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ORIGINAL REPORT

RECURRENT LOW BACK PAIN: RELAPSE FROM A PATIENT PERSPECTIVE*

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Objective: **To explore and describe how patients with recurrent low back pain perceive and respond to the recurrence of pain.**
Design: **A semi-structured interview study.**
Subjects: **Seventeen patients (10 women and 7 men) with recurrent low back pain.**
Methods: **Semi-structured interviews were analysed using the phenomenographic method.**
Results: **Patients' perceptions of relapse of low back pain could be divided into 4 different categories: (*i*) an unsolved mystery, a source of uncertainty and self-accusation; (*ii*) an obvious part of life that has to be ignored; (*iii*) a reminder to keep within limits, both physically and psychologically; and (*iv*) an indication to change behaviour to prevent further relapse. The categories could be grouped hierarchically such that they reflect to what extent the patients showed readiness and self-efficacy in adopting self-management strategies to prevent further relapses.**
Conclusion: **The results suggest that patients with relapse in low back pain could respond in different ways to the recurrence of pain and show different degree of readiness to change behavioural and movement patterns in order to prevent further relapses. The different responses might be important aspects to which physicians and allied health professionals should pay attention in the rehabilitation process.**

Key words: behavioural change, chronic pain, phenomenography, physical therapy, prevention, rehabilitation, self-efficacy.

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INTRODUCTION

Studies have shown that, in general, 70% of patients with low back pain (LBP) experience one or more relapses within a year of the first appearance of LBP (1–3). According to von Korff (4), the natural course of LBP is pain emerging in episodes. He subdivided LBP into transient pain, in which pain does not occur for more than 90 days in a year; recurrent pain, in which pain is present for less than half of the days during a 12-month period; and chronic pain, which means that pain is present for at least half of the days during a 12-month period. von Korff recommended that clinicians assess not only functional limitations and pain intensity, but also the number of days that the patient experiences LBP in a defined period of time.

Relapse can be defined in different ways. According to von Korff (4), a relapse is an episode in which pain is more intense than usual, lasting about one week, during the recurrent or chronic phase. McGorry et al. (5) defined relapse as an episode of 2–9 consecutive days during which pain is equal to or more than 2 pain markings on the visual analogue scale (VAS) compared with the patient's median pain during a 6-month period. According to van den Hoogen et al. (2), a relapse is the recurrence of pain after a pain-free period of 4 weeks or more and the pain lasts until the start of the next painless 4-week period.

It is difficult to specifically spell-out the mechanisms by which acute LBP becomes recurrent or chronic; however, different models have been presented. Hodges & Richardson (6) proposed that the inability to recruit the transverse abdominal muscles that stabilize the back may lead to an overload of the joints during everyday activity, thereby causing recurrent pain. Johansson & Sojka (7) noted that, during long-lasting muscle work, substances that generate pain appear in the muscles and irritate the muscle spindles. These substances increase muscle stiffness, initiating a vicious circle of pain. Roatta et al. (8) showed that high sympathetic activity, such as excessive mental stress, increases the sensitivity of the muscle spindle system, possibly causing chronic pain. Another explanation of recurrent and chronic pain is the fear-avoidance model, which was first described by Lethem et al. (9), and later also by Vlaeyen & Linton (10). This model refers to the avoidance of movement or activities based on fear of pain, which leads to inactivation, weakness and stiffness. Already in 1986, Dolce et al. (11) described that patients' beliefs about their own capability, i.e. self-efficacy, influenced the way recurrent and chronic pain develops, such that low self-efficacy can lead to a reduction in pain tolerance.

The importance of qualitative methods to investigate patients' beliefs about LBP has been stressed (12). However, the way in which patients with recurrent LBP cope with relapse

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has not yet been investigated, even though it is conceivable that relapse-associated pain is perceived by different patients in different ways. Insight into how patients respond to and cope with relapse could lead to an increased understanding of their health-related behaviours and to the development of individualized rehabilitation programmes.

The aim of this study was to explore and describe the different ways in which patients with recurrent LBP perceive and respond to the recurrence of pain.

METHODS

Theoretical perspective

A qualitative phenomenographic method was chosen in order to achieve a detailed understanding of the different ways in which patients perceive the relapse of LBP. The purpose of phenomenography is to describe conceptions of a phenomenon that often represents something that is implied, is difficult or needs not be described, as it has never been reflected upon. A distinction between facts or behaviours that can be observed and an individual's personal reasoning is stressed. However, according to phenomenographic theory, the different ways in which people act are related to how they perceive a certain phenomenon. Emphasis is therefore placed on the variation within a group, so that the investigator can arrive at a description of the dominant characteristics of the similarities and differences regarding how the phenomenon is perceived and understood (13).

Study sample

The sample comprised 17 patients, 10 women and 7 men, with recurrent LBP (Table I). Fifteen of the patients were born in Sweden, one in Morocco, and one in Ethiopia. After 17 interviews, the amount of new information decreased and further recruitment was stopped. The inclusion criterion was at least one relapse of LBP during the last year after a pain free-period of LBP. The exclusion criteria were pain radiating to the leg without concurrent LBP and diseases such as Bechterew's syndrome, rheumatoid arthritis, neurological diseases such as stroke and multiple sclerosis, and patients with mental disorders such as schizophrenia.

In accordance with the phenomenographic tradition, the participants were recruited strategically. They were enrolled from 4 physical therapy clinics in Stockholm, Sweden, to represent various ages, gender, diagnoses, symptom durations, and ethnic origins. Four patients declined to participate due to lack of time, one declined due to pain deterioration. Ethical approval was obtained from the regional research ethics committee at Huddinge University Hospital.

Table I. *Demographic characteristics of the participants (n = 17)*

Characteristics	
Sex: female/male, *n*	10/7
Age, years, median (range)	36 (15–64)
Duration of symptoms, years, median (range)	8 (0.5–30)
Diagnoses, *n*	
Lumbago	12
Lumbago-sciatica	5
Number of relapses last year, median (range)	10 (1–52)
Marital status, married/partner, *n*	11
Education level, *n*	
Comprehensive school	3
Upper secondary school	6
University	8
Occupational status, *n*	
Full-time work	8
Sick leave	5
Out of employment	2
Student	1
Old age pension	1

Data collection

All participants received oral and written information about the study. Semi-structured in-depth interviews were conducted at a physical therapy clinic and lasted as long as either party had more to add about the phenomenon studied, which came to an average of 60 minutes. The first questions were: Can you tell me about a pain relapse during the last year? Do you remember how you experienced it? Thereafter the following themes were discussed:

- Have you thought about why the pain recurs?
- Have you found your own ways to cope with your pain?
- Have you thought about how you can prevent further relapses?
- If you did not have back pain, do you think your life would be different?

The interviewer (OB), a physiotherapist experienced in working with patients with LBP, encouraged participants to develop and describe their experiences and thoughts as freely as possible. All interviews were audio-taped and thereafter transcribed verbatim.

Data analysis

The authors read the transcribed interviews several times to ensure familiarity with the material and to be able to distinguish different kinds of statements related to patients' perceptions concerning relapse. Thereafter, the statements were preliminarily grouped into meaningful categories according to fundamental similarities and differences. The categories were cross-checked with the original interviews before the final categorizing was considered satisfactory. Three of the authors (OB, GB, LNW) reached an agreement about the categories of descriptions, after discussions and checks for alternative explanations. Each category was described and quotes from the interviews were chosen to illustrate the main content in the different categories. Finally, the structural relationships between the categories, termed the outcome space, were analysed. This structuring of the outcome space involved highlighting key aspects of variation that have been found, both logically and empirically, to link and separate the different ways of perceiving the phenomenon under study (14).

RESULTS

Four qualitatively different categories of reasoning and responses to the recurrence of pain were found. The categories could be grouped hierarchically such that they reflect the extent to which the participants showed both readiness and self-efficacy to adopt self-management strategies to prevent further relapses (Fig. 1). The categories were: (*i*) relapse: an unsolved mystery, a source of uncertainty and self-accusation; (*ii*) relapse: an obvious part of life that has to be ignored; (*iii*) relapse: a reminder to keep within limits, both physically and psychologically; and (*iv*) relapse: an indication to change behaviour to prevent further relapse. Despite the variation, in all 4 categories both overestimation of one's physical capacity and a stressful lifestyle were commonly perceived as triggers or contributing factors for relapse in LBP.

Categories of description

(i) Relapse: an unsolved mystery, a source of uncertainty and self-accusation. In this category, individuals are occupied with and constantly looking for causes for episodes of relapse

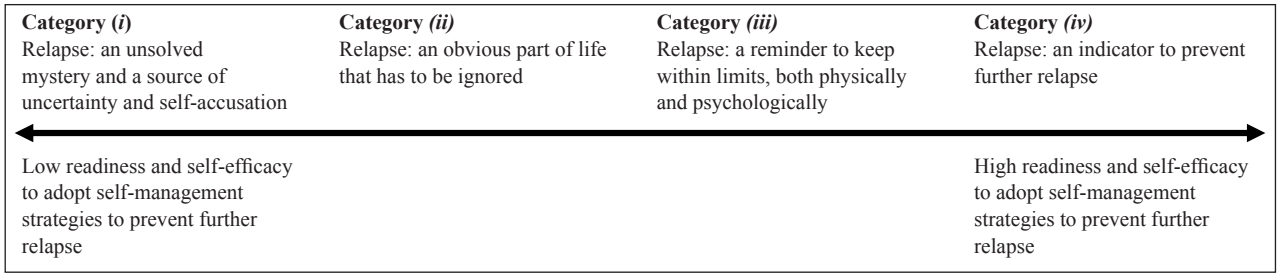

Fig. 1. Four different ways of understanding relapse in low back pain, grouped in relation to readiness and self-efficacy to adopt self-management strategies to prevent further relapse

and recurrent LBP. Every relapse appears mysteriously and gives rise to a sense of uncertainty and, in some cases, to self-assessment and self-accusation, i.e. "I have done something foolish or moved in an incorrect way". Responses in this category correspond with avoidance behaviour both, physically, psychologically and socially. Fear of movement behaviour is reinforced by the experience that physical activity leads to an increase in pain, which in turn strengthens the belief that movement and activity should be avoided.

> Always when I have this, it is a reaction to something stupid I've done; I've used my body in an incorrect way. …. When I feel well, it doesn't have anything to do with what I've done, but something I haven't done, that I haven't performed an incorrect movement for example. (*Patient 7*).

> The pain frightened me pretty much, so I was afraid to move and then the pain got worse and worse. I lived my life like a little porcelain doll. It felt like my back would break, by the smallest movement… (*Patient 16*).

> I've had a bad back, I am weak, so I am a bad person. I am doing the wrong thing, I am not capable. The back pain makes me feel bad mentally, like I'm not capable and strong. (*Patient 2*).

Individuals in this category are constantly looking for medical solutions and treatments to get rid of their pain. They lack awareness of and self-efficacy in their ability to change the situation and make it easier. Change of behavioural or movement patterns are not considered or perceived as helpful. They often experience a lack of support and understanding both from the healthcare system and friends and families. The healthcare system has, despite extensive effort, so far, not been able to help this group of individuals.

> I've received a lot of different treatments with no results, I hope that one day some American expert team will help me, or else I have to get surgery. (*Patient 2*).

> The back is so complex, you never know if you are going to get any better at all, or if the pain is getting worse and worse. (*Patient 7*).

(ii) Relapse: an obvious part of life that has to be ignored. In this category, individuals are trying to live life as usual, despite the relapses of LBP. Pain as a signal or a message is ignored. The relationship to the body is rather one of alienation, and the fact that pain recurs is rejected. Moreover, pain is generally seen as an obstacle to the realization of important goals in life, and sometimes these individuals become moody or depressed.

> I try to live life as usual and do what I want despite the pain. …I won't get rid of my pain and avoid…I think that I will do things that will take me to the physiotherapist again. I'll be careless, forget myself and then in 5 years I might become stiffer. You don't get more supple and less injury prone when you are older. I don't know, the body is worn out. (*Patient 4*).

> It's all about a new identity. I've never seen myself as a disabled or handicapped person. I've always been able to do what I want…It's hard to realize that you have to get new goals in life. (*Patient 10*).

Individuals in this category have a clear idea of what is causing the pain, but do not believe they have the time and energy to change the situation. Preventive strategies are appraised as not worth spending time on. The causes of the relapses are perceived as multiple, ranging from incorrect lifting to muscle tension due to a stressful lifestyle. In general, this group of individuals is not preoccupied with the causes of the relapses or the opportunities to prevent them. Instead, they continue to expose themselves to risky movements or high stress. They give priority to the things they value the most, i.e. work and family.

> I like my job a lot, but I'm the only one that can handle it. If I have a deadline I just go on until the work is done despite the pain. (*Patient 10*).

(iii) Relapse: a reminder to keep within limits, both physically and psychologically. In this category, a relapse is mainly seen as an important reminder to keep within limits and to limit oneself. Lack of self-limitation often leads to an overestimation of physical and psychological capacity. It is common that individuals are uncertain about how much the back can stand in daily life. They are aware of the importance of preventing further relapse and the necessity to acquire new habits of daily life, such as taking time to relax and to exercise regularly. However, the difficulty lies in how to make such changes and to maintain self-management skills.

> The back pain is a way to keep within limits. If I'm not good at staying within limits, then the back pain sets the limits, for instance for how much I can cope with in everyday life. (*Patient 1*).

> What is tricky is that it doesn't have to hurt when you are doing things, the pain comes afterwards, and it can be very hard to know how much you can do….I know if I say no, more frequently, then I feel better. (*Patient 14*).
>
> If you have an appointment with the physiotherapist, it is easier at work, to say that I have to go and exercise. I can say "no" to myself and to my employer, I am then able to relax from work. (*Patient 11*).

The individuals in this category have clear ideas about how their lifestyle affects LBP and they believe that several factors cause relapse. Conflicts at work, high demands from others and themselves constitute stress factors that can trigger the pain.

> Every time the pain has peaked, I have had an enormously stressful period at work. I'm on top all the time, with many things going on at the same time. You feel the demand to perform, both from the employer and from customers. (*Patient 11*).

(iv) Relapse: an indicator to change behaviour to prevent further relapse. In this category, individuals have high self-efficacy in their ability to cope with pain in everyday life and to change different kinds of behaviours. A relapse is generally perceived as an incentive, a trigger for the individual to become responsible for his or her recovery and to take steps to prevent further relapses. The individuals believe that regular exercise prevents relapse and are confident they will accomplish this. Only modest support from, for example, the physiotherapist is necessary, otherwise they maintain exercise or relaxation behaviour by themselves. They look ahead and take themselves through the problem one step at a time.

> The back pain has helped me to relax and to set my priorities straight. You can't do everything, you have to take the good with the bad, as I say. (*Patient 12*).

Individuals in this category usually have a clear view about what causes relapses and recurrent LBP, for example incorrect work positions and rapid turns, but also lack of time, which makes one move in an incorrect way. Another cause is that when the pain eases, it is easy to forget and to overestimate one's capacity, which in turn leads to overload and relapse.

> Relapse in pain has a lot to do with what your actions are. As soon as the movement pattern is wrong, the pain recurs... If you feel well it's difficult, then you forget yourself and you are too hasty. (*Patient 5*).

DISCUSSION

The main findings of this study suggest differences in perceiving relapses in LBP as well as differences in attitudes to adopting self-management strategies to prevent further relapses.

Participants in category (*i*) not only described a fear avoidance behaviour, they were also looking for causes of their pain. Nevertheless, every recurrent relapse seemed to appear mysteriously. In addition, the participants did not have any ideas about how to prevent further relapses and relied on others for help. Patients with chronic or recurrent LBP who relied on others, i.e. patients with a high external locus of control, also seem to use more passive coping strategies, such as hoping and praying, but also catastrophizing (15, 16). Some participants in category (*i*) also mentioned a sense of guilt and self-accusation. Whether using passive coping strategies makes it more likely to internalize blame, guilt and self-accusation is a hypothetical question, but may be worth paying attention to in further investigations.

Participants in category (*ii*) did not show any interest in understanding why pain occurs or recurs. Pain as a signal was denied and ignored. The reason for this could be other aspects of life that are more dominating, for instance family or work demands, and thus a larger part of the patient's identity. The participants in this group seemed to have an ability to withstand and ignore pain to a high degree. Ignoring the pain was mentioned as a common way to respond to and to cope with relapses, the pain was not allowed to control one's life. On the other hand, from time to time the participants in this category experienced hopelessness and depression.

Participants in category (*iii*) were aware of, and could understand, the causes of their relapses, but were not able to change their situation and therefore not able to prevent further relapses. Despite this understanding, they continued to practise hard sports and to work many hours, resulting in mental stress and physical overload. They perceived the relapse primarily as a reminder to limit themselves and to seek professional help. Nevertheless, they had difficulties in fully implementing the changes necessary to prevent further relapses. It seemed that they had difficulties in dealing with a stressful lifestyle, but it might also be that they had difficulties in accepting the fact that their body can no longer tolerate the same behaviour as before. The participants in category (*iv*) felt that coping with pain is a question of being proactive and of taking care of oneself; "You have to look forward and have small goals ahead". They showed self-efficacy in different self-management skills and looked primarily for guidance and coaching to stay proactive. LBP did not stop them but they did not ignore the pain. On the contrary, the recurrence of pain helped them realize and accept their problems, to be able to cope with them, and to make changes to prevent further relapses.

Despite the variation, it was notable that the majority of the participants interviewed stated that they had difficulties in judging their physical capacity. During a pain-free period, it was common that they ignored their previous back problems, risking overload both physically and mentally. Not accepting that their back was not as strong as it used to be affected their work and spare time. In addition a stressful lifestyle was commonly perceived as a trigger or contributing factor. Whether stress, as in lack of time, makes a person move in a biomechanically unsuitable way has not been studied to a great extent, apart from Marras et al. (17) who had shown that movement co-ordination deteriorated during stress. However, studies have also shown that anxiety and stress can affect directly the muscle-spindle system, increasing sensitivity and generating increased muscle tension and chronic pain (7, 8). Above that, fear of movement was frequently pointed out, especially by the participants in category (*i*) but also in some in category (*ii*).

This behaviour could lead to inactivity, weakness and stiffness, also called a deconditioning syndrome. Fear-avoidance behaviour is defined as a fear or phobia of something that is not proportional to the person's actual experience. When the initial pain episode is over, normal use of that body part is avoided, due to fear that the pain will get worse or recur (9, 10). Fear avoidance behaviour seems to contribute to the transition from acute to chronic LBP (18).

In accordance with the phenomenographic method, the internal relationships between the different categories of descriptions are in focus. In the present study, the degree of self-efficacy and readiness to adopt a self-management approach seemed to be related to the different ways of perceiving and responding to recurrent LBP.

Today, there is growing evidence that improvements in self-efficacy beliefs are related to positive short- and long-term outcomes of pain coping skills training and educational interventions (19). It has also been shown that self-efficacy beliefs are more important determinants of disability than fear-avoidance beliefs in patients with musculoskeletal pain (20). In a study by Lackner & Carosella (21), it seemed that functional self-efficacy was a more accurate cognitive determinant of spinal function than either perceived pain controllability or anxiety. Higher levels of functional self-efficacy were accompanied by higher performance of spinal function, as measured by load lifting. Patients with chronic musculoskeletal pain who registered a stronger belief in internal locus of control reported less pain and used more active coping strategies than patients who had less personal control over their pain (22).

There is also growing recognition that patients with chronic pain may be at different stages of change with respect to the adoption of self-management strategies. Patients' willingness or motivation to adopt a new behaviour is conceptualized as readiness to change and refers to how prepared they are to make behavioural changes in both their beliefs about pain and the way in which they cope with pain. Implicit in this approach is the assumption that the patient is motivated to engage in and maintain the treatment recommendation. Behaviour change is referred as a process instead of a discrete event, i.e. people move from no intention or motivation to change to the internalization of the new behaviour (23, 24). The stages of change model is based on 3 main stages; "precontemplation", where the person is not yet considering to change behaviour, "contemplation", where the person is thinking about change and adoption of a new behaviour and "action", where the person adopts and executes the new behaviour (25). In relation to the stages of change model, categories (*i*) and (*ii*) in the present study could be compared to the "precontemplation" stage, category (*iii*) to the "contemplation" stage and category (*iv*) to the "action" stage.

The stages of readiness to change construct, a core element within the trans-theoretical model of health-behaviour change, first described by Proschaska & Velicer (26), provide a useful way of understanding deliberate behaviours, such as exercise and physical activity, and the importance of to adjust interventions.

However, the usefulness of stages of change and stage-targeted interventions in promoting complex health-related behaviours, such as physical activity or exercise, has been critiqued by Adams & White (27), whereas other authors have stressed the opposite (28). Also Kern & Habbib (24) discussed the importance of further research and stated that tailoring or matching self-management treatment approaches to patients' apparent degree of readiness to change is particularly useful. However, this model provides an important starting point for understanding engagement and adherence in the context of self-management. Further research is needed especially to understand adoption of self-management in chronic and recurrent pain.

Recent refinements in the model and its measurements suggest that readiness to adopt a self-management approach might be multidimensional in nature (24). Other core constructs, such as self-efficacy or acceptance, might be helpful in the development of new treatment approaches. Little is known about the reasons for maladaptive or non-compliance with therapeutic regimes, such as exercise in patients with LBP (29).

McCracken (30) found that acceptance of pain was the most powerful predictor of whether patients with chronic pain were classified as dysfunctional or functional well, regardless of pain intensity or depression. Whether these findings are valid for patients with recurrent LBP has not yet been investigated.

The framework of acceptance is pragmatic; it expands the control agenda to include acceptance and control, and is useful to practically guide the treatment of chronic pain and stress-related syndromes (31). Somewhat paradoxically, there are occasions when helpful change, for example adoption of a self-management approach, can only occur when some aspects of the problems are accepted as they are. This may be, above all, applicable for patients in categories (*i*) and (*ii*) but also for category (*iii*). A hypothetical theory is that the patients in category (*iv*) may have reached another level of acceptance regarding their situation compared with the other patients. However, further studies are needed both to test the efficacy of acceptance-based interventions for patients with recurrent LBP and to identify those patients who are most likely to benefit from them (12). For example, it would be interesting to assess self-efficacy, readiness to adopt a self-management approach, and acceptance of pain in patients with recurrent LBP. The primary measure of pain acceptance has been the chronic pain acceptance questionnaire, which consists of 2 components: activity engagement and pain willingness (32).

An important question in this study is whether the result of an interview at one point in time is a replicable presentation reflecting a stable understanding of the phenomenon studied. The understanding of relapse in LBP may vary over time, depending on contextual changes or as a result of interventions. While the transition from one category to another has not been examined, there is nothing in the present study to support that such a transition takes place, although further studies of this aspects are required.

In conclusion, relapse in recurrent LBP was perceived in 4 qualitatively different ways that were grouped according

to the extent to which patients showed both readiness and self-efficacy to adopt self-management strategies to prevent further relapses.

The implications of these results lie primarily in providing a knowledge base for identifying different subgroups of patients with LBP, who have often been regarded as a relatively homogenous group. An increased understanding of patients' divergent health-related behaviours and their readiness to change behavioural and movement patterns should be helpful in constructing guidelines for individualized rehabilitation programmes. In addition, it seems important to develop treatment interventions in, for example, physical therapy that integrates a cognitive behavioural approach, especially addressing how to support self-efficacy in patients so that they are able to avoid a stressful lifestyle and to adopt self-management strategies to prevent further relapses.

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