# On a Scale of 1-10, How Bad Is Your Pain? Exploring the Impact of Pain Scales on Patient Health

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This article explores pain scales as a method of assessing patient pain. By searching the PubMed and Google Scholar databases, this study aimed to estimate the representation of different pain scales in the academic literature. Recognizing the accurate evaluation of pain to be more important ever given the uptick in pain-medication-related deaths, this article investigates mechanisms for pain reporting so as to inform effective and safe healthcare delivery. The results of this search identified three pain scales as being the most heavily represented in the literature: the numeric rating scale (N=30), the visual analog scale (N=42) and the verbal accompaniment scale (N= 21). After discussing the measures in depth, each method for gauging pain is then evaluated for its advantages and disadvantages and the implications these hold for different patient populations. This article claims that pain is a very individual experience, and one that may differ from one person to the next. It also introduces literature that claims that pain can vary according to a person's gender and culture. The article concludes by recommending that medical professionals be flexible and adaptable in their use of pain scales in actual clinical settings.

**Keywords:** Pain measurement, pain scales, visual analog pain scales, numerical pain scales, FACES pain scale

## Introduction

Philosophers have long reflected on the origins of pain and mechanisms for gauging it. As early as Ancient Greece, the "father of modern medicine," Hippocrates, theorized that pain and disease could be attributed to an imbalance or build-up of bodily fluids[1]. A few millennia later, the French philosopher best known for his declaration, "I think, therefore I am," Rene Descartes, hypothesized that there was pain of the body and pain of the mind, leading to the creation of his dualistic theory of pain[2]. Even in modern times, researchers are still exploring methods for measuring pain. Anyone who has ever had the unfortunate experience of visiting the emergency department has likely encountered one of the most frequently used methods for determining a patient's pain, a number-based pain rating scale. While this attempt to quantify a patient's pain is important as it allows the healthcare provider to determine the urgency and severity of a patient's case, it is not without disadvantages. This article argues that pain is not only a subjective phenomenon, but a culturally dependent one. Given this, scales designed to assign it a numerical value may not accurately represent the patient's experience, which holds important implications for their health outcomes. This is especially true for marginalized patient populations and those that have historically experienced poor health outcomes. Further complicating matters is the fact that pain can be caused by both physiological mechanisms in addition to psychological ones. Questions then arise as to how to measure psychological pain versus somatic or bodily pain. While pain scales explicitly geared towards psychological pain do exist, such as the Mee-Bunney Psychological Pain Assessment Scale[3], it is important to consider the psychosomatic nature of pain. Correctly separating out the pain of the body, which may require pharmaceutical therapies, and pain of the mind, which often calls for other therapies, then becomes a difficult task. This research comes at a time when questions of how to accurately gauge pain for safe and effective healthcare delivery are at an all-time high. In the U.S., 70,360 people died in 2019 due to opioid overdose, with approximately half of these deaths resulting from synthetic opioids in the form of common pain medication like oxycodone, hydrocodone, and morphine[4]. Therefore, healthcare providers are tasked with accurately determining a patient's level of pain. If the pain is severe, it may warrant the use of these highly addictive drugs. If healthcare providers can reasonably determine that a patient's pain is not as severe, however, they may prefer to adopt less risky therapies. In this way, this study responds to a growing public health concern over the reasonable and ethical measurement of pain and the appropriate use of pain treatment options. In order to investigate common practices for assessing pain in clinical healthcare settings, this article reviews the most frequently used pain scales in the practice of Western medicine through an in-depth search of the leading scholarly databases PubMed and Google Scholar. The pain scales that were most heavily represented in the search results generated by these databases are discussed here, along with a comprehensive

discussion of the advantages and disadvantages they lend to patient care, and how they may impact the possibility of providing safe and effective healthcare. The rationale behind a literature review search is that if research into accurately measuring pain is as urgent as has already been established, then it is important to understand the most relevant representations of pain in the existing body of scholarship. It is furthermore important to understand the implications of using one pain scale over another, which is what this investigation aims to examine. Furthermore, assessing the distribution of pain scales in the literature will help understand their prevalence in real-world clinical use and provide healthcare practitioners with evidence to help them choose the most appropriate pain assessment tool. This is critical for optimizing patient care, improving health outcomes, and ensuring healthcare equity. This article begins by reviewing the methodology adopted for this study. It then proceeds to detail the results generated by this inquiry. The discussion portion of the article then critically examines the three most commonly represented pain scales in the literature from the perspective of health equity, in which "everyone has a fair and just opportunity to attain their highest level of health"[3]. After outlining the advantages and disadvantages of each approach to evaluating a patient's pain, as well as their impact on patient health, this article then concludes with a discussion of how healthcare providers may assess pain in a way that ensures quality healthcare for all.

## Methods

To systematically investigate the most commonly referenced pain scales in the scholarly literature on the topic, the author searched two databases, Google Scholar and PubMed. Google Scholar was selected on account of the breadth and depth of topics covered and its ability to source articles from other fields and contexts where pain scales may be routinely used (e.g., physical therapy, acupuncture, chiropractory). Google Scholar was also selected as a database because of the large amount of open access articles it features. Selecting this database, therefore, prevented the results from being skewed on the grounds that they disproportionately included subscription-based journals. However, since this is a study of methods for evaluating pain in healthcare settings, the author searched the PubMed database (a database dedicated to medical research) to ensure that the search results were not diluted with references to pain scales outside of this context. PubMed was selected on account of its more concentrated focus on scholarship within the biomedical sciences. The assumption behind this choice was that the articles sourced would be more focused on the application of pain scales in healthcare settings, specifically.

### Selection Criteria

The following search terms were used: pain scale, pain rating scale, assessing pain, medicine, pain score, healthcare, patient, and model. These search terms were selected as they were believed to generate the most relevant results. The use of specific terms (i.e., pain scale, pain rating scale, assessing pain, and pain score) was strategically coupled with more general terms (i.e., healthcare, patient, and model) in order to ensure that the search was comprehensive and cast a truly wide net. As part of the data collection process, the researcher established specific inclusion and exclusion criteria to ensure the quality and relevance of the selected articles. The researcher then selected studies published between 2000 and 2024. This time period was chosen because while newer research is desirable as it ensures a contemporary understanding of pain scales, it is likewise important to situate the current analysis in the overarching history of medicine. In short, this study included:

1. Research focused on human subjects, specifically within clinical or healthcare settings.
2. Papers that discuss the application, development, or comparison of pain scales for patient use.
3. Articles are written in English to ensure consistent interpretation of findings.
4. Systematic reviews, meta-analyses, and original research studies.

The author reviewed the full text of each study to confirm its relevance. This search initially retrieved 150 articles from both databases. After screening for duplicates and irrelevance, a final sample of 100 articles was included for detailed analysis. It is important to note, however, that 150 was not set as the minimum threshold for this dataset. When assessing how representative different pain scales are in the literature, it was crucial to use a method that did not limit the number of studies. Because pain scales change over time, doing this could miss key information or trends if the number of sources is drastically limited. To avoid this issue, the researcher took a flexible approach to the literature review, where the number of studies naturally increased as she found more relevant articles. By reviewing more studies, she could categorize pain scales and understand how they are used in different medical contexts. Instead of simply counting how often each scale appeared, the author looked at how it developed and used in practice. This provided a better understanding of how these scales are represented in the literature. The author concluded the search at 150 retrieved articles, as this number would offer sufficient generalizability for the results of this study. Each selected study was categorized based on the type of pain scale it discussed. These scales were grouped into the following categories: (1) Numeric pain scales, (2) Visual analog scales

(VAS), (3) Facial expression scales, (4) Multidimensional pain scales, and (5) Verbal accompaniment scales. The researcher then used Excel to calculate the number of references to different pain scales in each article. This program also allowed her to create a tabular representation of the included studies, complete with key details such as the author's name, publication year, chosen methodology, findings, and identified research gaps. This, in turn, allowed the researcher to provide a clearer picture of the strengths and weaknesses of each pain scale discussed in the literature.

Because the data in this article is the literature itself, it does not meet the conditions for institutional oversight (i.e., IRB approval). Additionally, any figures featured here are protected under fair use or are author-generated.

## Results

Using the above-described methodological approach, a sample of 100 articles, books, and research reports referencing pain scales was generated. The sample was split, with 50 examples sourced from Google Scholar and the remaining 50 sourced from PubMed. To review, these references were grouped according to the following categories: (1) numeric pain scales, (2) visual analog scales, (3) facial expression scales, (4) multidimensional scales, (5) verbal accompaniment scales, (6) inventories, (7) graduated pain scales, (8) regional pain scales, (9) informational graphic pain scales, and (10) other. A numeric pain scale uses numbers to represent pain, where a lower number represents less pain. A visual analog scale uses graphics and other analogies to represent pain. Facial expression scales, as they imply, use facial expressions to represent pain. Multidimensional scales measure pain in several different ways, according to intensity, duration, sensation, and many other components. Verbal accompaniment scales often employ a number rating system, but include adjectives of pain and other descriptions. Inventories assess how a patient's pain interferes with their daily life. Graduated pain scales use images like a continuum to show pain as progressing. Regional pain scales ask patients to mark where on the body they feel pain. Informational graphics use graphics other than those described above (faces, etc.) to signal pain. "Other" includes pain scales that did not fall into any of these categories, such as propriety scales or ones developed for use within very specific settings (e.g., Glasgow pain scale). If multiple categories of pain scales were represented in a source, then it was counted for each category, meaning that the totals for all sources exceeded 100. Any articles that were retrieved by both Google Scholar and PubMed were only counted once. The results of the frequency that each category of pain is represented in the literature is presented in Table 1.

## Discussion

### The Pain Problem

Medicine has long been concerned with trying to lessen or eradicate pain. The desire to seek out treatments for reducing pain predates modern medicine. Researchers have found that the ancient Sumerians were using willow bark, which contains the active ingredient for aspirin, salicyline, over 3500 years ago[4]. A few millennia later, scientists and medical researchers are still actively engaged in identifying new ways to treat pain. However, one obstacle to their efforts is the opioid epidemic and the increase in deaths stemming from misuse of prescription pain medicine. In the U.S., prescription drug abuse claimed the lives of over 70,000 people in 2019[5], making the question of how to effectively identify and manage pain a grave public health concern. This issue is so widespread, in fact, that it has drawn extensive media attention. Recently, Netflix aired a series called Painkiller, which details how Purdue Pharma was found guilty of unethically promoting their prescription pain medication, OxyContin, leading to an unprecedented injury and death toll.

This ironic twist of fate, where the very drugs that were designed to alleviate pain and suffering have caused more of it, has led to several government agencies to explore different means for correcting the pain problem plaguing the U.S. Some see the answer to the pain problem as lying with more closely monitoring healthcare providers' prescribing practices[6]. Others, however, assert that cracking down on prescribers will not solve this issue, and instead, researchers should aim to develop less-addictive treatment alternatives[7].

Because of this debate on how best to treat patients' pain, healthcare providers report feeling caught between wanting to reduce their patients' pain and suffering through the medications available to them, but not inadvertently facilitating a potentially life-threatening addiction to these medications. For instance, McKivigan noted that despite the fact that medicinal marijuana has been shown to provide patients with significant "therapeutic benefits" for the management of pain, medical professionals are still very hesitant to prescribe it due to its often-dangerous side effects[?].

Patients also feel the effects of this tension between wanting to alleviate pain but not unintentionally cause more it. Many chronic pain patients need to use pain medication for extended periods of time, while medical professionals are often wary of extended use due to the increased risk of addiction. Some refer to this as a "Catch-22 situation," where these patients need certain pain medications to perform routine daily activities, but cannot reliably access this medication due to concerns for addiction[??]. Attempting to treat pain in such a scenario becomes even more complicated in the case of patients with invisible conditions, such as fibromyalgia[?]. Conditions such as this of-

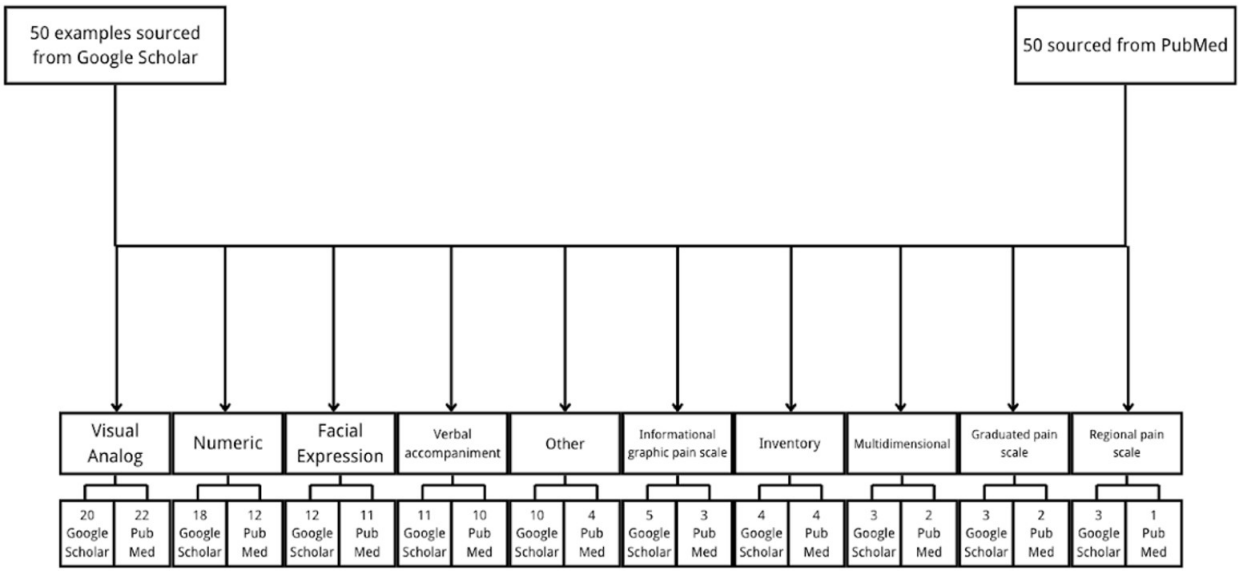


**Fig. 1** Example small-scale network topology

| Pain Scale Type | Google Scholar | PubMed |
|---|---|---|
| Visual Analog | 20 | 22 |
| Numeric | 18 | 12 |
| Facial Expression | 12 | 11 |
| Verbal accompaniment | 11 | 10 |
| Other | 10 | 4 |
| Informational graphic pain scale | 5 | 3 |
| Inventory | 4 | 4 |
| Multidimensional | 3 | 2 |
| Graduated pain scale | 3 | 2 |
| Regional pain scale | 3 | 1 |

**Table 1.** Search Results According to Pain Scale Type

ten do not show up on lab tests or imaging (e.g., X-rays, MRIs, etc.). Without observable evidence of the condition, medical professionals are left with the question of how to responsibly and accurately assess patients' pain.

This is where pain scales enter. The Mayo Clinic notes that the purpose of a pain scale is "to provide a standardized means of measuring pain intensity and severity"[?]. This is very helpful in initially evaluating a new patient, during a process called "triaging." The current medical practice of triaging dates back to the 18th century war field, where Napoleon Bonaparte's chief surgeon developed a process for sorting those who needed the most urgent medical attention from those who could wait[?]. Pain scales allow healthcare providers to gauge which patients' conditions may be the most serious and in need of immediate care. Pain scales can thus be seen as a useful diagnostic tool. Because of their utility in healthcare settings, several different models for representing pain have been developed. This discussion focuses on the three most commonly represented in this study's search of the literature: the numerical scale, the visual analog scale (VAS), and the verbal accompaniment scale.

As the above results show, the visual analog, numeric, facial expression, and verbal accompaniment scales were the most heavily represented scales in the literature. These three types of scales will be explored in depth in this section. This discussion begins by describing the numeric pain scale since it provides the basis for many of the other scales.

## The Numerical Pain Scale

The numerical pain scale is the type of scale that people are likely most familiar with. This scale is reflected in the following question: "On a scale of 1-10, how bad is your pain?" Many attribute the creation of this scale to Drs. Ronald Melzack and Warren Torgenson. In the 1970s, these two doctors from McGill University aimed to quantify pain[?]. This scale would later become known as the "McGill Pain Questionnaire." The questionnaire provides patients with an adjective for describing their pain, with each adjective being assigned a different numerical value. Patients are asked to circle the word that best describes their pain. For example, "pricking" pain is given a value of 1, whereas lancinating pain is given a value of 5. The values assigned to the words they circle can then be tallied to provide a quantitative summary of an individual's pain.

While the McGill Pain Questionnaire and other similar tools have been widely used for quite some time, they are not without limitations. One significant limitation is that pain is inherently subjective. A pain level of a 6 for one person may be a pain level

of a 10 for another. Consider a patient that has already endured the pain of childbirth. For this individual, the pain of a broken bone may pale in comparison. But for another person who has suffered the same broken bone, the pain may be unbearable without a similar point of reference.

Building off of this example, researchers have found that pain does differ along the lines of sex and gender. But contrary to the above example, researchers in Italy found that interpretations of pain vary more among women than men, and that woman are more sensitive to pain[?] . Other studies have also shown that women are generally more sensitive to pain than men, with the reason for this being attributed to hormones and sociocultural factors[? ?] . What this means for the use of pain scales in clinical settings is that if a female patient reports the same level (i.e., number) of pain as a male patient, they may actually be experiencing pain to different degrees.

One very important caveat, however, is that many of the pharmacological studies that have been conducted to date, including those evaluating the effectiveness of pain medication, have been performed exclusively on male animals. Tsirka and Acosta-Martinez[?] point out that such studies excluded female test subjects because their hormonal variations were often interpreted as interfering with experiments. Given the lack of research on pain treatment and response in female subjects, then, it may be difficult to say conclusively that men and women experience pain differently.

At this point in the discussion, it is also worth noting that biological sex is not always the same as gender. As Fausto-Sterling notes[?] , while sex has historically referred to physical manifestations of traits that would be associated with male, female, or other (e.g., hormone variation, genitalia, differences in muscle composition, hair growth, etc.), gender is something one embodies. Gender expressions are guided by social norms, which may greatly influence how men and women report the pain they experience. UNICEF defines social norms as "Social norms are the perceived informal, mostly unwritten, rules that define acceptable and appropriate actions within a given group or community, thus guiding human behaviour"[?] . As this definition suggests, social norms can even impact how different groups of people report pain. For men in societies where the existing social norms suggest that they should be "tough" or "brave," they may be less likely to report high degrees of pain, even if they are encountering it. If they were to report higher pain levels, they would risk breaking the established social norm for "being a man." Therefore, scales that reduce a person's experiences with pain to a number may not accurately reflect the pain they feel (and, in turn, the severity of the disease), but rather only reflect their willingness to disclose it.

In addition to varying according to gender, pain is also culturally dependent. As Peacock and Patel point out, "A person's culture determines how pain is perceived, experienced and communicated"[?] . The authors report that in lab-based experiments of responses to painful stimuli, male patients of South Asian descent had a lower threshold for thermal pain tolerance. What is more is that some cultures are less expressive than others, which may lead members of those cultures to be more or less likely to disclose the pain they feel. In his review of the scholarship on cultural variations of pain throughout the years, Rollman notes that studies have found that Anglo Americans tend to be less expressive of pain and "just deal with it on their own," and Puerto Rican patients would continue with their daily responsibilities and family obligations, despite being in pain[?] . He also notes that in Mexican culture it is very acceptable and common for women to be much more expressive about the pain that accompanies childbirth.

One's cultural background can also influence perceptions of pain through biological pathways. For example, members of a certain cultural or ethnic background may possess different genes that make them more or less predisposed to pain reception. In their article entitled "Cultural Framing and the Impact on Acute and Pain Services," Rogger et al.[?] state that a gene of interest here is the one that encodes the mu-opoid receptor (OPRMI). This gene has been associated with variation in pain reception across different racial/ethnic groups. More specifically, they noted, "Whites with the minor allele exhibited reduced sensitivity to multiple experimental pain measures, while an opposite direction of the effect was observed in Hispanics." The results of this study therefore remind researchers that there could be a biological basis for cultural variations in pain response.

To investigate how gender and culture intersect in patients' experiences of pain, Aufiero et al.[?] conducted a randomized controlled trial, where they applied a painful stimulus (e.g., a blood pressure cuff inflated beyond the comfortable limit) to both Caucasian (N= 50) and Latino (N=50) adult men (N=41) and women (N=59). Using a visual analog scale, along with a five-point Likert scale, the authors concluded that certain members of sample population reported greater levels of pain. The authors therefore concluded that "Latinos and women report greater pain with a standardized pain stimulus as compared to Caucasians and men." The results of this study therefore support previous claims about women being more sensitive to pain, but call into question previously held assumptions about how the cultural concept of machismo influencing pain reporting.

In Latin cultures, the cultural concept of machismo may still play a role in a patient's reporting of pain. The Pennsylvania Psychiatric Institute states that machismo "encapsulates traditional notions of masculinity, emphasizing attributes such as strength, honor, and dominance"[?] Embedded within this concept is the belief that in order to portray strength, one must be both self-reliant and inexpressive when it comes to pain. Taking this cultural concept into account, then, some male patients from Latin cultures may be less likely to accurately report pain due to concerns for upholding the cultural concept of machismo.

However, while some patterns in pain response may persist

across certain cultures, it is important that the generalizability of this line of research does not lead to making essentialist claims. Certainly, not all Latin men will report the pain levels in a way that is consistent with the cultural concept of machismo. Additionally, Latin cultures are diverse, encompassing multiple nationalities and regional variations, from Ecuador, to Guatemala, to Spain, to Argentina, and so on.

After reviewing the literature on pain, gender, and culture, it is important to note that extreme caution must be exercised when attempting to make sweeping generalizations about any group of people. As emphasized throughout this section, no two people experience pain alike, regardless of whether they share the same gender or cultural background. The reason for introducing scholarship on these topics here, however, is to illustrate the fact that a number-based pain scale may not accurately reflect the amount of pain a patient is actually in. Patients may downplay their pain, for example, to remain in accordance with cultural and gender norms. This holds important implications for healthcare providers. If a pain is taken as an indicator of how severe or urgent a patient's condition is, it is important to obtain an accurate reading of it. Yet, as this discussion shows, a numerical pain scale may fail in this respect.

### The Visual Analog Scale (VAS)

Another issue with numeric pain scales is that they are inaccessible to patients with lower literacy levels. Filling out a questionnaire like the McGill Pain Scale requires patients to be able to both be able to read and read in English. Currently, in the United States, 130 million adults have low literacy skills according to data provided by the U.S. Department of Education[?]. This means that a significant portion of the patient population may have difficulty understanding a numeric-pain scale. Taking the example of the McGill Pain Scale, specifically, descriptions of pain like "lancinating" may be unfamiliar for those with reduced literacy levels.

These drawbacks are precisely why researchers developed visual analog scales (VAS). Originally conceived of by Hayes and Patterson[?], the first VAS presented patients with a continuum, with low levels of pain on the lefthand side corresponding to lower numbers (e.g., 1, 2, 3). As the continuum progressed towards to the righthand side, the numbers increased, which were meant to represent increased levels of pain. Figure 2 below provides an example of a visual analog scale such as the figure below.

This particular kind of pain scale is called an "analog" scale because the numbers and descriptions of pain depicted along a continuum are supposed to compare to—or be analogous to—the pain a person is feeling. One of the most well-known and widely used VAS is the Wong-Baker FACES assessment. Named after its inventors, this scale was initially used to help children convey the pain they are feeling[?]. The Wong-Baker FACES scale has

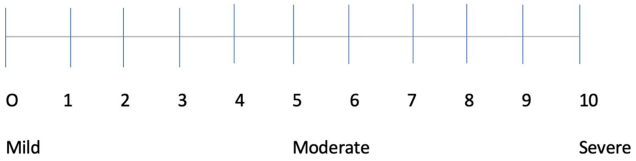


**Fig. 2** Visual Analog Scale (Author-generated image).

been translated into dozens of languages, and even less commonly represented ones, such as Mongolian, Tamil, Ndebele, and Latvian. This pain scale addresses some of the shortcomings of its predecessors, as it does not rely on a patient to be literate to accurately report their pain. As Figure 2 illustrates, the wording that is present is very simple and easy to understand. But the patient does not even need to be able to read the words to match their pain to the scale; all they have to do is look at the accompanying facial expressions represented in Fig 3.


**Fig. 3** The Wong-Baker FACES Visual Analog Scale.

**Note:** This figure was obtained with permission from the Wong-Baker Foundation, and its reproduction is allowed for individual use. The foundation's copyright conditions are as follows: "Permission is granted through a copyright license to individual consumers to electronically copy and to print hard copy portions of the FACES website for the sole purpose of using this site as a resource for pain assessment and research related to that topic."

While this approach to assessing pain represents a significant improvement in terms of how it reaches patients with low literacy levels, it is not perfect. Returning to previous discussions of cultural variations of pain, not all facial expressions are universal, so cultural variations should once more be considered. As some researchers note, the universality of facial expressions is a common misconception[?]. The authors argue that some negative facial expressions are less frequently recognized by members of certain Eastern cultures when compared to members of Western ones. They added that members of Eastern cultures tend to focus on the eye region as an indicator of pain, whereas Westerners do not. With these findings in mind, the FACES pain scale may not resonate with all patients.

The model's visual nature is both its strength and weakness. Its reliance on the patient's ability to visualize the facial expressions represented presents concerns for accessibility among

those with visual impairments. The National Institute of Health (NIH) reports that approximately 14 million Americans are visually impaired[?] . Therefore, the FACES model of evaluating pain and other ones just like it would be inappropriate for use with this patient population. The exclusion of this patient population is especially troubling because the NIH has recently designated people with disabilities (those with visual impairments included) as a population with health disparities[?] . In other words, people with disabilities experience worse health outcomes (higher illness and death rates) compared to the general population. This makes them an already vulnerable population, and using visual-based assessment tools could exacerbate their already poor health outcomes.

### Verbal Rating Scale

The final pain measure most heavily represented in the literature was the verbal rating scale. Verbal rating scales are vulnerable to many of the same pitfalls of the FACES model, even though they rely primarily on the use of descriptions and adjectives to describe pain. Verbal rating scales are sometimes delivered orally by a healthcare provider and descriptions of pain are often accompanied by adjectives[?] . An example of this model is as follows: "Would you rate your pain as not severe at all, moderately severe, or extremely severe?" As Figure 3 below illustrates, these descriptors are usually accompanied by a number, which once added up, resulting in a total pain score. However, once more categories for pain are added to this scale, it may become increasingly difficult for patients to remember or differentiate between the different options. Ss Jensen Hjermstad et al. state, there is little to be gained in terms of diagnosis and treatment when patients are presented with more than seven categories for classifying their pain[?] .

### Limitations

One of the more obvious drawbacks of this approach to measuring pain, though, is that it presents difficulties for use with patients who are deaf or hard of hearing. One study of deaf patients in Italy found that the model that most resonated with this patient population was the Iowa Pain Thermometer (IPT) pain scale[?] . This model presents pain as rising like a thermometer and only measures intensity instead of using descriptors. The participants in their study noted that when using sign language, it can be difficult to interpret very specific descriptions used in the scale. One participant noted that in order to engage with scales using verbal descriptors, "you need to use your imagination. If it is like 'pins and needles (crawling ants),' it is enough to sign pins (ants) or if it is a squeezing or biting pain, something squeezing me like a vice or strong grip. . .". Therefore, just as with the previous models, each scale of for assessing pain—whether a numeric-based system, a visual analog scale, a verbal accompaniment scale—all come with their own set of advantages and disadvantages. The matter of how to decide when to use what is the subject of the conclusion that follows.

While this article provides useful insights about some of the most frequently referenced pain scales, it has several limitations. For one, just because these are the most commonly appearing scales in the academic literature, this does not mean that they are the most used ones in real-life scenarios. Another limitation concerns the sample size of the literature consulted. A sample of 100 makes it difficult to draw broad conclusions, so future studies may wish to use a larger sample size. Finally, using a different combination of search terms could lead to different results, making this study's findings tentative. Still, the implications of these findings are nonetheless useful, as the next section suggests.

### No One-Size-Fits-All Prescription for Assessing Pain

When examining these scales side by side, it becomes clear that there is no one-size-fits-all method for assessing pain. As this review has highlighted, the primary methods for gauging pain in use in medical settings today all present their own set of concerns. The numeric scale is vulnerable to subjective interpretations of numeric ratings. The visual component of the visual analog scale may exclude people with visual impairments and suggests that facial expressions of pain are universal. Finally, verbal accompaniment scales can overwhelm patients with options for categorizing their pain and their verbal descriptions may present some difficulties for patients with hearing impairments.

Despite these drawbacks, this article has noted that in light of the opioid epidemic and rise of chronic and invisible conditions in America, there is an urgent need to accurately evaluate a patient's pain. At the same time, this article was also careful to point out that understanding pain is best done through the less of culture, gender, and other societal norms. Given this, healthcare providers should consider selecting the scale they use based on the patient that is in front of them. On the one hand, this leads to additional concerns about standardizing healthcare, which is a trend within the industry. On the other hand, an even greater trend is the move towards individualized patient-centered care. This type of healthcare delivery is known as precision medicine, which the NIH defines as "an innovative approach that takes into account individual differences in patients' genes, environments, and lifestyles." Precision medicine has been proven to improve patient health outcomes. So, by being flexible in their application of certain pain scales, healthcare providers may decrease the rate of disease and illness, ultimately saving an unprecedented number of lives.

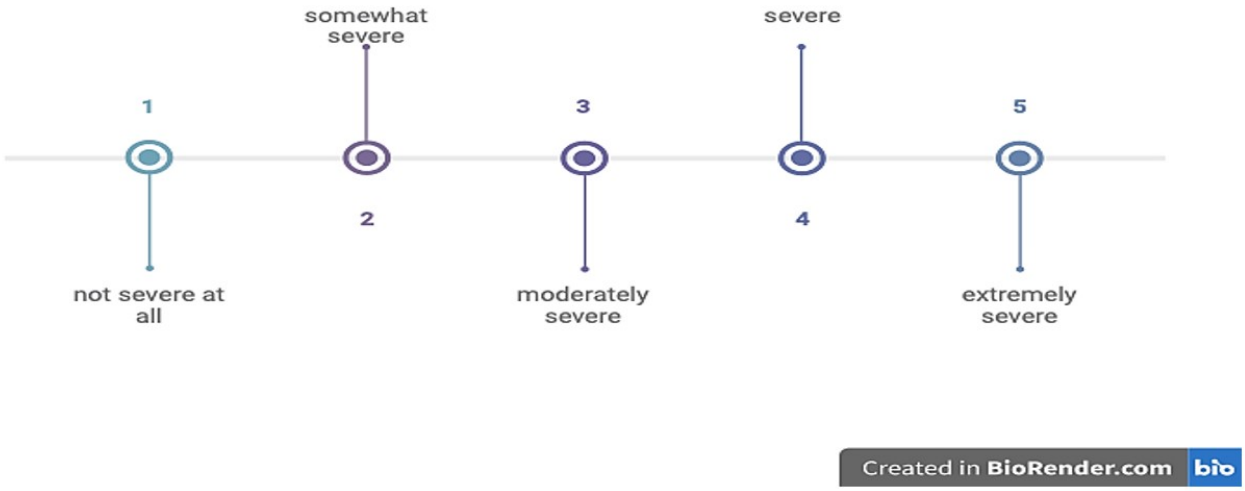


**Fig. 4** An example of a verbal accompaniment pain scale. Figure created by author using Biorender.

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## Appendix

| Author Name | Year of Publication | Methodology | Findings | Strength/Weakness | Specific Gaps for Further Investigation |
|---|---|---|---|---|---|
| Melzack & Torgenson | 1970s | Numeric pain scale development | Developed a numerical pain scale that assigns values to descriptive adjectives | Strength: Easy to use / Weakness: Subjective interpretation | Lacks consideration of cultural and gender differences |
| Hayes & Patterson | 1921 | Visual analog scale (VAS) | Developed the first VAS, which uses a continuum to measure pain | Strength: Suitable for patients with low literacy / Weakness: Not ideal for visually impaired | Limited data on VAS effectiveness in diverse populations |
| Pieretti et al. | 2016 | Cross-sectional study | Gender differences in pain perception, with women generally more sensitive to pain | Strength: Gender-specific analysis / Weakness: Small sample size | Need more diverse samples to study the effect of culture and social norms |
| Wong & Baker | 1980s | Wong-Baker FACES pain scale | Created a visual scale using facial expressions to help children report pain | Strength: Easy for children to understand / Weakness: Cultural bias in facial expressions | More studies needed on adult use of the Wong-Baker FACES scale |
| McKivigan | 2016 | Review of medical marijuana for pain management | Medical marijuana shows therapeutic benefits but faces prescribing hesitations due to risks | Strength: Emerging therapy / Weakness: Regulatory and legal challenges | Further research needed on long-term impacts and safe usage of medical marijuana |

**Table 1** Strength and Weakness