Care CEUs

Continuing Education for Nursing Home Administrators

Effective Pain Management Strategies

Section 1: Introduction

Pain is the body's way of communicating that there is a problem. Like a distress signal, pain can keep us safe by alerting us that a surface is hot or tissue in the body is damaged. Sometimes, an individual may experience pain, and the cause cannot be identified. Pain is an unpleasant sensory perception that elicits an emotional response (National Institute of Neurological Disorders and Stroke, 2024). Pain is a common experience, with 1 in 5 Americans experiencing chronic pain and countless others experiencing acute pain (National Institutes of Health, 2023). There are different types of pain, various causes of pain, diverse degrees of pain, and everyone experiences pain in a unique way. Individuals describe pain using many adjectives, but one thing is shared among all who experience pain: it is best described by the person experiencing it. Because the sensation of pain is such a personalized experience, it can be difficult for healthcare professionals to determine the likely source of the pain or accurately determine how it affects the patient's life. Pain can impact a person's ability to work, perform daily tasks, and enjoy hobbies. It can impair their ability to communicate and impede relationships (National Institute of Neurological Disorders and Stroke, 2024). Pain is disruptive to an individual and helping alleviate it is a vital part of our role as nurses.

Pain is a biopsychosocial experience because it responds to factors or changes in the body, mind, and environment. Biological factors that affect pain perception could be genetics or brain function. Psychological factors include mood and stress levels. Socially, the presence or lack of a support system can affect the patient's perception of pain. When any of these factors change, the perception of pain can change. This creates a very complex, unique, and fluid experience of pain, making treatment difficult at times (National Institute of Neurological Disorders and Stroke, 2024).

Thoughts and beliefs shape the perception of pain by both patients and healthcare workers. The experience of pain can be affected by a patient's attitude about pain, their religious beliefs, and their culture. A person who feels like their pain is a punishment or that it may never get better is more likely to experience anxiety and depression, which can worsen pain symptoms. Personal beliefs may cause the patient to experience feelings about what they should be able to do rather than what they are currently capable of doing. A 41-year-old mother may feel like she should be able to work full-time and attend all her children's sporting events, though her level of pain makes it unbearable. This can cause anger and frustration. If chronic pain occurs because of an accident or medical condition, the patient may begin to blame themselves for their condition. They may say it was their fault for climbing a ladder or not taking better care of their health, so they are responsible for the pain. Nurses must counsel patients and help them understand that pain and the circumstances that cause it are often outside of the patient's control. Previous experiences shape how individuals feel about pain. This is often an automatic response, and the patient may not realize why they hold the beliefs about pain that they do. Sometimes, professional counseling may be necessary to help a patient process their emotional response to pain. When a patient can process the emotional aspects of pain in a more healthy way, their pain is often able to be managed more effectively (National Institute of Neurological Disorders and Stroke, 2024).

Pain can be diagnosed in different ways. Healthcare providers conduct a physical and neurological examination and interview the patient to determine a history that could explain the cause of the pain. They may choose to use laboratory tests, imaging, electrodiagnostic procedures like nerve conduction studies, and psychological assessments to assist in determining the source of pain (National Institute of Neurological Disorders and Stroke, 2024).

Pain management aims to improve the patient's ability to function and positively impact their quality of life (Clinic, 2024). Just like there are many types of pain, the pain management options are just as varied. Sometimes, the treatment plan for pain is obvious. If someone has broken a bone, immobilization, elevation, and oral medications almost always effectively treat the pain. Sometimes, the treatment path is not as clear. Because pain is a personal experience, it also requires personal treatment. Medications, procedures, devices, behavioral therapies, physical therapy, lifestyle changes, complementary therapies, and integrative health techniques can all alleviate pain, often in conjunction with one another (National Institute of Neurological Disorders and Stroke, 2024).

Section 2: What is Pain?

Pain is defined as "a localized or generalized unpleasant bodily sensation or complex of sensations that causes mild to severe physical discomfort and emotional distress and typically results from bodily disorder (such as injury or disease)" (Merriam-Webster, n.d.). Pain is a normal brain response when there is a perceived injury, and the pain is not felt until the brain processes it. Pain receptors from the area of injury release neurotransmitters, which travel to the spinal cord and alert the brain of injury. The brain then processes the information and sends messages to the body to react. When you accidentally touch a hot stove, this process seems instantaneous. If someone touched a hot stove and it took 60 seconds for the brain to perceive the stimuli and then respond, the damage would already be severe. While the process takes less than a second from beginning to end, a complex system of signals and responses occurs in that time (National Institutes on Health, 2023). This type of pain is preventative. The brain prevents further injury by perceiving pain with even small stimuli (Woolf, 2010).

Pain can also be protective. When an area is injured, the body responds using the immune system. Through inflammation, the pain discourages movement or further injury, allowing the injured area to heal. This type of pain may need to be managed, especially for chronic conditions. A painful surgical wound will cause an individual to slow down, guard the area, refrain from physical activity, and consciously and subconsciously protect the injured area (Woolf, 2010).

Some pain is maladaptive. In this situation, the pain is not due to a tissue injury or inflammatory process but a dysfunction in the nervous system. This type of pain can be considered a “false alarm,” though it is experienced in a very real way and affects a person’s life just as much as pain in response to an injury does (Woolf, 2010).

Types of Pain

Pain used to be separated into two groups, nociceptive or neuropathic, but recently a third group was added to the taxonomy, nociplastic pain. These categories describe the most likely source of the pain (National Institute of Neurological Disorders and Stroke, 2024). Pain can also be classified as acute or chronic in duration.

Nociceptive Pain

Nociceptive pain occurs in response to noxious stimuli, like touching something sharp (Woolf, 2010). Nociceptive pain can occur in active and passive settings, which makes it a diligent warning system for the body (Armstrong and Herr, 2019). Nociceptors are the nerve endings on the peripheral nerves, which is why this type of pain is categorized as nociceptive. Somatic nociceptive pain can be located by the person experiencing the pain. For example, they can point to their wrist and say, “It hurts here." Visceral pain affects internal organs, and the patient

cannot define the exact source. They may complain of abdominal pain but are unable to describe if the pain is occurring in their stomach, pancreas, or gallbladder (Cleveland Clinic, 2024). Descriptors of this type of pain may include aching, sharp, dull, or pricking (National Institute of Neurological Disorders and Stroke, 2024). This type of pain has a comparatively high threshold and only occurs in the presence of noxious stimuli. However, this stimuli injury and the brain's response is immediate, through the withdrawal reflex and associated emotional response (Woolf, 2010). It occurs in four phases. The first is when something harms the body, which is called transduction. The body releases chemicals, which the nociceptors convert to electricity. Transmission occurs when the signal travels through the nociceptive pathways to the brain. The brain then sends signals to the nerves to modulate the pain sensation. Finally, the pain is perceived or felt by the individual (Cleveland Clinic, 2024). The nociceptive pain system strongly influences the rest of the neurological system, and when it works properly, it can overrule almost any other neural function (Woolf, 2010). Nociceptive pain can also include pain from inflammation. This is another way pain is used as a protective mechanism, as the pain causes the individual to protect that area and limit movement, allowing the area to heal (National Institute of Neurological Disorders and Stroke, 2024). Nociceptive pain can be physical, like in response to touching a hot stove, or chemical, like a muscle cramp (Armstrong and Herr, 2019). Nociceptive pain is an essential tool the body uses to protect itself.

Neuropathic Pain

Neuropathic pain is caused by nerve damage, which can be due to either injury or disease. This type of pain may be described as burning, tingling, or shooting (National Institute of Neurological Disorders and Stroke, 2024). Neuropathic pain can be caused by injury to the spinal cord, brain, or peripheral nervous system

(Woolf, 2010). While the nervous system senses nociceptive pain, neuropathic pain involves disease or direct injury to the nervous system. This pain could arise from diabetic neuropathy, shingles, or an acute injury (Armstrong and Herr, 2019). Neuropathic pain can range in severity and results when the damaged nerve fibers mistakenly send pain signals to the brain. Neuropathic pain can occur for no apparent reason, like a “pins and needles” sensation. Allodynia is a term that describes when pain occurs in response to a stimulus that is not usually painful like cold air touching the skin. It is characterized by extreme sensitivity to touch. Hyperalgesia occurs when a typical mild pain-inducing stimuli elicits an exaggerated pain sensation. Hypoalgesia is a term that describes the condition of an absence of pain where there should be a sensation of pain. This can be problematic, as pain is a mechanism that protects the body from injury. Neuropathic pain can have many causes, including alcohol use disorder, diabetes, stroke, Parkinson’s disease, complex regional pain syndrome, radiation therapy, shingles, and others (Cleveland Clinic, 2023).

Nociplastic Pain

This new category describes pain caused by a malfunction in how the brain processes stimuli. The cause of this type of pain cannot be attributed to an injury, inflammation, or disease and is distinctly different from both nociceptive and neuropathic pain. (Stroke, 2024). The concept of nociplastic pain was first introduced in 2016. Because it is such a new categorization, well-defined diagnostic criteria are still emerging (Bułdyś, Górnicki et al., 2023). However, nociplastic pain may be suspected if the pain has occurred for three months or more, is regional, multifocal, or widespread, not due to nociceptive or neuropathic causes, and produces evoked hypersensitivity in the area where the pain is felt. It may also be considered when there is pain hypersensitivity to noxious or non-noxious stimuli in the presence of a comorbid condition (Yoo & Kim, 2024). Since

no tissue damage can be observed, the source of this type of pain is not fully known. However, it is likely a combination of factors related to nociceptive and neuropathic pain, though no source of tissue or nerve damage can be identified (Yoo & Kim, 2024). Currently, there are three categories of mechanisms. The first category involves supraspinal mechanisms, meaning there are alterations in the brain affecting activity between parts of the brain responsible for pain. This can be hyperactivity between regions of the brain that sense pain or hypoactivity in the regions of the brain that suppress pain. These mechanisms also include alterations in cerebrospinal fluid content, which alters pain perception. The second category involves issues with the spine. Alterations in how the nerve fibers of the spine respond to stimuli can cause pain or inhibit factors that suppress pain. The third category addresses peripheral issues, which may be due to alterations in sodium channels and structural changes in the neuron. Fibromyalgia is the most common type of nociplastic pain (Bułdyś, Górnicki et al., 2023) and is characterized by musculoskeletal pain throughout the body, fatigue, insomnia, and memory problems (Cleveland Clinic, 2021). Nociplastic pain can be summarized as a chronic dysfunction of nociception, which includes sensory and emotional components (Yoo & Kim, 2024).

Mixed Pain

The term “mixed pain” is not an official classification term but describes when a patient experiences any combination of nociceptive, neuropathic, and/or nociplastic pain in the same body area. This type of pain can be acute or chronic. These patients usually experience more intense pain, and their quality of life is significantly decreased. These patients also tend to have more comorbidities and more adverse psychosocial factors. Patients with mixed pain tend to respond less to pain management techniques (Trouvin & Perrot, 2019). Since this type of pain does not have a standard definition or diagnostic criteria, providers use their

judgment, physical exam, and detailed patient history to diagnose a patient as having mixed pain. A diagnosis of mixed pain can validate the patient's experience and allow for targeted treatment. An official definition and diagnostic tools are currently being studied and discussed, with proposals to create a framework providers can use in diagnosis and treating mixed pain (Freynhagen, Rey et al., 2020).

Acute Pain

Acute pain occurs suddenly; the cause is known or can be determined with diagnostic testing. Acute pain is a type of warning or alert system for the body (Pain, 2021). Acute pain lasts less than six months and is no longer experienced when the underlying cause is resolved. Acute pain may occur due to a surgical procedure, a broken bone, a burn, childbirth, or countless other causes. After the pain is resolved, the patient returns to their baseline state (Cleveland Clinic, 2020). Acute pain should not be ignored. If left untreated, acute pain can become chronic pain (ASAP, 2021).

Episodic Pain

This type of pain occurs occasionally and at irregular intervals. It may be associated with a chronic condition and only occurs when complications occur—for example, the pain associated with sickle cell crisis in individuals with sickle cell disease. There may or may not be known triggers for the pain. This is often considered a type of chronic pain (National Institute of Neurological Disorders and Stroke, 2024).

Chronic Pain

Chronic pain is characterized by pain that is ongoing and lasts longer than three months. In 2021, approximately 20.9% of American adults experienced chronic

pain (Rikard, 2023). It is estimated that 1 in 14 adults experience high-impact chronic pain, which means that in the last three months, they experienced pain most days that limited their ability to work or participate in their normal daily activities (Dowell, 2021). Even after the initial injury or cause of acute pain has been resolved, this type of pain may persist. Chronic pain may even occur when there has not been damage to a part of the body (Cleveland Clinic, 2020). Sometimes, the cause of chronic pain can be identified, while other times, it is unknown (Cleveland Clinic, 2024). Chronic pain may be attributed to a disease process in the body, such as arthritis (National Institute on Aging, 2020). Some examples of chronic pain include reoccurring headaches, arthritis, pain due to cancer, nerve pain, back pain, or fibromyalgia. The experience of chronic pain creates a stress response in the body. Patients may experience muscle tension, limited mobility, fatigue, changes in appetite, depression, anger, or anxiety (Cleveland Clinic, 2020). Risk factors for chronic pain include a genetic predisposition to conditions like migraines, aging (which leads to "wear and tear" on the body), and traumatic injury. Physically strenuous jobs, such as construction or certain areas of nursing, can increase the risk due to the potential for injury. Additionally, severe or chronic stress, smoking, and obesity can all contribute to the development of chronic pain. (Cleveland Clinic, 2024).

Section 2 Case studies

For the following patient scenarios, what type of pain do you think the patient is experiencing?

Scenario #1: Eloise visits her local urgent care facility because she accidentally cut her thumb thirty minutes ago with a sharp knife while slicing vegetables. There is a 1.5 laceration on the pad of her thumb. Eloise describes the pain as stinging but worse when air or water touches the wound. She states she put ice on the site at

home, and that helped some. Is Eloise's pain likely nociceptive, neuropathic, or nociplastic? Is it acute or chronic?

Eloise is experiencing acute nociceptive pain from a laceration on her thumb. After the nurse practitioner applies a liquid bandage, the nurse educates her on managing pain with over-the-counter medications and on how to monitor for signs of ineffective pain relief and infection.

Scenario #2: Juanita, a 43-year-old female, visits her primary care physician to discuss her recent fatigue, whole-body aches, and insomnia. She complains that the pain is worse in the mornings and before she goes to bed at night. Ultimately, after diagnostic testing, the physician diagnoses Juanita as having fibromyalgia. What type of pain is Juanita experiencing? Is it likely acute or chronic?

Juanita's pain is due to fibromyalgia, which produces chronic, nociplastic pain. It will be necessary for the nurse to counsel Juanita on the importance of adhering to her medication regimen, stress reduction, exercise, and healthy sleep patterns.

Section 2 Personal Reflection

Why is it essential for nerve pain signals to reach the brain quickly? Why is it important that nociplastic pain, as a type of pain, has been recently established? How does this help patients in achieving optimal relief? How does the categorization benefit nurses as they assess patients' pain?

Section 3: Pain Assessment

Pain assessment is a critical part of the nursing physical assessment. By defining the patient's pain and rating it on a scoring system, the pain can be tracked more effectively. Pain interventions can be evaluated for effectiveness when using a standardized scale. When assessing pain, it is also essential to gather as much

information about the pain as possible (Dydyk & Grandhe, 2023). Frequent pain assessment is vital for effective pain management. The frequency depends on the setting and patient's status but should be standardized through policies to ensure compliance in evaluating pain. Pain should also be monitored after any nursing intervention or when the patient complains of pain.

The healthcare record can provide relevant information to inform the nurse regarding past pain experiences, interventions, and results. These details can help the healthcare team understand what has worked for the patient in the past and what has been ineffective. It can also help the team to understand if there have been issues in the past with treatment compliance. The patient may have been prescribed medication in the past that caused unwanted side effects or recently stopped another treatment, both of which could be contributing to the current pain. (Dydyk & Grandhe, 2023).

Due to communication challenges, patients who are unable to express their pain or identify a pain score verbally may experience inadequately managed pain. Careful observation and nonverbal pain scales can help the nurse accurately assess pain and assign a numerical score, facilitating more effective pain monitoring. Refusing to eat, agitation, moaning, and trouble sleeping can all indicate that the patient is experiencing pain, and further assessment is necessary (National Institute on Aging, 2020).

To complete an accurate pain assessment, gathering the following information through interviews or observation is helpful:

Character - how the pain feels- shooting, burning, sharp, aching, etc.

Onset - when the pain started

Location - where in the body the pain occurs

Duration - how long has the pain been occurring

Exacerbating symptoms - what makes the pain worse

Relieving symptoms - what improves the feeling of pain, also what has been tried to relieve the pain, even if it did not help

Radiation of pain - is the pain felt in other areas, such as radiating to the back

Associated symptoms - any other co-occurring symptoms, such as shakiness, fever, diarrhea, etc.

Severity of illness - self-reported or observed pain score

(Dydyk & Grandhe, 2023)

Pain Assessment Tools

Different resources are available to help healthcare workers remember to include all aspects of a complete pain assessment in their interviews with patients or caregivers:

OPQRST - This is a mnemonic tool to help nurses and other healthcare workers remember to assess all aspects of the patient's pain. "O" stands for the onset of the event. "P" is for provocation and palliation of symptoms, or what makes the pain worse or better. "Q" is for quality, "R" is for region and radiation, "S" is for severity, and "T" is for timing.

QISS TAPED - This is another mnemonic tool. "Q" is for quality or a description of the pain. "I" stands for impact, having the patient describe how the pain affects their daily activities, like work, interests, play, and sleep. The first "S" is for site, and the second "S" is for severity. "T" is for temporal characteristics, which describes when the pain started, if it is constant or intermittent, and if it is predictable. "A" stands for aggravating and alleviating factors. "P" is for past responses and preferences, which reminds the healthcare worker to ask about

what has worked in the past. This includes which medications and therapies the patient has tried. “E” reminds the provider to ask about expectations to establish pain goals. “D” stands for diagnostics and physical exam (UFMS-Jacksonville, 2024).

SOCRATES - This mnemonic tool stands for site, onset, character, radiation, associations (accompanying symptoms), time course, exacerbating/relieving factors, and severity (UFMS-Jacksonville, 2024).

Pain Risk Factors Assessment Form - This is a form developed by Hillel M. Feinstein and others to help a patient identify activities or factors that may worsen their pain, such as alcohol use, smoking, poor sleep habits, too much or too little exercise, work conditions, or social factors. It also provides some reminders for safe pain medication management (UFMS-Jacksonville, 2024).

Pain and Sedation Scales for Neonatal and Pediatric Patients in Preverbal Stage of Development: A Systematic Review - This journal article reviews 89 pediatric and neonatal pain and sedation scales. They reviewed each scale for construct validity, internal consistency, and interrater reliability and presented the 28 scales that met these requirements (Giordano, Edobor et al., 2019).

Pain Assessment Scales

Adult

Numerical Rating Scale (NRS) - This is the scale nurses are most familiar with. The healthcare worker asks the patient to rate their pain on a scale of 0-10, with 0 being no pain and 10 being the worst pain imaginable. A score of 1-3 represents mild pain, 4-6 is moderate, and 7-10 is severe. In order to determine the patient’s pain level over the last 24 hours, the nurse can average the current pain score with the lowest and highest scores experienced over the last 24 hours (McCaffery,

1989). This scale can also be used with children who are able to understand the instructions.

Visual Analog Scale (VAS) - For this pain scale, the patient is presented with a blank line. One end is labeled “no pain,” and the other “very severe pain.” The patient then places a mark on the line where they feel best represents their current pain level. Because the line is unlabeled and has no numbers, the pain is represented to the patient on a continuum rather than levels (Crichton, 2001). This scale can also be used for children.

Adult Non-Verbal Pain Scale (NVPS) - This pain scale uses five categories to assess pain: face, activity, guarding, physiology, and respiratory. Each category can be assigned a numerical value of 0-2 depending on what the scorer observes. The total of the numbers scored then represents the pain level on a 0-10 scale. For example, a nonverbal adult with a pain score of zero may appear relaxed, with a neutral or pleasant facial expression, lying quietly in a normal position, no hand movements indicating guarding, stable vital signs, and normal respiratory function while complying with the ventilator. On the other hand, a nonverbal adult with a pain score of ten may show signs of pain, such as grimacing or frowning, restlessness or withdrawal reflex, a rigid posture, a heart rate increase of more than 25 bpm, a systolic blood pressure rise greater than 30 mm Hg, a respiratory rate more than 20 breaths per minute above their baseline, or a SpO2 decrease of 10% or more, or severe asynchrony with the ventilator. (Odhner, Wegman et al., 2003).

Behavioral Pain Scale (BPS) - This pain scale uses three categories to determine pain level. Facial expression, upper limb activity, and compliance with ventilation are scored on a 1-4 scale and then combined for a total score. It is appropriate for critically ill sedated patients and uses a 3-12 scale for scoring (Payen, Bru et al., 2001).

Critical Care Observation Tool (CPOT) - This tool is similar to the behavioral pain scale. It involves observing a critically ill, sedated patient. The CPOT is scored on a 0-10 scale, using five observation categories and assigning a 0-2 score for each category. The categories include facial expression, body movements, compliance with the ventilator for intubated patients or, vocalization for extubated patients, and muscle tension (UFMS-Jacksonville, 2024).

Defense and Veterans Pain Rating Scale (DVPRS) - This tool uses an illustrated and colorized pain scale with facial expressions and descriptors to help the patient determine a 0-10 pain score. It also includes supplemental questions to determine how pain interferes with activity, sleep, mood, and stress (UFMS-Jacksonville, 2024).

Pain Assessment in Advanced Dementia Scale (PAINAD) - This pain scale is similar to the adult nonverbal pain scale, though the categories are tailored to patients experiencing advanced dementia. An observer scores breathing, negative vocalization, facial expression, body language, and controllability on a 0-2 scale and then combines them for a 0-10 scale pain score (Warden, Hurley et al., 2003).

Pediatric

Neonatal Pain, Agitation, and Sedation Scale (N-PASS) - This pain scale can be used for infants and scores five categories: crying/irritability, behavior state, facial expression, extremities tone, and vital signs, on a -2-2 pain scale. A score of -2 in a category indicates sedation, while a score of 2 indicates pain/agitation. The total score is then combined for a -10-10 pain scale. Scores closest to zero indicate a normal state for the infant, neither fully sedated nor agitated (UFMS-Jacksonville, 2024).

Neonatal/Infant Pain Scale (NIPS) - This scale can be used for patients younger than one year of age. It has six categories: facial expression, cry, breathing

patterns, arms, legs, and state of arousal. The categories are scored on a scale of 0-1 or 0-2. Any combined score of 3 or greater indicates pain. This scale was developed to assess pain in neonates undergoing painful procedures (Lawrence, Alcock et al., 1993).

Neonatal Facial Coding System (NFCS) - This neonatal pain scale exclusively uses facial expressions to evaluate pain in premature and full-term newborns. The scorer observes ten facial movements, such as brow lowering, chin quivering, lip pursing, etc. If the facial movement is present, the scorer assigns a score of one; if it is absent, there is a score of zero. The total score is the pain score. Pre-term infants have a maximum score of 10, whereas full-term infants have a maximum score of 9 because tongue protrusion is a “no pain” response in full-term infants and a “pain” response in pre-term infants (Grunau & Craig, 1990).

CRIES - This is an acronym to help remember five categories: crying, requiring oxygen, increased blood pressure and heart rate, expression, and sleeplessness. Each category is scored 0-2 and the total is the pain score on a 0-10 scale. This scale can be used for infants greater than or equal to 38 weeks gestation. Further pain assessment is suggested for a pain score greater than four, and analgesics are recommended for a pain score greater than or equal to 6 (UFMS-Jacksonville, 2024).

Faces, Legs, Activity, Cry, and Consolability (FLACC) - This pain scale was initially created to assess post-operative pain in infants and young pediatric patients. Five categories of pain response behaviors include: facial expression, leg movement, activity, cry, and consolability which are observed and scored on a 0-2 scale depending on the status observed. The score is then combined for a 0-10 score. This tool was found to have high interrater reliability when used for young patients who are unable to verbalize their pain (Voepel-Lewis, Shayevitz et al., 1997).

Revised FLACC (r-FLACC) - In 2006, the FLACC scale was revised to improve reliability for children with cognitive impairment by adding more descriptors to many categories (Malviya, VOEPEL-LEWIS et al., 2006).

Non-communicating Children's Pain Checklist (NCCPC-R) - This scale is used for nonverbal children. It is scored by an observer who records the frequency of different behaviors observed within seven characteristic groups. Including negative vocalization, social behavior, facial expression, and others. It can be used for children ages 3 to 18. A total score of seven or more indicates pain. There is also a post-operative version of this scale (Vocal, 2002).

Children's Hospital of Eastern Ontario Pain Scale (CHEOPS) - This pain scale is used in post-operative settings for children under five years of age. Different behaviors are observed, and the combined score is the pain score. The minimum score is four, and the maximum score is 13. Some of the categories do not have a "zero" option (McGrath, 1985).

Wong-Baker Faces scale - This pain scale was created for children aged 3 years and older, though it can also be used for adults. The patient must be able to understand the instructions, as this is a self-reporting pain tool. A set of six illustrated faces is associated with a pain score of 0-10 (by 2s), from "no hurt" to "hurts worst."

The patient is instructed to state or point to the face or number associated with how they feel (Wong, 1988). This tool is often incorrectly used, as the nurse chooses which facial expression they feel closest matches the patient's expression. This is not a valid use of this tool, and other nonverbal pain tools are available if the patient is unable to self-report their pain.

Cultural Differences

Cultural competence is necessary when assessing pain and providing pain management. Culture often determines how a patient may behave when experiencing pain, and understanding some cultural differences in pain expression can be helpful. The acronym LEARN helps remember a process with which to assess pain. LEARN stands for Listen with empathy as the patient describes their pain, Explain your perception of the pain, Acknowledge the differences and similarities in perceptions, Recommend treatment, and Negotiate agreement. It is essential to understand what the patient calls their pain, why they think it began and its cause, as well as their fears regarding pain and other details that may help the patient convey how they are feeling (Gordon, 2024). People of different cultures may have different beliefs about what causes pain, how they should behave when in pain, and what it means to be in pain. Individuals of some cultures may be very expressive when in pain, while others may be more stoic, resulting in less adequately managed pain in either population. It is also important not to assume cultural pain responses based on race or ethnicity (Givler, Bhatt et al., 2018).

Section 3 Case Studies

Case Study #1

Mr. Onu is a 67-year-old, alert, oriented ambulatory patient visiting the emergency department with severe pain. His nurse, Brandon, is interviewing him about his pain. What are the necessary questions to ask Mr. Onu?

Brandon asks Mr. Onu about the character, onset, location, duration, exacerbating, relieving, and associated symptoms. Mr. Onu states the pain feels sharp in his lower back, which began this afternoon and has been constantly present but is

gradually worsening. He says activity seems to worsen it, and a heating pad earlier made it feel better for a little while. He also took some ibuprofen, which helped but did not fully relieve the pain. He said the pain radiates to his legs sometimes but not constantly. He also states he has had a temperature of 99.9 degrees Fahrenheit and chills.

What other information should Brandon gather?

Brandon needs to assess Mr. Onu's pain score. Which scale would be appropriate for Mr. Onu?

Brandon uses the numeric pain tool to assess Mr. Onu's pain level. Why is it important for Brandon to educate Mr. Onu on the pain tool?

Patient education is essential when using the numeric pain tool to help patients understand the scale. Brandon is able to explain what a pain score of 0 means and what a pain score of 10 would mean. Mr. Onu states he understands and tells Brandon his current pain score is a 7.

Forty minutes after providing the ordered pharmacological interventions, Brandon reassessed Mr. Onu's pain. Why is reassessment necessary? Why is documentation of this important?

After identifying the likely source of the pain, Mr. Onu is treated and discharged. Brandon explains the discharge instructions to Mr. Onu before he leaves.

Case Study #2

Mia is caring for J'Brael, a preterm infant born at 24 weeks gestation who is now three weeks old. When Mia received report from the previous nurse, she was told J'Brael had experienced pain earlier in the day. After completing J'Brael's nasogastric tube feeding, Mia observed chin quivering, furrowed brow, increased

muscle tone, and increased heart rate. Mia wants to assess J'Brael's pain level. What scale would be appropriate to use for this?

Mia uses the N-PASS and determines J'Brael has a pain level of four. What can she do next?

Mia reviews the pain documentation from the previous shift to determine what interventions have been tried and their effectiveness. Due to the timing of the onset of pain, Mia believes it may be due to feeding intolerance. She alerts the physician and they collaborate to create a pain management plan for J'Brael.

Section 3 Personal Reflection

Why is it important for nurses to include detailed descriptions of their patient's pain? Why should there be different pain scales for adults, pediatrics, and non-verbal patients? How do the different pain scales differ? Why would a pain scale for a child be inappropriate for use with an adult? In your practice, how have you seen cultural differences affect the experience, perception, or treatment of pain?

Section 4: Setting Pain Management Goals

The goal of pain management is to allow the individual to experience enough relief from pain so that they can participate in their usual activities at their baseline functional status and quality of life. Sometimes, pain cannot be eliminated entirely, but a realistic goal can be set (National Institute of Neurological Disorders and Stroke, 2024). When a patient is only able to focus on the elimination of pain, they may get discouraged when that is difficult to achieve. They may begin to try to cope in unhealthy ways, discontinue participation in previously enjoyed activities, and experience depression. Realistic pain management goal setting provides an alternative framework for the patient to

consider when managing their pain. Goal setting improves pain management outcomes through increased communication, patient confidence, and treatment compliance (Mirgain & Singles, 2023).

A personalized pain goal (PPG) should include consideration of things like functioning, participation in activities, moods, medication side effects, and safety (Ehrlich, Lackowski et al., 2024). An individual may be able to achieve a pain level of 2 with opioids, but they are unable to participate in the activities that they love. They may be more inclined to tolerate a pain level of 3 or 4 if it means they do not have the sedating side effects of opioid treatments.

When setting a PPG, the patient will need to consider which activities are important to them and what pain they are willing to tolerate to participate in those activities. Patients are encouraged to set long-term and short-term goals (Mirgain & Singles, 2023).

Goals should be developed using the SMART framework. They should be specific, measurable, action-oriented, relevant, and time-based. When a goal is specific, it is very clear for both the patient and the healthcare worker. For example, a patient's PPG may be to experience a pain score of less than four at least three days per week, or it may be activity-oriented such as being able to go on a half-mile walk with their spouse twice a week within four weeks of surgery. PPG can be measured using a consistent pain scoring system. The action-oriented aspect of the SMART goal is that it must be within the patient's control. They may need to adhere to a specific medication regimen or realistically limit certain activities to achieve their goal. The goal needs to be realistic (Centre for Effective Practice, n.d.). It is not realistic for someone undergoing knee replacement to be able to run a marathon within four weeks of surgery. Setting unrealistic goals can lead to maladaptive behaviors and further pain. While an individual may desire to return to work, their work duties may no longer be possible for them to perform. Finally,

the goal needs to be time-oriented. There needs to be a deadline associated with the goal. For example, the patient may say they want to be able to walk with their pain being less than a 3 on the pain scale by their six-week surgical follow-up appointment (Centre for Effective Practice, n.d.).

The Goal Adjustment Model suggests that by being flexible and able to readjust goals to realistic and achievable levels, the patient actually increases their ability to reengage with the activity of their choosing, whether employment or recreational. The Goal Adjustment Model states that adjusting goals due to pain or other life changes is a two-step process. It includes disengaging from the desired, though unachievable, goal and then re-engaging at another level. The ability to disengage from the unachievable goal increases the ability to re-engage in the activity with a lesser or more flexible goal in mind. If the patient is inflexible with their goal, like wanting to run a marathon again, they may be able to engage in running much less than someone who decides their new goal will be to be able to run a 5k within the following year (Roux, Gustin et al., 2022).

The Dual-Process Model of Goal Adjustment suggests two modes associated with adjusting goals due to chronic pain or a life event. The assimilative mode is when the patient tries to adjust their circumstances to align with pursuing their goal. This is a less flexible approach, as the circumstances can not always be changed. The accommodative mode is more flexible. This is when the goals are adjusted to reflect the situational constraints the patient is experiencing. This mode requires reflection and honest self-evaluation. When a goal is realistic, the assimilative mode will help the individual achieve the goal. However, when the goal is unrealistic, the patient must operate in an accommodative mode to establish a new, achievable goal. When a patient is unable to shift from assimilative mode to accommodative mode, they may feel defeated or depressed (Roux, Gustin et al., 2022).

Flexible goal adjustment is critical when dealing with chronic pain. The nurse may be a valuable resource in counseling patients to help them decide on achievable goals. The nurse can also educate the patient that disengaging from a previously held goal may be the most challenging part of the process. However, the ability to disengage and reframe their expectations increases their ability to re-engage with the activity on another level. The most challenging aspect of goal adjustment for healthcare workers and their patients is often knowing when the original goal is no longer viable and must be adjusted to promote success (Roux, Gustin et al., 2022). It is recommended that healthcare workers use a “90% confidence rule” when deciding if a goal is achievable. If the person is not 90% or more sure they will be able to achieve the goal within the set time frame, then the goal is too high and should be adjusted by either decreasing the level of the goal or extending the deadline (Mirgain & Singles, 2023).

Pain goal setting needs to include more than just a desired pain score. Nurses can facilitate conversations with patients to help them develop goals. When patients think about their goals, they must consider physical activity, functional status, wellness, recreational activities, house/yard work, socializing, and work/school. From this list, nurses can have the patient choose one or two areas on which they would like to focus. Research has shown that patients with goals centered on house/yard work, physical activity, recreational goals, and wellness experienced less depressive symptoms. Researchers also found that most patients were more inclined to improve functioning rather than necessarily focusing on a particular pain score (Heapy, Wandner et al., 2018).

Patients are more likely to be successful with the goals they set for themselves. Nurses can help guide the conversation to assist the patient in identifying what matters to them, what improved health would mean to them, and what brings them joy. This will guide the conversation toward a meaningful goal for the patient. Goal setting should be discussed in the language the patient is most

comfortable with. The goal should also be documented in the patient's electronic medical record so that all healthcare team members can view them. Goals should be addressed with each visit for monitoring. Nurses should provide encouragement and positive reinforcement when the patient has made any effort towards achieving their goal. This encourages self-management for the patient. Nurses can also anticipate potential barriers to achieving the goal. The nurse can also guide the conversation to discuss potential problem-solving strategies patients may need as they encounter challenges (Mirgain & Singles, 2023).

Section 4 Case Study

Mrs. Winters, a 78-year-old female, is discussing post-operative hand pain with her nurse, Lisa, in anticipation of an upcoming surgery. Lisa asks Mrs. Winters what her pain goal is for after surgery. Mrs. Winters states that her pain goal is zero. What education should Lisa provide?

Lisa explains to Mrs. Winters that pain is expected after the surgery she will be having. She also explains that while the healthcare team will work to minimize pain as much as possible, a pain score of zero is unrealistic. Lisa wants to discuss setting a realistic goal with Mrs. Winters. What should Lisa include in the conversation?

Lisa explains to Mrs. Winters that pain is expected, but they can create realistic, achievable goals for the weeks after surgery. Lisa also explained SMART goals to Mrs. Winters. What is a SMART goal?

Mrs. Winters and Lisa establish a goal that is meaningful to Mrs. Winters. Mrs. Winters decides she would like to be able to sew using her sewing machine, something that she loves to do, for thirty minutes twice a week within six weeks of surgery. How is this a SMART goal?

Mrs. Winters' goal is specific: She wants to be able to sew for thirty minutes twice a week using her sewing machine. Her goal is measurable; she can track how many minutes she can sew before the pain becomes intolerable. It is also actionable, as she can build endurance with sewing as her pain levels decrease. This goal is relevant because the anticipated pain will be in her hand. It is also time-oriented, as the "deadline" is six weeks.

Why is a follow-up conversation related to the goal necessary at the six-week post-operative appointment?

Section 4 Personal Reflection

Why is it essential that the patient's goal be realistic? Why is the pain goal personalized? How can a nurse explain the 90% confidence rule to a patient? What is a SMART goal? Why do you think patients are more successful in achieving the goals they set for themselves? Can the goal be adjusted if the patient is having difficulty achieving it? Why?

Section 5: Pain Management Options

There are many different options for pain management. The experience of pain is individual, and some management techniques may be more effective or appropriate for some people than others. One approach may be used, or they can be combined. Typically, less-invasive strategies are attempted before more-invasive techniques are used (Cleveland Clinic, 2024). Unfortunately, many nonpharmacologic pain interventions may not be covered by insurance, making them unaffordable for many patients. Transportation issues must also be considered when discussing treatment. The treatment recommendation will not help the patient if they have no access to it. Nurses can help their patients by

becoming familiar with low-cost options for pain relief. For example, physical therapy may be a more viable option for a patient who has insurance but lives in an unsafe neighborhood for low-impact exercising and cannot afford to join a gym (CDC, 2024).

When considering potential treatments for acute pain, nurses should remember the basics. Applications of ice or heat, elevation, rest, immobilization, and exercise are effective treatments for many types of acute pain. There are also many nonopioid treatment options for chronic pain (CDC, 2024).

Medications for Pain

Nonsteroidal Anti-inflammatory drugs (NSAIDs) - Aspirin and ibuprofen are examples of NSAIDs. This type of medication can be used for mild to moderate pain, especially when associated with inflammation. These medications are not effective for neuropathic pain. NSAIDs work by inhibiting the cyclooxygenase enzyme, which decreases prostaglandin synthesis in the central nervous system, which, in turn, relieves pain. Adverse effects of these medications include gastrointestinal problems, hypertension, stroke, inhibited platelet activation, bruising, hemorrhage, sodium and water retention, hyperkalemia, headache, and hepatotoxicity, among others (Milani & Davis, 2023). COX-2 inhibitors are another type of NSAID with less gastrointestinal side effects. These are commonly used for pain related to conditions like arthritis, back pain, and menstrual cramps (Mayo Clinic Staff, 2023).

Acetaminophen - This medication can be used for mild to moderate pain or in conjunction with opioids for severe pain. This medication is not effective for neuropathic pain. The mechanism of action for this medication is not understood, though the result does decrease prostaglandin synthesis in the central nervous system, similar to NSAIDs, which relieve pain. Side effects of this medication can

include rash, anemia, nephrotoxicity, electrolyte imbalances, abdominal pain, nausea and vomiting, and others (Milani & Davis, 2023).

Topical/Local analgesics - Lidocaine is the most commonly used medication in this group. It is often used for pain reduction during brief medical procedures. It is also used for postherpetic neuralgia and peripheral neuropathic pain. Local anesthetics work by inhibiting sodium ion channels on the nerve cell's surface, stabilizing the neuronal membrane. This impairs the pain conduction through nerve impulses only at the site of action, which is beneficial when systemic pain treatment is unnecessary. Lidocaine may cause side effects at the application site, such as pain, pruritic, erythema, and skin irritation (Milani & Davis, 2023).

Antiepileptic medications - This class of medications lowers neurotransmitter release or neurofiring by affecting the calcium channels. Gabapentin is often used for postherpetic neuralgia and neuropathic pain. Pregabalin is often used for neuropathic pain associated with diabetic peripheral neuropathy and spinal cord injury, postherpetic neuralgia, and fibromyalgia. Oxcarbazepine and carbamazepine have been used to treat trigeminal or glossopharyngeal neuralgia. The most common side effects of gabapentin are dizziness, somnolence, ataxia, peripheral edema, and confusion. Pregabalin side effects are similar but also include headache, weight gain, and blurred vision (Milani & Davis, 2023).

Antidepressants - Tricyclic antidepressants (TCAs), like amitriptyline, and selective serotonin and norepinephrine reuptake inhibitors (SNRIs), especially duloxetine, have been shown to help alleviate neuropathic pain. They are generally considered the first line of treatment and prevention for this type of pain and have also been used effectively for nociplastic types of pain, like fibromyalgia. Amitriptyline is a common migraine prevention medication. These tend to be more effective for patients who also experience depressive symptoms. The inhibition of serotonin and noradrenaline reuptake increases the descending

inhibitory pathways of the central nervous system involved with pain. TCAs also act on specific nerve receptors and sodium channels. Side effects of amitriptyline may include altered mental status, arrhythmias, constipation, decreased libido, dizziness, and more. The side effects of duloxetine are similar (Mayo Clinic, 2023).

Muscle relaxers - This type of medication, like diazepam and carisoprodol, reduces pain by affecting muscle function and decreasing symptoms such as muscle spasms and musculoskeletal pain. They are often used to treat lower back pain, though they are not usually the first choice of treatment because of unwanted side effects and the potential for abuse. Muscle relaxers work by depressing the central nervous system or inhibiting the neurotransmission of pain signals to the brain. Common side effects include drowsiness, fatigue, dizziness, nausea, headache, and dry mouth (Cleveland Clinic, 2023).

Corticosteroids - known as glucocorticoids or steroids, are used to treat inflammation. They can be applied topically, taken orally, administered intravenously, or injected directly into the painful area. They mimic the cortisol hormone that naturally occurs in the body and are used to treat many types of inflammation, primarily due to autoimmune disorders. Examples of these medications are prednisone and hydrocortisone. Injected cortisone can relieve pain for months at a time or even permanently in some cases. The most common side effects from corticosteroids include increased appetite, weight gain, water retention, and mood swings. The risk for side effects increases with prolonged use of these medications. Nurses must educate patients about using corticosteroids, as they can increase blood sugar. This may be problematic for patients with diabetes (Cleveland, 2024).

Opioids - This is a large group of medications that chemically resemble opium, derived from the opium poppy. They are the most effective for treating severe pain but are very controversial due to the risk of addiction, tolerance, and side

effects. According to the Centers for Disease Control and Prevention, the benefits for both pain and functional status should outweigh the potential risks when using this type of medication. The lowest effective dose should be used for the shortest duration necessary. Opioids work both pre- and post-synaptically by inhibiting calcium channels on nociceptive nerves and enhancing the potassium channels' activity, making generating nociceptive neurotransmission more difficult. Opioids have many adverse side effects. Some of them are dysphoria/euphoria, sedation, constipation, nausea, vomiting, cough suppression, bradycardia, respiratory depression, muscle rigidity, tolerance, physical dependence, and opioid-induced hyperalgesia, which is when a patient experiences a paradoxical reaction to opioids, which increases the sensitivity to painful stimuli (Milani & Davis, 2023). Opioids are used as a last resort for treating chronic pain, though they may be appropriate when the pain is related to a terminal illness. Careful monitoring is necessary (Mayo Clinic Staff, 2023).

Medical cannabis - As of April 2024, the use of cannabis for medical treatment is legal in 38 states, as well as the District of Columbia and three territories of the United States. Research supports the use of tetrahydrocannabinol (THC) for pain relief. Therapeutic benefits of reduced anxiety, sedation, and euphoria can also have a positive effect on pain. Smoked cannabis has the least benefit with harmful side effects (National Converence of State Legislatures, 2024). Cannabis is most helpful in treating neuropathic pain. Long-term or frequent use of cannabis by some people can increase the risk for psychosis or schizophrenia. As the use of cannabis is relatively new, more research is needed to determine if it is more effective than other available pain treatment options and if the benefits outweigh the risks (CDC, 2024).

Non-Pharmacological Interventions

Lifestyle changes - Sometimes, a lifestyle change can positively impact pain. If someone is experiencing knee pain due to obesity, reducing body weight can improve their pain. Pain may also be managed by drinking more water, managing stress, improving sleep habits, and eating more nutritious foods. Physical activity can sometimes help reduce pain, improve muscle strength and posture, and positively affect mental health (Cleveland Clinic, 2024).

Physical Therapy - This can help improve how a part of the body functions and may be part of a pain management plan or a specific treatment for an injury (Cleveland Clinic, 2024). Physical therapy usually involves low-impact cardio, mobility, flexibility, and strength training (National Institute of Neurological Disorders and Stroke, 2024).

Occupational therapy - This helps individuals improve their ability to perform tasks in their daily lives. Occupational therapists can help patients learn to navigate and interact with their environment using techniques that reduce pain (Cleveland Clinic, 2024).

Psychotherapy - Talk therapy can use many techniques to help patients identify emotions, thoughts, and behaviors that may affect how they experience pain. Depression and anxiety can accompany chronic pain, so this intervention is also beneficial for mental health. Cognitive behavioral therapy helps patients develop coping skills to manage the emotional burden caused by pain. Relaxation, mindfulness, and journaling are all helpful techniques (Cleveland Clinic, 2024).

Medical Devices and Procedures to Manage Pain

Transcutaneous Electrical Nerve Stimulation (TENS) - This non-invasive procedure uses low-voltage electrical currents to alleviate pain. A small device is placed near

or at the nerve site, and pain is relieved either through chemicals released into the body or a change in the perception of the pain. TENS works better for some patients than others, and more research is needed to evaluate how this pain relief measure works. The device is often used in outpatient clinics but can also be prescribed for at-home use. TENS is typically used for pain related to osteoarthritis, tendinitis, and fibromyalgia (Cleveland Clinic, 2023).

Spinal Cord Stimulation - This implanted device is placed in outpatient surgery. It is used to treat many types of chronic, severe pain, including back pain and various types of neuropathic pain. A trial procedure to assess efficacy is conducted before the device is implanted. During the procedure, one or more electrodes are placed in the epidural space and are connected to a pulse-generating device. When activated, the electrical impulse stimulates the spinal cord, inhibiting pain signals from traveling to the brain. Placement depends on the location of the pain (Cleveland Clinic, 2022).

Peripheral Nerve Stimulation - When spinal cord stimulation is contraindicated, peripheral nerve stimulation can be used to treat chronic neuropathic pain. Some studies suggest that peripheral nerve stimulation can be used as an alternative to opioid pain treatment for acute and post-surgical pain as well. Research continues on the application of this newer treatment. During the placement procedure, a small needle is placed using ultrasound close to the target nerve. This guides the placement of the electrode, which is then connected externally to the stimulator device. Another lead is placed on an ipsilateral limb. The exit site of the nerve-stimulating lead must be covered with a sterile dressing. The most common complication of this procedure is lead migration, followed by infection. Nerve damage is rare but can occur (Trent, Chopra et al., 2019).

Radiofrequency ablation - This procedure uses a radio wave to damage a small area of nerve tissue, which inhibits pain signals traveling to the brain (National Institute of Neurological Disorders and Stroke, 2024).

Basivertebral nerve ablation (Intracept Procedure) - This is a minimally invasive treatment for vertebrogenic low back pain. Radiofrequency energy is used to heat a part of the basivertebral nerve, which inhibits nerve pain signals from traveling to the brain. This is not a first-line option, as it requires general anesthesia, but is typically used before more invasive options, like surgery, and can be effective for up to five years (Cleveland Clinic, 2023).

Nerve Blocks - This temporary relief measure uses a local anesthetic to interrupt the relay of pain messages to the brain. An example of a nerve block is an epidural, which is frequently used to alleviate pain in childbirth (National Institute of Neurological Disorders and Stroke, 2024).

Patient-controlled anesthesia (PCA) pump - This is an on-demand system of pain treatment where the user can press a button on a device to deliver pain medication. Most of the time, the medication used is some type of opioid, which is administered via a small intravenous tube. A continuous rate can also be set for the pump in addition to on-demand bolus doses. The provider controls the settings for the pump to reduce the risk of overdose, and the pump will not deliver a bolus dose outside of the set parameters. This type of pain treatment is common for post-surgical pain but can also be used for chronic pain and cancer pain. One benefit of PCA pain management post-operatively is that pain can be controlled more effectively, which encourages movement and decreases the risk of complications like blood clots. Side effects include those typically experienced with opioid medications (Cleveland Clinic, 2021).

Baclofen pump - This surgically implanted pump delivers baclofen, a muscle relaxant, directly into the spinal canal via a small catheter connected to the pump, typically implanted in the abdomen. The pump is filled with baclofen, and the provider controls the settings to deliver a set dose of medication on a particular schedule. There is a reservoir in the pump that can be injected by the provider to refill the medication, typically every 1-6 months. This intervention is typically used to treat spasticity and associated pain. One risk for this intervention is pump malfunction. When the pump is not working correctly, the patient can experience baclofen withdrawal, which may include muscle stiffness or spasms, itchy skin, pain, sweating, fever, dizziness, nausea, or seizures (Cleveland Clinic, 2024).

Botulinum toxin injections - This procedure uses botulinum toxin to block nerve signals to certain muscles. The effects of the injection last 3-6 months and can be repeated when the effects diminish. Chronic migraines can be treated with this procedure, and it can also relieve back and neck pain, sciatica, and peripheral neuropathy, among other pain sources. Botulinum toxin is made from neurotoxins of the bacteria Clostridium botulinum and must be injected by a licensed provider (Cleveland Clinic, 2022).

Surgery to address the cause of the pain - In some cases, the source of the pain can be corrected. For example, knee pain due to a torn meniscus can be significantly improved, if not immediately resolved, by removing the issue causing the pain (National Institute of Neurological Disorders and Stroke, 2024). The patient must discuss the procedure with the doctor to develop realistic expectations for the post-operative pain levels.

Complementary Medicine

Complementary health techniques are usually used in conjunction with Western techniques. They may enhance the effectiveness of pharmacological and non-

pharmacological interventions. In the last two decades, complementary health approaches have increased in an effort to manage pain. In that time, complementary treatments have been incorporated into many treatment guidelines, as research has studied the clinical effectiveness of these therapies. The focus on the harmful effects of opioids has also influenced a shift to incorporate more complementary techniques. For some treatments, like acupuncture, insurance coverage has increased, reflecting the cost-saving effects complementary medicine treatments can have (Nahin, Rhee et al., 2024).

Massage therapy by a licensed massage therapist can help reduce stress, soothe muscles, and reduce pain. Different types of massage may be more appropriate for specific conditions (Cleveland Clinic], 2021). A meta-analysis of 33 randomized controlled trials found that massage therapy is effective in treating postoperative pain in both the short and long terms (Liu, Chen et al., 2022).

A licensed chiropractor performs chiropractic adjustments to manipulate joints and realign the spine, decreasing pain and improving function. Chiropractic adjustments can be administered to both children and adults (Cleveland Clinic, 2022).

Osteopathic Manipulation treatments (OMT) use gentle pressure to manipulate the body to treat mechanical problems in muscles, tendons, or bones. They are often used for lower back pain and colic. However, individuals who have osteoporosis, bone cancer, or other joint problems should not receive OMT (Cleveland Clinic, 2021).

Acupuncture is a traditional Chinese technique that uses very thin steel needles inserted at specific points, or acupoints, on the body to rebalance the body's energy, or qi. As a result, the body releases chemicals that reduce pain. Acupuncture is a supplemental therapy, but scientific experimentation has shown it to be an effective treatment for some conditions (Cleveland Clinic, 2023).

Biofeedback can help patients learn to control their body's physical reactions when they experience pain or symptoms that lead to pain (National Institute of Neurological Disorders and Stroke, 2024).

Meditation - This technique has been used for thousands of years, but researchers are just beginning to learn how medication alleviates pain. Meditation involves intense focus and mind-clearing using both cognitive and physical practices. There are many types of meditation, and some may be more effective than others as a complementary treatment for pain. Regular meditation has been found to strengthen neural connections and increase the number of pathways, increasing the ability to process stimuli more functionally (Cleveland Clinic, 2022).

Breathwork - Deep breathing can be an effective complementary technique for managing pain. Diaphragmatic breathing helps bring more oxygen into the body, lowering the heart rate and blood pressure. It also activates the vagus nerve, causing a relaxation response. Patients must be instructed in deep breathing techniques to get the most benefit from this practice. They must also be educated to understand that using breathwork for pain management takes practice. Breathwork is most effective when used before experiencing the stimulus that triggers pain (Johns Hopkins, 2024).

Yoga/Tai Chi/Qigong - These meditative movement practices originated in Asian culture. Yoga, which began as a spiritual practice, has been practiced by many to improve well-being. Implementing these practices has been shown to positively affect neck pain, migraines, and knee osteoarthritis. Some evidence also shows a small benefit when used to treat lower back pain. The reduction of depressive symptoms can also have a positive impact on pain. More research is needed to determine how these Eastern practices affect pain (National Institutes of Health, 2023).

Reflexology - This complementary pain treatment is based on the idea that particular parts of the body are connected to corresponding particular places on the feet. In reflexology, pressure is applied to specific points of the feet to alleviate pain in a particular area of the body. For example, a heel massage may be used to alleviate lower back pain. Reflexology has not been comprehensively studied in the literature. Compared to usual care, studies often show there is a benefit to reflexology, but more research is needed to show that it is more effective than just general foot massage (Cleveland Clinic, 2022).

Aromatherapy - Essential oils can be used to treat pain through inhalation or topical application. The nervous system is stimulated upon the inhalation of some essential oils, which triggers chemical responses in the body, including the release of serotonin, endorphins, and dopamine. More research is needed to establish the efficacy of aromatherapy for pain management, but the anxiety-reducing effects can have a positive impact on pain management for some patients. One misconception about aromatherapy is that because it is natural, it is also safe. Nurses should educate patients on the importance of sharing the use of aromatherapies with their providers (Cleveland Clinic, 2023).

Dietary supplements and herbal remedies - Mechanisms of action for many herbal remedies and supplements are not well known, making them a controversial treatment for pain. The medical community has studied the effects of many of these, and some show clinical evidence for efficacy. However, not enough is known about how they work to become part of conventional medical practice. Examples of herbal remedies used to treat pain include St John's Wort, ginger, and turmeric, among many others. Herbal supplements have been used for many types of pain, including musculoskeletal pain, arthritis, and migraines. Most herbal medicines act on the COX pathways in some way, but specific doses are not well-established. Just because herbal remedies are natural does not necessarily mean they are safe. Many have pharmacologic actions that could interact with

other medications or have unintended side effects. Typically used by patients for mild to moderate pain, the use of these remedies is increasing, though it is not typically shared with medical providers. Nurses can enhance patient safety by specifically asking patients about the use of herbal remedies or dietary supplements (Jahromi, Pirvulescu et al., 2021).

Section 5 Learning Activity

Select one pain treatment option from each group (pharmacological, non-pharmacological, device and procedures, and complementary medicine). Compare and contrast the different options. How do they affect pain? What types of pain can they be used for? What are the risks and benefits? Can these modalities be used concurrently? How might they affect each other when used together?

Section 5 Personal Reflection

Why do you think there are so many available treatments for pain? How do specific types of pain respond to particular treatments? Which treatment modalities do you have experience with? Are there complementary techniques that may enhance the pain management of your patients? What education is necessary for patients who are prescribed opioid pain medications?

Section 6: Nursing Interventions to Promote Optimal Outcomes

Nurses can significantly impact patients' pain experiences. With staff interactions influencing patient satisfaction and pain management and reimbursement becoming tied to patient satisfaction, it is becoming increasingly important for nurses to be knowledgeable about specific nursing interventions to promote

optimal outcomes. Educational programs that enhance nurses' pain assessment skills can positively impact pain management and improve patient satisfaction (Schroeder, Hoffman et al., 2016).

Patient education has been identified as a core area where nurses can impact pain management. Nurses can educate patients and caregivers on evidence-based pain interventions and encourage compliance through education (Sonneborn, Williams et al., 2022).

A study published in 2021 found that individuals who received pain education in addition to typical treatment for knee pain had statistically significant superior short-term improvements in function (Goff, Silva et al., 2021). Another study found that individualized education, as opposed to standard patient education, improved average pain levels (Oliver, Kravitz et al., 2001). Because opioid use for pain management is associated with high risk, pre-operative education for patients who will likely need to use opioids post-operatively was influential in encouraging safer medication behaviors and reducing the use of opioids. Lack of education interventions places the patient at risk for poor pain management and inferior outcomes (Lee & Wu, 2020). Patient education can not only improve pain management but also health outcomes and safety.

Nurses can advocate for improved patient pain management by educating other nurses. Creating a culture that supports effective pain management and encourages conversations regarding different interventions and ideas benefits patients. A study in 2019 evaluated the presence of nurses in hospital units who received advanced training regarding pain in addition to their usual duties. Nurses valued the role but reported it was difficult to manage in addition to their usual duties. They were willing to learn and educate their colleagues but needed more clarity on their roles and knowledge of teaching techniques. The researchers concluded that this role is valuable, but nurses need more advanced training,

support, time, and collaborative opportunities to be effective. Through further research on this type of role, nurses can enhance how they advocate for their patients and all the patients in their place of work (Peterson, Berggården et al., 2019).

As we have already discussed, pain assessment by nurses is vital to effectively manage pain. Knowledge of pain assessment tools and using the most appropriate, evidence-based tool for each patient improves pain level outcomes (Dydyk & Grandhe, 2023). Effective pain assessment and reassessment rely on adequate knowledge of how pain works and the most effective interventions. Another part of the assessment is observing for opportunities to improve pain with non-pharmacologic interventions. Repositioning, for example, is a simple strategy that can reduce pain. As providers are trying to eliminate unnecessary prescriptions of opioid pain medications, nurses are critical in identifying non-pharmacologic interventions to manage pain (Sonneborn, Williams et al., 2022).

Despite clear evidence showing that non-pharmacologic nursing interventions are often effective in relieving pain either independently or in conjunction with medications, only a moderate number of ICU nurses report using non-pharmacological pain interventions with their patients (Kia, Allahbakhshian et al., 2021). While nurses encounter barriers to providing non-pharmacological pain management strategies, like fatigue and juggling many responsibilities, the implementation of these interventions remains essential in effectively managing pain. A deficiency in pain management education can also be blamed for the lack of prioritization of non-pharmacologic interventions (Kia, Allahbakhshian et al., 2021). Despite the busy schedule of nurses, we have a duty to provide interventions that may improve the patient's experience of pain. In 2018, the American Nurses Association published its position on the nurse's role in pain management.

Statement of ANA Position

American Nurses Association (ANA) believes:

- Nurses have an ethical responsibility to relieve pain and the suffering it causes
- Nurses should provide individualized nursing interventions
- The nursing process should guide the nurse's actions to improve pain management
- Multimodal and interprofessional approaches are necessary to achieve pain relief
- Pain management modalities should be informed by evidence
- Nurses must advocate for policies to assure access to all effective modalities
- Nurse leadership is necessary for society to appropriately address the opioid epidemic" (Association, 2018)

This position highlights nurses' ethical duty regarding pain management and outlines their primary responsibilities in addressing pain.

Section 6 Learning Activity

Think through the American Nurses Association statement regarding the nurse's ethical duty in pain management. For each point, consider how it affects your nursing practice, how you can implement the statement, and why it is essential. How do you use the nursing process when managing pain?

Section 6 Personal Reflection

How does pain management affect patient satisfaction? Why does patient education improve pain management outcomes? What barriers exist to implementing non-pharmacological and complementary pain management techniques? How can nurses advocate for their patients for more effective pain management?

Section 7: The Future of Pain Management

Exciting research is underway in pain management. The National Institute of Neurological Disorders and Stroke is working to improve opioid use disorder prevention and treatment while enhancing pain management. It is also developing new technologies that can directly access the neurological system, affect pain perception, and reduce pain (National Institute of Neurological Disorders and Stroke, 2024).

Some clinical trials at the Mayo Clinic include a study to evaluate the prevalence of hypogonadism in patients with chronic pain, a study of the effects of buprenorphine on hyperalgesia for patients with opioid use disorder, and an evaluation of hair cortisol levels for pediatric patients with chronic pain (Mayo Clinic, 2024). A new medication, VX-548, preliminarily called suzetrigine by the developer, shows a promising ability to block sodium channels in nerves but only acts on peripheral nerves. Because of this, it has similar analgesic effects as opioids, without the risk of addiction, since it does not act on the central nervous system. This medication is currently under FDA review (Broadfoot, 2024). Mindful breathing is being studied as a treatment for chronic low back pain, with early studies showing improvement in symptoms and quality of life (Tedeschi, 2024). There is also research being conducted to evaluate nurses' knowledge, misconceptions, and attitudes regarding patients with chronic pain, and some

research shows that nurses are demonstrating higher knowledge than in past research (Burton & Judson, 2024).

The opioid crisis in America has brought the development of non-opioid pain interventions to the forefront of research priorities. The National Institutes for Health provides funding to many organizations seeking to develop new treatments to make opioid use less prevalent and also to reduce instances of opioid use disorders. One strategy, the Helping to End Addiction Long-term (HEAL) initiative, focuses on developing a further understanding of chronic pain and accelerating the discovery of new treatment modalities. The Brain Research through Advancing Innovative Neurotechnologies (BRAIN) is another research initiative that explores the development of new treatments with the nervous system as the central focus. Research is centered on developing ways to reduce pain through modulating neural circuitry. Participation in clinical trials can also help researchers learn more about pain and potential treatments for pain. Nurses are often involved in clinical research trials, which can impact the future of pain management (National Institute of Neurological Disorders and Stroke, 2024).

Section 7 Reflection

Why is it essential for new treatments to be explored? Why is evidence-based practice necessary, and how is it achieved? How can nurses stay informed about new pain management strategies? How does pain education help nurses provide excellent care?

Section 8: Conclusion

Pain management requires a multidisciplinary approach, and nurses are critical to that team. Through assessment and history-taking, nurses gather the necessary

information to determine the potential source of pain and direct the next pain management steps. Nurses are also vital for individualized patient education to enhance outcomes. They evaluate pain, document observations, and monitor for drug misuse (Milani & Davis, 2023). By being knowledgeable about what causes pain, different techniques for pain assessment, the importance of pain goal setting, and current treatments, nurses can effectively care for patients in many settings.

The estimated annual cost of pain, including medications, procedures, and lost wages, is approximately $635 billion annually. Chronic pain is the leading cause of disability worldwide. Because chronic pain is so prevalent, nurses have the opportunity to improve patient outcomes and enhance the quality of life for many people in every area of nursing practice.

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