

SAMANTHA BUNZLI, PT, PhD¹ • ANNE SMITH, PT, PhD² • ROBERT SCHÜTZE, MPsyCh (Clinical)³
IVAN LIN, PT, PhD⁴ • PETER O'SULLIVAN, PT, PhD²

Making Sense of Low Back Pain and Pain-Related Fear

Low back pain (LBP) is a common condition.^{4,3} While the majority of care seekers stop seeking care within 3 months, around 10% will experience chronic, disabling LBP.^{10,11} As one of the key providers of LBP care, physical therapists are tasked with preventing the transition to persistent pain and disability, and facilitating a pathway to functional restoration for those who are disabled.

Pain-related fear (in addition to psychological distress and self-efficacy) mediates the relationship between pain and disability.¹⁸ With over 50% of primary care patients with LBP presenting with elevated fear,^{31,35} pain-related fear is an important target for physical therapy intervention. While many models have attempted to provide an explanation of why disabling LBP develops and persists,

the fear-avoidance model (FAM)⁴¹ has been widely adopted and validated in the pain and physical therapy literature.^{15,46-48} It describes how the experience of LBP symptoms in some cases can initiate a set of negative cognitive, emotional, and behavioral responses. In line with the theory that cognitive factors precede emotional reactions,¹⁷ the FAM proposes that individuals who “catastrophize” about the

meaning of their pain may become fearful and subsequently avoidant of physical activity that threatens their well-being. A vicious cycle ensues, in which avoidance behavior leads to physical disability and depression that, in turn, heighten the pain experience. The FAM also proposes that when someone first develops LBP, the confrontation of normal activity in the absence of catastrophizing leads to recovery (FIGURE 1).

Currently, some physical therapists stigmatize individuals presenting with high pain-related fear. Some refer to them as “phobics” with extravagant pain behaviors, while others feel underequipped to treat individuals with high pain-related fear.³⁷ This clinical commentary stems from a body of work seeking to advance the clinical utility of the FAM for physical therapists treating people with pain-related fear. It draws on a prospective qualitative investigation of 36 individuals with chronic, nonspecific LBP (pain lasting greater than 6 months not attributed to any underlying pathology or structural abnormality) and high pain-related fear (greater than 40 on the Tampa Scale of Kinesiophobia²⁵), recruited from a range of primary and tertiary care settings. Personal explanations and narratives related to the beliefs underlying pain-related fear, the factors associated with these beliefs, and changes in fear over time were explored through in-depth interviews at baseline and 4-month follow-up (see

● **SYNOPSIS:** Pain-related fear is implicated in the transition from acute to chronic low back pain and the persistence of disabling low back pain, making it a key target for physical therapy intervention. The current understanding of pain-related fear is that it is a psychopathological problem, whereby people who catastrophize about the meaning of pain become trapped in a vicious cycle of avoidance behavior, pain, and disability, as recognized in the fear-avoidance model. However, there is evidence that pain-related fear can also be seen as a common-sense response to deal with low back pain, for example, when one is told that one's back is vulnerable, degenerating, or damaged. In this instance, avoidance is a common-sense response to protect a “damaged” back. While the fear-avoidance model proposes that when someone first develops low back pain, the confrontation of normal activity in the absence of catastrophizing leads to recovery, the pathway

to recovery for individuals trapped in the fear-avoidance cycle is less clear. Understanding pain-related fear from a common-sense perspective enables physical therapists to offer individuals with low back pain and high fear a pathway to recovery by altering how they make sense of their pain. Drawing on a body of published work exploring the lived experience of pain-related fear in people with low back pain, this clinical commentary illustrates how Leventhal's common-sense model may assist physical therapists to understand the broader sense-making processes involved in the fear-avoidance cycle, and how they can be altered to facilitate fear reduction by applying strategies established in the behavioral medicine literature. *J Orthop Sports Phys Ther* 2017;47(9):628-636. Epub 13 Jul 2017. doi:10.2519/jospt.2017.7434

● **KEY WORDS:** common-sense model, fear-avoidance model, low back pain, qualitative research

¹Department of Surgery, St Vincent's Hospital, The University of Melbourne, Fitzroy, Australia. ²School of Physiotherapy and Exercise Science, Curtin University, Bentley, Australia. ³School of Psychology and Speech Pathology, Curtin University, Bentley, Australia. ⁴Western Australian Centre for Rural Health, University of Western Australia, Geraldton, Australia. The doctoral study that informed this manuscript was approved by the Curtin University Human Research Ethics Committee and local hospital ethics committees in Perth, Australia. The authors certify that they have no affiliations with or financial involvement in any organization or entity with a direct financial interest in the subject matter or materials discussed in the article. Address correspondence to Dr Samantha Bunzli, The University of Melbourne, Department of Surgery, St Vincent's Hospital, Level 2, Clinical Sciences Building, 29 Regent Street, Fitzroy 3065 VIC Australia. E-mail: sbunzli@unimelb.edu.au ● Copyright ©2017 *Journal of Orthopaedic & Sports Physical Therapy*[®]

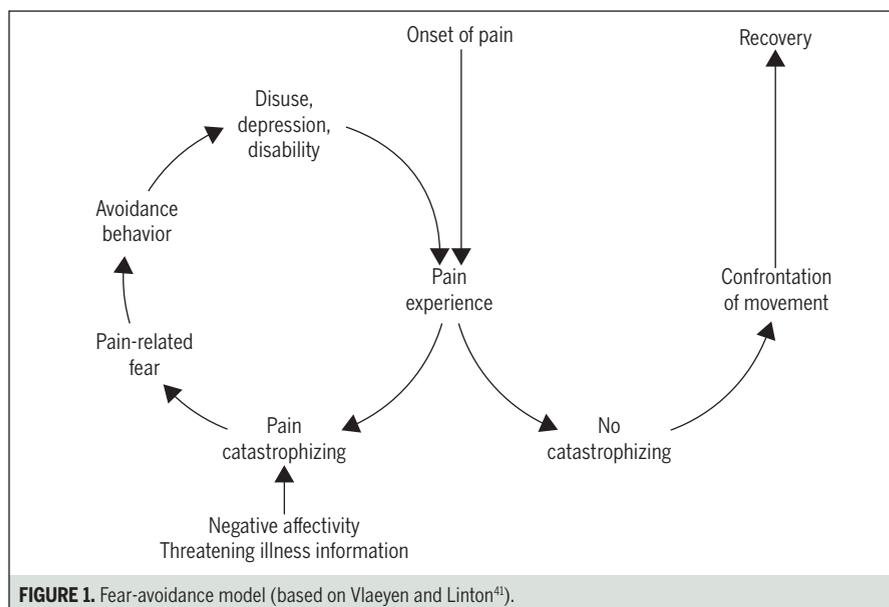


FIGURE 1. Fear-avoidance model (based on Vlaeyen and Linton⁴¹).

Bunzli et al⁶⁻⁸ for more detail on the study design). This body of work included the following key findings: (1) Radiological reports, negative explicit and implicit advice from clinicians, and cultural beliefs about the structural vulnerability of the spine reinforced pain-related fear and avoidance behaviors. (2) Some individuals with high pain-related fear believed that pain was a sign of damage and/or reported fear of pain and associated suffering, which, associated with limited pain-control coping strategies, led to avoidance of pain-provoking movements and activities. (3) A common narrative was an attempt to make sense of a threatening pain experience that individuals perceived as uncontrollable. Repeated failed attempts to control pain and the impact of pain reinforced fear by trapping individuals in a cycle of worry. (4) Individuals attributed reductions in pain-related fear to gaining control over the pain experience through a “new” ability to make sense of pain, linked to enhanced control over pain and/or the effects pain has on life.

This body of work highlights the role of the broader sense-making processes (attempts to make sense of pain) beyond catastrophizing in the narratives of individuals who experience episodes of fear. These processes are not fully captured by

the current FAM, which describes one type of sense making (catastrophizing) and only identifies 2 factors that influence it (negative affect and threatening illness information). To capture these broader sense-making processes, we reviewed other health behavior models in the literature. The common-sense model (CSM)¹⁹ not only accounts for broader sense-making processes, but also includes the key constructs believed to influence behavior in musculoskeletal conditions (ie, outcome expectancies, self-efficacy, goals, sociostructural factors, emotional or stress constructs, and symptom-related control).¹⁶ Drawing on our qualitative data, this clinical commentary illustrates the utility of the CSM as a framework to assist physical therapists in understanding the broader sense-making processes involved in the fear-avoidance cycle and how they can be altered to facilitate fear reduction.

THE CSM

THE CSM EMERGED FROM EARLY RESEARCH in the 1960s investigating the influence of fear on health-promoting actions such as smoking cessation.²² Since then, the CSM has been widely used to explore how sense-making processes in-

fluence coping and outcomes in a variety of chronic conditions, including diabetes, heart disease, and osteoarthritis.^{5,28,29} Interventions based on the CSM have improved self-management behavior and disease-related distress in individuals with nonmusculoskeletal chronic diseases.¹³

According to the CSM, when we experience a symptom such as LBP, we attempt to make sense of it by forming a cognitive “representation” based on our existing beliefs about LBP. We ask ourselves, what is this pain (“identity” beliefs)? What caused this pain (“cause” beliefs)? What consequences does this pain have (“consequences” beliefs)? How well can I control this pain (“control” beliefs) and how long will it last (“time-line” beliefs)? These 5 belief dimensions that comprise the “representation” are grounded in our own unique personal, social, and cultural contexts. They are influenced by our previous experiences of LBP, both direct and vicarious, and are constantly updated with new information from sources such as the media and clinicians, and by the perception of bodily sensations.²⁰

How we “represent” LBP will influence what we do about it (problem-based coping). A self-regulatory process follows in which the outcome of the coping response is appraised, and this appraisal feeds back into the representation of LBP to guide future coping responses. If the outcome of the response is appraised to be in the direction of the target goal (eg, no flare-up of pain), then the representation is deemed to be useful and the response will be maintained. If the outcome is not in the direction of the target goal, then the representation will be updated and the response adjusted accordingly.

How we “represent” LBP will also influence our emotional response to the symptom (emotion-directed coping). We ask ourselves: how do I feel about this pain and what can I do to make myself feel better about it? The literature shows that symptoms perceived as unpredictable and uncontrollable, and/or as having intense consequences, are commonly

perceived as threatening and elicit a fear response.²⁸ In turn, this fear response may elicit more worry and rumination.

A continuous interaction between cognitive, behavioral, and contextual factors means that the representation is constantly updated to influence ongoing behavior.²² Thus, while the content of the cognitive representation will differ between individuals and within individuals over time, the processes involved in making sense of LBP are the same³³ (see FIGURE 2).

The CSM as a Framework to Understand Pain-Related Fear

Fear as a Common-Sense Response to a Threatening Pain Experience According to the CSM, pain-related fear may be a “common-sense” problem-solving response based on a threatening representation of LBP. The participants in our study described threatening representations of LBP based on their “identity” beliefs about the structure and function of the spine (quote 1), their “causal” beliefs (quote 2), their beliefs about the “consequences” of LBP (quote 3), and their experience of LBP as uncontrollable (“control” beliefs) (quote 4) and unpredictable (“timeline” beliefs) (quote 5):

Quote 1 “The spine is the core of your body. All the nerves and everything are in your spine. It holds your structure together.” (39-year-old woman, 0.5 years of LBP)

Quote 2 “I don’t know what causes it, I don’t know what I am doing to exacerbate it, and that’s scary.” (61-year-old woman, 0.5 years of LBP)

Quote 3 “There is something about the back. It’s that fear of I don’t want to do something to my spine because if I damage it, I’m not going to be able to walk, I’m not going to be able to mobilize, and what if I’m an invalid and can’t do anything?” (51-year-old woman, 2 years of LBP)

Quote 4 “You just don’t want to live with that sort of pain. Everything stops, you are just so consumed with that pain level. I am writhing, really distressed, and can’t cope. It is just not good and so I avoid it.” (53-year-old woman, 2 years of LBP)

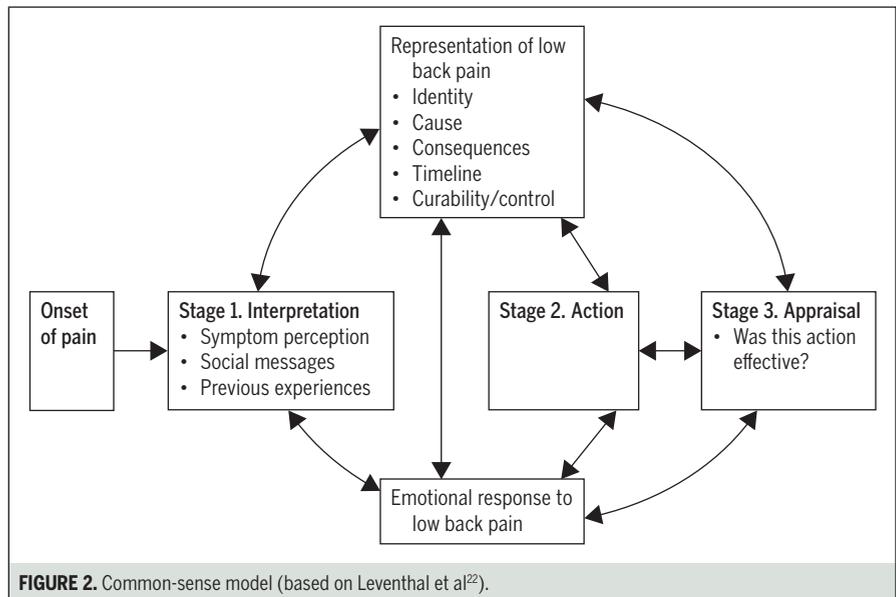


FIGURE 2. Common-sense model (based on Leventhal et al²²).

Quote 5 “It terrifies me. Because I don’t know physically if I am going to be able to cope with [it] in the future. What am I going to be able to do work-wise? How can I secure the future for my son?” (53-year-old woman, 2 years of LBP)

From a CSM perspective, if a person with LBP believes, or has been told, that performing a painful activity will cause damage to his or her spine, it is common sense to avoid or modify that activity (quote 6, quote 7). Similarly, if one experiences stabbing pain in the back with bending, it is common sense to avoid or modify bending movements (quote 8). Fear-avoidance behavior may therefore be perceived as a “common-sense” problem-solving response to avoid noxious threat:

Quote 6 “I was constantly told by my parents that I have a family history of back pain and that I should take care to sit straight and not lift anything heavy.” (33-year-old woman, 12 years of LBP)

Quote 7 “The physios told me not to sit and not to bend forward and I took that very literally because I was desperate not to make my back worse. I kept that going for a couple of years.” (45-year-old woman, 12 years of LBP)

Quote 8 “Every time I bend it is intense, sharp pain that is almost like I am paralyzed for the moment it is happening. So I avoid it.” (25-year-old woman, 0.5 years of LBP)

According to the CSM, as long as the outcome of the avoidance behavior is expected (eg, no pain flare-up), the representation is deemed to be useful or coherent, and avoidance will be maintained. Particularly in the early stages of LBP, avoidance can be considered a common-sense solution to avoiding injury/reinjury and permitting tissue healing to occur.

However, while it makes sense to avoid bending to avoid short-term noxious threat, long-term avoidance of bending may interfere with social, domestic, work-related, or caring duties (quote 9):

Quote 9 “I thought maybe if I stop doing everything, it might get better. Because you’re scared of moving it’s like common sense, well don’t do anything. But then I got weaker and weaker until I was at the point when I couldn’t do the dishes, I couldn’t bend, I couldn’t lift. And I was thinking, my god, I can’t do anything without pain.” (51-year-old woman, 2 years of LBP)

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Eventually, a lack of control over pain and the interference of pain in life may drive people to seek care, with expectations of a linear pathway involving diagnosis-treatment-cure. However, this expectation is based on the biomedical assumption that there is a direct correlation between the extent of underlying pathology and perceived pain severity, which is not the case for the large majority of people who have nonspecific LBP.¹²

The participants in our research were drawn from a population of individuals at various stages in their care-seeking journey. Describing their journey into fear, all participants reported how their previous history of care seeking had resulted in 1 of 4 outcomes. (1) They did not receive a diagnosis for their pain and thus could not enter into the diagnosis-treatment-cure pathway. In the absence of a biomedical explanation for their pain, the participants feared that the legitimacy of their pain was in question (quote 10). (2) They received a diagnosis of an underlying pathology that could explain their pain, but were told that the underlying pathology could not be fixed (quote 11). (3) They received a diagnosis of an underlying pathology that could explain their pain and entered the diagnosis-treatment-cure pathway, but their expectations of a cure were not fulfilled (quote 12). (4) They received a diagnosis grounded in biopsychosocial principles, but were not provided with effective strategies to gain control over pain (quote 13). In each case, the repeated experience of a discrepancy between the expected and actual outcomes of care-seeking behavior resulted in an LBP experience that did not make sense to them:

Quote 10 “You feel like you are losing face when all the tests come back negative and the doctor is thinking it is all in your mind . . . But I guess when they say there is nothing to show, how can you treat it?” (61-year-old woman, 0.5 years of LBP)

Quote 11 “To me, it seemed like a clear path—clear diagnosis, clear treatment option with a high success rate and resolution of the problem. Why can a knee

ligament be fixed, but a back ligament can’t? What makes this joint different?” (41-year-old woman, 7 years of LBP)

Quote 12 “When the pain flares up, they say ‘your muscle imbalance is out again.’ But I have been doing CrossFit for 7 weeks and I have been doing Pilates for 10 to 11 weeks. Surely it can’t be that weak . . . this doesn’t make sense.” (33-year-old woman, 0.5 years of LBP)

Quote 13 “What the clinical psychologist said does make sense. There are situations when I’m just thinking about doing an activity, then suddenly my back will be hurting. I haven’t done anything but the pain is there. I understand that my nervous system may be wound up, but how can I control it?” (33-year-old man, 8 years of LBP)

Fear as a Common-Sense Response to a Pain Experience That Doesn’t Make Sense

The CSM also describes how pain-related fear may be generated or perpetuated by a lack of a coherent representation to make sense of a threatening LBP experience. In the absence of a useful cognitive representation to make sense of pain in order to guide effective problem-solving behavior, behavior will be driven by the emotional response to pain. Fear is a common emotional response to a “threatening” representation in which the symptom is perceived to have severe consequences and to be unpredictable and/or uncontrollable.^{1,14,28} While fear-avoidance behavior restores emotional equilibrium by reducing fear in the short term,⁴¹ it prevents opportunities for positive exposure and may reinforce incoherency regarding the identity, causes, consequences, timeline, and/or the curability/control of the symptoms. Thus, a vicious cycle ensues in which fear-avoidance behavior reinforces an incoherent LBP representation that, in turn, reinforces pain-related fear. This commonly results in heightened disability, as valued life activities are avoided, escalating depression and distress and placing lives “on hold,” in a state of “suspension.”⁹

The CSM as a Framework to Understand Fear Reduction

The participants in our prospective study who experienced a reduction in fear over the study period attributed fear reduction to “making sense” of their LBP, linked to improved perceived control over pain and/or their response to pain. Pain control appeared to occur through learning alternative movement strategies, and also by shifting attention away from pain toward valued goals. The participants who could not achieve pain control were more likely to report poorer outcomes at follow-up. The 2 pathways to fear reduction described by the participants in our study are described below.

Reducing Fear by Decreasing the Threat of Pain

The first pathway to fear reduction described by the participants involved the creation of a nonthreatening, coherent LBP representation that could guide effective problem-solving behavior. According to the CSM, the basis of a nonthreatening, coherent LBP representation is the combination of diagnostic certainty (identity dimension) that can explain one’s symptoms (cause dimension), which replaces erroneous beliefs in the damaging effects of pain (consequences dimension) and prescribes procedures for controlling or resolving the symptoms (timeline and control dimensions).

TABLE 1 illustrates the transition from a threatening, incoherent LBP representation to a nonthreatening, coherent representation, drawing on the experiences of a participant in our prospective study who experienced a reduction in fear.

The CSM describes a causal relationship between belief change and behavior change that is dynamic, reflexive, and bidirectional, consistent with the principles underlying exposure techniques.⁴² By experiencing control over pain during behavioral experimentation, expectations of damage associated with performing threatening movement are addressed through positive disconfirmatory experiences, as are expectations of suffering/functional loss associated with painful movements (quote 14, quote 15). From

TABLE 1

EXAMPLE OF A PATIENT TRANSITION FROM A THREATENING, INCOHERENT LBP REPRESENTATION (BASELINE) TO A NONTHREATENING, COHERENT LBP REPRESENTATION ASSOCIATED WITH A REDUCTION IN FEAR (FOLLOW-UP)*

| CSM Construct | Baseline | Follow-up |
|--------------------|--|---|
| Identity | "I have damage to 2 of the discs" | "The pain is tension in my body and my back not moving properly" |
| Timeline | "I am beginning to think, Am I really going to be doing this for the rest of my life? . . . I think I am mentally preparing myself for having a really sedentary kind of existence" | "I think that it is possible that I can get to the point where there won't be pain" |
| Cause | "It's caused by degeneration, so my spine is deteriorating" "Sometimes I will think if I do that, that will hurt and it will happen. But then I can have a really bad day and I don't know why; it's the unpredictability of it" | "What I have learned about chronic pain is that it is a result of your behavior as much as it is a result of something going on inside you. It is not necessarily the fact that something is busted; it is that you are continually hurting yourself without moving properly" "I think pain causes tension and tension causes pain" |
| Consequences | "When it hurts, I think I am doing more damage to my back. I think it is getting worse, crumbling, breaking down" "If something hurts, it is for a reason; it is your body saying, Don't do it" | "I think what changed in me from seeing the physio was going from being terrified of hurting myself more anytime I moved to realizing that moving was the very thing I needed to do. That is the main reason why I changed" |
| Control/curability | "There is damage to the discs, but it seems it is impossible to fix damage" "[Lying on the couch] is the only way to make the pain go away and prevent it from coming" | "The first session he said, 'Well, we can fix this.' He said, 'There are people with back scans far worse than yours who have no issues, no pain issues. You need to learn how to move again' "I have the tools in my toolbox to control a flare-up in the future" |
| Taking action | "I would never bend over to pick something up. I try and brace myself on any move . . . I will avoid doing things that I would normally do that I would think would aggravate it" | "So if I go get up and it hurts, I will try to apply what he suggested, which is if I had been more relaxed doing it, it probably wouldn't have hurt so much. So I have started trying to be very aware of just how relaxed I am or am not" |
| Appraising action | "I have found ways to not be in pain just by finding positions that just kind of work, but even moving from any position to any other position is just murder" "All the physios, all the injections . . . it feels like I guess temporary relief" | "When he got me to touch my toes on the first day, it wasn't just that I had done it. I could have done it and it hurt like buggery. But my back wasn't hurting. And I had done it on my own, without him. He was just standing there" "There are times when I have been moving around and I would just realize, Man, you are tense, and I have just tried to release and think myself into not being tense and it does make a difference" |
| Coherency | "I find all of this a very confusing experience" | "A few things he said to me that really made sense were that your back is made to be moving. Perhaps the single most important thing he said to me was, 'Don't be frightened of pain: you are not doing more damage.' And when I experienced it for myself, it changed my mindset instantly" |

*Abbreviations: CSM, common-sense model; LBP, low back pain.
The patient was a 42-year-old man with a 2-year history of LBP.

our analysis of interview data, the study participants who learned to control pain by modifying the way they moved associated this with an ability to self-manage flare-ups in pain while achieving valued life goals, thus building pain self-efficacy (quote 16, quote 17).

Quote 14 "There was a notable improvement in the first week, so it wins you over." (42-year-old man, 2 years of LBP)

Quote 15 "In my head I thought I would break in half if I bent over. But the physio said your structure is fine, you need to learn how to move again. And I thought, who do I trust? The people who told me

my structure was broken beyond repair, or the person saying 'your structure is fine, it's ok to bend,' and I feel better after one session?" (41-year-old woman, 7 years of LBP)

Quote 16 "When I had a bad flare-up that day, I went to my stretches and that fixed it. You build up confidence in your body when the worst happens and you get through it." (42-year-old man, 2 years of LBP)

Quote 17 "You have to be able to have the success of doing it without pain to go, 'Actually, I can do it.' The proof is in the pudding." (41-year-old woman, 7 years of LBP)

The CSM describes how, when the outcome of behavior is consistently appraised as being in the direction of the target goal, the new representation is deemed useful in guiding effective problem-solving behavior, and thus the LBP experience will "make sense."

Reducing Fear by Changing Emotional Responses to Pain The second pathway to fear reduction described by the participants involved changing available responses to manage emotions related to pain. We have stated before that fear is a typical emotional response to a threatening representation in which the symptom is perceived to be unpredictable and/or

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TABLE 2

THE SUBJECTIVE ASSESSMENT OF PAIN-RELATED FEAR USING A CSM FRAMEWORK: EXAMPLE QUESTIONS

| CSM Construct | Example Questions |
|--------------------|--|
| Identity | Do you have a diagnosis for your pain? Can you explain to me what this means? Have you had any scans on your back? Can you explain in your own words what these showed? |
| Cause | Do you know what causes your back pain? How predictable is your pain? |
| Consequences | What do you think will happen if you perform a movement/activity you are afraid of? Do you worry that doing a painful activity will damage your spine? Do you worry that it will impact all the other things you need to get done? |
| Control/curability | How much control do you feel you have over your pain? Can you prevent your pain from flaring up? Can you control your pain once it has flared up? How much control do you feel you have over your response to pain? |
| Timeline | How long do you expect your pain will last? How hopeful are you for the future? |
| Action | What do you do when you are faced with a threatening movement or activity? What do you think it will take to make your pain better? |
| Coherency | How much does your pain make sense to you? |

Abbreviation: CSM, common-sense model.

uncontrollable and to have severe consequences.¹⁴ Based on findings from our study, we suggest that when individuals are equipped with strategies that enable them to control their worry about the consequences of their actions sufficiently for them to engage in valued life activities, the achievement of desired outcomes means the behavioral strategy is appraised as effective. This appraisal is fed back into the representation, reinforcing coherency. Some participants in our study described how their acceptance of the uncontrollability and unpredictability associated with pain (quote 18), and/or a “letting go” of negative thoughts about the identity, causes, and consequences of pain (quote 19), enabled them to control their worry and shift their focus from pain toward valued life goals (quote 20).

Quote 18 “I view everything at the moment as: can I change it—yes? Ok, then I change it. Can I change it—no? Then just stop worrying about it.” (38-year-old woman, 4 years of LBP)

Quote 19 “It makes sense to me now . . . in the past, I would grab hold of negative things and hold on to them, dwell on

them. Now I’m more focused on where I need to go and don’t let these things bog me down.” (33-year-old man, 8 years of LBP)

Quote 20 “I have realized that you can’t let the pain dominate your life. You’ve just got to keep going and when it turns up say, ‘Giddy, how are you?’ and continue on.” (39-year-old man, 13 years of LBP)

The CSM as a Framework to Treat Pain-Related Fear

In the section that follows, we demonstrate how the CSM can provide a clinically useful framework for physical therapists to assess and treat pain-related fear, applying strategies well known in the behavioral medicine literature.

A CSM approach to assessing and treating pain-related fear involves 5 stages,¹³ underpinned by motivational, reflective, and validating communication techniques.²⁶

Stage 1: Encouraging Individuals to Describe Their Condition Along the 5 Dimensions of the Representation Clinicians can identify unhelpful beliefs informing individuals’ LBP representation by the diagnostic labels they associate

with their LBP, their beliefs about the cause of their LBP, how long they believe it will last, and their beliefs about the consequences of their LBP. In particular, clinicians may explore underlying damage, suffering/functional loss beliefs, how controllable individuals perceive their LBP is, and what they believe it will take to better manage their LBP. It is helpful to question individuals about how they respond to pain and their appraisal of the outcomes of this action. The clinician should aim to identify gaps, confusions, discrepancies, and misconceptions in the representation, to raise awareness of how these impact the LBP experience and how the representation may need to be reshaped to assist individuals in making sense of their pain experience. Example questions are presented in **TABLE 2**.

Stage 2: Prompting the Individual to Think About Experiences That Led to Misconceptions and to Evaluate the Importance of Those Experiences Individuals can be prompted to discuss the results of any imaging investigations they have had. Clinicians can consider how individuals link words to concepts that activate representations²¹ by investigating how individuals interpret the diagnostic labels they may have received. For example, in our research, the diagnostic label “degeneration” appeared to elicit a representation of LBP as incurable, with consequences for future function (ie, wheelchair). Similar problematic interpretations of diagnostic LBP labels have been documented in Indigenous Australian²³ and nonpatient² populations. Clinicians can encourage individuals to discuss other experiences that may influence misconceptions, including observing others with LBP, previous direct experiences of LBP, and health care encounters. Encouraging individuals to think and talk about experiences that led to confusions and misconceptions can enable clinicians to understand the strength of the beliefs (how committed the individual is to them).

Stage 3: A Discussion Between the Individual and Clinician About How the

Gaps, Confusions, and Misconceptions in the Representation Impact Their Behavior

For some individuals, the beliefs informing the representation may be implicit and only become apparent through behavioral experimentation.²¹ Clinicians may assist individuals to develop a “body awareness” of the negative impact of protective movement behaviors, avoidance of valued activities, unhelpful lifestyle behaviors, and unhelpful emotional responses to the pain experience, through the use of mirrors, videos, diaries, and feedback.^{40,44} By reflecting underlying beliefs in real time, a dialogue can be pursued about how the gaps, confusions, and misconceptions in the representation are perpetuating the vicious cycle of pain.

Stage 4: The Presentation of New Information to Fill in Gaps, Clarify Confusions, and Replace Misconceptions Providing individuals with a diagnosis that can explain their LBP symptoms can give rise to strategies to address them. Rather than providing diagnostic labels, such as “disc bulge” or “degenerate disc,” individuals can be provided with a “diagnostic explanation” that addresses all 5 dimensions of the representation. For example, it may be explained to them that they have “sensitization” of the spinal structures (identity) linked to pain-sensitizing factors such as adopting provocative behaviors, disrupted sleep, fear, stress, and vigilance (cause) that sustain pain and disability (consequence), and that strategies to address these mechanisms, such as movement control/body relaxation and cognitive reframing (controllability), will enhance their functional capacity with pain control within a specific time frame (timeline).

In order to disconfirm beliefs about the negative consequences of performing movements associated with threat and/or pain, the experience of moving without flaring up pain and causing damage/suffering or functional loss is likely to facilitate the adoption of the new understanding and build internal locus-of-control beliefs. This approach to cognitive restructuring has a strong

evidence base in cognitive therapy and behavioral experimentation.⁴

For some individuals, having an explanation that helps them make sense of their LBP, combined with strategies that effectively control them, facilitating a return to valued activities, may address unhelpful emotional responses such as pain-related fear, pain anxiety, and low mood.⁴⁵ These pain-control strategies can directly help regulate their emotional responses to the pain experience via mindful awareness, acceptance, relaxation, and breathing regulation.^{34,39} Goal setting around valued life activities is a form of behavioral activation that has a large evidence base for lifting mood.²⁴ These strategies are all firmly within the scope of physical therapy, with good evidence for the effectiveness of physical therapy-led interventions targeting emotional responses in people with pain.^{3,32,40}

Stage 5: Bringing About Behavioral Change Through an Altered Representation Providing individuals with new information to inform their LBP representation needs to give rise to adaptive behaviors. In addition to providing information, equipping individuals with effective strategies to independently control pain and prevent flare-ups in pain intensity, and/or control the impact of pain in their lives and emotional responses to pain, allows them to engage in valued life activities. Matching these strategies to the new representation facilitates individuals to problem solve the best course of action in any given context. When the selected action successfully brings them toward their target goal, this experience increases the coherency of the new LBP representation. When repeated over time, coherency is established and the LBP experience makes sense, leading to reductions in fear.

The CSM in the Context of Current and Future Research

While the CSM has been widely used to understand patient responses in other chronic conditions, it has only relatively recently been applied in the LBP literature.^{30,36,38} This clinical commen-

tary illustrates how the CSM can assist physical therapists to explore concepts that are well known in the behavioral medicine literature, but less well known in physical therapy literature. It provides a framework for physical therapists to understand how existing treatment strategies that aim to reconceptualize individuals’ knowledge about their LBP, such as “explain pain”²⁷ and exposure in vivo,⁴² can be combined with strategies to gain control over pain and responses to pain⁴⁰ to help individuals make sense of their LBP experience. Conceptualizing fear as a common-sense response to a threatening LBP experience may enhance how physical therapists perceive, interact with, and communicate with individuals with high fear. Future research may explore the effects of applying this framework on outcomes for patients.

CONCLUSION

INSIGHTS FROM OUR RESEARCH INTO the lived experience of pain-related fear suggest that pain-related fear may be conceptualized as an emotional response to an LBP experience that doesn’t make sense. We have presented the CSM as a framework for physical therapists to understand the sense-making processes involved in the fear-avoidance cycle and as a clinically useful framework to treat pain-related fear. The next generation of fear-avoidance interventions may consider including strategies that assist individuals to make sense of their LBP experience and gain control over pain and their response to pain, to optimize treatment outcomes. ●

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