical, molecular, or biomechanical explanation for the variations in pain intensity. Experts have labeled this frame of reference the biomedical model of illness.¹ In the biomedical model, every illness (the state of being unwell) can be reduced entirely to its underlying disease (pathophysiology), in other words, to a malfunctioning in the human machinery.

But humans are not machines. We think, we interpret, and we have emotions. The evidence is clear that a better model for human illness behavior is the biopsychosocial model.² The biopsychosocial model emphasizes that illness is owing to a combination of disease (bio), mindset (psycho), and circumstances (social).² The biopsychosocial framework explains variations in pain intensity.^{3,4}

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VARIATION IN PAIN INTENSITY FOR A GIVEN NOCICEPTION

It is easier to understand the subjective aspects of illness such as pain intensity and magnitude of disability now that we can quantify them. When the Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire⁵ was introduced, we started having all our patients complete it. We observed that the range of DASH scores for a given diagnosis was remarkable, despite a relatively narrow range of severity in pathophysiology. After all, no matter how bad a trigger finger or trapeziometacarpal (TMC) arthrosis get, they still involve just 1 joint of 1 digit. But patients with a single trigger digit can rate themselves anywhere from zero symptoms or disability (a mere curiosity) to a score of 80 out of 100, indicating near complete and intensely painful incapacity (Fig. 1).⁶

The TMC joint is 1 spot where everyone eventually gets arthritis (Fig. 2).^{7,8} Take a moment to consider what this means. It means that most of the patients in a hand surgeon's office aged 60 and older have TMC arthrosis. However, only a fraction of those patients are seeking help with pain at the TMC joint. Most of them have adapted to the TMC arthrosis and do not consider it a problem.⁹

MINDSET AND CIRCUMSTANCES

The lack of correlation between pathophysiology/impairment and symptom intensity and magnitude of disability is curious. As the curious become inquisitive, the most useful insights come from experts outside of our discipline: psychologists and sociologists, the experts of the workings of the

human mind and the experts on human social relationships and institutions.

Every hand surgeon understands secondary gain. A perplexing discrepancy between disease and illness with a correspondingly limited response to treatment are the hallmark of a person who benefits from being ill (usually by gaining advantage in some form of dispute, but sometimes just for the attention of loved ones). Patients who derive secondary gain from illness are not typically feigning illness (malingering). Secondary gain is an example of the unconscious effect of circumstances on symptoms and disability.

Hand surgeon trepidation in treating patients involved in a dispute indicates our ability to recognize and adapt to the psychosocial aspects of illness. But it is also an example of an important pitfall: the tendency to categorize patients (eg, "comp" or "non-comp," "crazy or sane"). This natural human cognitive bias has its advantages in situations of high consequences, where snap judgments could determine life or limb. But it gets us into trouble when we are treating patients.

The influence of circumstances (eg, culture or secondary gain) and mindset (eg, stress, distress, or maladaptive responses to symptoms) is not an all-or-none phenomenon. It is not "are you depressed?" but rather "how depressed are you today?" Categorizing emphasizes the false mind-body dichotomy and reinforces the stigma associated with psychological and sociologic aspects of illness: "you are broken," or "you don't measure up." Anticipating, measuring, and treating human illness behavior on its continuum is more accurate and will make screening and treatment more appealing to patients and surgeons. When distress and effective coping strategies are evaluated on

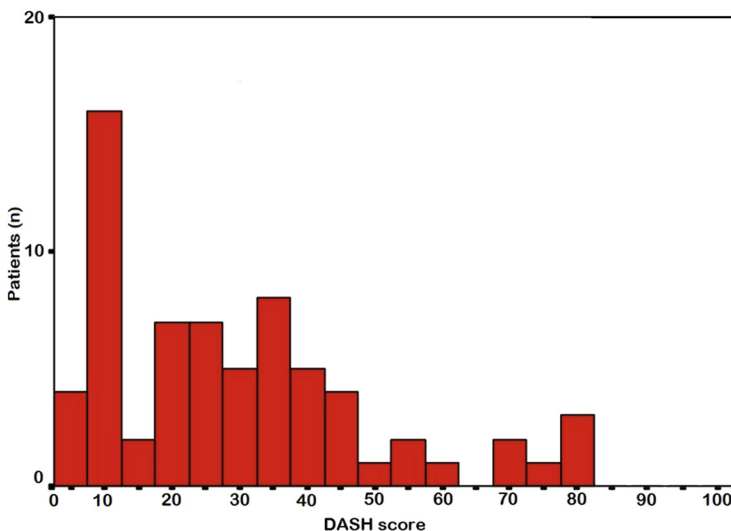


Fig. 1. Histogram of the distribution of Disabilities of the Arm, Shoulder, and Hand (DASH) scores in patients with a trigger finger. (From Ring D, Guss D, Malhotra L, et al. Idiopathic arm pain. *J Bone Joint Surg Am* 2004;86-A(7):1389; with permission.)

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