

Recovery: What Does This Mean to Patients With Low Back Pain?

JULIA M. HUSH,¹ KATHRYN REFSHAUGE,² GERARD SULLIVAN,² LORRAINE DE SOUZA,³
CHRISTOPHER G. MAHER,⁴ AND JAMES H. MCAULEY⁴

Objective. To explore patients' perceptions of recovery from low back pain, about which little is known.

Methods. A qualitative study was conducted in which 36 participants, either recovered or unrecovered from low back pain, participated in focus groups. Interviews were audiorecorded and transcribed verbatim. Framework analysis was used to identify emergent themes and domains of recovery.

Results. Patients' views of recovery encompassed a range of factors that can be broadly classified into the domains of symptom attenuation, improved capacity to perform a broad scope of self-defined functional activities, and achievement of an acceptable quality of life. An interactive model is proposed to describe the relationships between these domains, cognitive appraisal of the pain experience, and self-rated recovery. Pain attenuation alone was not a reliable indicator of recovery.

Conclusion. The construct of recovery for typical back pain patients seeking primary care is more complex than previously recognized and is a highly individual construct, determined by appraisal of the impact of symptoms on daily functional activities as well as quality of life factors. These findings will be valuable for reassessing how to optimize measures of recovery from low back pain by addressing the spectrum of factors patients consider meaningful.

INTRODUCTION

Back pain is a major musculoskeletal disease that has significant personal impact and societal burden (1). Recovery from an acute episode of low back pain is slow and rarely complete. Even after one year, more than one-third of patients have persistent symptoms (2). These findings suggest that either we lack effective treatments for low back pain or we are measuring inappropriate outcomes. There is anecdotal evidence from clinical trials that participants report feeling much better even when their mea-

sured outcomes were relatively unchanged. This insight led us to question the meaning of recovery for patients with low back pain.

To our knowledge, patients' views on this subject have received limited attention in the literature to date. One preliminary study briefly reported that patients consider recovery from low back pain to mean the resumption of usual activities such as sleep, playing with children, and housework (3). Improved activity participation was also reported as the main criterion for recovery by patients with musculoskeletal pain (4). In contrast, patients with sciatica rated pain severity and quality of life as the most important treatment outcomes (5). Possible explanations for the disparity of these findings are the heterogeneity of populations studied, or that more than one of these domains may be important for the determination of recovery. Whatever the reason, our understanding of the construct of recovery from nonspecific low back pain appears to be deficient, warranting further investigation.

A better understanding of the meaning of recovery from the patients' perspective is critical to the measurement of this outcome in clinical trials and clinical practice. Recovery is most commonly measured in pain research using standardized patient-report instruments (6,7). However, there is evidence that scores using these instruments do not align well with patients' experiences of recovery or treatment outcomes (8–10). For instance, discrepancies have been reported between narrative accounts of patients'

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¹Julia M. Hush, PhD: Stanford University, Stanford, California, and The University of Sydney, Sydney, New South Wales, Australia; ²Kathryn Refshauge, PhD, Gerard Sullivan, PhD: The University of Sydney, Sydney, New South Wales, Australia; ³Lorraine De Souza, PhD: Brunel University, London, UK; ⁴Christopher G. Maher, PhD, James H. McAuley, PhD: The George Institute for International Health and The University of Sydney, Sydney, New South Wales, Australia.

Address correspondence to Julia M. Hush, PhD, Visiting Assistant Professor, Pain Management Division, School of Medicine, Stanford University, 780 Welch Road, Suite 208C, Stanford, California 94304. E-mail: j.hush@usyd.edu.au.

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Table 1. Interview topic guide

Type of question	Examples
Introductory	Can you briefly introduce yourself to the group? Please tell me about your back condition.
Open-ended, regarding recovery	Do you see yourself as having recovered from your back condition?
If "yes" (recovered)	How did you know you had recovered? What had changed?
If "no" (unrecovered)	What would have to change for you to consider yourself recovered?
	If you think recovery isn't possible, what could be better?
Closing	Is there anything else you would like to add?

pain experiences and scores on standardized pain and disability measures from patients with back pain (9,11). Low concordance (<50%) has also been found in patients after treatment for knee osteoarthritis when comparing data from interview-based assessments with results from standardized pain and disability questionnaires (8). Similar problems have been identified in questionnaires designed to capture quality of life data (12).

These examples suggest that patients' views of recovery may differ from those of researchers and clinicians, and highlight the need for consultation with patients about their perspectives on recovery. The expert advisory group, the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials, has recommended that patient groups be consulted about their opinions on outcomes used to capture recovery in clinical trials (7). However, to date, patients' views about recovery have not been adequately explored for low back pain. It is possible that perceptions of back pain differ from other conditions, as it is uniquely resistant to pathology-based diagnosis and effective treatment. Previous research has explored related issues, such as patient satisfaction with physiotherapy treatment for low back pain (13), beliefs and expectations of patients seeking primary care for low back pain (14–19) or chronic musculoskeletal pain (20), and the perspectives of patients with low back pain about quality of life (21). However, other than one brief report (3), no other study has specifically investigated patients' views about the meaning of recovery from low back pain. The aim of this study was to explore patients' perspectives of recovery from low back pain.

PATIENTS AND METHODS

Study design. Qualitative research methods were used to investigate patients' perceptions about recovery from low back pain. This approach is appropriate for understanding views underlying individual experiences in health research (22,23). Semistructured interviews using standard focus group research methods were used (24). Ethics approval for this study was granted by the Human Research Ethics Committee at the University of Sydney.

Patients. Participants were invited into the study from a database of patients who had completed an inception cohort study of low back pain (2). A typical case sampling strategy (25) was used to invite individuals to participate if they were working and were fluent and literate in English. Participants were excluded if there was a history of a

specific spinal pathology. We sought to include both recovered and unrecovered individuals to explore both perspectives. A total of 36 participants were recruited into the study.

Data collection. Eight focus groups were conducted in a meeting room at the University of Sydney, with each focus group lasting ~2 hours. The Chatham House Rule that stipulates confidentiality during such meetings (26) was invoked to encourage openness in communication. Using an interview topic guide (Table 1), participants were questioned about their history of back pain and asked to self-rate their recovery status. Further discussion sought to reveal individual perspectives about the construct of recovery. The conversation was flexible and responsive to issues as they arose so that participants' views could be further explored where appropriate (27).

Discussion in each focus group was audiorecorded and transcribed. Transcripts were checked against audio files for accuracy and compared with scribe notes taken during each focus group to validate the transcribers' speech allocation to individual participants. Data were de-identified to ensure confidentiality.

Statistical analysis. A framework analysis approach (28,29) was used to identify key themes about patients' perceptions of recovery. The transcripts were first broadly examined to identify recurrent themes. Data were further analyzed on several occasions to refine evolving themes. Discussion with coinvestigators ensured that themes were comprehensive and inclusive. Data were then arranged into charts summarizing themes, issues, and individual responses. An interpretive analysis of the charts was performed to provide explanations for the findings. In the analysis, we sought to identify patterns of recovery domains that were associated with particular characteristics, such as age, sex, or type of occupation. Where patterns were found, they have been reported.

Demographic data, as well as pain (the 11-point Numerical Pain Rating scale) (30) and disability (24-item Roland-Morris Disability Questionnaire) (31) data, were collected by questionnaire following the group discussion about recovery. The Numerical Pain Rating scale is a 0–10 measure of pain intensity. The 24-item Roland-Morris Disability Questionnaire is a self-report measure of perceived disability due to low back pain that covers a range of aspects of daily living, including physical function (e.g., walking, dressing, and sitting) as well as items about sleep, mood, and appetite. SPSS software, version 14.0 (SPSS,

Table 2. Characteristics of the study participants, grouped according to self-rated unrecovered (UN) or recovered (RE) status

Participant code	Age, years	Sex	Occupation	Recurrent low back pain	Average pain*	Disability†
UN1	45	Male	Glazier	Y	4	2
UN2	43	Female	Book keeper	Y	1	7
UN3	48	Male	Bank officer	Y	4	6
UN4	33	Female	Police project leader	Y	6	10
UN5	31	Male	Customer service	Y	5	7
UN6	35	Male	Software designer	Y	4	11
UN7‡	37	Male	—	Y	—	—
UN8	40	Male	Hydraulic technician	Y	6	11
UN9	45	Male	Lift mechanic	Y	1	7
UN10	46	Male	Phone technician	Y	5	2
UN11	35	Female	Office administrator	Y	2	6
UN12	59	Female	Early childhood nurse	Y	2	4
UN13	48	Male	Truck driver	Y	1	4
UN14	42	Male	Manufacturing	N	1	3
UN15	34	Male	Manufacturing manager	Y	3	2
UN16	37	Female	Business analyst	Y	7	16
UN17	49	Male	Sports teacher	Y	3	6
UN18	43	Male	Building supervisor	Y	3	7
UN19	46	Female	Office clerk	Y	3	19
UN20	51	Female	Teacher	Y	2	12
UN21	44	Female	Photographer	Y	4	5
UN22	42	Male	Carpenter/joiner	Y	2	2
UN23	35	Female	Town planning consultant	Y	4	5
UN24	40	Male	Quality manager	Y	0	2
UN25	34	Female	Project administrator	Y	3	2
RE1	40	Female	Practice manager	Y	0	0
RE2	35	Male	Receiving supervisor	Y	2	1
RE3	48	Male	Printing manager	Y	0	0
RE4	37	Male	Web developer	Y	0	1
RE5	37	Female	Office Web/graphic designer	Y	0	0
RE6	50	Male	School general assistant	Y	0	0
RE7	42	Male	Demolition contractor	Y	0	0
RE8	37	Male	Radiographer	N	0	3
RE9	41	Female	Cashier	N	0	2
RE10	37	Female	Primary school teacher	Y	1	4
RE11	53	Female	Technical sales consultant	Y	1	2

* Based on Numerical Pain Rating scale scores, out of 10.
† Based on Roland-Morris Disability Questionnaire scores, out of 24.
‡ Occupation, pain, and disability data unavailable because the participant had to leave midway through the focus group.

Chicago, IL) was used to perform descriptive statistical analyses of these data.

RESULTS

Characteristics of focus group participants. Mean participant age was 41 years (range 31–59 years); 58% were men. Participants were from a range of cultural backgrounds. Eleven participants considered themselves recovered (RE); 25 were unrecovered (UN) and had chronic low back pain. Characteristics of the study participants are presented in Table 2.

Self-rated recovery. We established participants' self-rated recovery status during each focus group by asking participants if they considered themselves to be recovered or not. While many participants were able to identify themselves as recovered or unrecovered, some partici-

pants had difficulty with this dichotomy, illustrating the complexity of the construct. For example, one person classified himself as recovered but remarked later: "Well actually I think once you have back pain you never get better from it; it's always there" (RE6). We also found that pain and disability scores did not clearly align with self-rated recovery status. Approximately half of those who rated themselves as recovered scored between 1 and 3 out of 10 on the Numerical Pain Rating scale and between 1 and 4 out of 24 on the Roland-Morris Disability Questionnaire (Table 2). In the unrecovered group, more than half of participants had low pain scores (≤ 3 out of 10) and disability scores (≤ 5 out of 24).

Domains of recovery. Participants' views of recovery from low back pain were categorized into 3 general domains: symptom attenuation, improved function, and acceptable quality of life. Due to the qualitative nature of this

Table 3. Recovery domain 1: symptom attenuation

Theme	Summary of issues	Illustrative quotes
1. Complete symptom resolution	Recovered is when there are no more back or leg symptoms (pain, aches, or numbness). Absence of pain does not indicate permanent recovery.	<p>"Get rid of the back pain for a start . . . but if I could change anything it would be the effect the pain has on me." (uncovered [UN] 4)</p> <p>"Once the pain was gone and I could move freely then that was the end of it for me." (recovered [RE] 5)</p> <p>"I'd like to be zero [pain] because I think I could solve this if I didn't play hockey and went to the physio every day and stretched, for me there's possibly a cure there." (UN23)</p> <p>"I can tell when it's going when [the pain] comes up my leg and . . . all the way back up . . . and a few days later it will just go . . . it's gone and you can feel your whole back and skeleton is freed up and you walk taller." (RE4)</p> <p>"I thought once the pain was gone, all was fixed. It wasn't until I had the second episode that I realized it's not fixed and never will be fixed so from that point on basically just think about it all the time [that is, be cautious] just so you don't have any pain." (RE3)</p>
2. Incomplete symptom resolution	Recovered can mean reduced sharpness or intensity of pain. Acceptance of pain to achieve an acceptable level of function or quality of life.	<p>"Maybe not to experience as much back pain." (UN8)</p> <p>"Minimize [the pain] and get rid of that sharpness when you do get it." (UN10)</p> <p>"I don't visualize a zero of pain. There are good days and if I have a two or three, I'm fine, I'm more than happy with that . . . all you do is try and manage your pain and try to live with that . . . it's the better quality of life you're having, that's it." (UN3)</p> <p>"Yeah, a dull pain that's a five or six [would be acceptable]: you can feel it but it's not going to stop you doing anything." (UN8)</p> <p>"There is a level of pain that if you had it all the time you would consider it tolerable. At ten I'd have trouble working but at five I'd be quite happy working still with the pain." (UN22)</p>

research, descriptors such as few (n = 3–4), some (n = 5–6), several (n = 7–8), many (n = 9–18), majority (n = 19–25), and most (n = 20–36) are used to provide an indication of the frequency of ideas expressed by participants.

Symptom attenuation. The first theme identified in this domain was complete symptom resolution (Table 3). Not surprisingly, some participants expressed that a clear indication of recovery would be the absence of back or leg symptoms (pain, ache, or numbness). However, this construct was often described not only in terms of the presence or absence of pain, but also the impact of pain on activity. Only 2 of the 36 participants (UN21 and UN23) reported that they would require "zero" pain to consider themselves recovered. Conversely, an absence of pain was not a reliable indicator of complete recovery. A few such participants with zero pain reported that they employed self-management strategies to prevent recurrence or reinjury. For example, one participant commented: "I'm still careful about some things I do . . . being careful just managing the potential for pain, because I don't have back pain but I am careful about what I do" (RE5). Another who reported having no pain for 6 months (RE9) described using behavioral strategies at work such as wearing a lum-

bar corset and making postural adaptations while standing and bending.

The second theme was incomplete symptom resolution (Table 3). Interestingly, symptom resolution was not always a prerequisite for recovery. Several participants reported they could consider themselves recovered even if pain intensity or quality was attenuated rather than absent. Pain intensities reported as acceptable ranged between 1 and 6 out of 10. For these individuals, accepting pain or "working around pain" were strategies used to achieve a reasonable level of function or quality of life. One participant stated, "That plays a big role, it's how you think. You can manage your pain by the way you think" (UN5). Another said, "The problem is always going to be there, you're not going to get any better at all, but you can really work around it" (UN14).

Improved function. An improved ability to perform daily functional tasks was the second major recovery domain identified, encompassing 7 themes: work, self-care, housework, driving, walking and sitting, exercise, and leisure (Table 4). Several participants, both recovered and unrecovered, expressed the importance of work for their recovery. Overall work capacity, as well as specific work tasks such as sweeping, prolonged sitting, driving, lifting,

Table 4. Recovery domain 2: improved function

Theme	Summary of issues	Illustrative quotes
1. Work	Recovery is indicated by improved capacity for work.	<p>“If there was a case for me to be better . . . that would mean I could do a job where I could bend all day and know the next day I could still do it.” (unrecovered [UN] 22)</p> <p>“The pain was the main thing [in getting better] and work was the second because if I can’t do the work I love then I not have much of a life.” (recovered [RE] 8)</p>
2. Self-care	Being able to perform self-care activities is an important component of recovery.	<p>“I’d know when I’m better when I can put on my shoes and socks without my back hurting, and not actually [have to] sit down and think ‘Oh, here we go.’” (UN18)</p> <p>“Cleaning your teeth . . . you can actually bend over the sink to do it. So it’s the really basic things that are often your indicators of how your back is.” (UN20)</p>
3. Housework	Recovery is indicated by improved capacity for housework.	<p>“[I would know I was recovered when] I could do the housework . . . even standing and cooking a meal . . . or ironing.” (UN19)</p> <p>“I couldn’t do the shopping . . . somebody had to do the shopping for me.” (RE11)</p>
4. Driving	Ability to drive is an important reflection of recovery.	<p>“I remember not being able to get in and out of the car . . . definitely the pain but it was more the things I couldn’t do [that’s what changed when I knew I was better].” (RE10)</p>
5. Walking and sitting	Recovery is indicated by improved performance of simple daily activities (e.g., walking, sitting).	<p>“What I feel is that if I want to change anything I would like to add some simple physical activity in my life . . . for example just walking . . . For me it is normal physical activities: when I’m able to do it and it doesn’t hurt me: that’s okay.” (UN6)</p> <p>“[I’d want to change] just sitting down for longer periods of time . . . you can’t do anything for more than an hour at a time.” (UN8)</p> <p>“I can tell when it’s better . . . when you feel like you’re walking taller and your neck and everything feels softer.” (RE4)</p>
6. Exercise	Return to previous level of exercise or sport would indicate recovery.	<p>“[I knew I’d recovered when] I was able to run.” (RE1)</p> <p>“If I could play badminton . . . these are the things I would like to add: simple exercises and do a little bit of a sport.” (UN6)</p> <p>“What would I want to change? I’d want to have the confidence to do things . . . like just to run across the road. I’d just like the ability to do things before I became restricted . . . half marathon and triathlons.” (UN8)</p>
7. Leisure	Ability to do simple leisure activities would indicate recovery.	<p>“An indicator for me would be, I’d like to sit on a lounge chair. I haven’t sat on a lounge chair for 2 years.” (UN20)</p> <p>“[I’d know I was recovered if] I could go bushwalking.” (UN20)</p>

and bending were identified as meaningful indicators of recovery.

A few participants reported that being able to perform self-care activities without difficulty, such as dressing or brushing teeth, would be important markers of recovery. For example, one person stated, “I’d know when I’m better . . . when I can put on my shoes and socks without my back hurting” (UN18). In the third theme, an improved capacity for housework was specified as an important component of recovery. This theme was only raised by female participants. Tasks of concern included cooking, ironing, vacuuming, hanging out clothes, and shopping. The effect of pain on driving was a major factor for the recovery of some participants, as it impacted work, socializing, looking after children, and shopping. The fifth theme was about the capacity for essential physical activ-

ities such as walking or sitting. The tolerance for prolonged sitting was identified as particularly important by a few participants, both for work and leisure purposes.

Improved capacity for exercise was reported as a critical indicator of recovery by several participants. The main issue was regaining some capacity to participate in exercise or sport, whether at their preinjury level or a modified level. Two-thirds of those who raised this issue had previously engaged in exercise for social purposes, such as soccer, tennis, and cricket, or had participated in jogging, bike riding, or swimming for health benefits, and 3 participants had engaged in strenuous sports such as life saving and long-distance running. Some participants saw the ability to perform simple leisure activities, rather than sport or specific exercise, as important to their determination of recovery. Examples in this theme included sitting

Table 5. Recovery domain 3: acceptable quality of life

Theme	Summary of issues	Illustrative quotes
1. Social factors	Recovery includes being able to socialize with family and friends Recovery includes not being reliant on others for help.	“If I could do all the things I value . . . running around the backyard with my kids . . . I would say I was fully recovered.” (unrecovered [UN] 15) “[What changed for me so I knew I was better] was more how it impacted on everyone else and how frustrated I felt because I was trapped in my house waiting for someone else to do something because I couldn't do it.” (recovered [RE] 10)
2. Sleep	Returning to a normal sleep pattern indicates recovery.	“[I considered I was getting better when] I could sleep in one position the whole night long.” (RE8) “I'd like to have the confidence to do things I used to be able to do . . . like sleeping or lying in bed for more than an hour at a time.” (UN8) “[I'd consider myself recovered] when I could lie in bed and wake up in the morning and not feel it.” (UN23)
3. Physical health	Less fatigue and having more energy for activities indicates recovery.	“To me an indicator you are getting better . . . would be the fatigue factor.” (UN20) “I think a real indication for me I am on the road to a come back would be at the end of these lessons . . . I still have the energy . . . if I'm at home and want to do a bit of work in the garage . . . to get up and do it rather than say 'I need my rest'.” (UN17)
4. Psychological health	To be able to move freely is an indicator of recovery. Being recovered includes positive beliefs and thoughts about function and mobility.	“Once the pain was gone and I could move freely then that was the end of it for me.” (RE5) “I'd like to have the confidence that I could do what I used to be able to do . . . even just run across the road.” (UN8) “To be recovered I would be able to do whatever I wanted to do without having to think [about how to avoid pain aggravation].” (UN2)

in a lounge chair or sofa (e.g., for reading) or walking in the countryside: “An indicator for me would be . . . I'd like to sit on a lounge chair. I haven't sat on a lounge chair for two years” (UN20).

Acceptable quality of life. The third recovery domain identified was acceptable quality of life (Table 5). Important themes included social factors, sleep, physical health, and psychological health. For some participants, attaining social independence and not being reliant on others for help with pain-limited daily activities was a key marker of recovery. Others believed they would be recovered when they could socialize normally with family members and friends. For example: “If I could do all the things I value . . . running around the backyard with my kids . . . I would say I was fully recovered” (UN15). For a few participants, returning to a regular sleep pattern was a marker of recovery from back pain.

Overall physical health was reported as an important component of recovery. A few expressed this as having the physical ability to move “more freely” or “feel more supple.” Three participants stated that reduced fatigue was an important indicator of recovery. Finally, psychological health was identified as a marker of recovery and included issues such as having more positive beliefs and thoughts about their ability to perform simple, everyday activities such as crossing the road or doing housework.

DISCUSSION

In this study, we have identified the scope of recovery domains relevant to a broad sociodemographic spectrum of typical back pain patients seeking primary care. We found that the domains of recovery relevant to patients in this cultural context were symptom attenuation, improved function, and achievement of an acceptable quality of life.

Previously, determinants of recovery from low back pain were reported to be functional ability and pain (3,4) or quality of life (5). In our study, most participants considered all 3 domains to be central to the construct of recovery. One explanation for this may be that we investigated a larger sample and spectrum of people with low back pain than were investigated in the previous studies, enabling capture of the full scope of recovery domains across a breadth of pain experiences.

We propose an interactive model of these domains to explain recovery from low back pain. In this model, patients' symptoms have an impact on the ability to perform daily functional tasks as well as on quality of life factors, but these effects are modulated by interactions between daily function and quality of life. Examples of such interactions raised by participants include the impact of fatigue on the ability to engage in leisure activities, the effect of physical function on being able to play with children or socialize, the capacity to work bringing meaning to their

life, or the interaction between thoughts and mood on the ability to carry out daily tasks (Tables 3, 4, and 5). Whether individuals see themselves as recovered therefore depends on their cognitive appraisal of the impact of symptoms on their ability to perform meaningful daily activities and fulfill social roles, rather than simply the presence or absence of pain.

Central to this process is the use of various behavioral and cognitive adaptive strategies, as reported by participants. Self-management strategies were used either to reduce the risk of recurrence if symptoms had resolved, or to adapt to living with back pain to achieve an acceptable level of function and quality of life. These adaptations included changing how activities were performed to avoid or minimize symptom aggravation or a pragmatic acceptance of residual pain. Similar adaptive strategies or readjustments to accommodate living with persistent symptoms have been described for those with low back pain (17–19) and upper limb pain (32). Beaton et al (32) found that “being better” from upper limb pain involved redefining the meaning of self and accommodating pain as part of patients’ lives. Interestingly, the absence of symptoms was not a reliable marker of recovery in our study, as some participants with zero pain talked about the need to implement strategies to “manage the potential for pain” or “be careful” to avoid recurrence of the condition. This suggests that, from the patients’ perspective, recovery from low back pain is not necessarily a finite end point or permanent state, as a cure might be for other conditions (for instance, a bone fracture), where there is complete resolution of symptoms to the preinjury state. Certainly, a cure in this sense is elusive for low back pain, as symptoms seldom resolve completely and the course of the condition is typically recurrent (33). One intriguing issue was the notion of a change in identity as a result of living with low back pain, and the desire to return to “the person [she] was” as part of recovery. This notion of spoiled identity (34) has been recognized in patients with chronic musculoskeletal pain conditions (35). Recovery from low back pain is therefore a complex and highly individual construct, whereby markers of recovery can be idiosyncratic, emphasizing the importance of understanding the breadth of recovery domains that might be relevant to individual patients. One implication of this is that patient-specific outcome measures may be useful to consider as an alternative to instruments with fixed items. This approach has been used previously in treatment efficacy trials for low back pain (36,37).

This study also revealed that the relationship between pain scores and recovery status is less clear than was previously thought. In research trials and clinics, patients are commonly considered to have recovered when their pain scores reach very low levels. We found that a low pain score does not clearly distinguish those recovered from those unrecovered. This has implications for how we measure recovery. Until now, the decision about which outcome domains should be measured has been based on a consensus of researchers (6,7,38). This study challenges those understandings and provides empirical data from patients about which domains are most meaningful for their recovery.

This is the first comprehensive investigation of patients’ perspectives of the construct of recovery from low back pain. A unique contribution of our study was that we determined that patients’ cognitive appraisal of their pain, quality of life, and function mediates their perception of recovery. Our findings provide a valuable foundation to reassess how recovery from low back pain should best be measured. The challenge that lies ahead is to identify outcome measures that adequately capture these domains.

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AUTHOR CONTRIBUTIONS

Dr. Hush had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study design. Hush, Refshauge, Sullivan, De Souza, Maher, McAuley.

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