Working with People to Make Changes: A Behavioural Change Approach Used in Chronic Low Back Pain Rehabilitation

Katherine Harman, PT, MSc, PhD;[*] *Marsha MacRae, PT, MSc;*[‡] *Michael Vallis, PhD;*[†§] *Raewyn Bassett, PhD*[¶]

ABSTRACT

Purpose: To describe the approach used by a physiotherapist who led a rehabilitation programme for injured members of the military with chronic low back pain designed to enhance self-efficacy and self-management skills. *Method:* This in-depth qualitative study used audio- and video-recorded data from interviews and field observations. Using an inductive analysis process, discussion of emerging themes led to a description of the physiotherapist's approach. *Results:* The approach has three elements: developing a trusting relationship through building *rapport*, establishing a *need* in patients' minds to be actively engaged in their rehabilitation, and finding workable rehabilitation *solutions* that are most likely to be adopted by individual patients. This approach fits into current theories about health behaviour change (e.g., Transtheoretical Model of Change, Motivational Interviewing, Motivational Model of Patient Self-Management and Patient Self-Management) and elements of the therapeutic alliance. Using the therapeutic alliance (*rapport*) and behaviour change techniques, the physiotherapist focused on the perceived importance of a behaviour change (*need*) and then shifted to the patient's self-efficacy in the *solutions* phase. *Conclusions:* If we recognize that rehabilitation requires patients to adopt new behaviours, becoming aware of psychological techniques that enhance behaviour change could improve treatment outcomes.

Key Words: cognitive therapy; exercise; low back pain; professional-patient relations; rehabilitation.

RÉSUMÉ

Objet : Décrire l'approche suivie par un physiothérapeute qui a dirigé un programme de réadaptation pour militaires blessés atteints de lombalgie chronique. Le programme visait à améliorer les techniques d'autoefficacité et d'autoprise en charge. ***Méthode :*** Cette étude qualitative en profondeur a utilisé des données audio et vidéo enregistrées à la suite d'entrevues et des observations sur le terrain. Basée sur un processus d'analyse inductive, la discussion sur les thèmes émergents a abouti à une description de la démarche du physiothérapeute. ***Résultats :*** L'approche comporte trois éléments: établissement d'une relation de confiance par la création d'une *complicité*, établissement, dans l'esprit des patients, d'un *besoin* de participer activement à la réadaptation et découverte de *solutions* de réadaptation pratiques que chaque patient en particulier est le plus susceptible d'adopter. Cette approche correspond aux théories actuelles sur les changements de comportement en santé (p. ex., modèle transthéorique du changement, entrevues de motivation, modèle de motivation de l'autoprise en charge par les patients et autoprise en charge par les patients) et les éléments de l'alliance thérapeutique. En se basant sur l'alliance thérapeutique (*complicité*) et des techniques de modification du comportement, le physiothérapeute s'est concentré sur l'importance perçue d'un changement de comportement (*besoin*) et est passé ensuite à l'autoefficacité du patient au cours de la phase des *solutions*. ***Conclusions :*** Si nous reconnaissons que la réadaptation oblige les patients à adopter de nouveaux comportements, une sensibilisation aux techniques qui appuient les changements de comportement pourrait améliorer les résultats du traitement.

Researchers have been investigating chronic low back pain (LBP) rehabilitation for years. Unfortunately, clinical outcomes remain relatively poor, and the associated costs of this chronic disease remain "a substantial burden on society."[1(p.8)] LBP is one of the most prominent chronic musculoskeletal conditions in the Canadian Forces; a recent health and lifestyle survey found that nearly 20% of regular-force personnel (considerably higher than the 9% reported by a Canadian survey study of 118,000 residents[2]) and 9% of reserve-force personnel

From the: *School of Physiotherapy and †Department of Psychology, Dalhousie University; ‡CFB Stadacona; §Behaviour Change Institute, Capital District Health Authority, Halifax; ¶Independent Scholar, Dartmouth, N.S.

Correspondence to: Katherine Harman, School of Physiotherapy, 5869 University Ave. PO Box 15000, Halifax, NS B3H 4R2; k.harman@dal.ca.

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identified LBP as their primary chronic complaint.[3,4] Moreover, the incidence of chronic disease is expected to rise in step with our aging population. To reduce the societal burden of chronic disease, provincial governments have advocated for a self-management approach to care. Recently released physiotherapy clinical practice guidelines for LBP[5] include recommendations for patient counseling and education (important components of self-management) to address psychosocial barriers to rehabilitation, including the psychosocial barriers to adopting exercise programmes. A 2008 systematic review found strong evidence that integrating treatment of cognitive and behavioural factors into physiotherapy is effective in improving function and decreasing pain intensity.[6] With respect to the behaviour of exercise adoption, physiotherapists are well placed to provide information and address barriers where they are encountered (i.e., while performing an exercise) and also use other psychological techniques to enhance self-efficacy and adherence.[7] Clinical researchers in psychology have identified 26 behaviour change techniques (BCT) used by psychologists.[8] This article presents a physiotherapist's approach using BCT to foster self-management and enhance self-efficacy in patients with chronic LBP.

The Patient Self-Management Model is built on the recognition that living with a condition (e.g., chronic LBP) is a daily affair that involves continuous decision making.[9] A self-management programme helps patients develop skills in problem solving, decision making, resource use, patient/health care provider partnerships, and taking action.[10] Self-tailoring or appropriately applying skills and knowledge to one's own situation is an additional characteristic that enhances adherence to the behaviour change being introduced.[9] The Stanford Education Research Center has conducted controlled studies of formal self-management programmes and found significant positive changes in health behaviours and, for painful conditions, decreased pain and disability scores.[9] One of the mechanisms believed to be responsible for these effects is enhanced self-efficacy,[9] the belief "in one's capabilities to organize and execute the courses of action required to produce given attainments."[11(p.3)] Self-efficacy is measured as confidence in one's ability to execute a *specific* action under *specific* conditions.[12] The ingredients of self-efficacy enhancement that might be embedded into a self-management programme are practice to master a skill, modelling, interpreting symptoms, and social persuasion.[11] Another key concept in behaviour change is that change becomes more important to a person if adopting the focal behaviour will lead to an outcome that he or she values.[13]

The field of health behaviour change is a convergence of many theories. The Transtheoretical Model of Change (TTM)[14] was itself the result of drawing together several theories, originally examining behaviour change in people with addictions. It has been suggested that behaviour change interventions might best be tailored to where the person is on the TTM continuum of change (Precontemplation, Contemplation, Preparation, Action, or Maintenance), but this strategy is not supported by clinical leaders.[13] Another approach used in physiotherapy is Motivational Interviewing (MI), defined as "a collaborative, person-centered form of guiding to elicit and strengthen motivation for change."[15(p.137)] MI is a patient-centred encounter that uses techniques such as expressing empathy and non-judgmental curiosity. The interviewing gives rise to motivation towards change from within the patient, rather than from learning new skills.[16] The Motivational Model of Patient Self-Management (MMPSM[17]) also brings together several theories of health behaviour change (Operant Learning Theory of Chronic Pain,[18] Social Cognitive Theory,[12] the Health Belief Model,[19] Cognitive-Behavioural Theory,[20] TTM,[14] MI[16] and Patient-Centred Counseling Model[21]) in the context of chronic pain management. The MMPSM emphasizes perceived importance of change and self-efficacy as two main drivers toward positive patient outcomes. A better understanding of behaviour change and the role of physiotherapy in facilitating change, will help us to improve the design of component studies to discern differential effects among techniques or approaches.[22,23]

When building self-efficacy enhancement into the delivery of a LBP treatment programme, attention is paid to establishing the physiotherapist-patient relationship. Given the fast pace of private clinics and outpatient departments, where chronic LBP is often treated, a deliberate approach may be needed in these settings. There is a body of literature on *therapeutic alliance* that can help us understand this aspect of physiotherapy practice.[23,24] The therapeutic alliance has three elements: collaboratively establishing goals, assigning tasks closely linked to goals, and developing an interpersonal bond that involves trust.[25] A therapeutic alliance is key to making progress in behaviour change.[13,16,17] The association between therapeutic alliance and treatment outcome in physical rehabilitation has been explored in a systematic review.[26] The majority of studies analyzed described a single physiotherapy intervention for a musculoskeletal disorder, including chronic LBP. The review found significant positive correlations between therapeutic alliance and the following outcomes: global perceived treatment effect, change in pain, physical function, treatment satisfaction, depression, and general health status. Drawing these ideas together suggests that a collaborative, goal-based therapeutic alliance would be an effective clinical vehicle to improve self-management skills and enhance self-efficacy.

Although therapeutic alliance and behaviour change are important to physiotherapy practice, there have been few studies on these topics in people with chronic LBP.[26–28] Recently, we studied[7] a physiotherapist leading a 6-week "Back-to-Fitness" programme for injured military personnel with chronic LBP, that was modelled after a self-management programme[29] designed to enhance

self-efficacy. Using a checklist of BCT derived from both psychology and physiotherapy literature (see Appendix 1 online), we observed that the physiotherapist used 24 different BCTs with her patients during classroom and group exercise sessions. Although we observed the application of a wide range and type of BCTs, we were unable to explore the intent of the use of those techniques. Our goal in this follow-up in-depth interview study was to better understand the physiotherapist's clinical reasoning for her use of these psychological techniques.

METHODS

This study was reviewed and approved by the Dalhousie University Human Research Ethics Board and the CFB Halifax chain of command. The researcher (KH) interviewed the physiotherapist who designed and led the Back-to-Fitness programme that had been video-recorded for our earlier study.[7] At the time of the present study, the Back-to-Fitness programme had been running for 5 years. Although the physiotherapist had no formal education in behaviour change, she had learned the importance of self-efficacy and self-management for people with chronic LBP from a mentor when she practised physiotherapy in England. The programme was designed for members of the military with chronic LBP who have low to moderate levels of fear avoidance, as measured by the Tampa Scale of Kinesiophobia (TSK).[30,31] The physiotherapist assessed each patient for physical abilities, limitations, back-to-work expectations and specific outcome goals. A cohort of 12 patients entered the programme together, and received one lecture and two exercise classes each week for 6 weeks. The lectures combined information on the concept of pain and its interpretation, anatomy and biomechanics, the role of stress, the patient's role in managing LBP, and reassurance regarding recovery with the promotion of positive attitudes toward exercise and work. In one exercise class, patients learned new exercises; in the other, they focused on practising the exercises and on cardiovascular training. Patients received open and ongoing support to drop in for subsequent physiotherapy sessions or classes, including post-discharge.

Our research team consisted of a physiotherapy professor (KH); a physiotherapist who is a clinical practice leader on a military base (MM); a behavioural psychologist who leads the Behaviour Change Institute (MV); and an independent expert in qualitative methodology (RB). This team provided methodological strength, cultural insight, and cross-disciplinary perspectives in the discussions and interpretation of the data.

Our in-depth qualitative study was informed by an interpretivist paradigm, in which the collection and interpretation of data are considered inherently subjective. As researchers, we did not take an objective, distanced role but saw ourselves as part of the construction of meaning emerging in interviews and analysis. Thick, descriptive data are critical for understanding and interpreting the rich context in which research participants are embedded.[32]

Data collection

In our previous observation study, all classes in the Back-to-Fitness programme were video-recorded.[7] These video-recordings provided some of the data for this study. We chose samples that best exemplified all the BCT observed and created 56 brief video clips using QuickTime (Apple Inc., Cupertino, CA), which the physiotherapist watched before being interviewed. After obtaining informed consent, we conducted an in-depth audio- and video-recorded interview. The video clips were played again during the interview to elicit discussion of the physiotherapist's thoughts, observations and expected patient response.[33]

Data analysis

Interview audio transcripts and video recordings were imported into NVIVO 9 software (QSR International, Doncaster, Victoria, AUS) for review and analysis.[34] We used an inductive approach to thematic analysis to develop themes and sub-themes, enabling a thick description of the treatment approach to become apparent.[34] First, we coded the BCTs of the video samples and keywords used by the physiotherapist. Through repeated listening and viewing of the interview audio and video files, as well as returning to video data from the observation study and discussing the emerging findings, we identified 41 codes. As connections were made between the codes, themes were developed and the description of the physiotherapist's approach emerged. The approach as presented below was initially created from relationships among codes, and then, by returning to the data with a preliminary description, additional themes were revealed. Trustworthiness, a measure of methodological rigour, was ensured through several approaches. We verified emerging themes with the physiotherapist, used extended time in the field observing and interviewing, discussed codes and themes, and continually noted emerging codes, ideas and BCTs throughout the analysis process.[35] The next section reports our findings, with a commentary on how the physiotherapist's approach and the BCTs used are consistent with theories of health behaviour change and therapeutic alliance.

RESULTS

A main objective of the 'Back-to-Fitness' programme was individual change toward knowledgeable self-management. The approach used was a departure from a directive style, in which patients are advised or instructed. Instead, the physiotherapist used techniques to enhance insight, stimulate patient decision making, and collaboratively create solutions, such as tailored exercise programmes that are most likely to be adopted by the patient. The physiotherapist facilitated behaviour

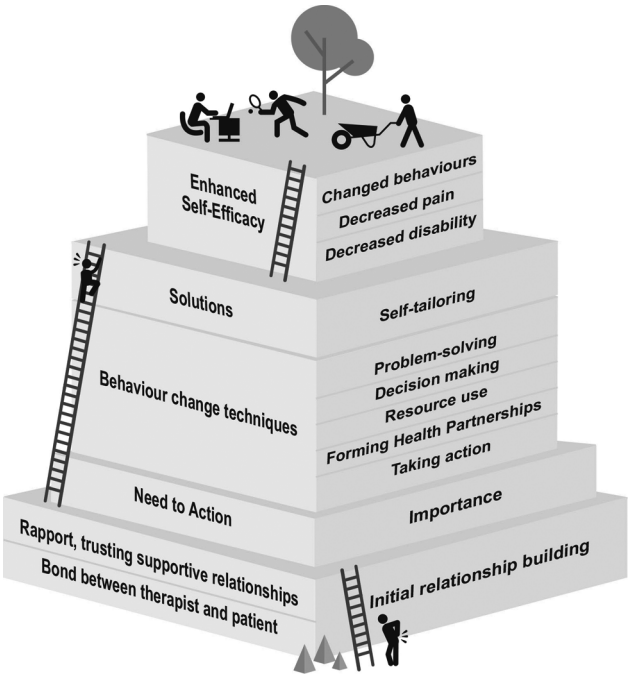

Figure 1 Building blocks of health behaviour change.

change that would lead to patients' understanding of how to self-manage their condition, believing that they could do so, and being committed to continuing self-management after discharge:

> That is the ultimate goal of this class for me … by the end is that they would realize "Wow, I have a much bigger role in this than I thought I did, and I actually now have some tools that I can do it" … that is always on my mind.

Although our interview questions focused on the use of BCTs, what emerged in the analysis was a description of the approach intentionally tailored to each patient and to the group as a whole. The physiotherapist explained that the approach resulted from her thinking about how to attain programme goals and was built on patients' responses to different techniques she had experimented with. Our analysis revealed overlap with the patient self-management model,[9,10] theories of health behaviour change (in particular, TTM,[14] MI,[16] and MMPSM[17]), and the therapeutic alliance between physiotherapist and patient.[25] The elements from these models that resonated or aligned with the description of the physiotherapist's approach are summarized in Figure 1.

The figure represents the component parts the approach described. It is built on a foundation of a therapeutic alliance (trust and rapport). The middle blocks are the rehabilitation programme where the patient is engaged and the physiotherapist applies behaviour change techniques aimed at helping the patient feel more confident in the tasks. As the solutions (e.g., exercise programme) are developed, patients learn to manage on their own more and learn to adapt the programme to suit their needs. Patients become independent, and the physiotherapist intervenes less, leading to the summit, effective self-management. (credit: Jane Gallinaugh graphic design).

The approach described by the physiotherapist had three main elements: developing a trusting relationship through building *rapport*; establishing a *need* in patients' minds to be actively engaged in their rehabilitation; and finding workable rehabilitation *solutions* that individual patients would be most likely to adopt. The physiotherapist used BCTs when establishing a *need* and finding *solutions* to facilitate enhanced feelings of self-efficacy in patients and to increase their skills in self-management when addressing common barriers to adopting an exercise programme.

In presenting the main themes below, we use quotations from the interview to illustrate the themes and the BCTs used by the physiotherapist. The names of patients have been changed.

First theme: rapport … trusting, supportive relationship

The physiotherapist explained that she started by establishing a rapport that gradually developed into a trusting and supportive relationship. The rapport fostered open discussion about patient behaviour that prevented misunderstandings and facilitated further exploration of potential barriers to full participation and negotiation of individual rehabilitation programmes.[13,16] The physiotherapist saw establishing rapport as essential, as this became the foundation for communication between physiotherapist and patient:

> I must develop a rapport with the person (pause) if I don't have a rapport with a patient, it doesn't matter what I do.

Rapport allowed the physiotherapist to get close enough to patients to assess their readiness to change, their perceived importance of doing exercise, and their confidence in their ability to adopt a programme. The physiotherapist made individualized comments that reflected her understanding of patients' challenges of continuing with their exercise programme, the patients' pain/discomfort, or their difficulty of knowing how hard to push their exercises:

> I'm trying to relate to them, to let them know that I understand what their situation is. I'm trying to say, "I can identify that you have challenges to doing a lot of exercises"; just trying to overcome that barrier of not being able to do it.

One technique used to build rapport was to learn what each patient valued:

> Take Jason, (he) wanted so much to get back to his sport. He had fear avoidance. I'm always trying to find out what they value because it helps to identify with people.

Trusting the physiotherapist helped patients continue with their programme despite it getting harder, challenging their confidence, and not showing immediate results:

> [An external authority] once came [and] was leading the core circuit and tried to get everybody to do single-leg [plank], 15 sec holds on each side, and I just saw the trust evaporate. One patient became very upset, "I can't do it like him," but then they were made to do it. I could see that many were not getting any benefit from the exercise [and] I thought, this is exactly what you can't do with these people.

Rapport and trust are important elements of therapeutic alliance and are also related to the MI principle of expressing empathy.[16] Empathy requires the use of active listening, which the physiotherapist displayed by learning what patients valued and how exercise could be integrated into their lives. Once rapport was established, barriers to treatment progress were identified and addressed. The physiotherapist was then able to move on to the next phase of behaviour change: getting patients engaged in the Back-to-Fitness Programme.

Second theme: need for action

This study theme describes patients' self-awareness and the perceived importance of behaviour change. The physiotherapist explained that if patients understand that they need to be actively engaged in their rehabilitation, they will try exercises or new ways of thinking about the pain they are experiencing. But, as the physiotherapist explained, "If they don't see the need to do it ... they are not going to do it."

However, there were times when the physiotherapist believed a patient may be "sitting, thinking 'I don't really need this'". In this case, it is difficult to engage the patient in a programme designed to enhance self-efficacy and self-management skills. The focus for the physiotherapist, then, is to get her patients to see the need for the programme.

The physiotherapist did not use directive language; for example, she did not use wording aimed at convincing patients to adopt an exercise programme or to change their habits. Instead, she used techniques to actively engage patients in conversation, with the aim of stimulating a need in the patient's mind to change and adopt an exercise programme. In doing so, the physiotherapist created opportunities for what she called *discovery:*

> What I aim to do is help them discover "I can't do this"... So when someone's there who moves really well, and the people are like, "oh, I wish I could" and "I have a lot to do," [that self-reflection] the discovery, [is about] recognizing things in themselves.

The physiotherapist used BCTs to support this process. These BCTs are referred to by their number as listed in Appendix 1 (online).

BCTs used to stimulate need

The BCTs used were *facilitating* and *prompting*; these techniques were intended to reveal a discrepancy between what a patient was doing and his or her treatment goals. To prompt *patient self-discovery* (BCT-25), the physiotherapist ensured that patients experienced their reduced mobility, maladaptive movement, and limited commitment to exercise. For example, she described a situation in which a change in work practice was needed, using this scenario in class to stimulate discovery:

> They are reaching over the milk crates to get the heavy cans, picking something up that's almost on the floor, they lift it up unsafely, twist, and then hand it to another person (*pause*) and they just don't see it, they don't have the awareness of how they should move.

The techniques of *social comparison* and *modelling* (BCT-2, BCT-7 & BCT-8) were sometimes used intentionally to create a contrast between a patient's poor movement pattern and someone who moved well. Because the programme was run in a group setting, unintentional comparison among patients also happened continually.

During classes, the physiotherapist used BCTs seamlessly. For example, she intentionally employed several techniques during a single gym exercise. In a circle, they stood facing each other with their backs against the mirrored wall and flexed their shoulders so that both arms would touch the wall above their heads. Everyone could see the physiotherapist's normal range of motion (ROM; BCT-2), as well as seeing their own and others' limited ROM in the mirrors (BCT-7). As the differences were noticed by the patients, the physiotherapist asked, "Who needs to do this exercise?" Patients responded with statements of intent to adopt the exercise (BCT-15). Making positive statements about change is reinforcing; it increases the likelihood that change will occur.[13]

Modelling did not always involve exercise; it also included other behaviours and attitudes, such as a patient's commitment to an exercise programme. For example, one patient was role modelling (BCT-8) when, during a class, he shared his story about having accomplished one of his treatment goals, to work in the yard all day. He explained that he had been able to meet this goal because he had adopted a routine exercise programme. As the physiotherapist told us, hearing his message might prompt other patients to reflect on their need to practise their exercises:

> I can sit there and say "this is going to help you" all day, but when [a patient] is saying it, then someone else will likely [think], "Well, if it is helping him, then it may help me too."

As classes continued and the physiotherapist focused more on establishing tailor-made exercise programmes, sometimes a patient still did not see a need to be engaged in exercise. Bruce had first been in a one-on-one

physiotherapy treatment for several weeks before he spent 5 weeks in the 'Back-to-Fitness' programme. The physiotherapist felt that she had tried everything to get Bruce to see the importance of stretching his hips regularly; she had assumed that Bruce was stretching and would improve, but realized in class that she was wrong when she saw that his reduced hip ROM was unchanged. She asked the group what they thought after seeing his stiff hips, and they told him he should be doing that stretch every day. She explained to us that this was a good chance to address her observation that Bruce did not understand the need of rehabilitation:

> I chose to challenge him. I realized that Bruce did not have much self-awareness, so I used this as an opportunity to challenge him on how much he needed to do his exercise routine … he was doing nothing. I wasn't getting anywhere with him. There was limited time left in the programme to achieve discovery here, so I attempted this with his peers.

When patients saw the need for action and participated, the physiotherapist could work with them on their exercise programmes. Seeing the need for action corresponds with the perceived importance of behaviour change as described in the MMPSM.[17]

THIRD THEME: SOLUTIONS

The physiotherapist explained that the first two phases increase patients' readiness to change; the *solution* is the phase of the approach when patients are taking action and self-tailoring their programmes.[9] In the solutions phase, the physiotherapist put less emphasis on teaching new skills and more on facilitating patients' self-efficacy and self-management skills:

> Once they see the need, it is essential to help them find a plan. [I say to them,] "Let's find some solutions on how to address your need, which will help with your low back pain."

The solutions phase emphasizes patients' personal responsibility for choosing and carrying out new activities. By practising new behaviours, patients build on the idea that there is a range of exercises that could be effective in improving their chronic LBP.[16] As Mason and Butler have noted: "doing is the best way to enhance self-efficacy."[13(p.87)] The group exercise classes provided a safe environment for patients to explore and build confidence in their ability to exercise. The physiotherapist designed the classes to provide concurrent psychological and physical benefit, with repeated intentional practice serving to consolidate new movement patterns. She wanted patients to learn what they needed to do specifically to improve their chronic LBP and to learn that they were capable of doing it:

> It doesn't matter how good you are as a therapist, if they don't see a *need* for what you're going to do, and they don't think they can *do it*, then you are not going to have success with the person.

Here the physiotherapist is referring to perceived importance and self-efficacy.[11,13,17] Our data show that she used BCTs to enhance self-efficacy.

BCTs used to support effective solutions

Seeking a solution for each patient often involved teaching exercises and then using BCTs to facilitate learning and enhance self-efficacy, as we outline below. The desired outcome was the patient's adoption of an exercise programme and a commitment to continue exercising after discharge.

Preference

In the physiotherapist's experience of chronic pain rehabilitation, one of the biggest challenges is to get patients engaged in an intentional, routine exercise programme. She explained that the probability of a patient's adopting and practising a new exercise is greatly increased if he or she *likes* the exercise; when patients like the exercise, they are more likely to develop good exercise technique, spend more time exercising, and learn that they can exercise without re-injury. The physiotherapist therefore focused on finding out what her patients *liked:*

> If they don't like it, then why reinforce that negativity? If there's something else they do like to do, then we'll focus on that.

The physiotherapist taught a set of beneficial exercises that fit into the workplace context. She explained how the exercises could be done in many environments and taught them while considering the required physical layout, the number of repetitions and the intensity:

> This is an instance where I am reinforcing convenience. "This one is easy, because it can be done anywhere." I think the more they have of simple solutions, the easier it becomes.

In class, she asked patients to pick their favourite exercises and perform them in class (*prompting intention formation*, BCT-15). She then worked specifically with each patient to hone his or her exercise technique, using several different BCTs—for example, *prompting physical skills acquisition* (BCT-3) and *shaping* (BCT-5) while observing and correcting the exercise technique. When a patient needed to see an example of good technique, the physiotherapist added *physiotherapist modelling* (BCT-2), and she facilitated *internal reinforcement* (BCT-27) by discussing how an exercise should feel or look when performed correctly. She felt that the best use of her time was to focus on those exercises that a patient was most likely to adopt.

Active learning

The physiotherapist believed that lasting and effective solutions require patients to be cognitively and physically active in class. To engage patients, she used active learning strategies (e.g., *prompting barrier identification*,

BCT-19; *problem solving / maintenance / dealing with flare-ups*, BCT-20; *prompting specific goal setting*, BCT-23; *facilitating internal reinforcement*, BCT-27). Frequent questions helped her to assess patients' understanding and to differentiate patients who were engaged in rehabilitation from those who were not engaged. They also acted as a memory tool to help patients retain information about their rehabilitation:

> One group in particular was excellent. We didn't even get down to the gym, we just talked. There were three of them asking and answering each others' questions. Over the years, I am saying less and they are saying more; they are so much more active then.

Each patient kept an exercise log (*prompting homework*, BCT-11). Patients wrote daily about changes, progress, or dropping exercises, and noted their responses to these changes. This self-monitoring practice (*prompting homework*, BCT-11; *prompting self-monitoring of behaviour*, BCT-25) helped patients attend to the details of their programme, take responsibility for changes and problem-solve if a flare-up occurred:

> By tracking weekly routines, they are writing, reflecting and making themselves accountable. They may ask themselves, "what was the name of that exercise again, am I doing that one right?" The written log helps them retain (their reflections), rather than being a passive participant.

This approach was intended to stimulate an internal dialogue (*Prompting intention formation* BCT-15) such as, 'Is it something that I can find the time to do? Can I commit to it?' Engaging in internal dialogue enabled the patients to gain confidence in their self-management. The use of these active learning principles engaged patients, empowered decision making and enhanced commitment.

Reducing the threat

People with chronic LBP are often anxious about exercising because they fear it will cause pain or re-injury.[36] The physiotherapist explained that most patients in the programme we observed had experienced flare-ups or had been re-injured before taking the class, and were moderately fearful of exercising. To reduce the association between exercise and pain, the physiotherapist did not talk about pain in the gym. The physiotherapist used techniques to dampen the threat of exercise (*cognitive restructuring*, BCT-16) by re-directing thoughts and challenging maladaptive beliefs about pain. Discussions focused on how patients' bodies responded to exercise (*prompting self-monitoring of behaviour*, BCT-25) and appropriate adjustments to make exercises challenging without causing re-injury:

> We often talk about the pulling of the muscles, and not pain, so it's showing them that they are exerting themselves, and to recognize those cues. We suggest that they don't necessarily have to work through [the pulling sensation], they just have to modify and adjust. We keep reinforcing . . . we can't feel what they are feeling and that they need to have their own ability to know how much is maximizing the effect of the exercise.

DISCUSSION

Our study aimed to follow up on an observational study of BCTs used in a physiotherapist-led rehabilitation programme designed for military personnel with chronic LBP.[7] In that study, we found that the physiotherapist used a wide range and type of BCTs, but we did not learn her reasons for doing so. The present qualitative study allowed us to explore her practice in depth, and this article thus provides a theoretical perspective on her practice. Our analysis revealed how her practice can be described in terms of patient self-management, behaviour change and therapeutic alliance. (Figure 1 draws these concepts together to illustrate the building blocks of these approaches and the language used to describe similar constructs). The physiotherapist explained her use of BCTs in the context of her approach: developing a trusting relationship through building *rapport*, establishing a *need* in patients' minds to be actively engaged in their rehabilitation, and finding workable rehabilitation *solutions* that would be most likely adopted by individual patients.

The physiotherapist began with rapport because she considers this an essential foundation of programme success. A supportive, trusting environment based on rapport helps us gather the best information from our patients,[37] is highly valued by expert clinicians,[38] and is associated with an enhanced therapeutic effect.[25,26,39,40] Rapport building and trust are key elements of a therapeutic alliance and are related to the MI principle of expressing empathy.[16]

Building on the relationship, the physiotherapist looked for evidence that patients understood the need for the rehabilitation programme. She used BCTs to stimulate discovery and reveal discrepancies between what the patients could do and the desired outcome.

This contrasting approach is also used in MI to draw attention to a targeted behaviour.[16] The physiotherapist believed that if patients could understand the need for the rehabilitation programme, they would become more engaged in the programme. This concept is similar to the idea of the perceived importance of behaviour change as defined in the self-management literature.[17] Without this sense of the importance of their engagement, patients might expect positive outcomes from passive treatment, not pay attention during class, or not invest time or energy into applying new knowledge or doing exercises. These disengaged behaviours are associated with poor treatment outcomes.[41,42] Patient engagement stimulated by seeing the need for the programme was followed by the solutions phase, in which patients practised exercising and making decisions about their own exercise programme. The BCTs used by the physiotherapist may have had an effect on patients' self-efficacy, improving

their chances of continued engagement in self-management following discharge.

Rehabilitation requires patients to adopt new behaviours.[17] The number of BCTs shared by physiotherapy and psychology reveals how the two scopes of practice overlap. A recent clinical practice guideline for chronic LBP endorsed the explicit combination of psychological and physical measures.[5] Physiotherapists should become aware of psychological techniques and begin to use them intentionally to enhance the effectiveness of their interventions.

CONCLUSIONS

Our study has certain limitations. The study was based on the practice of one physiotherapist who designed and delivered a rehabilitation programme focused on patient self-management, which clearly limits the generalizability of our findings. Nonetheless, we have added to our understanding of how physiotherapists can use psychological techniques in their practice and how this approach is consistent with theories of behaviour change, self-management, and therapeutic alliance. These concepts can be applied to many areas of physiotherapy practice and perhaps, to other health professions as well. We are confident that a better understanding of how we work with our patients, as opposed to what we do to them, will support the overall goal of improving patient outcomes.

KEY MESSAGES

What is already known on this topic

Rehabilitation for chronic LBP is complex, and physiotherapy interventions are under scrutiny for effectiveness. Behaviour change in chronic LBP rehabilitation and a positive working alliance with patients are known to be associated with positive patient outcomes.

What this study adds

The non-directive, three-element approach described here shows how behaviour change techniques can be integrated into a traditional physiotherapy setting to enhance self-efficacy and encourage self-management in people with chronic LBP. This approach has strong correspondences with descriptions of therapeutic alliance and psychological theories of behaviour change, such as Motivational Interviewing, Transtheoretical Model of Change, and the Motivational Model of Patient Self-Management.

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