

Individuals with low back pain: how do they view physical activity?

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Background. Recent guidelines for those with acute low back pain have advocated early resumption of normal activity and increased physical activity. Little is known about the relationship between low back pain and physical activity, and on the impact of that relationship on the promotion of increased levels of physical activity within a general practice population.

Objectives. We aimed to explore associations between factors that influence changes in physical activity and the way individuals perceive and behave with their low back pain, and the impact of those perceptions and behaviour on physical activity.

Methods. Twenty-seven informants were chosen using a purposive sample from a larger group of individuals who, because of their low back trouble, had been referred by their GPs to a community-based, single-blind, randomized controlled trial (RCT) at the University of York, which is evaluating the effectiveness and cost-effectiveness of a progressive exercise programme. Fifty-four interviews were conducted with this subgroup of the RCT; four informants were interviewed once, 19 twice and four of them three times. Interviews were transcribed and analysed using manual and computer-aided approaches.

Results. Physical activity was perceived as (i) activities of daily living, (ii) activities causing breathlessness that they went out of the way to do and (iii) more competitive-type activity. The avoidance of physical activity and fear of pain returning were the two main factors directly associated with informants' backs and changes in physical activity. These two factors hindered increases in physical activity, even though the majority of informants believed strongly that being physically active helped ease their low back pain.

Conclusions. When advocating that individuals with acute low back pain return to or increase physical activity, it is important that clinicians identify avoidance of physical activity and/or fear of pain at the earliest stage in order to tailor advice and reassurance appropriately. If avoidance of activity and fear of pain is identified and clinicians want to encourage patients to take up and sustain increased physical activity, they should explore issues of fear of pain, and avoidance of and confidence to do physical activities, in addition to other factors influencing physical activity.

Keywords. Acute low back pain, backache, interviews, physical exercise, psychosocial variables.

Introduction

GPs and other health professionals are increasingly encouraging more of their patients to be physically active; however, many may be sceptical about the benefits of

prescribing physical activity for people with non-specific acute low back pain. Advocacy of early resumption of normal activity and increased physical activity¹ is far removed from previous advice of strict bed rest. There is a need to make sure that advice to return to or increase levels of physical activity actually works and does not fall on deaf ears.

Frost *et al.*^{2,3} have demonstrated the efficacy of a fitness programme in a hospital setting for patients with chronic low back pain and, more recently, an RCT in the primary care setting is evaluating the effectiveness and cost-effectiveness of a progressive exercise programme.⁴ Patients from general practice who agreed to participate in this RCT formed the population from which this interview study drew its sample.

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Patients were referred by their GP and invited to participate in the RCT if they satisfied the following criteria: attended the GP with low back pain as the primary complaint; duration of present episode of low back pain at least 4 weeks; report of not more than 6 months constant low back pain for this episode; aged 18–60 years; and considered medically fit by their GP to participate in a progressive exercise programme. In addition, patients were excluded from the RCT according to the following: constant or persistent severe nerve root irritation; other musculoskeletal disorders, for example, arthritic knees, if it would effect the patient's ability to cope with a progressive exercise programme; any systemic condition, such as inflammatory or neurological conditions, carcinoma or history of cardiovascular disease; major surgery within the last 6 months; current attendance for other physical treatments, for example, physiotherapy or osteopathy; or unable to attend progressive exercise programme owing to domestic or work commitments. Although there are many definitions in the literature, low back pain has been described as pain emanating from an area between the buttock crease and the inferior angle of the scapula; 'non-specific' refers to those in whom there is no evident pathological process.⁵

Relatively few studies have researched back pain in primary care. Even fewer have used qualitative methods.^{6–9} Previous work with chronic low back pain patients has suggested that fear-avoidance beliefs about physical activity and work might help explain some individuals' development from acute to chronic low back pain; it is postulated that those who fear pain avoid painful activities, thereby gaining weight, losing mobility and strength, and eventually ending up as chronic sufferers.¹⁰ However, no known study has investigated the factors which influence an individual with acute low back pain to change levels of physical activity, nor associations between these factors and individuals' perceptions and behaviour regarding their low back pain. This provides information needed to address three related issues: (i) the recent public health message that the majority of the population should take 30 minutes of moderate-intensity physical activity on at least 5 days of the week; (ii) recent publications regarding the management of acute low back pain¹¹ in primary care; and (iii) the suggestion that a successful treatment for back pain would save £52 million in lost production and disability benefits for every 1% reduction in disability.¹²

Method

Study procedure

Following local ethical committee approval, three pilot interviews were conducted with individuals recruited to the primary care trial in York: one before the first assessment, one after the second assessment and one 6 months after the second assessment (Figure 1); this

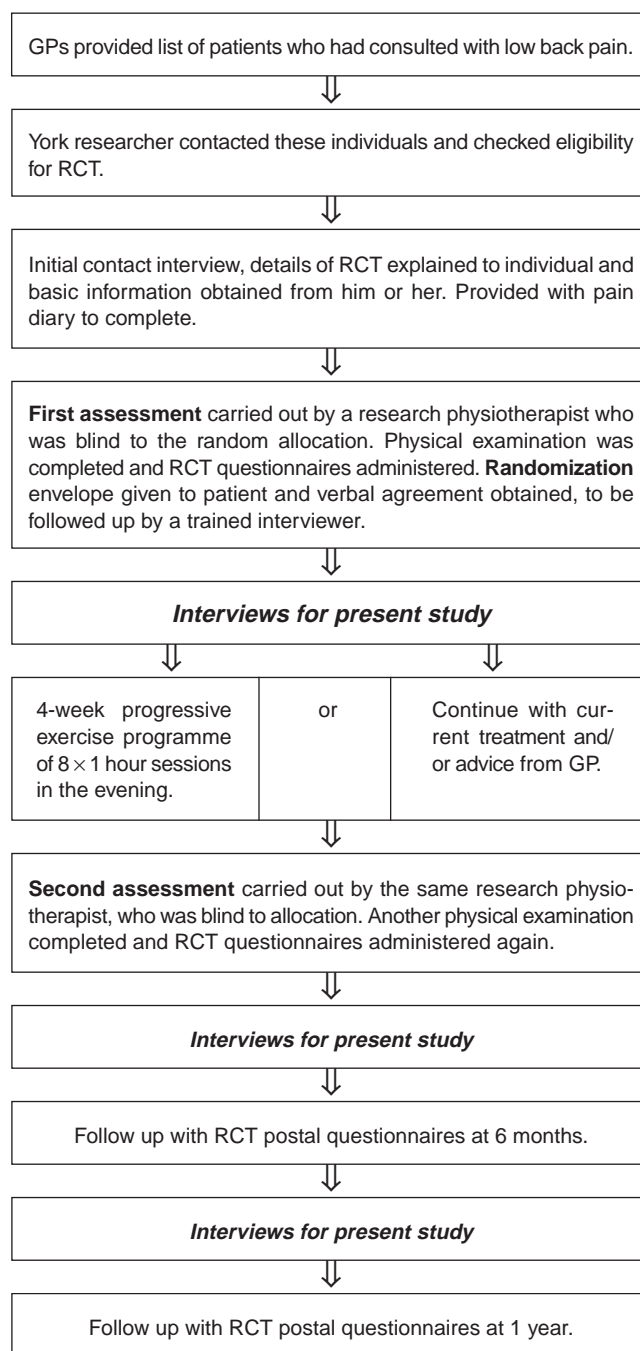


FIGURE 1 *Study procedure*

was because factors influencing physical activity were likely to be different at different phases of the trial. Eligible individuals for the RCT were asked at the first assessment whether they would consent to take part in this interview study (Figure 1).

Interview sample and in-depth interviews

A sampling chart, including the variables of age group, gender, category after randomization, pain and disability

TABLE 1 *Profile of informants and background information (n = 27)*

	Progressive exercise programme	Continue with GP advice and treatment	Total
Gender			
Male	6	4	10
Female	11	6	17
Randomization	17	10	27
Age group			
18–29	4	1	5
30–39	3	2	5
40–49	3	4	7
50–60	7	3	10
Family			
Single	4	0	4
Married with older children (18 or older)	5	3	8
Married with children (younger than 18)	5	7	12
Married without children	3	0	3
Employment			
Homemakers	2	1	3
Homemakers with part-time desk jobs	1	4	5
Full-time desk jobs	5	1	6
Full-time jobs involving manual work	9	3	12
Retired	0	1	1
Perceived total length of time with back pain			
Less than 1 year	2	1	3
1 year to 5 years	7	2	9
6 years to 10 years	3	3	6
11 years to 15 years	2	3	5
16+ years	3	1	4

outcome scores, attitudes to physical activity and attendance at the progressive exercise programme, was used to monitor recruitment for this purposive sample. The use of this chart enabled strategic selection of informants of most interest to the research objectives. Recruitment stopped when (i) the sample included the widest possible range of perceptions and experiences and (ii) no further themes emerged from the analysis of interviews; therefore, data were collected and analysed in 'bursts' of research activity. Two individuals refused to take part. Thus, 27 informants were recruited to this interview study. The characteristics of these 27 are displayed in Table 1.

Fifty-four interviews were conducted with these 27 informants. Four informants were interviewed once, 19 twice and four of them three times between January and December 1996. Six interviews were conducted after the first assessment, 25 after the second assessment and 23 in the 6–9 months after the second assessment

(Figure 1) in light of tentative confirmation from pilot study data that factors associated with informants' physical activity were different at different phases of the trial. Only six interviews were conducted, just after the first assessment, owing to concern about overlap influencing results from the RCT; these six informants were selected with respect to their gender, age and randomization, as information regarding other criteria, mentioned in the previous paragraph, was not known at that stage. More informants were selected from the exercise programme, rather than the control group, as it was thought that these individuals would provide more appropriate information regarding the research objectives.

Fifty-two interviews were held in informants' homes and the remaining two were completed at SK's workplace. SK conducted all 54 interviews. Written informed consent was obtained before the first interview, expenses were reimbursed and informants were given a gift of £5 per

interview. Interviews were in-depth, lasted between 45 and 90 minutes and were audio-taped. All interviews (and repeat interviews) explored and covered areas identified in the pilot study using a topic guide. Issues thought important by informants were also discussed.

Data analysis

All interviews were transcribed verbatim and were analysed using the 'framework' system of analysis¹³ facilitated by NUD*IST¹⁴ (Non-numerical Unstructured Data Indexing Searching and Theorising), a computer software package designed to help manage and analyse non-numerical data.

The tapes and transcripts were studied repeatedly to elicit themes and categories within the text. These themes and categories were used to develop an index guide which was then applied to the transcripts using NUD*IST. The reordered data were studied repeatedly and systematically to explore associations between factors that influenced changes in physical activity and the ways individuals perceived, and behaved with, their low back pain. For example, each interview was analysed separately and emphasis was placed on searching out evidence which confirmed or refuted previous findings.

Validity and reliability

High levels of validity and reliability¹⁵ were maintained throughout the research process in the following ways. The purposive sample reflected the RCT population in terms of a broad range of patient characteristics and experience. Informants were interviewed more than once in order to assess health-related changes over time and to check the accuracy and consistency of previous transcripts and interpretation thereof. Trained qualitative researchers coded selected transcripts independently to gauge agreement and check interpretation (>75% inter-rater reliability) and SK ascertained his level of influence by questioning informants at the end of the final interview.

Interpretation of results

This interview study was integrated within a larger, predominantly quantitative RCT; therefore, the results must be interpreted within this context. Table 2 details how terms such as 'some' and 'many' have been used

TABLE 2 *Interpretation of findings*

Number of informants	
1-3	Few
4-9	Some
10-13	Many
14-19	Most
20+	Majority

throughout the remainder of this manuscript in order to provide an indication of the strength of evidence from the findings of this interview study.

Results

Barriers to, and motivators of, physical activity

Physical activities could be classified into three groups: activities of daily living (e.g. gardening, vacuuming, do-it-yourself or going for a stroll); activities causing breathlessness that informants went out of the way to do (e.g. brisk walking, swimming, aerobics or back exercises); and more competitive sporting activities (e.g. badminton, rugby or squash). Aside from their backs, the major barriers to increased physical activity were lack of time, bad weather and family commitments; the main reasons why individuals chose to be more physically active were desires to feel better, be fitter and keep their weight down.

However, the crucial components that linked physical activity and the way informants perceived, and behaved with, their low back pain were fear of pain returning and avoidance of activity; in spite of the fact that the majority of informants believed strongly that physical activity in general helped ease their back pain.

'Low back trouble'

Although the majority of informants described their present episode as an 'ache', causing 'discomfort' or 'stiffness' and likened to a 'nagging, dull toothache', a 'pain' was viewed as much sharper and more inhibiting than an ache, often used to describe a 'bad' bout of low back trouble (Figure 2). Thus, the term 'low back pain' was considered inappropriate to describe the dynamic nature of informants' experience; hence, the use of the term 'low back trouble' throughout the remainder of this paper. Informants appeared to classify their experience into four areas: a twinge, an ache, hurt and pain (Figure 2).

Twinge—viewed as a temporary warning or reminder, increasing an informant's awareness of his or her back, for example, 'somebody getting hold of the bottom of my back and squeezing it'.

Ache—sometimes described as 'constant', more usually as a 'burning' feeling or 'a niggly type stiffness'. Not incapacitating. Often a 'nuisance'.

Hurt—used by informants to describe their discomfort when completing certain activities.

Pain—described as 'stabbing', far more 'acute' and much 'sharper' than an ache. 'It can get you down' and even affect sleep. Sometimes unbearable.

FIGURE 2 *A hierarchy of low back trouble*

Fear of pain and avoidance of activity

However, it was pain that interviewees were frightened of.

SK: “What would you see as the difference between stiffness and a pain?”

R12: “A pain would cause fear, about doing anything, I would be frightened to bend down because of the pain that would result, but I’m not frightened of stiffness ... I think I said in my last interview that a lot of people who are asked to do physiotherapy for the back pain, don’t do it because it hurts.”

(Female, age 49, intervention group, interviewed 6 months after second assessment)

Many informants were ‘fearful’, ‘scared’ or ‘worried’ about doing particular activities because of the pain that might result. This could manifest itself in a loss of confidence to do, and avoidance of, an activity; informants also adapted the way they completed activities. Interestingly, fear of pain returning also motivated the maintenance of physical activity, that is, a few individuals were frightened to stop exercising in case their pain returned. The most common activity to adapt was lifting, and the most common activities to avoid were gardening, house-related jobs and lifting. Avoidance of activity was commonly associated with ‘hurt’ as well as ‘pain’ (Figure 2), but rarely with a twinge or an ache. All informants described examples of physical activity avoidance, yet not all examples were associated with being frightened, scared or worried, as above. Examples of fear of pain, avoidance and modification of activity, and loss of confidence were found in all types of physical activity mentioned previously and among both intervention and control groups (Table 1).

SK: “I’ve asked you what you meant by frightened, but I missed asking you about confidence ... what does confidence mean to you in that context?” (Exercise programme)

R16: “When I first went, started doing the exercises, I wasn’t confident enough to do it, because I was frightened I was going to harm me back, and after a while I’d got the confidence to know that I could do it and I wasn’t harming me back.”

(Female, age 52, intervention group, interviewed after second assessment)

Over half the informants randomized to the exercise programme found that their backs hurt or ached during and after the initial sessions, yet they still continued with the programme. In contrast, over half the control group when carrying out other forms of comparable exercise stopped doing so because they did not want to continue hurting their backs.

Indeed, the exercise programme leader instilled confidence in over half the exercisers by his or her presence as a physiotherapist, and by showing them ‘how to exercise

properly’ and by ‘letting people go at their own pace’. Also, confidence was increased for some by completing exercises of which they had previously been fearful.

SK: “Then you started the exercise classes, what were your first thoughts?”

R14: “It was great because you felt you were being supervised, you know cause it, your back did hurt. I was worried about doing the wrong thing, so to be told why you’re doing this ... you had confidence that it was okay ... the fact that a physiotherapist was actually there watching you, gave you confidence.”

(Male, age 31, intervention group, interviewed after second assessment)

Many informants from both intervention and control groups found that confidence was restored over time through: (i) modifying the way an activity was completed, for example, in a less-vigorous manner; (ii) if applicable, the progressive exercise programme; and (iii) reassurance and advice from health professionals.

The impact of the health professional on physical activity

Although at the 6-monthly interviews (Figure 1) approximately a third of informants had incorporated an increased level of physical activity into their everyday lives, about half of these came from the control group, all of whose increases had been triggered by advice from a health professional. The remainder of the intervention group either found it difficult to exercise at home or only did the exercises from the classes when their backs were aching or painful, in other words, as therapy.

Most informants, at one time or another, had been advised by health professionals, for example, GPs, physiotherapists, chiropractors or osteopaths, to stop or take up more physical activity. Health professionals alone were rarely effective in enabling an informant to sustain (6+ months) increased physical activity, except where an individual had regular contact with a health professional. However, they did appear to have more impact on the uptake of physical activity. Advice to be more physically active was heeded and most effective when two conditions were met: firstly, when the patient perceived that the professional understood the context of their low back trouble; and, secondly, if, with the professionals diagnosis and advice, the patient perceived that the professional understood his or her low back trouble. In other words, advice needed to be tailored to the individual’s circumstance for it to be effective.

R10: “Yeh, I’ve given him (health professional) a full plan, read out, whatever, of what I actually do at the gym, and he’s gone through it with me and said, no, yes, no, well you can’t do that, but if you do this you get the similar kind of exercise, but it won’t put strain on your back, and if you do that it’s better for your back

than doing that, so yeh, he's gone, he's gone through it all for me, he's actually, he's developed my training plan to benefit me."

(Male, age 22, intervention group, interviewed 6 months after second assessment)

The context of an informant's circumstance included his or her perceptions of general health, physical activity and low back trouble. Low back trouble for most was viewed as an integral part of the way they should describe their general health, for instance, when asked about general health some informants immediately started talking about their backs. Some stated their low back trouble made them feel miserable and depressed. Many were unsure what had caused their low back trouble and why it reoccurred. For some, this made them frustrated with their situation. Also, many ordinary activities at home and work aggravated their low back trouble, for example, twisting, ironing and making love, especially when their backs were perceived as bad. An informant's circumstance also included methods of coping, for example, some tried to ignore their back trouble, while others took painkillers and others still did exercises and/or avoided the aggravator.

Discussion

The main reasons why informants chose to be more active and the major barriers to increased physical activity found in this study are consistent with previous research on the determinants of physical activity.¹⁶ The findings of this study also suggest that the perception of fear of pain returning and the behaviour of avoiding activity, in a population of individuals with low back trouble in the primary care setting, were the main factors influencing physical activity that were directly linked with their backs. This was apparent in all three categories of physical activity, in both intervention and control groups, and across the range of ages, gender and pain and disability scores (Table 1).

Of further note was use of the words 'twinge', 'ache', 'hurt' and 'pain' by informants to describe their experience. There appears to be a consensus in the published literature regarding the use of the term 'low back pain'. On the basis of findings from this study 'low back trouble' would be a more appropriate term to use, as it encompasses the dynamic nature of informants' experience.¹⁷

The results may not, of course, be transferable to all those with low back trouble. This is partly because the people involved in this study were a subgroup of those participating in an RCT who, in turn, were recruited from those consulting their GP. Current work involves assessment of the characteristics of habitual non-consulters and whether these persons do in fact manage their low back trouble differently (P Helliwell, personal communication, 1997).

Previous studies of patients with chronic low back pain in primary care and hospital settings have recognized fear-avoidance beliefs as important in the management of low back trouble. Is the same true of acute low back trouble? Only one known longitudinal study has been conducted in general practice.¹⁸ This showed the value of fear-avoidance variables in the prediction of low back trouble outcome at 12 months; however, they did not focus in-depth on physical activity and only 41% of patients were assessed at all three data collection points. Qualitative researchers in primary care have also noted the avoidance of activities owing to fear of pain in acute populations.^{6,8} The results from this in-depth study support the view that clinicians should identify avoidance of activity and/or fear of pain at the earliest stage of low back trouble if they want patients to return to, and increase, levels of physical activity. Clinicians should find out which activities patients avoid and/or are fearful of, and tailor advice and reassurance that is grounded in the knowledge of the context of an individual's low back trouble. We believe that these findings are understated in general practice and further primary-care based research is required to assess longitudinally the relationship between avoidance, fear and physical activity in patients with low back trouble.

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