

# Chapter 19

## SCORING PAIN

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## INTRODUCTION

Although the simple yet vital humanitarian action of pain relief must not be forgotten, the pathophysiological effects of poorly controlled acute pain can affect every body system with potentially catastrophic consequences. Formally scoring and recording pain levels raises awareness and decreases the clinician's subjective input to pain evaluation. Also, the identification of pain

aids in its treatment. Pain is multifactorial and subjective in nature, which makes it difficult and complex to score. No formal standard of pain measurement exists, but a variety of different pain scoring systems have been implemented. Within the military, pain intensity is scored numerically; the US military also uses a questionnaire to determine the effects of pain.

## DIFFICULTIES WITH SCORING PAIN

Although pain scoring has been shown to be essential to the treatment of patients, it is difficult to quantify pain and standardize these measurements for a number of reasons. Pain is subjective. It is often difficult to describe even by the coherent, articulate patient. A common language of pain does not exist, either verbal or nonverbal. Different patients communicate their degree of pain in very different ways. The medical language used specifically by pain medicine does not always correlate with the language a patient would use to describe the pain they are experiencing.

There are often additional barriers to communication. Explicit factors are seen in infants, elderly patients, and patients with cognitive or speech impairments. However, some factors are less apparent, such as culture, psychological issues, level of arousal, previous pain experiences, and learnt behaviors in response to pain. Some patients perceive benefit in under- or over-reporting pain.<sup>1</sup>

Culture has long been thought to be a major factor in pain reporting. Most clinical studies show differences in the perception of pain and the behavioral response to pain. However, what actually mediates this difference is still unknown. Additionally, great variation occurs even within cultural groups, depending on gender, age, socioeconomic status, and ties to country of origin. Lipton and Marbach studied facial pain in black, Irish, Italian, Jewish, and Puerto Rican patients. They found that pain perception was the same between different

races; however, the emotional response to pain—stoic versus expressive—showed interracial variability, as did the effects of pain upon activities of daily living.<sup>2</sup>

Patients who are in fear of pain—when they experience no respite from their symptoms or experience frequent recurrent pain—can have increased sensation or attention. McCracken found that patients felt greater pain intensity and were more distressed by pain when they had increased vigilance regarding pain.<sup>3</sup>

Classifying pain is difficult, which makes pain scoring difficult. Many different ways to classify pain exist, and some presentations of pain do not fit easily into one category. An example of classification is acute versus chronic, but in between there are many variations: acute on chronic; chronic progressive; episodes of acute pain with significant pain-free periods. Types of pain can also be somewhat arbitrary in their classification—somatic, neuropathic, visceral—and many people experience a combination of these. Others find it very difficult to provide a history to help the physician to distinguish one type from another.<sup>4</sup>

Pain is multifactorial in nature, so scoring must be either complex enough to accommodate the many factors involved, or simplified, without taking into account this multifaceted nature. Of all pain-related factors scored, scoring the intensity of pain has shown the most significant outcomes (see discussion below).<sup>5</sup> However, using intensity alone does not factor in pain's effects on physical and psychological wellbeing.<sup>6</sup>

## WHY SCORE PAIN?

Scoring pain minimizes the risk of undetected or poorly managed pain. Pain is the primary reason people seek medical treatment. Characterizing pain is core to the process of finding a diagnosis for pathology. Scoring pain can assist the clinician in determining the pathology and formulating a diagnosis. Untreated pain leads to pathophysiological sequelae that can worsen the patient's physical condition and lead to additional pathology such as chronic pain. In the acute setting, self-treatment of pain leads to poor management of the symptoms and extended time experiencing pain.<sup>7</sup>

Additionally, pain that limits a patient's activities of daily living has significant financial consequences, in terms of direct cost of pain treatment, loss of income if the patient is unable to work, and the government benefits the patient may consequently require. Poor identification of pain and lack of auditing its management will only increase these costs.<sup>8</sup> Pain scoring is necessary to study the mechanisms of pain and the efficacy of treatment methods. By allowing clinicians to audit such measurements, management plans can be implemented using evidence-based medicine.

## HOW TO SCORE PAIN

There are two main types of pain measurement: those assessing intensity of pain and those measuring the effects of pain. Pain intensity is related to how much a person hurts. Pain intensity appears to be homogenous in nature; patients can readily rate it and with a good degree of reproducibility.<sup>9</sup> The effects of pain appear to be more complex, wide-ranging, and variable. Effects of pain are dependent on a number of other physiological and psychological states, and thus require a far more complex system of rating.

### Scoring Pain Intensity

The main pain intensity scoring systems are verbal rating scales, visual analogue scales, and numerical rating scales. Using a simple scale of pain intensity negates the need for patients to actively report pain, minimizes reporter bias, and provides data for a simple protocol-driven management plan.

A verbal rating scale uses words that describe pain in order of severity. Descriptions at opposite ends of the spectrum are often “no pain” and “most intense pain imaginable”; adjectives between these extremes describe different gradations of pain. Patients read through these words and pick those most appropriate to the intensity of pain they are currently experiencing. Verbal rating scales require little training to administer. Commonly the descriptors of pain intensity are assigned a pain score, which enables ratio properties and makes statistical analysis easier (but assigning numerical scores is controversial because different verbal descriptors do not represent equal changes in magnitude of pain). Verbal scales are generally well received by patients and have the highest compliance rate of all the intensity scoring systems.<sup>10</sup> On the other hand, they also require good understanding of the vocabulary, and words can be interpreted differently. Some patients may not relate the words on the scale to the pain they are experiencing, and the words take time to read and understand.

With a visual analogue scale, the patient marks pain intensity at a certain location on a line (usually 10 cm long), with each end representing the extremes of pain (“no pain” and “pain as bad as it can be”). This scale is easy to perform and has good validity. It is theoretically the most sensitive of the pain scales given the number of possible responses. However, it also requires a degree of manual dexterity that can be compromised by pain, injuries, and environmental factors. In addition, the scale requires equipment, paper and pen, which are not always available in the field setting. It can also be difficult to compare scores with these scales.

Picture rating scales usually use numerous cartoon faces experiencing different degrees of pain, which can make them easier for patients who do not share the same language as the person assessing the patient. However, like visual analogue scales, they require equipment.

Numerical rating scales require a patient to rate their pain intensity along a numerical scale, with 0 representing no pain. Their validity has been demonstrated in many studies. Compared with other measures of pain intensity, numerical scales correlate well<sup>10</sup> and have been shown to be sensitive. They require little or no equipment (particularly if administered verbally) and therefore can be used in a wide range of environments. Simple and easy to administer, they can be used with a wide variety of patients, particularly those with whom other measures of pain intensity might fail (eg, the elderly, patients with motor impairment or reduced vocabulary). However, unlike visual and verbal scales, they do not have ratio properties, which limits their ability to quantify reductions in pain intensity.

### Scoring Effects of Pain

Scoring systems such as the Brief Pain Inventory and the McGill questionnaire assess the multidimensional aspects of pain over a time period. Although these tools have a definite place in pain management and assessment, they do not provide the simplicity and ease of use in a wide range of clinical scenarios, particularly the more austere environments prior to Role 4 care.<sup>11</sup>

**TABLE 19-1**  
**UNITED KINGDOM MILITARY PAIN SCORING SYSTEM**

Pain Score	Level of Pain	Analgesic Action
3	severe pain	morphine (or other strong opioid agent)
2	moderate pain	weak opioid or NSAID; also consider agents below on analgesic ladder
1	mild pain	paracetamol
0	no pain	none

NSAID: nonsteroidal antiinflammatory drug

### Military Scoring Systems

The United Kingdom Defence Medical Services use a numerical scoring system (Table 19-1) for acute pain scoring, which fulfills a number of criteria. The system requires minimal training and is quick and simple

enough to be used at all stages in the medical chain, including the point of wounding. It can be used by all ranks and is concise and easy to remember. The system has been adopted by Role 4 medical facilities, thus providing continuity of assessment.<sup>11</sup> It is also easy to record and allows a clear and concise management

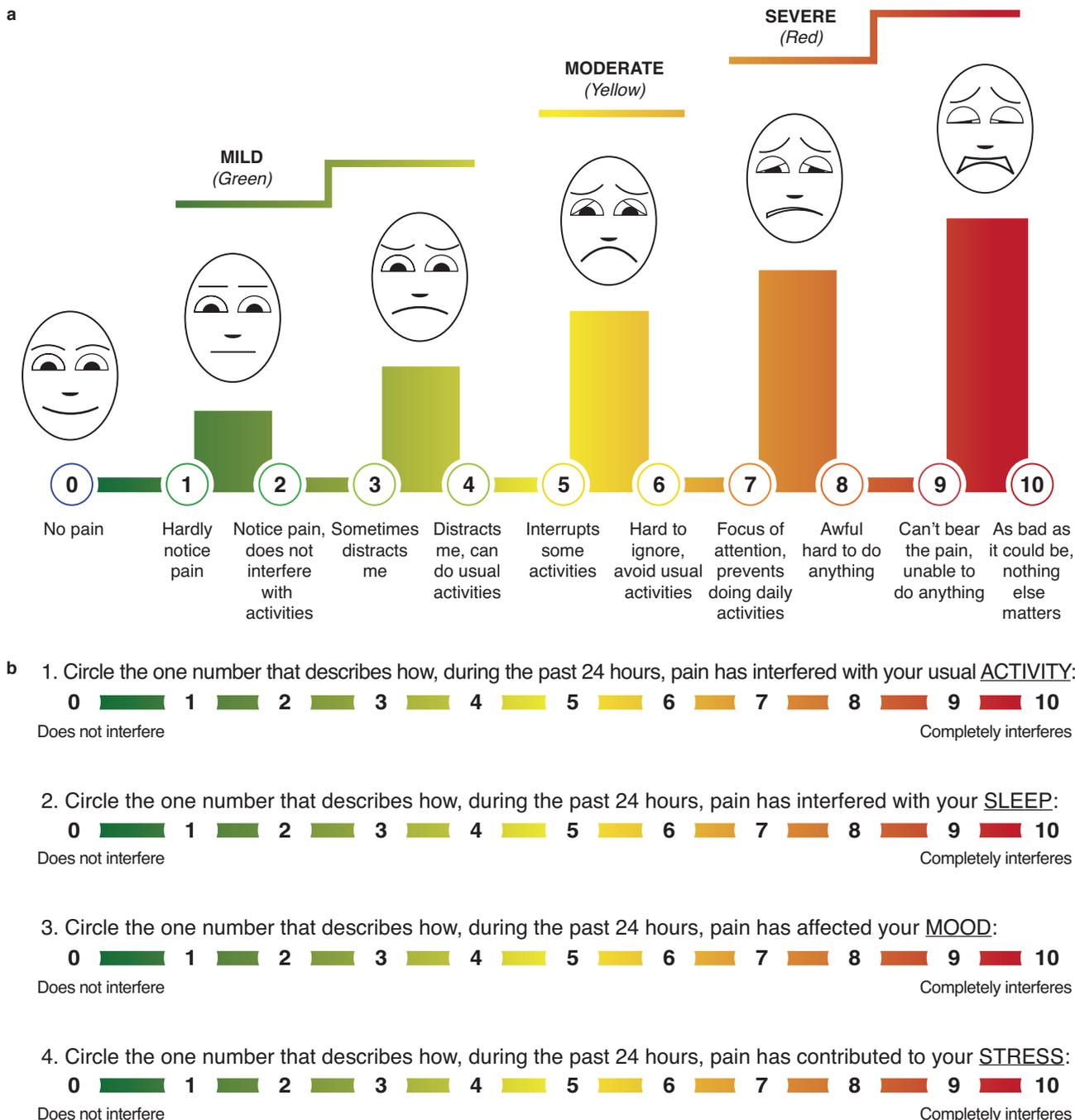


Figure 19-1. US Department of Defense/Veterans Administration pain scale tool (a), and supplemental questions (b).

plan to be instigated based on the results.

The US military relied on an 11-point numeric rating scale (0: no pain; 10: pain as bad as it could be) for many years as a validated method to evaluate pain. Unfortunately, the scale was found to be inconsistently administered, too subjective, and easily abused or misused. The lack of a standardized pain assessment tool adversely affected pain management throughout the care pathway and resulted in little to no consistent pain data.<sup>12</sup> In 2010 the US Army surgeon general released the Pain Task Force final report,<sup>12</sup> in which the requirement for an improved pain scale was made.

The Task Force subsequently developed a new Department of Defense/Veterans Administration pain scale (Figure 19-1) from these requirements. This tool combines the validated 11-point pain scale used by clinical researchers with a simple green, yellow, and

red scale more suitable for combat medical conditions. Furthermore, it grounds each numeral on the 11-point scale with standardized “functional” language.<sup>13</sup> The new tool is expected to greatly enhance clarity for both patients and providers when discussing pain levels and treatment effectiveness throughout the care continuum. The tool also includes supplemental questions for clinicians at all levels (depending on need) to evaluate the biopsychosocial impact of pain in their patients. Questions ask about the impact of pain on general activity, mood, level of stress, and sleep. These questions, combined with the functionally anchored 11-point scale, have the potential to provide a powerful clinical tool in evaluating a patient’s pain. The clinician or patient can use the most appropriate form of scoring system in each interaction, tailoring the system to the patient.<sup>14</sup>

### WHEN TO SCORE PAIN

Pain can vary over time and should be scored regularly. Pain has been found to affect memory, and retrospective pain scoring (especially over a long period of time) renders it inaccurate. Linton and Gotestam found that if patients are required to retrospectively recall

their pain, their current pain influences their pain scoring; regular, well-timed pain scoring is therefore key.<sup>15</sup> Pain should be assessed at regular intervals during the day, particularly after turnover of care providers, and before and after the use of analgesia.

### CONCLUSION

Ultimately the primary goal of pain scoring should not be forgotten: the treatment of pain. Whatever pain assessment tool is used, the concern should be not just recording the pain but also reducing it to acceptable

levels. The acceptable level has been suggested to be no worse than mild pain, which correlates with significant benefits physiologically and psychologically.<sup>16</sup>

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