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Erasmus+ TECH2MATCH

Teaching guide for the Introduction module

Prepared by the TECH2MATCH consortium.

TECH2MATCH

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Introduction

This document presents the *Teaching Guide for the* Introduction Unit of the TECH2MATCH Erasmus+ project. It serves as a comprehensive pedagogical resource for lecturers involved in the delivery of the module Introduction to Pain within the broader TECH2MATCH framework. The guide provides clear learning outcomes, structured activities, and rationales grounded in Reflective Practice-based Learning (RPL), ensuring a coherent and evidence-informed teaching approach.

The content is organised into sequential units covering the fundamental aspects of pain its physiology, taxonomy, assessment, psychosocial dimensions, management strategies, and related technologies. Each unit includes both *basic* and *advanced* learning tasks, designed to promote progressive, self-directed, and interdisciplinary learning among students in nursing, midwifery, physiotherapy, occupational therapy, and related health sciences.

This guide aims to support educators in aligning teaching methods with the course's reflective and experiential learning philosophy. By integrating theory with clinical and technological perspectives, it provides the structure and tools necessary to foster analytical thinking, empathy, and professional competence in the understanding and management of pain.

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Content:

UNIT 1: Basics on Pain

Learning Outcomes:

By the end of this unit, students will be able to:

1. Understand the course structure and scope of the Tech2match course
2. Identify anatomy and physiology of pain.
3. Explain the origin and mechanisms of pain.
4. Differentiate nociception from pain perception.
5. Recognize main pathways and neurotransmitters in pain transmission.
6. Distinguish between types of pain (acute, chronic, neuropathic, etc.).
7. Apply knowledge through self-assessment quizzes.

TASKS:

1.0.1 Welcome to the course!

Level: Basic

Activity description: The students watch the provided video material “Welcome to the course”

Activity rationale: Watching the introductory video familiarizes students with the course structure, objectives, and professional contexts, highlighting its relevance for clinical and educational practice. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on their prior experiences and consider how the course content applies to their professional settings. It supports the identification of personal learning goals, fosters

engagement with peers across institutions, and sets the stage for a reflective, evidence-based learning journey.

Resource: MOOC

1.0.2 Introduction To Pain Overview

Level: Basic

Activity description: The students watch the provided video material, “Introduction to Pain Overview”.

Activity rationale: Watching the video provides students with a conceptual framework of pain management, linking theoretical foundations to clinical practice. Within the Reflective Practice-based Learning approach, this activity encourages learners to reflect on prior knowledge, clinical experiences, and beliefs about pain, identify gaps in understanding, and set personal learning goals. It fosters analytical thinking and prepares students to engage critically and reflectively with subsequent course materials and discussions.

Resource: MOOC

1.1 Anatomy and Physiology of Pain

Level: Basic

Activity description: The students watch the provided video material, “Physiology of Pain, Animation”.

Activity rationale: Watching the animation helps students understand the physiological mechanisms of pain, linking theoretical concepts to clinical observations. Within the Reflective Practice-based Learning framework, this activity encourages reflection on how neurophysiological processes manifest in patient experiences, fostering analytical thinking and bridging theory with practice. It supports evidence-based assessment, communication, and interventions, preparing students to integrate physiological knowledge into clinical reasoning and decision-making.

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Resource: MOOC

1.1.1. Anatomy and Physiology of Pain

Level: Advanced

Activity description: Read extra papers and resources.

Activity rationale: Reading these materials allows students to deepen their understanding of pain mechanisms and connect theoretical knowledge with clinical experience. Within the Reflective Practice-based Learning framework, this activity encourages critical appraisal of evidence, reflection on professional practice, and identification of areas for improvement. It also promotes self-directed learning, supporting analytical and reflective skills essential for evidence-based, patient-centered pain management.

Resource: File name 1.1.1 format: .h5p

1.2 Nature of Pain

Level: Basic

Activity description: The students watch the provided video material, “Tech2Match - Origin and Nature of Pain”.

Activity rationale: Watching the video helps students understand the neurophysiological mechanisms of pain and connect them to clinical observations. Within the Reflective Practice-based Learning framework, this activity encourages reflection on how biological processes influence patient experiences of acute, chronic, and neuropathic pain. It promotes analytical thinking, integration of theory into practice, and evidence-based reasoning, strengthening students’ reflective skills and clinical decision-making in pain management.

Resource: MOOC

1.1.2. Origin and nature of pain

Level: Advanced

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Activity description: Read extra papers and/or resources.

Activity rationale: Reading these materials allows students to deepen their understanding of pain transmission and modulation and connect theoretical knowledge to clinical practice. Within the Reflective Practice-based Learning framework, this activity encourages reflection on how physiological mechanisms inform assessment, communication, and interventions. It promotes self-directed learning, analytical reasoning, and evidence-based decision-making, strengthening students' ability to apply scientific knowledge in patient-centered pain management.

Resources:

Read chapter 7 of this book: https://www.ncbi.nlm.nih.gov/books/NBK219252/

Read Chapters 2, to 6: https://nba.uth.tmc.edu/neuroscience/toc.htm

1.3 Pain Transmissions

Level: Basic

Activity description: The students watch the provided video material, "Pain vs Nociception". Also, read the text about the Gate Control Theory of Pain and Neurotransmitters in Pain Transmission.

Activity rationale: This activity helps students differentiate pain from nociception and understand how pain signals are generated and modulated. Within the Reflective Practice-based Learning framework, it encourages reflection on how physiological processes interact with psychological and contextual factors in patient experiences. Engaging with both visual and textual resources strengthens analytical and reflective skills, supporting the application of theoretical knowledge to assessment, communication, and evidence-based pain management in clinical practice.

Resource: MOOC

1.1.3. Pain transmissions

Level: Advanced

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Activity description: Read extra papers and resources.

Activity rationale: This activity deepens students' understanding of pain transmission mechanisms and connects theoretical knowledge with clinical practice. Within the Reflective Practice-based Learning (RPL) framework, it encourages reflection on how nociceptive, neurochemical, and cognitive processes influence patient experiences. Engaging with current evidence fosters analytical thinking, self-directed learning, and the application of evidence-based interventions, supporting patient-centered and informed clinical decision-making.

Resource: Read Chapters 6, to 8: https://nba.uth.tmc.edu/neuroscience/toc.htm

1.4 Quiz: Basics on Pain

Level: Basic

Activity description: Complete the Quiz.

Activity rationale: Completing the quiz helps students consolidate their understanding of pain mechanisms and transmission. Within the Reflective Practice-based Learning framework, it encourages reflection on how theoretical knowledge applies to clinical practice, promotes self-assessment and metacognitive awareness, and reinforces analytical skills. Immediate feedback supports integration of concepts, enhancing evidence-based reasoning and patient-centered decision-making.

Resource: MOOC

1. What is the primary somatosensory cortex (S1)'s role in pain perception?

a. *It is responsible for the physical response to pain.*
b. *It has no role in pain perception.*
c. ***It is the first level of conscious pain perception.***

2. *Which type of neurons are primarily responsible for transmitting pain signals to the brain?*

a. *Motor neurons*

b. ***Sensory neurons***

c. *Interneurons*

3. *Which part of the brain is primarily responsible for the emotional response to pain?*

   a. ***The amygdala***

   b. *The hippocampus*

   c. *The cerebellum*

4. *What is the term for pain that results from damage to nerves?*

   a. *Nociceptive pain*

   b. *Psychogenic pain*

   c. ***Neuropathic pain***

5. *What is the role of the thalamus in pain?*

   a. ***It is the final destination for pain signals in the brain***

   b. *It has no role in pain*

   c. *It is the first relay station for pain signals in the spinal cord*

6. *What is the role of C fibers in pain?*

   a. *They do not transmit pain*

   b. ***They transmit slow, dull, and aching pain***

   c. *They transmit fast, sharp, and localized pain*

7. *What is the role of A-delta fibers in pain?*

   a. ***They transmit fast, sharp, and localized pain***

   b. *They do not transmit pain*

   c. *They transmit slow, dull, and aching pain*

8. *What is the role of the nociceptors in pain?*

   a. *They inhibit the transmission of pain signals*

   b. *They have no role in pain*

   c. ***They detect damage to the tissue and transmit pain signals***

9. *Match the term and the corresponding description*

   9.1. *Phantom Pain:* ***Pain that is felt in a limb that has been amputated***

   9.2. *Breakthrough Pain:* ***Pain that breaks through the effects of pain medication***

   9.3. *Referred Pain:* ***Pain Perceived at a location other the site of the painful stimulus***

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9.4. *Visceral Pain:* ***Pain that originates from the internal organs***

9.5. *Somatic Pain:* ***Pain that originates from the skin or musculoskeletal structures***

9.6. *Nociceptive Pain:* ***Pain that arises from actual or threatened damage to non-neural tissue***

9.7. *Neuropathic Pain:* ***Pain caused by damage or disease affecting the somatosensory nervous system***

9.8. *Psychogenic Pain:* ***Pain that arises from psychological factors***

10. *What is chronic pain?*
    a. *Pain that lasts for more than a year*
    b. *Pain that lasts for more than 3-6 months*
    c. *Pain that lasts for exactly 2 months*
11. *What is acute pain?*
    a. *Pain that lasts for more than a year*
    b. *Pain that lasts for more than 3-6 months*
    c. *Pain that lasts for less than 3-6 months*
12. *Which of the following modulates the emotional response to pain?*
    a. *periaqueductal gray*
    b. *NMDA receptors*
    c. *hypothalamus*
    d. *amygdala*
    e. *anterior cingulate cortex*
    f. *Substance P*
13. *Which of the following enhances pain signals*
    a. *NMDA receptors*
    b. *Dorsal Horn*
    c. *rostral ventromedial medulla*
    d. *Substance P*
    e. *prostaglandins*
    f. *GABA*
14. *Which of the following inhibits the pain signal?*
    a. *Dorsal Horn*

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b. PAG

c. Amygdala

d. Endorphins

e. RVM

f. GABA

15. What is the role of the dorsal horn in pain transmission?

a. It is the first relay station for pain signals in the spinal cord

b. It is the final destination for pain signals in the brain

c. It has no role in pain transmission

16. What is the role of the rostral ventromedial medulla (RVM) in pain transmission?

a. It has no role in pain transmission

b. It modulates the pain signal

c. It enhances the pain signal

d. It is the final destination for pain signals in the brain

17. What is the primary neurotransmitter involved in pain transmission?

a. Glutamate

b. Serotonin

c. Dopamine

UNIT 2: Taxonomy and definition of pain

Learning Outcomes

By the end of this unit, students will be able to:

1. Understand the IASP definition of pain.
2. Differentiate nociceptive, nociplastic, and neuropathic pain.
3. Distinguish acute vs. chronic pain and their characteristics.
4. Explain the chronification process and early intervention role.
5. Recognize referred and irradiated pain.
6. Identify sensory, emotional, cognitive, and social dimensions of pain.

TASKS:

2.1.1 Aetiology, nociceptive, nociplastic, neuropathic pain

Level: Basic

Activity description: Read the pain definitions.

Activity rationale: This activity helps students understand and reflect on diverse scientific and clinical definitions of pain. Within the Reflective Practice-based Learning framework, it encourages learners to connect theoretical concepts to clinical practice, consider the multidimensional nature of pain, and explore implications for assessment, communication, and interdisciplinary care. This reflective engagement strengthens analytical skills and supports informed, patient-centered decision-making.

Resource: MOOC

2.1.2. Read the following papers/website

Level: Basic

Activity description: Read the three documents about pain.

Activity rationale: This activity helps students analyze different theoretical and clinical perspectives on pain. Within the Reflective Practice-based Learning framework it encourages reflection on how definitions of pain influence assessment, communication, and interventions. By comparing perspectives and linking theory to practice, students develop a nuanced, multidimensional understanding of pain, enhancing patient-centered care and evidence-based clinical decision-making.

Resource: MOOC

2.1.3. Quiz: terminology

Level: Basic

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Activity description: Complete the Quiz.

Activity rationale: Completing the quiz allows students to actively engage with key concepts and definitions related to pain, reinforcing their theoretical knowledge. Within the framework of Reflective Practice-based Learning, this activity supports the dialectical relationship between theory and practice by encouraging learners to reflect on what they know, identify gaps in understanding, and immediately apply this knowledge in a structured, low-stakes environment. By assessing comprehension through the quiz, students can critically evaluate their grasp of pain concepts, which is essential for informed clinical reasoning and decision-making in practice. This reflective process promotes deeper learning, ensuring that theoretical knowledge is meaningfully integrated into future clinical scenarios.

Resource: MOOC

1. *What is the current IASP definition of pain (2020)?*
   a. *Pain is only the result of nociceptor activation*
   b. *Pain is an unpleasant physical sensation caused by tissue damage*
   c. ***Pain is an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage***
2. *Which condition is most commonly associated with nociplastic pain?*
   a. *Sciatica*
   b. ***Fibromyalgia***
   c. *Rheumatoid arthritis*
3. *What distinguishes nociceptive from neuropathic pain?*
   a. *Nociceptive pain is more severe*
   b. *Neuropathic pain always involves inflammation*
   c. ***Nociceptive pain involves intact nerves, whereas neuropathic pain involves nerve damage or disease***
4. *Which of the following is true about nociplastic pain?*
   a. ***It may involve central sensitization***
   b. *It is always associated with identifiable nerve damage*

c. ***<u>It lacks clear peripheral tissue injury</u>***

5. Match the terms with the best fitting definition/characterization

*5.1. Nociceptive pain**: Pain caused by actual or threatened damage to non-neural tissue and due to the activation of nociceptors***

*5.2. Nociplastic pain**: Altered nociception without clear evidence of actual tissue damage or somatosensory system disease***

*5.3. Neuropathic pain: **Pain caused by a lesion or disease of the somatosensory nervous system***

2.2 Chronic and Acute Pain

<u>2.2.1. Chronic and Acute Pain</u>

Level: Basic

Activity description: Read the text about chronic or acute pain**.**

Activity rationale: Reading the text on acute and chronic pain allows students to build a foundational understanding of the key characteristics, mechanisms, and clinical implications of different types of pain. Through the lens of Reflective Practice-based Learning (RPL), this activity encourages learners to actively compare and contrast acute and chronic pain, fostering reflective thinking about how these distinctions influence assessment, management, and patient outcomes. By engaging with the material in a reflective manner, students can integrate theoretical knowledge with practical considerations, enhancing their ability to recognize pain patterns in real clinical scenarios and make informed, evidence-based decisions.

Resource: MOOC

<u>2.2.2. Read the following papers</u>

Level: Basic

Activity description: Read Clinical Diagnosis and Treatment of Chronic Pain: A review covering pain diagnostics and classification

Activity rationale: Reading this review allows students to deepen their understanding of the diagnostic processes and classification systems used in chronic pain management. Through the lens of Reflective Practice-based Learning (RPL), this activity encourages learners to critically reflect on the differences between acute and chronic pain, considering not only theoretical definitions but also their practical implications in clinical assessment and treatment planning. By analyzing real diagnostic criteria and treatment approaches, students are prompted to integrate theoretical knowledge with clinical reasoning, fostering the development of reflective analytical skills. This reflective engagement supports informed decision-making in patient care, helping learners bridge the gap between evidence-based theory and clinical practice.

Resource: MOOC

2.2.3. Watch the video on understanding pain

Level: Basic

Activity description: Watch the video.

Activity rationale: Watching the video enables students to engage with visual and auditory explanations of acute and chronic pain, thereby enhancing their comprehension beyond textual information. Within the framework of Reflective Practice-based Learning, this activity promotes active reflection by encouraging learners to observe, compare, and analyze the characteristics and manifestations of different types of pain. By connecting theoretical knowledge with visual examples, students can critically consider how these distinctions influence assessment and management in clinical practice. This reflective engagement helps bridge the gap between theory and practice, supporting the development of analytical skills essential for accurate clinical reasoning and informed patient care decisions.

Resource: MOOC

2.2.4. Watch the video on the chronification of pain

Level: Basic

Activity description: Watch the video.

Activity rationale: Watching the video provides students with a dynamic and illustrative presentation of acute and chronic pain, complementing textual learning with visual and auditory examples. From the perspective of Reflective Practice-based Learning (RPL), this activity encourages learners to actively reflect on the differences between acute and chronic pain, integrating theoretical concepts with observable clinical manifestations. By comparing scenarios and analyzing pain characteristics in real-life or simulated cases, students develop critical thinking and analytical skills necessary for accurate assessment and decision-making in clinical practice. This reflective engagement helps bridge the gap between theory and practice, reinforcing the application of knowledge in patient-centered care.

Resource: MOOC

2.2.5. Quiz: Chronic and acute pain

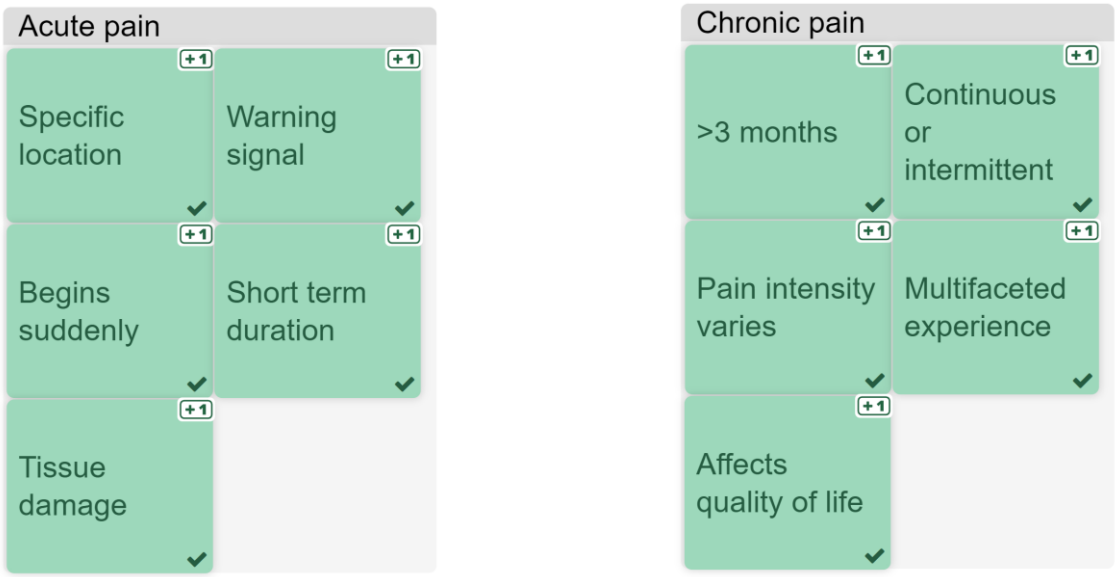
Level: Basic

Activity description: Drag and drop the upcoming images on the correct term.

Activity rationale: This interactive activity allows students to visually associate clinical images with the correct pain-related terminology, reinforcing their understanding of acute and chronic pain characteristics. Within the framework of Reflective Practice-based Learning (RPL), the drag-and-drop exercise encourages learners to actively reflect on their knowledge, identify patterns, and correct misconceptions in real time. By engaging in this hands-on activity, students bridge theory and practice, enhancing their ability to recognize and differentiate pain presentations in clinical contexts. This

reflective and interactive process strengthens analytical skills, supports accurate clinical reasoning, and promotes the application of theoretical knowledge to practical, patient-centered scenarios.

Resource: MOOC



2.2.6. Importance of early intervention

Level: Advanced

Activity description: Research and discuss the importance of early interventions for preventing the transition from acute to chronic pain.

Activity rationale: This activity engages students in researching evidence-based strategies for early intervention in pain management, fostering a critical understanding of how timely actions can prevent the progression from acute to chronic pain. Through the lens of Reflective Practice-based Learning, students are encouraged to reflect on the theoretical principles behind early interventions and consider their practical application in clinical scenarios. By discussing their findings with peers, learners actively integrate knowledge and practice, evaluate different approaches, and develop analytical skills necessary for informed clinical decision-making. This reflective process strengthens the connection between

theory and practice, promoting the ability to implement effective, patient-centered interventions.

Resource: File name 2.2.6 format: .h5p

2.3: Referred and Irradiated Pain

2.3.1. Altered Perception: Referred and Irradiated Pain

Level: Advanced

Activity description: Attending class and reading documents.

Activity rationale: Attending class and engaging with the assigned documents allows students to develop a thorough understanding of referred and irradiated pain, including their definitions, mechanisms, and clinical implications. Within the framework of Reflective Practice-based Learning (RPL), this activity encourages learners to actively reflect on how these types of pain present in patients and how they can be distinguished in practice. By integrating theoretical knowledge from readings with insights gained during class discussions, students strengthen their analytical and reflective skills, bridging the gap between theory and clinical application. This process supports informed decision-making, enhances diagnostic reasoning, and promotes a deeper, patient-centered understanding of pain assessment and management.

Resource: File name “2.3.1 and 2.4.1” format: .h5p

2.3.2. Quiz: Referred and Irradiated Pain

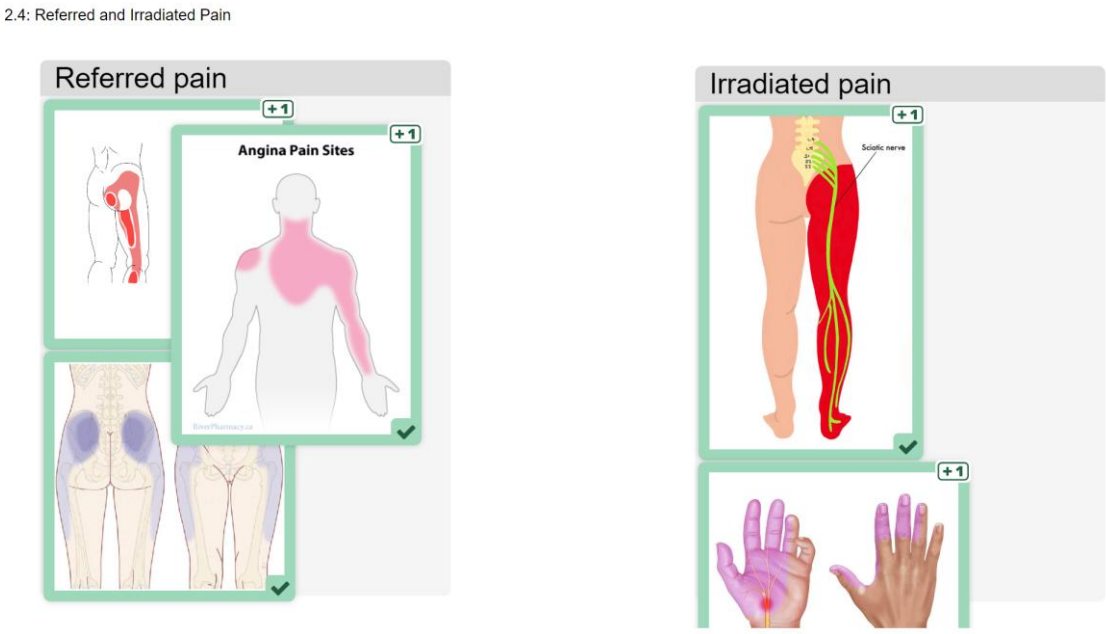
Level: Basic

Activity description: Drag and drop the upcoming images on the correct term.

Activity rationale: This interactive activity engages students in visually associating clinical images with the correct terms for referred and irradiated pain, reinforcing their understanding of the distinctions between these two pain types.

Through the lens of Reflective Practice-based Learning, the drag-and-drop exercise promotes active reflection, helping learners identify patterns, correct misconceptions, and apply theoretical knowledge to practical scenarios. By connecting visual representations with conceptual understanding, students strengthen their analytical skills, enhance diagnostic reasoning, and bridge the gap between theory and clinical practice, fostering a more nuanced and patient-centered approach to pain assessment.

Resource: MOOC



2.3.3. Key points

Level: Advanced

Activity description: Research and discuss the different topics asked.

Activity rationale: This activity engages students in researching and discussing key concepts related to referred and irradiated pain, fostering a deeper understanding of their characteristics, mechanisms, and clinical relevance. Through the lens of Reflective Practice-based Learning (RPL), learners are encouraged to critically reflect on the information they gather, compare perspectives, and integrate theoretical knowledge with practical considerations. By participating in discussion, students actively connect theory and practice, enhancing analytical thinking and clinical reasoning skills. This reflective process

supports the identification of essential points for accurate pain assessment and patient-centered management, bridging the gap between academic learning and real-world clinical application.

Resource: File name 2.3.3 format: .h5p

2.4: Dimensions of pain

2.4.1. Dimensions of pain

Level: Advanced

Activity description: Read extra documents.

Activity rationale: Reading additional documents allows students to explore the multiple dimensions of pain, including sensory, emotional, cognitive, and social aspects, and to differentiate between them. Within the framework of Reflective Practice-based Learning (RPL), this activity encourages learners to critically reflect on how each dimension influences the patient's experience and informs clinical assessment and management. By integrating theoretical knowledge from diverse sources and considering practical implications, students develop analytical skills and the ability to apply a holistic, patient-centered approach in clinical scenarios. This reflective engagement strengthens the connection between theory and practice, promoting informed decision-making and comprehensive pain care.

Resource: File name "2.3.1 and 2.4.1" format: .h5p

UNIT 3: Pain Assessment And Measurement

Learning Outcomes:

By the end of this unit, students will be able to:

1. Recognize psychosocial factors influencing pain.

2. Identify symptoms of chronic pain and risk factors for chronification.
3. Explain central sensitization and related mechanisms.
4. Apply and interpret pain questionnaires and QST tools.
5. Evaluate the multidimensional nature of pain.
6. Use assessment to monitor treatment effectiveness.

TASKS:

3.1: Recognizing Social Factors

3.1.1. Recognizing psychosocial factors

Level: Basic

Activity description: read the text about psychosocial factors affecting pain.

Activity rationale: Reading the text on psychosocial factors allows students to identify and understand the wide range of psychological, social, and cultural influences that can affect a patient's experience of pain. Through the lens of Reflective Practice-based Learning (RPL), this activity encourages learners to critically reflect on how these factors interact with physiological mechanisms and influence assessment, communication, and management strategies in clinical practice. By connecting theoretical knowledge with patient-centered considerations, students develop reflective analytical skills and enhance their ability to provide holistic, evidence-informed care. This reflective engagement bridges the gap between theory and practice, supporting informed clinical decision-making that considers the full complexity of each patient's pain experience.

Resource: MOOC

3.1.2. Quiz: Psychosocial Factors

Level: Basic

Activity description: Complete the Quiz.

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Activity rationale: Completing the quiz allows students to actively engage with and assess their understanding of the different psychosocial factors that can influence a patient's experience of pain. Within the framework of Reflective Practice-based Learning (RPL), this activity encourages learners to reflect on their knowledge, identify gaps, and consolidate key concepts, linking theoretical understanding to practical clinical considerations. By evaluating their comprehension in a structured format, students enhance their ability to recognize psychosocial influences in real patient scenarios, fostering critical thinking and informed clinical decision-making. This reflective process strengthens the integration of theory and practice, promoting holistic and patient-centered care.

Resource: MOOC

1. *What is the importance of pain assessment in clinical management?*
   - ***a. It allows monitoring treatment effectiveness and understanding changes in pain over time***
   - *b. It helps justify opioid prescription*
   - *c. It has no impact on pain management*
2. *What aspect is fundamental to consider in pain assessment besides physical symptoms?*
   - *a. Patient's age*
   - *b. Family History*
   - ***c. Psychosocial factors and comorbidities***
3. *What type of medication may be more beneficial for neuropathic pain?*
   - *a. Paracetamol*
   - *b. Ibuprofen*
   - ***c. Duloxetine (SNRI)***
4. *Which type of pain persists for more than three months and is characterized by centralized pain?*
   - *a. Neuropathic pain*
   - ***b. Chronic pain***
   - *c. Nociceptive pain*
5. *What percentage of patients in primary care present chronic pain?*

a. *10%*
b. *30%*
c. *20%*

6. *What factors can influence pain perception and management according to socioeconomic context?*
   a. *Age*
   b. *Gender*
   c. *Education*
   d. *Access to health care*
7. *What impact does social support have on the pain experience?*
   a. *It has no influence on the pain experience*
   b. *It increases pain intensity*
   c. *It alleviates feelings of loneliness and enhances coping abilities in dealing with pain*
8. *Why is it critical to identify and treat depression in pain management?*
   a. *Because depression improves pain perception*
   b. *Because it can amplify pain perception and impede recovery*
   c. *Because depression does not affect pain perception*
9. *What role do stress and anxiety play in pain perception?*
   a. *increasing pain sensitivity*
   b. *fostering pain management*
   c. *reducing pain sensitivity*
   d. *hindering pain management*
10. *What aspects are part of relevant psychosocial factors in the perception and experience of pain?*

a. *social*
b. *environmental*
c. *emotional*
d. *physical*
e. *economic*
f. *cognitive*

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3.2: Symptoms of Chronic Pain

3.2.1. Symptoms of Chronic Pain

Level: Basic

Activity description: Read the text about symptoms of chronic pain and the transition from acute to chronic pain.

Activity rationale: Reading the text on chronic pain symptoms and the transition from acute to chronic pain allows students to identify and understand the key clinical features and risk factors involved in this progression. Through the lens of Reflective Practice-based Learning (RPL), this activity encourages learners to critically reflect on how these symptoms manifest in patients and how early recognition can guide timely interventions. By connecting theoretical knowledge with practical clinical considerations, students develop analytical skills and enhance their ability to anticipate and manage the transition from acute to chronic pain. This reflective engagement supports informed clinical decision-making and the delivery of patient-centered, evidence-based care.

Resource: MOOC

3.2.2. Quiz: Symptoms

Level: Basic

Activity description: Complete the Quiz.

Activity rationale: Completing the quiz allows students to actively engage with and assess their understanding of the symptoms of chronic pain and the factors that contribute to the transition from acute to chronic pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on their knowledge, identify gaps, and consolidate key concepts, linking theoretical understanding with practical clinical implications. By evaluating their comprehension, students enhance their ability to recognize early warning signs in real patient scenarios, strengthen clinical reasoning, and support informed,

patient-centered decision-making. This reflective process bridges theory and practice, reinforcing holistic and evidence-based approaches to pain management.

Resource: MOOC

1. *What percentage of chronic pain patients experience depression, leading to poorer treatment outcomes compared to either condition alone?*
   a. *Up to 10%*
   b. *Up to 60%*
   c. *Up to 25%*
2. *Which symptom of chronic pain involves dissatisfaction with sleep quantity or quality, along with difficulty initiating, maintaining, or early awakening from sleep?*
   a. *Cognitive impairment*
   b. *Sleep disturbances*
   c. *Emotional distress*
3. *What is the term used to describe an increase in the excitability of neurons in the central nervous system, leading to an increased perception of pain?*
   a. *Hyperalgesic priming*
   b. *Central sensitization*
   c. *Neuroplasticity*
4. *Which approach has shown promise in preventing the transition from acute to chronic pain by addressing psychological factors?*
   a. *Cognitive-behavioral therapy*
   b. *Surgical intervention*
   c. *Pharmacological therapy*
5. *What type of factors play a significant role in the transition from acute to chronic pain?*
   a. *Biological factors*
   b. *Psychological factors*
   c. *Social factors*

6. *Which model proposes that social support mitigates the negative impact of stress on health outcomes?*
   a. *Prognostic model*
   b. ***Stress-buffering model*
   c. *Direct effects model*
7. *What is the term used to describe difficulties with concentration, memory, and decision-making in chronic pain?*
   a. *Emotional distress*
   b. *Functional limitations*
   c. ***Cognitive impairment*
8. *Which factor is associated with a prolonged susceptibility to exaggerated pain behavior after subsequent stimulation?*
   a. ***Latent pain sensitization*
   b. *Sleep disturbances*
   c. *Cognitive impairment*
9. *What is the estimated prevalence of chronic pain in the general population?*

*Answer: **20%***

10. *What is the hallmark symptom of chronic pain?*
    a. ***Persistent or recurrent discomfort*
    b. *Reduced mobility*
    c. *Emotional distress*

3.3: Pain perception and treatment evaluation

3.3.1. Pain perception and evaluation of treatment

Level: Basic

Activity description: Read the text about psychosocial evaluation, pain questionnaire assessment, pain perception assessment, and qualitative and quantitative sensory testing.

Activity rationale: Reading this text allows students to gain a comprehensive understanding of the various methods used to evaluate pain, including psychosocial assessments, pain questionnaires, pain perception measures, and both qualitative and quantitative sensory testing (QST). Through the lens of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how these evaluation tools capture different dimensions of the patient's pain experience and inform clinical decision-making. By integrating theoretical knowledge with practical assessment strategies, students develop analytical and reflective skills, enhancing their ability to select appropriate evaluation methods and interpret results in real clinical scenarios. This reflective process supports evidence-based, patient-centered pain management and strengthens the connection between theory and practice.

Resource: MOOC

3.3.2. Pain assessment

Level: Advanced

Activity description: Read extra documents and resources.

Activity rationale: Reading additional documents and resources allows students to deepen their understanding of psychosocial evaluation, pain questionnaire assessments, and qualitative and quantitative sensory testing (QST). Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the theoretical foundations and practical applications of these assessment tools. By integrating insights from multiple sources, students can compare methods, identify strengths and limitations, and consider how to apply them effectively in clinical practice. This reflective engagement promotes analytical thinking, supports evidence-based decision-making, and enhances the ability to provide comprehensive, patient-centered pain assessment and management.

Resource: File name 3.3.2 format: .h5p

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3.3.3. Quiz: Pain Perception

Level: Basic

Activity description: Complete the Quiz.

Activity rationale: Completing the quiz allows students to actively engage with and consolidate their understanding of pain perception and the evaluation of treatment effects. Through the lens of Reflective Practice-based Learning (RPL), this activity encourages learners to reflect on theoretical concepts, identify knowledge gaps, and apply critical thinking to clinical scenarios. By evaluating their comprehension in a structured format, students strengthen their ability to interpret patient-reported outcomes, assess treatment efficacy, and make informed, evidence-based decisions. This reflective process bridges the gap between theory and practice, fostering analytical skills and supporting patient-centered care in pain management.

Resource: MOOC

1. What are the necessary conditions for pain assessment?
   a. The patient must be diagnosed by a healthcare provider.
   b. The limitation caused by pain must be temporary.
   c. Assessment should be conducted at maximum clinical improvement
2. Which statement best describes the relationship between pain and work?
   a. Pain's relationship with work differs by gender and job type.
   b. Pain does not impact activities of daily living differently based on gender.
   c. Pain intensity is higher among manual workers.
3. What is the primary objective of pain assessment tools like the McGill Pain Questionnaire?
   a. To explore sensory and affective dimensions of pain
   b. To quantify pain intensity
   c. To measure physiological responses to pain
4. Which factor involves an exaggeratedly negative outlook toward pain?

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a. Coping strategies
b. <u>Catastrophizing</u>
c. Pain beliefs

5. What is the main challenge in implementing depression measures like the PHQ-9 clinically?
   a. Cost of administration
   b. Patient compliance
   c. <u>Interpretation of scores</u>
6. Which tool is widely used in Pain Units and assesses various aspects to provide a general idea of the patient's condition?
   a. Brief Pain Inventory (BPI)
   b. Lattinen Test
   c. <u>Pain DETECT</u>
7. Which questionnaire consists of 52 items grouped into 12 scales and evaluates various aspects of pain experience?
   a. <u>West Haven-Yale Multidimensional Pain Inventory (WHYMPI)</u>
   b. McGill Pain Questionnaire (MPQ)
   c. Chronic Pain Coping Questionnaire (CAD)
8. What is the primary objective of the Patient Health Questionnaire 9-item depression scale (PHQ-9)?
   a. Assessing physical health
   b. <u>Evaluating depressive symptoms</u>
   c. Identifying anxiety disorders
9. What is the primary method for identifying depression and tracking its response to treatment?
   a. Laboratory tests
   b. <u>Clinical interviews or self-report scales</u>
   c. Imaging tests
10. Pain perception is influenced by:
    a. Biological factors
    b. <u>Psychological factors</u>
    c. Social factors

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UNIT 4: Health and Psychosocial Models

Learning Outcomes:

By the end of this unit, students will be able to:

1. Understand the components of the biopsychosocial model and its application in pain management.
2. Recognize the influence of biological, psychological, and social factors on pain perception and treatment outcomes.
3. Analyze clinical cases applying a biopsychosocial perspective.
4. Identify psychosocial mechanisms of interventions in nursing, midwifery, physiotherapy, and occupational therapy.
5. Develop practical examples of interventions addressing psychosocial aspects of pain.
6. Define and explain the concept of self-efficacy in the context of pain.
7. Reflect on and create examples of self-efficacy strategies that empower patients in managing their condition.

TASKS:

4.1: Biopsychosocial Model

4.1.1. The Biopsychosocial model

Level: Basic

Activity description: reading and understanding the text.

Activity rationale: Reading and understanding the text allows students to explore the different components of the Biopsychosocial model and how they interact to influence a patient's experience of pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the interplay between biological, psychological, and social factors, considering their impact on assessment, communication, and management

strategies in clinical practice. By integrating theoretical knowledge with practical implications, students develop analytical and reflective skills, enhancing their ability to provide holistic, patient-centered care. This reflective engagement strengthens the connection between theory and practice, supporting informed clinical decision-making and comprehensive pain management.

Resource: MOOC

4.1.2. Read the following papers

Level: Basic

Activity description: reading and understanding the articles.

Activity rationale: Reading and analyzing the articles enables students to deepen their understanding of the Biopsychosocial model and its components, examining how biological, psychological, and social factors interact to shape a patient's pain experience. Through the lens of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how each dimension influences assessment, communication, and management strategies in clinical practice. By integrating insights from multiple sources, students enhance their analytical and reflective skills, bridging theory and practice, and fostering informed, patient-centered approaches to pain management.

Resource: MOOC

4.1.3. Quiz: Clinical Case

Level: Basic

Activity description: reading and understanding the articles.

Activity rationale: Engaging with the articles allows students to critically explore the Biopsychosocial model, identifying its biological, psychological, and social components and understanding how they interact to influence a patient's pain experience. Through the framework of Reflective Practice-based Learning (RPL), this activity promotes reflective thinking by encouraging learners to connect

theoretical concepts with clinical implications, considering how this model can guide assessment, treatment planning, and patient-centered care. By analyzing multiple perspectives and evidence-based insights, students strengthen their analytical skills, integrate theory with practice, and enhance their capacity for informed, holistic decision-making in pain management.

Resource: MOOC

1. *What component of the biopsychosocial model does Sarah's fear of movement (kinesiophobia) best represent?*
   - ***a. Psychological***
   - *b. Social*
   - *c. Biological*
2. *Despite imaging showing only mild disc degeneration, Sarah experiences significant pain. This supports the idea that:*
   - *a. Structural damage always correlates with pain intensity*
   - ***b. Pain perception is influenced by multiple factors beyond tissue damage***
   - *c. Imaging alone is sufficient to assess pain*
3. *Sarah's anxiety about her financial situation relates to which domain of the biopsychosocial model?*
   - ***a. Social***
   - *b. Psychological*
   - *c. Biological*
4. *Which of the following strategies would best align with a biopsychosocial approach to Sarah's treatment?*
   - *a. Recommending bed rest until pain subsides*
   - *b. Focusing only on pharmacological treatment*
   - ***c. Combining education, graded exercise, and cognitive behavioral therapy***
5. *A friend tells Sarah her pain is "just in her head." From a clinical perspective, the best response is to:*

a. ***Explain that pain is real and can be influenced by the brain, emotions, and environment***
b. *Agree that chronic pain is purely psychological*
c. *Dismiss Sarah's concerns to avoid reinforcing the pain*

4.2: Pain-related mechanisms of interventions (psychosocial)

4.2.1. Pain-related mechanisms of interventions

Level: Advanced

Activity description: reading and understanding studies.

Activity rationale: Engaging with these studies allows students to gain in-depth knowledge of strategies and techniques used across nursing, midwifery, physiotherapy, and occupational therapy. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how these interventions are applied in clinical practice, how they complement each other, and how they impact patient outcomes. By analyzing evidence from multiple disciplines, students develop reflective and analytical skills, fostering the ability to integrate theory with practice. This reflective process supports informed, patient-centered decision-making and promotes the development of interdisciplinary approaches to pain management and holistic care.

Resource: File name "4.2.1 and 4.3.1" format: .h5p

4.2.2. Creating examples

Level: Advanced

Activity description: Reflect, research and create examples for you to share with the whole group.

Activity rationale: This activity encourages students to actively reflect on and research practical techniques used in nursing, midwifery, physiotherapy, and occupational therapy, and to generate concrete examples for peer learning.

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Within the framework of Reflective Practice-based Learning, learners are prompted to critically analyze the relevance, effectiveness, and application of each technique in real clinical scenarios. By creating and sharing examples, students integrate theory with practice, enhance collaborative learning, and build a repository of practical knowledge organized by discipline. This reflective engagement strengthens analytical skills, supports evidence-based decision-making, and fosters interdisciplinary understanding and patient-centered care.

Resource: File name 4.2.2 format: .h5p

4.3: Self-efficacy

4.3.1. Self-efficacy definition

Level: Advanced

Activity description: reading and understanding studies.

Activity rationale: Reading and analyzing studies allows students to understand the concept of Self-Efficacy, including its theoretical foundations and practical implications in clinical practice. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how self-efficacy influences patient behaviors, adherence to treatment, and overall outcomes. By connecting theory with clinical application, students develop reflective and analytical skills, enabling them to recognize, assess, and support self-efficacy in patients. This reflective engagement strengthens the integration of theoretical knowledge with practice, promoting informed, patient-centered care.

Resource: File name “4.2.1 and 4.3.1” format: .h5p

4.3.2. Reflecting on self-efficacy

Level: Advanced

Activity description: Reflect, research and create your own definition and 2 examples of self-efficacy.

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Activity rationale: This activity encourages students to actively reflect on the concept of self-efficacy, research its theoretical underpinnings, and create personalized definitions and practical examples. Within the framework of Reflective Practice-based Learning, learners are prompted to integrate theoretical knowledge with real-life application, enhancing their understanding of how self-efficacy influences motivation, behavior, and patient outcomes. By articulating the concept in their own words and generating examples, students develop critical thinking and reflective skills, solidifying their ability to explain and apply self-efficacy in clinical practice. This process strengthens the connection between theory and practice, supporting informed, patient-centered care.

Resource: File name 4.3.2 format: .h5p

UNIT 5: Management of Pain

Learning Outcomes:

By the end of this unit, students will be able to:

1. Understand self-management strategies and their effects.
2. Identify barriers and facilitators for self-management.
3. Recognize exercise therapy as a core treatment for pain.
4. Apply principles of exercise prescription and adherence.
5. Explain behavioral influences and coping strategies in pain.
6. Identify risk factors and preventive strategies for chronic pain.
7. Relate active lifestyle habits to improved pain outcomes.
8. Integrate knowledge from different approaches into a holistic management view.

TASKS:

5.1: Self-Management

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5.1.1 Summary: Self-management

Level: Basic

Activity description: read the paragraph with terms about self-management strategies.

Activity rationale: Reading the paragraph allows students to understand the key components of self-management strategies and their impact on patients experiencing pain. Through the lens of Reflective Practice-based Learning, this activity encourages learners to reflect on how self-management empowers patients, influences coping mechanisms, and supports adherence to treatment plans. By connecting theoretical concepts with practical implications, students develop analytical and reflective skills, enhancing their ability to evaluate, guide, and implement patient-centered self-management approaches in clinical practice. This reflective engagement bridges theory and practice, fostering informed decision-making and holistic care.

Resource: MOOC

5.1.2 Read the following paper

Level: Basic

Activity description: read the paper about self-management strategies.

Activity rationale: Reading the paper allows students to gain a deeper understanding of self-management strategies and their impact on patients with pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how these strategies empower patients, enhance coping skills, and support adherence to treatment plans. By connecting theoretical knowledge with practical clinical implications, students develop reflective and analytical skills, fostering the ability to guide, evaluate, and implement patient-centered self-management approaches effectively. This reflective process strengthens the integration of theory and practice, promoting holistic, evidence-based care.

Resource: MOOC

5.1.3 Recommended reading

Level: Basic

Activity description: read the papers about self-management strategies.

Activity rationale: Reading these papers provides optional, in-depth material for students who wish to deepen their understanding of self-management strategies and their effects on patients with pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how these strategies empower patients, influence coping mechanisms, and support adherence to treatment plans. By engaging with additional evidence and perspectives, students can enhance their analytical and reflective skills, further bridging the gap between theory and practice. This reflective engagement supports informed, patient-centered care and strengthens the ability to apply self-management approaches in clinical contexts.

Resource: MOOC

5.1.4 Quiz: Self-Management

Level: Basic

Activity description: complete the quiz.

Activity rationale: Completing the quiz allows students to actively engage with and assess their understanding of self-management strategies and their effects on patients with pain. Through the lens of Reflective Practice-based Learning (RPL), this activity encourages learners to reflect on theoretical concepts, identify knowledge gaps, and apply critical thinking to clinical scenarios. By evaluating their comprehension, students strengthen their ability to recognize the relevance and impact of self-management approaches, enhance analytical skills, and bridge the gap between theory and practice. This reflective process supports

informed, patient-centered decision-making and promotes holistic, evidence-based pain care.

Resource: MOOC

1. *Match term and description*

Acceptance and commitment therapy: ***An intervention for changing behaviours that are motivated by fear of pain***

Stanford Model: ***A self-management intervention that provides knowledge and skills for managing pain and its physical, emotional and social consequences.***

Cognitive behavioural therapy: ***An intervention for identifying the relationship between their thoughts, emotions and behaviours and encourage positive behaviours.***

2. *What is a facilitator in self-management intervention?*
   - ***a. Having a variety of self-management strategies to use***
   - *b. Difficult patient–physician interactions*
   - *c. Limited physical resources*
3. *What is a barrier in self-management intervention?*
   - *a. Difficult patient–physician interactions*
   - *b. Limited physical resources*
   - ***c. Time limitations and competing life priorities***
   - ***d. Lack of support from family and friends***
4. *What are the most relevant aspects of self-management?*
   - *a. Improving quality of life*
   - ***b. Improving physical, social and emotional management***
   - *c. Improving pain related outcomes*
5. *Which tool can predict better outcomes?*
   - *a. Pain Stages of Change Questionnaire*
   - ***b. Pain Catastrophizing Scale***
   - *c. Tampa Scale of Kinesiophobia*
6. *What type of self-management strategy provides better results?*

a. *Pain education strategies*
b. ***Active strategies***
c. *Passive strategies*

7. *Who delivers these interventions?*
   a. *A physical therapist*
   b. ***A multidisciplinary team***
   c. *A doctor*
8. *How can self-management interventions be described?*
   a. *Skills for getting rid of pain*
   b. ***Skills to improve self-efficacy***
   c. *An education program for better understanding of pain*

5.2: Physical Exercise Therapy

5.2.1. Summary: Physical Exercise Therapy

Level: Basic

Activity description: Read the summary paragraph about physical exercise therapy.

Activity rationale: Reading the summary paragraph allows students to understand the key principles and benefits of physical exercise therapy in patients experiencing pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how exercise interventions influence pain perception, functional capacity, and overall patient well-being. By connecting theoretical knowledge with practical implications, students develop reflective and analytical skills, enhancing their ability to evaluate and implement exercise-based interventions in clinical practice. This reflective engagement bridges the gap between theory and practice, promoting informed, patient-centered care and evidence-based management of pain.

Resource: MOOC

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5.2.2. Read the following papers

Level: Basic

Activity description: Read the paper about physical exercise therapy.

Activity rationale: Reading the paper allows students to gain a deeper understanding of physical exercise therapy, including its mechanisms, applications, and effects on patients with pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how exercise interventions contribute to pain reduction, functional improvement, and overall patient well-being. By connecting theoretical knowledge with practical clinical examples, students enhance their analytical and reflective skills, strengthening their ability to implement evidence-based exercise strategies in patient-centered care. This reflective engagement bridges theory and practice, supporting informed decision-making and holistic pain management.

Resource: MOOC

5.2.3. Recommended reading

Level: Basic

Activity description: Read the papers about self-management strategies.

Activity rationale: Reading these papers provides optional, in-depth material for students seeking a deeper understanding of self-management strategies and their effects on patients with pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how these strategies empower patients, enhance coping skills, and support adherence to treatment plans. Engaging with additional evidence helps students strengthen analytical and reflective skills, compare different approaches, and better integrate theoretical knowledge with practical application. This reflective process bridges theory and practice, promoting informed, patient-centered care and the effective implementation of self-management approaches in clinical contexts.

Resource: MOOC

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5.2.4. Quiz: Physical Exercise Therapy

Level: Basic

Activity description: complete the quiz.

Activity rationale: Completing the quiz allows students to actively assess and consolidate their understanding of the approach, including its principles and effects on patients experiencing pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on their knowledge, identify gaps, and apply theoretical concepts to practical clinical scenarios. By engaging in this reflective assessment, students strengthen their analytical skills, enhance their ability to recognize the relevance and impact of the approach, and bridge the gap between theory and practice. This process supports informed, patient-centered decision-making and promotes holistic, evidence-based pain management.

Resource: MOOC

1. *Match term and the correct definition*

*Physical activity****: Any body movement that requires energy expenditure including any type of activity***

*Exercise: **A planned, structured and repetitive activity that aims to improve or maintain physical fitness***

2. *Can exercise be included as a self-management intervention?*

False

3. *Is exercise beneficial for treating chronic pain?*

True

4. *What is the main benefit of physical activity over pharmacological treatments?*
   a. *It has no benefits over pharmacological treatments*

   b. ***Fewer associated side effects***
   c. *Pharmacological treatment are safe and have adverse effects*
5. *Why should exercise be one of the main treatments for chronic pain?*
   a. *It is a positive treatment bus should be part of a multimodal intervention*
   b. *It is an active therapy but patients might get injured*
   c. ***It is an active therapy that has good results on pain and avoids sedentary behaviours***
6. *Which is the optimum exercise dose for patients with pain?*
   a. *Exercise will have good results always and is no dose dependant*
   b. *The best combination of exercise is strength and resistance training, obtaining better results after 30 minutes*
   c. ***Exercise should be tailored and prescribed individually for each patient***
7. *Which parameters should be taken into consideration when prescribing exercise?*
   a. ***Intensity***
   b. *Progression*
   c. ***Time***
   d. ***Frequency***
   e. *Volume*
   f. ***Type***
8. *Which is the main problem of exercise as a treatment?*
   a. *Motivation*
   b. *Difficulty of the exercise*
   c. ***Adherence***
9. *What is the size effect of exercise?*
   a. ***Small-moderate***
   b. *Large*
   c. *Small*

5.3: Behavioural Influence on Pain

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5.3.1. Summary: Behavioural influence on pain

Level: Basic

Activity description: Read the summary paragraph about Behavioral influence on pain.

Activity rationale: Reading the summary paragraph allows students to understand how behavioral factors can influence the perception and management of pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the mechanisms through which behaviors, habits, and coping strategies affect patient outcomes. By connecting theoretical knowledge with practical implications, students develop analytical and reflective skills, enhancing their ability to recognize, assess, and incorporate behavioral considerations into patient-centered pain management. This reflective engagement bridges theory and practice, supporting informed, holistic, and evidence-based clinical decision-making.

Resource: MOOC

5.3.2. Read the following papers

Level: Basic

Activity description: Read the paper about Behavioral influence on pain.

Activity rationale: Reading the paper provides students with a deeper understanding of how behavioral factors impact the perception, experience, and management of pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the interplay between behavior and pain outcomes, considering how habits, coping strategies, and psychological responses influence patient care. By linking theoretical knowledge with practical clinical examples, students enhance their analytical and reflective skills, improving their ability to apply behavioral insights in patient-centered pain management. This reflective engagement strengthens the connection between theory and practice, supporting holistic, evidence-based decision-making.

Resource: MOOC

5.3.3. Recommended reading

Level: Basic

Activity description: Read the papers about behavioral influence on pain.

Activity rationale: Reading these papers provides optional, in-depth material for students who wish to deepen their understanding of how behavioral factors influence pain perception and management. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the role of behaviors, coping strategies, and psychological responses in shaping patient outcomes. Engaging with additional evidence helps students enhance their analytical and reflective skills, compare different perspectives, and better integrate theoretical knowledge with practical application. This reflective engagement bridges theory and practice, promoting informed, patient-centered, and evidence-based approaches to pain care.

Resource: MOOC

5.3.4. Quiz: Behavioural Influence on Pain

Level: Basic

Activity description: complete the quiz.

Activity rationale: Completing the quiz allows students to actively assess and consolidate their understanding of behavioral influences on pain and their impact on patient outcomes. Within the framework of Reflective Practice-based Learning (RPL), this activity encourages learners to reflect on theoretical concepts, identify gaps in knowledge, and apply critical thinking to clinical scenarios. By evaluating their comprehension, students strengthen their analytical and reflective skills, enhancing their ability to integrate behavioral considerations into patient-centered pain management. This reflective engagement bridges theory and practice, supporting informed, holistic, and evidence-based clinical decision-making.

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Resource: MOOC

1. *Which one is a psychological outcome?*
   a. *Disability*
   b. *Negative emotions*
   c. *Financial hardship*
2. *How can pain catastrophising scale be divided into?*
   a. *Helpless feelings of pain*
   b. *fear avoidance feelings of pain*
   c. *fear of movement feelings of pain*
   d. *Ruminate feelings of pain*
   e. *Magnify feelings of pain*
3. *Which is a maladaptive coping strategy?*
   a. *Exercise*
   b. *Withdrawal*
   c. *Active distraction*
4. *What psychosocial factor is moderating effect on treatment efficacy?*
   a. *Isolation*
   b. *Fear-avoidance*
   c. *Depression*
5. *What is pain influence on families?*
   a. *Adolescents and young adults will have higher risk of developing chronic pain if their parents have chronic pain*
   b. *Adolescents and young adults are not influenced by their parents*
   c. *Adolescents and young adults will have a lower risk of developing chronic pain if their parents have chronic pain*
6. *What is kinesiophobia?*
   a. *Movement avoidance*
   b. *Fear of movement*
   c. *Magnification of pain*
7. *How can social experiences affect pain? They can worsen...*
   a. *Distress*

   b. ***Disability***
   c. ***Pain***

8. *How would facilitators help the treatment?*
   a. *They would help to understand how chronic pain is produced*
   b. *They would not help*
   c. ***They would provide better adherence to treatment***
9. *What do patients with pain expect for recovery?*
   a. *Doing their favourite activities again*
   b. *Reduce pain*
   c. ***Reduce pain and improve quality of life***
10. *What do social outcomes mean for patients with pain?*
   a. ***They are extremely important***
   b. *They are important*
   c. *They are not important*

5.4: Prevention of Chronic Pain

5.4.1. Summary: Prevention of chronic pain

Level: Basic

Activity description: Read the summary paragraph about the prevention of chronic pain.

Activity rationale: Reading the summary paragraph allows students to understand the key strategies and principles involved in the prevention of chronic pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how early interventions, lifestyle modifications, and therapeutic approaches can influence pain trajectories and patient outcomes. By connecting theoretical knowledge with practical implications, students develop analytical and reflective skills, enhancing their ability to implement evidence-based preventive strategies in clinical practice. This reflective engagement bridges theory and practice, supporting informed, patient-centered care and promoting long-term health outcomes.

Resource: MOOC

5.4.2. Read the following papers

Level: Basic

Activity description: Read the paper about the prevention of chronic pain.

Activity rationale: Reading the paper allows students to gain a deeper understanding of evidence-based strategies for preventing chronic pain and their impact on patient outcomes. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how early interventions, behavioral modifications, and clinical approaches can mitigate the transition from acute to chronic pain. By integrating theoretical knowledge with practical examples, students develop reflective and analytical skills, enhancing their ability to plan and implement preventive strategies in patient-centered care. This reflective engagement strengthens the connection between theory and practice, promoting informed, holistic, and evidence-based clinical decision-making.

Resource: MOOC

5.4.3. Recommended reading

Level: Basic

Activity description: Read the papers about the prevention of chronic pain.

Activity rationale: Reading these papers provides optional, in-depth material for students who wish to deepen their understanding of strategies to prevent chronic pain and their effects on patients. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how preventive interventions, early identification of risk factors, and behavioral strategies can influence patient outcomes. Engaging with additional evidence allows students to enhance analytical and reflective skills, compare different approaches, and better integrate theory with clinical practice. This reflective

engagement bridges theory and practice, supporting informed, patient-centered, and evidence-based pain prevention strategies.

Resource: MOOC

5.4.4. Quiz: Prevention of chronic pain

Level: Basic

Activity description: complete the quiz.

Activity rationale: Completing the quiz allows students to actively assess and consolidate their understanding of strategies for the prevention of chronic pain and their impact on patients. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on theoretical concepts, identify knowledge gaps, and apply critical thinking to clinical scenarios. By evaluating their comprehension, students strengthen their analytical and reflective skills, enhance their ability to integrate preventive strategies into patient-centered care, and bridge the gap between theory and practice. This reflective engagement supports informed, holistic, and evidence-based clinical decision-making.

Resource: MOOC

1. *How chronic pain could be prevented?*
   a. *Chronic pain cannot be prevented*
   b. ***Health education in pain-free population, acute multidisciplinary intervention in acute pain patients***
   c. *Acute pharmacological intervention*
2. *Have socioeconomic problems relation with chronic pain?*

True

3. *How can employment affect pain?*
   a. ***Both are correct***

   b. *Patients not able to work because of disability or illness are more likely to report chronic pain*
   c. *Fear of re-injury may affect the persistence of pain*
4. *Can sleep prevent chronic pain?*

True

5. *How do these factors affect pain?*

Physical Activity: ***Improving pain symptoms***

Obesity: ***Increased pain incidence and higher pain prevalence***

6. *How can multimorbidity be related with chronic pain?*
   a. *Patients witch chronic disease might experience pain but they are isolated problems*
   b. *Diseases have no relation with other diseases*
   c. ***Chronic pain prevalence is higher in patients with chronic disease***
7. *What acute pain characteristics are more likely to develop chronic pain?*
   a. ***number of pain sites***
   b. ***pain intensity***
   c. *pain location*
8. *Which one is a modifiable factor associated with chronic pain?*
   a. *Age*
   b. *Heritable factors*
   c. ***Physical activity***
9. *Which one is a non-modifiable factor associated with chronic pain?*
   a. *Physical activity*
   b. ***Sex***
   c. *Education*
   d. ***Socioeconomic background***

5.5: Active Lifestyle

5.5.1. Summary: Active lifestyle

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Level: Basic

Activity description: Read the summary paragraph about Active lifestyle.

Activity rationale: Reading the summary paragraph allows students to understand the principles and benefits of maintaining an active lifestyle for patients experiencing pain. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on how physical activity, movement habits, and lifestyle choices influence pain perception, functional capacity, and overall well-being. By connecting theoretical knowledge with practical implications, students develop analytical and reflective skills, enhancing their ability to guide, support, and implement patient-centered strategies that promote active living. This reflective engagement bridges theory and practice, supporting informed, holistic, and evidence-based pain management.

Resource: MOOC

5.5.2. Read the following papers

Level: Basic

Activity description: Read the paper about Active lifestyle.

Activity rationale: Reading the paper allows students to gain a deeper understanding of how an active lifestyle influences pain management, functional capacity, and overall patient well-being. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the theoretical foundations and practical applications of promoting activity in patients with pain. By integrating evidence from the paper with clinical considerations, students enhance their analytical and reflective skills, strengthening their ability to guide and implement patient-centered strategies. This reflective engagement bridges theory and practice, supporting informed, holistic, and evidence-based approaches to pain care.

Resource: MOOC

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5.5.3. Recommended reading

Level: Basic

Activity description: Read the papers about Active lifestyle.

Activity rationale: Reading these papers provides optional, in-depth material for students who wish to deepen their understanding of how an active lifestyle affects pain management and patient outcomes. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the theoretical foundations, practical applications, and potential benefits of promoting physical activity in patients with pain. Engaging with additional evidence enhances analytical and reflective skills, allows comparison of different approaches, and supports integration of theory with practice. This reflective engagement fosters informed, patient-centered, and evidence-based pain management strategies.

Resource: MOOC

5.5.4. Quiz: Active Lifestyle

Level: Basic

Activity description: complete the quiz.

Activity rationale: Completing the quiz allows students to actively assess and consolidate their understanding of the role of an active lifestyle in pain management and its effects on patients. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on theoretical concepts, identify gaps in knowledge, and apply critical thinking to clinical scenarios. By evaluating their comprehension, students strengthen their analytical and reflective skills, enhance their ability to integrate activity-based strategies into patient-centered care, and bridge the gap between theory and practice. This reflective engagement supports informed, holistic, and evidence-based clinical decision-making.

Resource: MOOC

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1. Can lifestyle modifications impact musculoskeletal pain?

True

2. What's the relationship between physical inactivity and pain?
   a. Doing physical activity will increase pain intensity
   b. Physical activity is related with poorer pain related outcomes
   c. <u>Insufficient physical activity increases the risk of noncommunicable diseases, including chronic pain</u>
3. How could I track my fitness progress?
   a. <u>wearable devices</u>
   b. sleep measuring
   c. <u>mobile apps</u>
   d. **<u>smoking measurement</u>**
   e. workout journal
4. How could sedentary time be reduced?
   a. <u>gym</u>
   b. <u>movement snacks</u>
   c. <u>walking</u>
   d. <u>housework</u>
   e. <u>sports</u>
5. Could exercise reduce the economic costs of pain?

True

6. How can exercise improve pain outcomes?
   a. <u>analgesic effects</u>
   b. <u>improvements on disability</u>
   c. <u>improvements on quality of life</u>
   d. not at all
7. What is the recommended amount of weekly physical activity?
   a. 50 minutes
   b. <u>150 minutes</u>
   c. 10 minutes

8. Which of these pathologies is sedentarism associated with?
   a. **Type II diabetes**
   b. **Cardiovascular disease**
   c. Osteoarthritis
   d. Type I diabetes
9. How does obesity affect lifestyle?
   a. **Poorer functionality**
   b. Poorer social engagement
   c. Poorer time management
   d. **Poorer quality of life**

5.6: Debriefing

5.6.1. Pain Debriefing

Level: Basic

Activity description: Watch the debriefing video.

Activity rationale: Watching the debriefing video allows students to review and consolidate the key concepts covered throughout Sections 1–5, reinforcing their understanding of pain mechanisms, assessment, management strategies, and interventions. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on the connections between theory and practice, identify any gaps in their knowledge, and integrate insights from multiple learning activities. By engaging with a comprehensive summary, students enhance their analytical and reflective skills, solidifying their ability to apply learned concepts in clinical scenarios and supporting informed, patient-centered decision-making.

Resource: MOOC

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UNIT 6: Pain and Technologies

Learning Outcomes:

By the end of this unit, students will be able to:

1. Understand concepts of validity and reliability in health technology.
2. Recognize ethical issues in the use of big data in healthcare.
3. Identify principles of security and privacy in digital health data.
4. Gain general knowledge of technological applications in healthcare.

TASKS:

6.1: Pain And Technologies Overview

6.1.1. Pain And Technologies Overview

Level: Basic

Activity description: Watch the video.

Activity rationale: Watching the video introduces students to the key topics and learning objectives that will be covered in Unit 6. Within the framework of Reflective Practice-based Learning, this activity encourages learners to begin forming connections between prior knowledge and upcoming content, promoting anticipatory reflection. By engaging with the video, students can prepare mentally for new concepts, identify areas of curiosity or uncertainty, and develop a foundation for active learning and critical thinking in subsequent activities. This reflective engagement supports the integration of theory and practice, enhancing the effectiveness of learning throughout Unit 6.

Resource: MOOC

6.2: Validity and Reliability

6.2.1. Validity and Reliability

Level: Basic

Activity description: read the paragraph with terms about measurement validity and reliability.

Activity rationale: Reading the paragraph allows students to understand the fundamental concepts of validity and reliability in measurement, which are essential for interpreting research and clinical assessment tools. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on how these concepts affect the accuracy and consistency of data used in practice. By connecting theoretical definitions with practical examples, students develop analytical and reflective skills, enhancing their ability to critically evaluate assessment methods and make informed, evidence-based decisions in clinical scenarios. This reflective engagement strengthens the link between theory and practice, supporting rigorous and patient-centered care.

Resource: MOOC

6.2.2. Read the following paper

Level: Basic

Activity description: Read the paper COSMIN taxonomy of Measurement Properties.

Activity rationale: Reading this paper allows students to gain an in-depth understanding of the COSMIN framework, including the concepts of validity and reliability in measurement instruments. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how these properties ensure the accuracy, consistency, and applicability of assessment tools in clinical practice. By connecting theoretical knowledge with practical implications, students develop analytical and reflective skills, enhancing their ability to evaluate measurement instruments and make informed, evidence-based decisions. This reflective engagement strengthens the integration of theory and practice, supporting rigorous and patient-centered care.

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Resource: MOOC

6.3: A constructive critical approach to the use of technology

6.3.1. A constructive critical approach to the use of technology

Level: Basic

Activity description: Read the paragraph about the critical approach to the use of technology.

Activity rationale: Reading the paragraph allows students to understand the ethical considerations surrounding the use of technology and big data in health sciences. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the implications of data collection, storage, and analysis for patient privacy, consent, and equity. By integrating theoretical knowledge with practical ethical scenarios, students develop analytical and reflective skills, enhancing their ability to make informed, responsible decisions regarding technology use in clinical and research settings. This reflective engagement strengthens the connection between theory and practice, supporting ethical, patient-centered, and evidence-based care.

Resource: MOOC

6.3.2. Read the following paper

Level: Basic

Activity description: Read the paper COSMIN taxonomy of Measurement Properties.

Activity rationale: Reading the COSMIN paper allows students to gain an in-depth understanding of measurement properties, including validity, reliability, and responsiveness, which are critical for selecting and evaluating health assessment instruments. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how accurate and reliable

measurement tools impact research quality and clinical decision-making. By connecting theoretical knowledge with practical application, students develop analytical and reflective skills, enhancing their ability to choose appropriate instruments and interpret data responsibly. This reflective engagement strengthens the integration of theory and practice, supporting evidence-based and patient-centered care.

Resource: MOOC

6.4: Security and Privacy

6.4.1. Security and Privacy

Level: Basic

Activity description: Read the paragraph about Security and Privacy.

Activity rationale: Reading the paragraph allows students to understand the principles of security and privacy in managing digital healthcare data. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the ethical, legal, and practical implications of protecting patient information in digital systems. By connecting theoretical concepts with real-world applications, students develop analytical and reflective skills, enhancing their ability to implement secure and privacy-compliant practices in clinical and research settings. This reflective engagement bridges theory and practice, supporting responsible, patient-centered, and evidence-based management of healthcare data.

Resource: MOOC

6.4.2. Read the following paper

Level: Basic

Activity description: Read the paper.

Activity rationale: Reading the paper allows students to gain a comprehensive understanding of security and privacy principles in the management of digital healthcare data. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on the ethical, legal, and practical considerations involved in protecting patient information. By integrating theoretical knowledge with practical examples, students develop analytical and reflective skills, enhancing their ability to implement secure, privacy-compliant practices in clinical and research settings. This reflective engagement bridges theory and practice, supporting responsible, patient-centered, and evidence-based digital healthcare management.

Resource: MOOC

6.5: Further considerations

6.5.1. Further considerations

Level: Basic

Activity description: Watch the video How can we make technology work for us in healthcare?

Activity rationale: Watching the video allows students to explore the practical applications and potential of technology in healthcare settings. Within the framework of Reflective Practice-based Learning, this activity encourages learners to critically reflect on how technological tools can improve patient care, enhance efficiency, and support evidence-based decision-making. By connecting theoretical concepts with real-world examples, students develop analytical and reflective skills, strengthening their ability to evaluate, implement, and optimize technological solutions in clinical practice. This reflective engagement bridges theory and practice, promoting informed, patient-centered, and innovative healthcare approaches.

Resource: MOOC

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6.5.2. Quiz: Considerations with Technology in Healthcare

Level: Basic

Activity description: complete the quiz.

Activity rationale: Completing the quiz allows students to actively assess and consolidate their understanding of technology in healthcare. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on key concepts, identify gaps in their knowledge, and apply critical thinking to practical scenarios. By evaluating their comprehension, students strengthen their analytical and reflective skills, enhance their ability to integrate technological considerations into clinical practice, and bridge the gap between theory and practice. This reflective engagement supports informed, patient-centered, and evidence-based decision-making in healthcare.

Resource: MOOC

1. *What is the main purpose of health information systems (HIS)?*
   a. *To automate clinical tasks.*
   b. *To securely manage, store and share medical information.*
   c. *To facilitate communication between patients*
   d. *To reduce hospital costs.*
2. *What is the biggest challenge related to the implementation of blockchain in HIS?*
   a. *The high cost of the technology.*
   b. *Difficulty in obtaining medical records.*
   c. *Lack of data security.*
   d. *Scalability and real-time data management.*
3. *A weakness of mobile health applications (mHealth) is:*
   a. *Difficulty in accessing data in the cloud.*
   b. *High maintenance costs.*
   c. *Lack of connectivity in rural areas.*
   d. *Lack of adequate data backup mechanisms.*

4. *Which technology in HIS uses encryption and authentication to protect data during transmission and storage?*
   a. *Mails*
   b. ***Cloud computing*
   c. ***Blockchain*
   d. *HTML*
   e. ***IoT (Internet of Things)*
5. *What is one of the main benefits of cloud computing in healthcare systems?*
   a. *Complexity in implementation and regulation.*
   b. ***Better data access and recovery in case of disasters.*
   c. *Less scalability and limited backup.*
6. *Which of the following is a method used to improve the security of medical data in IoT?*
   a. ***Mutual authentication*
   b. ***Encryption***
   c. *Smart contracts*
   d. ***Role-based access*
7. *Which technology mentioned helps interoperability and exchange of medical records between different entities?*
   a. ***Blockchain*
   b. *Mobile health applications*
   c. *IoT*
   d. *Cloud computing*
8. *Which type of validity refers to the ability to generalise the results of a study to the target population?*
   a. *Internal*
   b. *Content*
   c. ***External*
   d. *Criterion*
9. *Which method is used to assess the consistency of results when a test is repeated over time?*
   a. *Criterion-referenced validity*

b. Test-retest

c. Alternative forms

d. Internal consistency

10. *Which type of reliability measures whether different observers or tools produce consistent results?*

a. Construct validity

b. Internal consistency

c. Stability

d. Equivalence

6.6: Pain And Technologies Debriefing

6.6.1. Pain And Technologies Debriefing

Level: Basic

Activity description: Watch the debriefing video.

Activity rationale: Watching the debriefing video allows students to review and consolidate the key concepts covered in Unit 6. Within the framework of Reflective Practice-based Learning, this activity encourages learners to reflect on the connections between the topics explored, identify any remaining gaps in understanding, and integrate insights from multiple learning activities. By engaging with a comprehensive summary, students enhance their analytical and reflective skills, strengthen their ability to apply learned concepts in clinical scenarios, and bridge theory with practice. This reflective engagement supports informed, patient-centered, and evidence-based decision-making.

Resource: MOOC