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EDUCATIONAL MATERIAL
OF DIGI4MSK – VOLUME 3

3. Assessing patients' readiness for self-management: Motivation

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Synopsis

Digi4MSK is an Erasmus+ project that develops learning resources to improve how professionals communicate about musculoskeletal health and implement evidence-based self-management. This resource synthesizes high-quality research into concise, actionable guidance for everyday practice. Each volume offers structured summaries, tools, and examples to support shared decision-making, health literacy–sensitive communication, and safe, person-centred care across musculoskeletal conditions.

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The first four volumes include: the requirements for the implementation of self-management, general principles of self-management, excluding serious pathology in musculoskeletal pain, and assessment of a patient´s readiness in terms of motivation and health literacy.

Volume 3 — Assessing patients' readiness for self-management: Motivation

This volume offers practical frameworks to assess and enhance motivation for musculoskeletal self-management. It translates concepts from behaviour change theory (e.g., stages of change, COM B/Behaviour Change Wheel, motivational interviewing) into concrete techniques and examples. Clinicians gain tools to tailor interventions to motivational readiness and sustain engagement over time.

Keywords: motivation, behaviour change, COM B, Behaviour Change Wheel, motivational interviewing, stages of change.

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3. Assessing patients´ readiness for self-management: Motivation

3.1 Overview

Supporting people to live well with musculoskeletal (MSK) pain often requires helping them make small but meaningful changes in daily habits, beliefs, and routines. These changes are rarely simple. They are influenced by a person's knowledge, confidence, social environment, and physical ability. Understanding what drives someone's behaviour – and what might be holding them back – is central to self-management and long-term health management.

Encouraging lasting adherence to self-management is one of the most challenging parts of clinical practice. To help with this, a number of behaviour-change models have been developed. In this module, we introduce several well-known frameworks – such as the COM-B, the Transtheoretical (Stages of Change) Model, and Motivational Interviewing – as examples of how these ideas can guide practice. These are examples are no presented as a fixed recipe or exhaustive list, but as tools to help you recognize which approach may fit best within your own setting and patient group.

Throughout this module, the focus will be on practical application: how to explore motivation, tailor communication, and support adherence in real clinical situations. We also acknowledge that behaviour change is not easy – neither for patients nor for clinicians – and that progress often involves setbacks and requires close and repeated follow-up. Integrating simple behavioural strategies into routine MSK care can enhance engagement, improve function, and make self-management more sustainable.

3.2 Objectives

To understand and apply practical frameworks and communication strategies that support musculoskeletal patients in adopting and maintaining self-management behaviours to improve health outcomes. By the end of this chapter, you will be able to:

- ***Explain*** *how motivation and behavioural factors influence adherence to self-management in MSK pain.*
- ***Identify*** *key elements of behaviour change frameworks such as COM-B, the Stages of Change model, and Motivational Interviewing.*
- ***Apply*** *communication strategies that build rapport, explore beliefs, and promote active participation in self-management.*
- ***Develop*** *realistic, patient-centred goals using the SMART framework.*
- ***Describe*** *approaches to maintain motivation and adherence through effective follow-up.*

3.3 Introduction: Behaviour and motivation in self-management

Behaviour plays a crucial role in health and quality of life, especially for people living with musculoskeletal (MSK) pain. It is shaped by many interacting factors—knowledge, confidence, social context, and physical ability. To support meaningful change, healthcare professionals need to understand the intentions, experiences, and values that guide a person's behaviour. In this sense, all behaviour change must be patient-centred, as it depends on what matters most to the individual.

Helping people change behaviour can improve health outcomes and reduce the burden of long-term care, but it remains one of the most challenging aspects of clinical practice. Because of this, several frameworks have been developed to help explain how and why people change, including the Health Belief Model, the Stages of Change Model, and Self-Determination Theory (Davis et al., 2015). The choice of model depends on the context and the type of behaviour being addressed, especially when working in interprofessional teams or across multiple areas of change.

In this chapter, we focus on a small number of frameworks most relevant to MSK pain care. These examples are not meant to be applied rigidly but to help clinicians reflect on their own approach and better understand patients' perspectives. Integrating behaviour-change techniques into conventional physical therapy and education can reduce pain, improve function, and increase adherence to exercise programmes (Jamil et al., 2021).

3.4 Behaviour Change Techniques in MSK Pain management

Helping patients adhere to self-management plans is a key part of effective MSK care. Pain is rarely only a physical problem – it is also influenced by how people think about it, how confident they feel, and what they can realistically do day-to-day. Supporting change therefore means working with the person as a whole, not just treating symptoms.

Many approaches can help promote positive change – sometimes called "behaviour change techniques" (BTCs). These include strategies such as setting achievable goals, giving feedback on progress, and helping patients solve real-life problems related to barriers. In MSK pain management, these techniques are closely linked with the biopsychosocial (BPS) model, which recognizes that pain is shaped by biological, psychological, and social factors. By using these techniques, clinicians can address the physical, emotional, and contextual factors that influence MSK health. Simple, consistent actions – like discussing expectations, celebrating small successes, or adjusting plans when motivation drops – can make a major difference in long-term self-management.

Ultimately, the aim of the clinician is to help patients make sustainable adjustments that improve function, confidence, and independence, by reinforcing positive behaviours related to self-management. This means that adherence to strategies becomes more likely, and the risk of long-term ill health can be reduced.

3.5 Motivational interviewing in MSK pain care

Motivational Interviewing (MI) is a collaborative, goal-oriented, and person-centred approach that helps people explore and strengthen their own motivation for change. Developed by William R. Miller and Stephen Rollnick in the 1980s, MI was first used in the treatment of substance use but is now widely applied across health care to support healthy behaviour change (Miller & Rollnick, 2013; Shannon & Hillsdon, 2007).

In MSK pain management, MI helps clinicians and patients work together to address uncertainty or hesitation about adopting new habits - such as exercise, pacing, or lifestyle modification. The focus is not on persuading but on guiding the patient to discover their own reasons for change.

3.5.1 Principles

Express Empathy: Use reflective listening to show genuine understanding of the person's thoughts and feelings without judgment.

Example: *"It sounds like you've been frustrated by previous exercises that didn't seem to help."*

Develop Discrepancy: Help the person notice the difference between their current behaviour and what they want for their future health or lifestyle.

Example*: "You've said you'd like to walk the dog again - what do you think might help move you closer to that?"*

Roll with Resistance: Avoid arguing or pushing for change. Instead, acknowledge hesitation and invite the patient to talk more about their concerns.

Example*: "You're unsure whether these exercises will really make a difference - tell me more about that."*

Support Self-Efficacy: Reinforce confidence by focusing on strengths and past successes.

Example*: "You've already managed short walks most days, that shows real progress and commitment."*

3.5.2 Techniques and examples

Open-ended questions	Helps to encourage the patient to share detailed, personalized information about their experience.	-Understanding the Nature of the Pain -Exploring the Pain's Onset and Triggers -Evaluating Impact on Daily Life Assessing the Patient's Response and Coping -Exploring Goals and Expectations	**Clinician:** *"What do you think might have caused or contributed to your pain?"* **Patient:** *"I was fine until I started strengthening exercises at home, then I had a lousy movement, and since then, I can hardly sit."*
Reflective listening	Reflective listening involves restating or paraphrasing the patient's statements to show understanding and encourage further exploration.	-Imagine walking in the patient's shoes, which validates the patient's feelings and shows empathy -Shows the interest in their life-context -Encourages the patient to share more details	**Clinician:** *"It sounds like this pain has been a constant struggle for you, and it's really affecting activities you enjoy, like walking which you started to avoid. I can also see that you've been trying different strategies to manage it, but it feels like nothing has made a real difference so far, that can be difficult."*
Affirmation	Highlight the patient's strengths, efforts, or resilience, boosting their confidence and fostering a sense of hope.	- Acknowledges the patient's efforts and strengths. -Improves the relationship with the HCP -Helps reduce feelings of helplessness	**Clinician:** *"I can hear how hard you've been working to manage this pain, trying different approaches like stretching and relaxation. That shows a lot of determination and commitment, even when it feels difficult."*

Summary	It is used to ensure clarity, validate the patient's experiences.	-Acknowledges the patient's experience and shows active listening. -Ensures nothing important has been missed -Provides a chance for correction or elaboration and partnership with the patient. -Prepares the conversation for the next steps	**Clinician:** *"Let me make sure I've understood everything so far. You've been dealing with shoulder pain for over a year, ever since that hiking accident. It sounds like the pain has significantly impacted your daily life—especially sleeping and lifting things, which used to be a normal part of your routine. You've tried physical therapy and medications, but they haven't brought the relief you were hoping for. Now, it's understandable that you're feeling frustrated and even worried about whether this might improve. Did I capture these correctly?"*

3.6 The Stages of Change

The Stages of Change Model, also known as the Transtheoretical Model (TTM), was developed by James O. Prochaska and Carlo C. DiClemente in the late 1970s. It describes how people move through different stages when trying to change a behaviour (Prochaska & Norcross, 2001). Although originally used to understand addiction, it can help healthcare professionals recognise a patient's readiness to adopt self-management strategies in musculoskeletal (MSK) pain care.

However, it is important to note that real-life change rarely follows these stages in a strict order. People often move back and forth between stages, and motivation can fluctuate over time. The model should therefore be seen as a guide for reflection and communication, not a linear checklist.

1. **Precontemplation** – Not Ready to Change

People in this stage do not yet see a need to change or may believe that change would make things worse.

- Characteristics: Lack of awareness, denial, or resistance to change. Keyword examples: "I don't think it is such a big problem"; "I don't see it necessary to exercise".
- Focus: Build awareness and trust. Offer information gently, avoid confrontation, and explore beliefs about pain and activity.

  Example: *"I don't think it's such a big problem." / "I don't see it as necessary to exercise."*

2. **Contemplation** – Thinking About Change

The person recognises the need for change but feels uncertain or ambivalent about what to do next.

- Characteristics: Ambivalence, weighing pros and cons, curiosity without action.
- Focus: Use open questions to explore ambivalence, highlight personal values, and connect change to meaningful outcomes.

  Example: *"Maybe I should do something about it." / "I could try, but I'm not sure how."*

3. **Preparation** – Getting Ready to Change

The person intends to act soon and may be taking small steps or making plans.

- Characteristics: Growing confidence, seeking advice, planning specific actions.
- Focus: Help set realistic, achievable goals. Provide clear, simple plans and positive reinforcement.

  Example: *"I want to start exercising, but I need help figuring out what to do." / "I've bought new trainers — I'm almost ready."*

4. **Action** – Making the Change

The person is actively changing their behaviour and adopting new routines.

- Characteristics: Visible behavioural changes, commitment, occasional struggle to maintain consistency.

- Focus: Reinforce progress, celebrate effort, and problem-solve challenges early.

  Example: *"I've started stretching most mornings." / "I hope I can keep this up."*

5. **Maintenance** – Sustaining the Change

The new behaviour is becoming routine, though setbacks may still occur.

- Characteristics: Increased self-efficacy, established patterns, occasional lapses.
- Focus: Encourage reflection on progress, maintain motivation, and adjust goals when necessary.
  - Example: *"I feel better when I keep up my exercises." / "I've been managing most weeks."*

6. **Termination** – Change Becomes Habitual

The new behaviour feels natural, and the risk of relapse is low.

- Characteristics: Confidence, stability, self-reliance.
- Focus: Reinforce autonomy, encourage self-monitoring, and promote long-term self-management.

  Example: *"Stretching is just part of my morning routine now." / "I do it because it helps me feel good."*

The Stages of Change Model helps clinicians recognise where patients are in their readiness to adopt new habits and tailor communication accordingly. Progress is rarely linear; people often move back and forth between stages. Recognising this variability and responding with empathy, flexibility, and encouragement can make self-management more realistic and sustainable.

3.6.1 How to assess a patient's Stage of Change

Recognising where a patient is in their readiness to change often comes through careful communication. Open-ended questions allow patients to describe their experiences in their own words, while reflective listening helps clinicians confirm what they have heard and show understanding. Together, these techniques reveal what motivates the person, what they value, and where they may feel stuck.

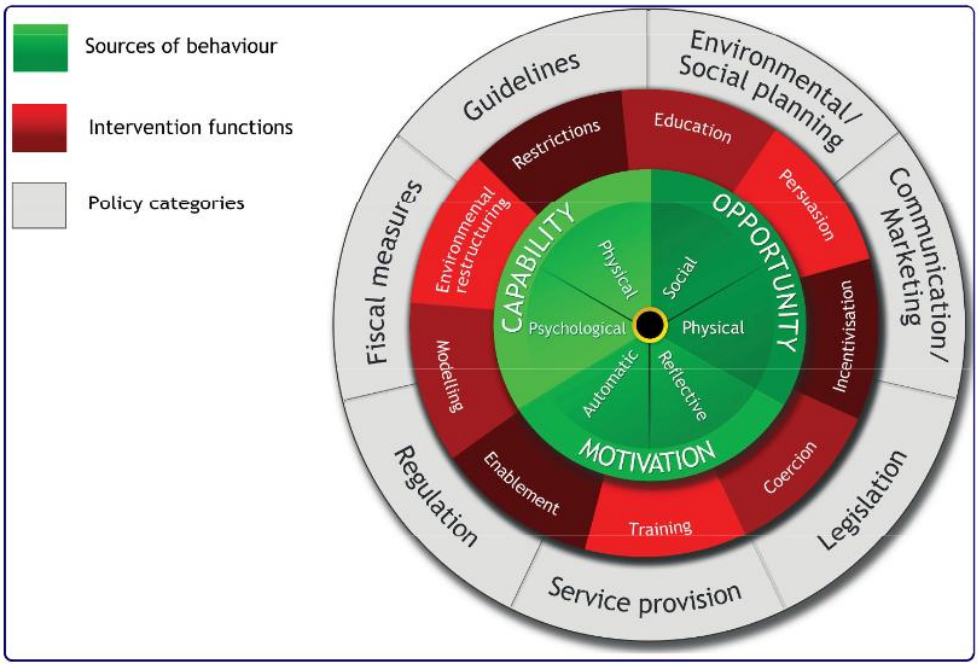
Communication cues - the words, tone, and attitudes patients use - can help identify their stage of change. Listening for these clues allows healthcare professionals to adapt their approach accordingly. For example, expressions of doubt ("I don't think it's that serious") suggest precontemplation, while questions about how to begin ("Where should I start?") indicate preparation.

Once the patient's stage is recognised, the clinician can tailor their support to match readiness. At the precontemplation stage, for instance, patients with MSK pain may not yet see their condition as a problem or may resist professional advice. In this situation, the focus should be on building rapport and raising awareness - sharing information, exploring concerns, and acknowledging resistance without judgment.

Through these conversations, clinicians can gather valuable information about a patient's values, lifestyle, and social context, which can then guide collaborative goal setting and the next steps of intervention planning.

3.7 Applying the Behaviour Change Wheel (COM-B)

The BCW helps to understand the behaviour and its complexity (Chester et al., 2023; Michie & Prestwich, 2010; Michie et al., 2011) .



(Michie & Prestwich, 2010)

Understanding the triggers of behaviour reflected in the core parts of the behaviour wheel, is essential. These are **capability, opportunity, and motivation**.

3.7.1 Stage 1: Understanding the triggers of behaviour

Behaviour change begins by identifying the main influences on current behaviour:

- **Capability** – the physical and psychological ability to perform the behaviour.
- **Opportunity** – the physical and social conditions that enable or restrict it.
- **Motivation** – the internal drive, beliefs, and habits that sustain or block action.

Each of these factors can affect how realistic a goal is and which interventions are most appropriate. For example, a patient's physical capability (strength, mobility) and their physical or social opportunity (time, support, access to space) may shape both goal setting and the type of exercise plan recommended.

3.7.2 Stage 2: Identifying options for interventions

Once the main behavioural influences are recognised, the next step is to select interventions that target them effectively. The COM-B model can be applied to both patients and healthcare professionals working in musculoskeletal (MSK) care.

Capability

- Physical capability
    - Barriers: Limited ability to perform movements due to pain, stiffness, or functional restriction.
    - Intervention: Gradual physiotherapy or graded exercise programmes to rebuild physical capacity and confidence.
- Psychological capability
    - Barriers: Limited understanding of pain mechanisms or treatment rationale.
    - Intervention: Provide clear, accessible education about MSK pain—explaining pain perception, recovery processes, and how activity supports healing.

Opportunity

- Physical opportunity
  - Barriers: Limited access to facilities, equipment, or appointments.
  - Intervention: Suggest home-based options and low-cost or no-equipment alternatives suited to the person's environment and resources.
- Social opportunity
  - Barriers: Family, workplace, or cultural attitudes that discourage activity or disclosure of pain.
  - Intervention: Involve family or peers, educate workplaces, and foster supportive networks or group sessions.

Motivation

- Reflective motivation
  - Barriers: Doubts about treatment effectiveness or beliefs that rest is safer than movement.
  - Intervention: Use motivational interviewing or cognitive-behavioural principles to reframe beliefs and strengthen confidence in active strategies.
- Automatic motivation
  - Barriers: Fear-avoidance behaviours or reliance on passive treatments (e.g. medication only).
  - Intervention: Combine education with supervised graded activity and positive reinforcement. Encourage small, regular achievements to build habits and reduce fear.

BEHAVIOUR (B)

To achieve the desired behaviour - such as consistent physiotherapy attendance or regular movement -the intervention must address whichever COM-B components limit progress.

When several options exist, clinicians can use the APEASE criteria to guide selection:

The table below shows the criteria whose acronym is APEASE.

Acceptability	How far is it acceptable to all key stakeholders?
Practicability	Can it be implemented as designed within the intended context, material and human resources?
Effectiveness	How effective and cost-effective is it in achieving desired objectives in the target population?
Affordability	How far can it be afforded when delivered at the scale intended?
Side-effects	How far does it lead to unintended adverse or beneficial outcomes?
Equity	How far does it increase or decrease differences between advantaged and disadvantaged sectors of society?

3.7.3 Stage 3: Identifying intervention contents (concrete techniques)

At this stage, the healthcare professional (HCP) focuses on what will be delivered and how. Using the insights from Stages 1 and 2, the aim is to design a personalised plan that targets the specific barriers identified through the COM-B analysis.

Interventions may include education, skills training, environmental adjustments, or motivational support - each adapted to the patient's capability, opportunity, and motivation.

MSK Example

A patient with chronic low-back pain has been prescribed a home exercise programme but struggles with adherence.

- Capability: The HCP checks whether the patient knows how to perform the exercises correctly (low psychological capability).

  Intervention: Provide in-person or video demonstrations to build knowledge and confidence.

- Opportunity: The patient lacks time or space to exercise at home (low physical opportunity).

  Intervention: Suggest short, equipment-free routines that fit easily into daily life.

- Motivation: The patient doubts that exercise will help (low reflective motivation) and fears worsening pain (low automatic motivation).

  Intervention: Use motivational interviewing to explore concerns and share success stories from others who benefited from similar programmes.

By tailoring content and delivery in this way, interventions become more relevant, achievable, and sustainable - supporting adherence and self-management in MSK care.

3.8 Understanding MSK pain through health belief model

The Health Belief Model (HBM) is a framework that helps explain why people choose to engage - or not engage - in health-related behaviours, based on their beliefs about health, illness, and consequences.

3.8.1 Has this been already applied in musculoskeletal pain?

In MSK pain, the HBM helps clinicians understand how patients' perceptions influence their decisions about activity, treatment, and self-management. It highlights how individual beliefs can affect motivation and adherence to therapy. However, while useful for guiding patient discussions, the HBM can oversimplify the psychological and sociocultural influences behind behaviour. It is best used alongside other models - such as COM-B and Motivational Interviewing - to support a more complete understanding of behaviour change.

3.8.2 Core Constructs of the Health Belief Model (HBM)

Perceived Susceptibility: The individual's belief about their likelihood of experiencing worsening pain or loss of function.

Focus: Discuss potential consequences of unmanaged pain and explore what the patient believes might make their pain worse.

Example: *"Some people notice their pain increases when they stop exercising. How do you think this applies to you?"*

Perceived Severity: How serious the patient believes their condition is and how much it affects daily life.

Focus: Explore how pain influences their routines, goals, or sense of wellbeing.

Example: *"How does your pain affect what you're able to do day to day?" / "What would it mean for you if this pain stayed the same?"*

Perceived Benefits: Beliefs about the positive outcomes of engaging in recommended behaviours (e.g., exercise, physiotherapy, pacing).

Focus: Highlight the advantages of active management using simple explanations, patient stories, or visual aids.

Example: *"Many people find that regular movement helps them stay in control of their pain - would you like to see what worked for others?"*

Perceived Barriers: Practical or emotional obstacles that prevent engagement in healthy behaviours, such as time, cost, fear, or low confidence.

Focus: Ask open-ended questions to identify barriers and work collaboratively to find solutions.

Example: *"What might make it difficult for you to fit exercises into your day?"*

Cues to Action: Events, reminders, or prompts that encourage someone to act, such as symptom flare-ups, family support, or clinician follow-ups.

Focus: Identify and create meaningful triggers, reminders, routines, or check-ins, that prompt healthy actions.

Example: *"Would it help if you linked your exercises to something you already do each morning?"*

Self-Efficacy: The person's confidence in their ability to perform and maintain the recommended behaviours.

Focus: Build confidence by breaking tasks into small, achievable steps and celebrating progress.

> Example: *"You managed the stretches twice this week—that's a great start. How can we make it easier to keep going?"*

3.8.3 Connecting Beliefs to Behaviour Changes

Exploring patients' beliefs is only the first step; the goal is to link those insights to practical, achievable actions. Techniques from Motivational Interviewing - such as open-ended questioning, affirmations, and reflective listening - can help uncover what drives or holds back each individual.

Once beliefs are clear, clinicians can use SMART goals to co-design realistic targets and review progress regularly. Revisiting these conversations helps sustain motivation and manage setbacks.

The constructs of the HBM can therefore provide a valuable starting point for discussion, helping clinicians address psychological barriers, strengthen engagement, and promote sustainable self-management in MSK pain.

3.9 Complementary Models in MSK Pain

While the HBM is one way to understand patient beliefs and decisions, other theoretical models also help explain behaviour and coping in MSK pain. Each provides a different perspective on how people interpret, manage, and adapt to their pain experiences.

3.9.1 Fit for purpose model

(Wand et al., 2023)

The Fit for Purpose Model emphasises aligning health interventions with a person's values, goals, and context. It highlights the importance of dynamic goal-setting and adaptability - especially for chronic conditions where motivation changes over time. In MSK care, it reminds

clinicians that self-management plans are most effective when they connect directly to what matters in a patient's daily life (e.g. being able to play with grandchildren or return to work).
Where the HBM focuses on immediate decisions through risk–benefit perceptions, the Fit for Purpose Model supports long-term engagement and meaningful behaviour change. Used together, they provide a comprehensive approach to sustaining motivation.

3.9.2 Fear avoidance model

(Rogers & Farris, 2022)

This model explains how fear of pain or re-injury can lead to avoidance behaviours, reinforcing inactivity and disability. It highlights psychological processes - such as catastrophising, fear, and avoidance - that contribute to the transition from acute to chronic pain.
In practice, recognising fear-avoidance patterns helps clinicians use graded exposure and reassurance to reduce fear and rebuild confidence in movement.
Combined with the HBM, this model provides a more complete framework for understanding both the beliefs and emotional barriers that influence recovery.

3.9.3 Predictive processing theory

(Kiverstein et al., 2022)

Grounded in cognitive neuroscience, the Predictive Processing Theory explores how the brain constantly makes predictions about bodily sensations and updates them based on new evidence. When there is a mismatch between expectation and sensory feedback (a "prediction error"), learning and behavioural adaptation occur.
In MSK pain, this helps explain how past experiences and beliefs shape perception and tolerance of pain. Clinicians can use this understanding to support patients in re-interpreting, improving confidence, and reducing threat perception.
While PPT focuses on the cognitive and perceptual mechanisms of behaviour, the HBM is better suited for guiding practical health decisions. Together, they enrich understanding of both how people perceive pain and why they act in certain ways.

These complementary models can help clinicians tailor interventions by linking beliefs, motivation, and context to real-world MSK management

3.10 Summary of key messages

Behaviour is central to health - especially in MSK pain - and is shaped by personal, social, and physical factors. Effective behaviour change requires understanding the patient's values, beliefs, and intentions. Choosing the most appropriate model can be challenging, so this chapter introduces several frameworks that help clinicians interpret and support change in real-world MSK care.

- **Use of Behaviour Change**

Models such as the Health Belief Model, Stages of Change, and Self-Determination Theory offer structured ways to interpret readiness and personalise interventions - particularly useful within interprofessional teams managing complex pain behaviours.

- **Behaviour Change Techniques**

BCTs provide practical, evidence-based methods for addressing the cognitive, emotional, and social factors of pain within the BPS model. They help break the pain–inactivity cycle and strengthen self-management over time.

- **Motivational Interviewing**

MI is a collaborative, patient-centred communication approach that builds motivation through empathy and curiosity. Core techniques - open-ended questions, affirmations, reflections, and summaries - help resolve ambivalence and support lasting change.

- **Stages of Change Framework**

Recognising a patient's current stage - from precontemplation to maintenance - enables clinicians to tailor communication and intervention strategies to readiness, improving engagement and adherence.

- **Behaviour Change Wheel and COM-B Model**

The BCW framework highlights how Capability, Opportunity, and Motivation interact to drive behaviour. It offers a structured method for identifying barriers, designing targeted interventions, and applying the APEASE criteria to ensure feasibility and equity in practice.

References

Chester, R., Daniell, H., Belderson, P., Wong, C., Kinsella, P., McLean, S., Hill, J., Banerjee, A., & Naughton, F. (2023). Behaviour Change Techniques to promote self-management and home exercise adherence for people attending physiotherapy with musculoskeletal conditions: A scoping review and mapping exercise. *Musculoskelet Sci Pract*, *66*, 102776. https://doi.org/10.1016/j.msksp.2023.102776

Kiverstein, J., Kirchhoff, M. D., & Thacker, M. (2022). An Embodied Predictive Processing Theory of Pain Experience. *Review of Philosophy and Psychology*, *13*(4), 973-998. https://doi.org/10.1007/s13164-022-00616-2

Michie, S., & Prestwich, A. (2010). Are interventions theory-based? Development of a theory coding scheme. *Health Psychol*, *29*(1), 1-8. https://doi.org/10.1037/a0016939

Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci*, *6*, 42. https://doi.org/10.1186/1748-5908-6-42

Miller, W. R., & Rollnick, S. (2013). *Motivational interviewing: Helping people change, 3rd edition*. The Guilford Press.

Prochaska, J. O., & Norcross, J. C. (2001). Stages of change. *Psychotherapy: Theory, Research, Practice, Training*, *38*(4), 443-448. https://doi.org/10.1037/0033-3204.38.4.443

Rogers, A. H., & Farris, S. G. (2022). A meta-analysis of the associations of elements of the fear-avoidance model of chronic pain with negative affect, depression, anxiety, pain-related disability and pain intensity. *Eur J Pain*, *26*(8), 1611-1635. https://doi.org/10.1002/ejp.1994

Shannon, R., & Hillsdon, M. (2007). Motivational interviewing in musculoskeletal care. *Musculoskeletal Care*, *5*(4), 206-215. https://doi.org/10.1002/msc.119

Wand, B. M., Cashin, A. G., McAuley, J. H., Bagg, M. K., Orange, G. M., & Moseley, G. L. (2023). The Fit-for-Purpose Model: Conceptualizing and Managing Chronic Nonspecific Low Back Pain as an Information Problem. *Phys Ther*, *103*(2). https://doi.org/10.1093/ptj/pzac151

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