

REVIEW ARTICLE

Pain Assessment Tools

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ABSTRACT

Pain is a subjective feeling which is defined as "a very unpleasant sensation is caused by noxious stimulation of the sensory nerve endings. This is always a response to the cause of an individual. Pain should be assessed regularly and frequently based on patients self-report of pain. It is often called the "fifth vital sign". When a patient is not expressing or communicating, then his household member can report the symptoms of pain. The severity of pain should be assessed by recording self-rating of the response on different types of scales. Various pain scales are now available for pain assessment in both neonates and advanced ages. This article gives a brief review of various pain assessment tools.

Keywords: Types of pain, Pain assessment, Pain measuring scales.

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INTRODUCTION

Pain is a subjective feeling which is defined as "an unpleasant sensation caused by noxious stimulation of the sensory nerve endings [1]. It is always an individual response to the cause. Pain is a cardinal symptom of inflammation that is valuable in the diagnosis of many disorders and conditions. Pain is influenced by physical, mental, biochemical, psychological, physiologic, social, cultural, and emotional factors" [2].

TYPES OF PAIN

Pain is categorized on various bases [3,4]:-

Depending on the pathophysiology underlined

Nociceptive pain and Neuropathic pain,

Based on intensity

Acute pain and Chronic Pain

Table 1. Types of Pain

Types of Pain	Site	Nature of Pain	Area-specific	Source of pain	Clinical Examples
Nociceptive - Somatic	Tissue, skin and muscles, tendons, joints, bones	Sharp, burning, dull, aching and cramping	It is diffuse as well as radiating	It may be due to injury, strain, trauma, or any kind of inflammation	Surgery, Burns, Cuts, Contusions, Arthritis, Tendonitis
Nociceptive - Visceral	Visceral organs	It may be sharp and stabbing or deep aching pain.	It may be well or poorly localized to the area concerned.	It may be due to infections or organ distension as well as muscle spasm.	Gastric problems, Pancreatitis, ulcer, Appendicitis as well as Bladder Distension

Neuropathic	Central nervous system and peripheral nervous system	It may be Sensitive or there may be a burning sensation. Aching, cramping, throbbing, shooting and numbness with tingling	Usually diffused	It might be due to nerve damage of the peripheral nervous system and also because of trauma, metabolic disorders, or any kind of CNS disease.	Diabetic Neuropathy, Neuralgia, Carpal Tunnel Syndrome, Phantom Limb, Fibromyalgia and pain with Multiple Sclerosis
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PAIN ASSESSMENT

Pain should be assessed regularly and frequently based on patients self-report of pain. It is often called the “fifth vital sign” [5]. But a patient is not expressing or communicating, then his family member or caregiver can report the symptoms of pain [6]. The following are the modules which include:

History and Physical Assessment: This valuation should include physical inspection as well as the report of patients self -experience of the feeling of discomfort. Physical assessment should examination of the neurological system and musculoskeletal system. The behaviour of the patient and gestures that indicate pain should be noticed like crying, guarding etc. A proper history of pain assessment should include medication as well as disease or injury history [7].

Functional and Psychosocial Assessment: This assessment includes observation of the patient’s activities while doing regular functional tasks. Assessment of pain management and level of function and its influence on the quality of life should be done [8]. Antiquity of pain concerning abuse, depression and chemical or alcohol use should also be assessed.

Multidimensional Assessment: There are various tools present for multidimensional pain valuation. This type of pain assessment is done mostly in patients with chronic pain or complex situations [9].

Common Pain Assessment Tools

The severity of discomfort or pain should be assessed by recording self-rating of the response on different types of scales. Various pain scales are now available for pain assessment in both neonates and advanced ages. Below are the mentioned list of scales that are used for pain assessment are as follows [10-13]:-

Pain Assessment Scales

Adult

- Numerical Rating Scale (NRS)
- Defence and Veterans Pain Rating Scale (DVPRS)
- Adult Non-Verbal Pain Scale (NVPS)
- Pain Assessment in Advanced Dementia Scale (PAINAD)
- Critical-Care Observation Tool (CPOT)
- Behavioural Pain Scale (BPS)
- Visual Analog Scale (VAS)

Paediatrics

- Neonatal/Infant Pain Scale (NIPS)
- Neonatal Pain, Agitation, and Sedation Scale (N-PASS)
- Crying; Requires increased oxygen administration; Increased vital signs; Expression; S (CRIES)
- Faces, Legs, Activity, Cry and Consolability (FLACC)
- Wong-Baker Faces scale (WBK Scale)
- Non-Communicating Children’s Pain Checklist (NCCPC-R)
- Neonatal Facial Coding System (NFCS)

There are many scales designed to help in recording the assessment of the level of pain for any individual. This measurement of pain will help the health care providers in better understanding the disease and the level of pain associated with it [14]. The result of the pain scale helps to get a conclusion in the diagnostic procedure as well as it will help in tracking the progression of a disease.

1) Numerical Rating Pain Scale (NRS)

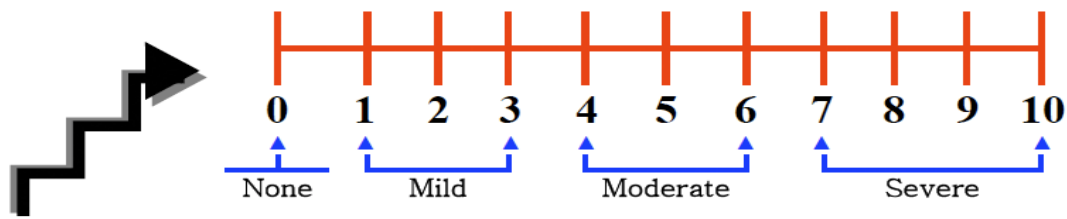


Figure1. Numerical Rating Scale (NRS)

Numerical rating scales (NRS) is the most simple and commonly used scales of all. NRS consists of a numeric version and is labelled from 0 to 10 in a horizontal line as shown in Figure No.1. This scale ranges from 0 to 10, where 0 suggest “no pain” whereas 10 suggest “the worst pain” which are imaginable. This type of scale has the advantage of being simple and easy to use. It is reproducible and comprehensive. But this type of pain scale measures only one aspect of pain intensity and it only assesses the pain experienced in the last 24 hours [15].

2)WBF Pain Scale

Wong-Baker FACES® Pain Rating Scale



Figure 2.Wong-Baker Faces Pain Rating Scale

The WBF (Wong-Baker) FACES Pain Scale is mostly preferred by doctors, parents and children. This scale combines both numbers as well as pictures as shown in Figure No.2. Wong Bakers FACES scale is used in adults as well as in children above the age of 3 [16].

The pain rating scale consists of six faces that represent different expressions which range from smiling to very upset. Each face expression is allotted to a number ranking amongst 0 (smiling) and 10 (crying). Patient having a language barrier can also benefit from this type of scale [17].

3)FLACC Scale

Table 2. FLACC Scale Scoring Criteria

Conditions	Score 0	Score 1	Score 2
Face	No smile with appearance	Frown and uninterested smile	Clenched jaw with a frequent quivering chin
Legs	No abnormalities,	Apprehensive, impatient, tense	Legs drained up or kicking
Activity	No activities, silent and quiet.	Tensed activities, squirming and fluctuating back and forth	Rigid, Curved or shaking
Cry	No signs of crying or awake or not even asleep	Moans with occasional criticism	Screams, lousy frequentlywith constant complaints
Consolability	Relaxed and content	Comforted by infrequent touching, hugging or distractible	Tough to manage or comfort

FLACC as shown in Table No.2. The FLACC pain scale measures amongst the younger age group and especially for those who cannot express their pain. This ranges from 0 to 10 with 0 signifying no pain. This FLACC rule has represented itself with five principles, they are being allotted a score of 0, 1 or 2 [18].

The total scores are measured as mentioned below:

- 0: Relaxed and comfortable
- 1 to 3: Mild discomfort
- 4 to 6: Moderate pain
- 7 to 10: Severe discomfort/pain

These score ratings help to assess whether the pain of an individual is reducing or improving or stable.

4)CRIES Scale

Table 3. CRIES Pain Assessment Scores

	0	1	2
Crying	Not any	High pitched but consolable	Inconsolable
Requires Oxygen for saturation > 95%	Not any	Fio2 < 30%	Fio2 > 30%
Improved Vital Signs	Not any	HR or BP < 20%	HR or BP > 20%
Appearance	Not any	Frown	Frown or grumble
Sleepless	Not any	Get up often	Continuously awake

CRIES means Crying; Requires increased oxygen administration; Increased vital signs; Expression; Sleeplessness. It is mostly used for an infant of 6 months old as well as younger patients but it is mostly essential for neonatal ICU (Intensive Care Unit) setting. This pain scale measurement is constructed on objective amounts as well as observations. 2 points are allotted to each allocation as shown in Table No.3, through a score of 0 for symbols with no pain plus a rating of 2 for signs of maximum pain [19].

5) McGill Pain Scale

The McGill Pain Questionnaire contains 78 words, each describing different aspects of pain. Here the patient has to rate their pain as shown in Figure No.3 [20]. A numerical score is given based on a number of words marked with a maximum rating of 78. This pain rating questionnaire is scale is useful both for older age group people as well as children only who can read [21].

MCGILL PAIN QUESTIONNAIRE
RONALD MELZACK

Patient's Name _____ Date _____ Time _____ am/pm

PRI: S (1-10) A (11-15) E (16) M (17-20) PRI(T) (1-20) PPI _____

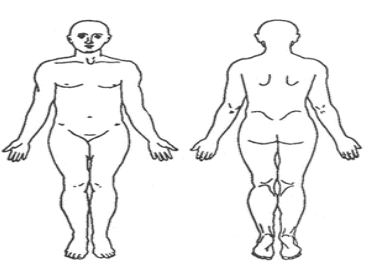
<p>1 FLICKERING QUIVERING PULSING THROBING BEATING POUNING</p> <p>2 JUMPING FLASHING SHOOTING</p> <p>3 PRICKING BORING DRILLING STABBING LANCINATING</p> <p>4 SHARP CUTTING LACERATING</p> <p>5 PINCHING PRESSING GNAWING CRAMPING CRUSHING</p> <p>6 TUGGING PULLING WRENCHING</p> <p>7 HOT BURNING SCALDING SEARING</p> <p>8 TINGLING ITCHY SMARTING STINGING</p> <p>9 DULL SORE HURTING ACHING HEAVY</p> <p>10 TENDER TAUT RASPING SPLITTING</p>	<p>11 TIRING EXHAUSTING</p> <p>12 SICKENING SUFFOCATING</p> <p>13 FEARFUL FRIGHTFUL TERRIFYING</p> <p>14 PUNISHING GRUELLING CRUEL VICIOUS KILLING</p> <p>15 WRETCHED BLINDING</p> <p>16 ANNOYING TROUBLESOME MISERABLE INTENSE UNBEARABLE</p> <p>17 SPREADING RADIATING PENETRATING PIERCING</p> <p>18 TIGHT NUMB DRAWING SQUEEZING TEARING</p> <p>19 COOL COLD FREEZING</p> <p>20 NAGGING NAUSEATING AGONIZING DREADFUL TORTURING</p> <p style="text-align: center;">PPI</p> <p>0 NO PAIN 1 MILD 2 DISCOMFORTING 3 DISTRESSING 4 HORRIBLE 5 EXCRUCIATING</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>BRIEF</td> <td>RHYTHMIC</td> <td>CONTINUOUS</td> </tr> <tr> <td>MOMENTARY</td> <td>PERIODIC</td> <td>STEADY</td> </tr> <tr> <td>TRANSIENT</td> <td>INTERMITTENT</td> <td>CONSTANT</td> </tr> </table> <div style="text-align: center;">  <p style="margin: 5px 0;">E = EXTERNAL I = INTERNAL</p> </div> <div style="border: 1px solid black; padding: 5px; min-height: 80px;"> <p>COMMENTS:</p> </div> <p style="text-align: right; font-size: small;">© R. MELZACK, 1975</p>	BRIEF	RHYTHMIC	CONTINUOUS	MOMENTARY	PERIODIC	STEADY	TRANSIENT	INTERMITTENT	CONSTANT
BRIEF	RHYTHMIC	CONTINUOUS									
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Figure 3. McGill Pain Questionnaire Format

6) Color Analog Scale

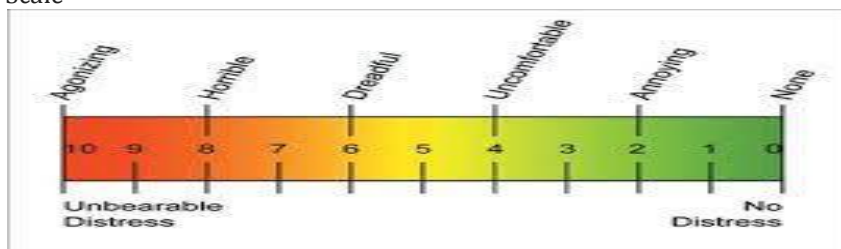


Figure 4. Color Analog Scale

This tool utilizes colours with red depicting maximum pain, yellow expressing moderate pain, whereas the colour green presents comfort. The colours are positioned usually in a format of linear line with consistent numbers or words that explain the pain as shown in Figure No.4. The colour analogue scale is considered valid and reliable and mostly used for children. [22-25].

7) Mankoski Pain Scale

Mankoski Pain Scale *A Numeric Pain Intensity Scale*

0	No Pain.	No medication needed.
1	Very minor annoyance - occasional minor twinges.	No medication needed.
2	Minor annoyance - occasional strong twinges.	No medication needed.
3	Annoying enough to be distracting	Mild painkillers are effective. (Aspirin, Ibuprofen, Tylenol)
4	Can be ignored if you are really involved in your work, but still distracting.	Mild painkillers relieve pain for 3-4 hours.
5	Can't be ignored for more than 30 minutes.	Mild painkillers reduce pain for 3-4 hours.
6	Can't be ignored for any length of time, but you can still go to work and participate in social activities.	Stronger painkillers (Codeine, Vicodin) reduce pain for 3-4 hours.
7	Makes it difficult to concentrate, interferes with sleep You can still function with effort.	Stronger painkillers are only partially effective. Strongest painkillers relieve pain (Oxycontin, Morphine)
8	Physical activity severely limited. You can read and converse with effort. Nausea and dizziness set in as factors of pain.	Stronger painkillers are minimally effective. Strongest painkillers reduce pain for 3-4 hours.
9	Unable to speak. Crying out or moaning uncontrollably near delirium.	Strongest painkillers are only partially effective.
10	Unconscious. Pain makes you pass out.	Strongest painkillers are only partially effective.

Developed by Andrea Mankoski in 1995

Figure 5: Mankoski Pain Scale Format

As shown in Figure No.5 [26]. Descriptions are explained in detail that also includes phrases like "very minor annoyance, occasional minor twinges" or "cannot be ignored for more than 30 minutes."

8) Brief Pain Inventory (BPI)

The BPI scale contains a questionnaire that evaluates the severity of pain as well as the influence of pain on the daily functional activities of an individual [27]. This inventory scale assesses through various scales. There will be line sketches on both sides that is front and back of a human body [28] as shown in the above Figure No.6. Patients are also asked to give all the list of medications or any treatment taken during the past 24 hours. Patients fill the questionnaire as per instructions provided to them [29]. But the major disadvantage is it takes 5 to 15 minutes to fill the questionnaire which makes it less desirable to use in acute pain cases [30].

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