

Outcome of low back pain in general practice: a prospective study

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Abstract

Objectives: To investigate the claim that 90% of episodes of low back pain that present to general practice have resolved within one month.

Design: Prospective study of all adults consulting in general practice because of low back pain over 12 months with follow up at 1 week, 3 months, and 12 months after consultation.

Setting: Two general practices in south Manchester.
Subjects: 490 subjects (203 men, 287 women) aged 18-75 years.

Main outcome measures: Proportion of patients who have ceased to consult with low back pain after 3 months; proportion of patients who are free of pain and back related disability at 3 and 12 months.

Results: Annual cumulative consultation rate among adults in the practices was 6.4%. Of the 463 patients who consulted with a new episode of low back pain, 275 (59%) had only a single consultation, and 150 (32%) had repeat consultations confined to the 3 months after initial consultation. However, of those interviewed at 3 and 12 months follow up, only 39/188 (21%) and 42/170 (25%) respectively had completely recovered in terms of pain and disability.

Conclusions: The results are consistent with the interpretation that 90% of patients with low back pain in primary care will have stopped consulting with symptoms within three months. However most will still be experiencing low back pain and related disability one year after consultation.

Introduction

Low back pain contributes substantially to the workload of general practice. During any 12 month period, 7% of the adult population will consult with this problem.¹ However, it is generally believed that most of these episodes will be short lived and that "80-90% of attacks of low back pain recover in about six weeks, irrespective of the administration or type of treatment."²

In two separate surveys of the British general population, 38% of adults reported a significant episode of low back pain in one year, and a third of these experienced the symptom for longer than four weeks.^{3 4} During the past 20 years in Britain, the prevalence of disabling low back pain for which benefits are paid has risen exponentially.⁵ It is difficult to reconcile these

observations with the notion that most patients seen in primary care are completely better within a month.

We investigated the claim that 90% of episodes resolve within a month by determining the outcome of unselected episodes of low back pain in general practice. The two outcomes evaluated were the proportion of patients who ceased to consult about the problem three months later and the proportion of patients who were free of pain and back related disability after three and 12 months.

Subjects and methods

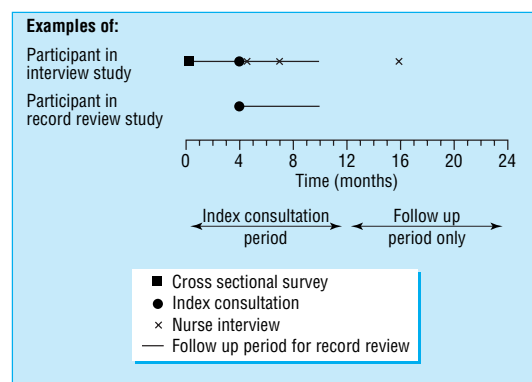
The study population consisted of all patients aged 18-75 years in two general practices in south Manchester who consulted their general practitioner about low back pain at least once in a 12 month period. In both practices doctors routinely recorded each consultation on computer, enabling us to identify all patients with low back pain recorded as a reason for consultation. We obtained ethical approval from the local health authority.

We defined the first consultation for low back pain by any patient during the 12 months as the "index" consultation. This was not necessarily the patient's first consultation in an episode of back pain. All those who had not visited their general practitioner because of low back pain in the three months before this index consultation were defined as experiencing a "new consulting episode" of low back pain. Those who had consulted in the three months before the index consultation were excluded.

We checked practices' computer records weekly for home visits and call outs at night to identify any visits to patients with low back pain, and, at the end of the recruitment year, made a further computer search to ensure that no consultation for low back pain had been missed. We excluded patients with pain limited to the thoracic region of the back or with pain associated with gynaecological problems or urinary tract infection but recruited those with generalised pain that included pain in the lower back.

Interviewees

The practices had also participated in a cross sectional survey at the start of the study to determine factors that might predict the outcome of a subsequent episode of low back pain. All registered adults aged 18-75 years had been invited to take part, and 59% had done so.



Design of study for evaluating patients' consultations with their general practitioner about low back pain

The survey responders formed a subgroup in the cohort study who, if prospectively identified as having a new consulting episode of low back pain during the study year, were followed up by research nurses to determine the nature and outcome of the episode.

Outcome measures

We evaluated the outcome of each new consulting episode by means of two approaches (see figure). Firstly, we reviewed the patients' records for subsequent consultations up to six months after the index consultation and classified patients into three groups:

- Those who had no further consultations about low back pain
- Those who consulted again with back pain within three months, but not subsequently
- Those whose further consultations about their pain extended beyond three months.

Secondly, we evaluated outcome from follow up visits among the subgroup of survey responders. These patients were visited by a research nurse and interviewed within a week of their index consultation, and then again after three and 12 months. Subjects were asked about the presence of low back pain on the day of interview and to mark the severity of any pain on a visual analogue scale from 0 to 10; a score of 0 or 1 was defined as no pain. The subjects were also asked to complete the Hanover back pain daily activity schedule, which asks about the ease of performing 12 everyday activities in the previous week.⁶ The items are scored and summed to a percentage value, with 100% representing no restriction in any activity. We categorised subjects as having no disability (summed score >90%) or having disability (≤90%). For this study, we classified patients into three groups according to the level of pain and disability recorded at each interview:

- No pain and no disability
- Pain or disability (but not both)
- Both pain and disability.

Results

Consultations

During the 12 month recruitment period 490 people (203 men and 287 women) consulted at least once because of pain in the lower back. This represents an annual cumulative incidence in the adult practice populations of 6.4%. Figures for the two study practices

were similar (6.3% and 6.4%). Table 1 shows the proportion of men and women consulting in each age group. Women were more likely than men to consult because of low back pain, and in both sexes consultation rates were highest in those aged 45-59. Based on medical records, 463 (94%) of the 490 consulters had not visited their general practitioner because of low back pain in the three months before their index consultation and were therefore considered to have a new consulting episode of low back pain. We excluded the remaining 27 patients from all further analyses.

Of the 463 patients, 275 (59%) did not consult again about the problem in the six months after their index visit (table 2). These patients were younger than the other consulters (median age 40 *v* 47 years). Of the 188 patients who did consult again, 150 (32% of all new episode consulters) did so only within the first three months after their index visit. The remaining 38 people (8%) had consultations or sickness certification related to low back pain that extended for more than three months after the index consultation.

Although women had a higher initial consultation rate than men, there was no difference in the proportions with repeated consultations: 80 (42%) men and 108 (40%) women had two or more. Patients aged over 30 were three times more likely to have repeat consultations than younger consulters (risk ratio 2.5, 95% confidence interval 1.6 to 4.0).

Pain and disability at interview

Of the 463 patients who consulted with a new episode of low back pain, 218 (47%) were included in the interview study and were visited by the research nurses one to two weeks after their index consultation (table 3). Of the 212 patients with available data, five (2%) had completely recovered by the time of the first interview. This had increased to 39/188 (21%) by the three month interview and to 42/170 (25%) by 12 months. Follow up information was incomplete for 48 subjects.

Table 1 Annual cumulative rate of consultation for low back pain of patients aged 18-75 years registered in practices

Age group (years)	Men		Women	
	Total population	No (%) of patients who consulted	Total population	No (%) of patients who consulted
18-29	906	34 (4)	994	55 (6)
30-44	1180	68 (6)	1194	93 (8)
45-59	760	61 (8)	791	78 (10)
≥60	772	40 (5)	1072	61 (6)
Total	3618	203 (6)	4051	287 (7)

Table 2 Consultation patterns of 463 patients who visited their general practitioner with a new episode of low back pain. Values are numbers (percentages) of patients

Consultation pattern	Patients' age (years)								Total
	Men				Women				
	18-29	30-44	45-59	60-75	18-29	30-44	45-59	60-75	
One only*	26 (76)	33 (52)	31 (53)	21 (60)	46 (85)	56 (62)	34 (48)	28 (50)	275 (59)
Repeat within 3 months†	7 (21)	21 (33)	21 (36)	12 (34)	8 (15)	28 (31)	29 (41)	24 (43)	150 (32)
Repeat beyond 3 months‡	1 (3)	10 (16)	6 (10)	2 (6)	0	7 (8)	8 (11)	4 (7)	38 (8)

*Subjects who did not consult again after index consultation.

†Subjects who consulted again only within 3 months of index consultation.

‡Subjects who consulted again beyond 3 months after index consultation.

Table 3 Outcome in patients who consulted their general practitioner with a new episode of low back pain and were followed up by interview at three and 12 months. Values are numbers (percentages) of patients

Follow up period	Outcome*		
	No pain and no disability	Pain or disability	Pain and disability
Main sample (n=218)			
Initial interview (n=212†)	5 (2)	53 (25)	154 (73)
3 month interview (n=188†)	39 (21)	55 (29)	94 (50)
12 month interview (n=170†)	42 (25)	43 (25)	85 (50)
Validation sample (n=44)			
Initial interview (n=43†)	3 (7)	11 (26)	29 (67)
3 month interview (n=36†)	12 (33)	6 (17)	18 (50)
12 month interview (n=31†)	11 (35)	6 (19)	14 (45)

*No pain and no disability: visual analogue score for pain=0 or 1, Hanover disability score >90%. Pain or disability: either pain score=2-10 or disability score <90%, not both. Pain and disability: pain score=2-10 and disability score <90%.
†Data missing for some subjects interviewed.

Table 4 Outcome in 170 patients who consulted their general practitioner with a new episode of low back pain and were followed up at 12 month interview by their status at initial interview. Values are numbers (percentages) of patients

Status at initial interview	12 month outcome*		
	No pain and no disability	Pain or disability	Pain and disability
No pain and no disability (n=3)	1 (33)	2 (67)	0
Pain or disability (n=41)	18 (44)	14 (34)	9 (22)
Pain and disability (n=126)	23 (18)	27 (21)	76 (60)

*No pain and no disability: visual analogue score for pain=0 or 1, Hanover disability score >90%. Pain or disability: either pain score=2-10 or disability score <90%, not both. Pain and disability: pain score=2-10 and disability score <90%.

Table 4 shows change in reported pain and disability during the study year. Eighteen (44%) of 41 patients with either pain or disability at first interview had fully recovered by 12 months. Of those with both pain and disability initially, the proportion who had fully recovered by 12 months was much lower (23/126 (18%)).

Patients' pain and disability status at interview was related to the likelihood of repeat consultation during the recruitment year. The proportion of interviewees who reported complete recovery at three months was higher among those who had not consulted again after their initial visit. By 12 months, those who had continued to consult for longer than three months after the index visit had lower levels of reported recovery than those who had stopped consulting before three months.

The median duration of symptoms as recalled at initial interview was three weeks (interquartile range 2-9 weeks). Table 5 shows the proportion of patients who reported recovery by reported duration of symptoms. Most subjects who reported a duration of less than two weeks had recovered by 12 months, whereas those consulting about episodes of longer duration were less likely to have recovered.

Non-participation in interview study

There were two main sources of potential selection bias. Firstly, only patients who had responded to the earlier survey and agreed to be interviewed were potentially followed up. The remaining 245 patients who consulted about low back pain may have been different in initial severity and subsequent rates of recovery. A sample of 44 such consultants with a new episode of low back pain were followed up by interview

to estimate the size of any such bias. Table 3 shows the distribution of pain and disability at baseline and at follow up in this validation sample. The proportion who fully recovered at three months was higher in this group (33%) than in the main study group (21%).

Secondly, those who consulted and had an initial interview but who were lost to follow up (48 subjects at 12 months) may have differed in their recovery from those who remained under observation. According to baseline interview data, those who were lost to follow up had slightly lower disability levels than those who remained under observation.

Discussion

By three months after the index consultation with their general practitioner, only a minority of patients with low back pain had recovered. There was little increase in the proportion who reported recovery by 12 months, emphasising the recurrent and persistent nature of this problem. However most patients with low back pain did not return to their doctor about their pain within three months of their initial consultation, and only 8% continued to consult for more than three months.

The mean number of consultations per person recorded in this study (1.7) is similar to that in a national survey of general practice consultations (1.6 per person).⁷ This suggests that our identification of all consultations for low back pain was relatively complete and that, although consultation rates (and hence case mix and outcome) may vary between practices, the practices in this study were generally representative.

Potential bias

Of the total of 463 patients who consulted with a new episode of low back pain in the recruitment year, 218 (47%) were interviewed, after having agreed to the interview and responded to the earlier survey. Selection bias might have resulted in the data from our follow up interviews underestimating the recovery of all patients presenting with low back pain in primary care. In a sample of non-participants who were followed up, recovery at three months was indeed higher than that of the main interview group. However,

Table 5 Outcome in patients who consulted their general practitioner with a new episode of low back pain and were followed up by interview according to duration of pain at first consultation. Values are numbers (percentages) of patients

Outcome*	Duration of pain at time of first contact (weeks)		
	0-1	2-3	≥4
Initial interview (n=212)			
No pain and no disability	1 (5)	1 (1)	3 (3)
Pain or disability	8 (36)	25 (29)	20 (19)
Pain and disability	13 (59)	60 (70)	81 (78)
3 month interview (n=188)			
No pain and no disability	6 (38)	20 (25)	13 (14)
Pain or disability	6 (38)	27 (34)	22 (24)
Pain and disability	4 (25)	33 (41)	57 (62)
12 month interview (n=170)			
No pain and no disability	10 (67)	21 (29)	11 (13)
Pain or disability	2 (13)	20 (28)	21 (25)
Pain and disability	3 (20)	31 (43)	51 (61)

*No pain and no disability: visual analogue score for pain=0 or 1, Hanover disability score >90%. Pain or disability: either pain score=2-10 or disability score <90%, not both. Pain and disability: pain score=2-10 and disability score <90%.

even if this higher rate of improvement applied to all non-participants, the overall recovery at three months after consultation for a new episode of back pain would still be low (about 27%).

In addition, those patients who were lost to follow up from within the interview group had slightly milder disease at baseline than those who remained under observation for the whole year. The effect of this on our estimates of recovery is likely to have been small, but again indicates a degree of underestimation.

Comparison with other studies

The findings of our interview study are in sharp contrast to the frequently repeated assumption that 90% of episodes of low back pain seen in primary care will have resolved within a month. However, the results of our consultation figures are consistent with the interpretation that 90% of patients presenting in primary care with an episode of low back pain will have stopped consulting about this problem within three months of their initial visit. The original article to which the statement of "90% recovery" can be traced⁸ drew on a record review in one general practice. If no further consultation within an episode is taken as the measure of "recovery" then record review is a valid measure of this. However, the inference that the patients have completely recovered is clearly not supported by our data. General practice records cannot be used to draw such conclusions.

Such an explanation does not apply to the study of Coste et al, who followed up patients independently of consultation and reported that 90% were without pain or disability two weeks after first presentation to their general practitioner.⁹ However, the patients recruited were restricted to those who presented to their general practitioner within three days of low back pain starting and who had previously been free of pain for at least three months. The meticulous follow up in this French study provided a clear description of the short term natural course of such episodes, and 90% were indeed better within a month. However, our study confirms that such patients are a select minority of all low back sufferers seen in primary care.

Conclusions

Our study has shown that consulting a doctor is not a direct measure of the presence of pain and disability. Many patients seeing their general practitioner for the first time in an episode of back pain will have had symptoms for a month or more. Although their symptoms will improve, most will still have some pain or disability 12 months later but not be consulting their doctor about it. Deyo has written of the need to describe and measure low back pain in terms of an individual's lifetime experience.¹⁰

We should stop characterising low back pain in terms of a multiplicity of acute problems, most of which get better, and a small number of chronic long term problems. Low back pain should be viewed as a chronic problem with an untidy pattern of grumbling symptoms and periods of relative freedom from pain and disability interspersed with acute episodes, exacerbations, and recurrences. This takes account of two consistent observations about low back pain: firstly, a previous episode of low back pain is the strongest risk factor for a new episode,^{11 12} and, secondly, by the age

Key messages

- It is widely believed that 90% of episodes of low back pain seen in general practice resolve within one month
- In a large population based study we examined the outcome of episodes of low back pain in general practice with respect to both consultation behaviour and self reported pain and disability
- While 90% of subjects consulting general practice with low back pain ceased to consult about the symptoms within three months, most still had substantial low back pain and related disability
- Only 25% of the patients who consulted about low back pain had fully recovered 12 months later
- Since most consulters continue to have long term low back pain and disability, effective early treatment could reduce the burden of these symptoms and their social, economic, and medical impact

of 30 years almost half the population will have experienced a substantive episode of low back pain.¹³ These figures simply do not fit with claims that 90% of episodes of low back pain end in complete recovery.

Finally, the observation from our study that most patients continue to get some degree of pain and disability after consulting about low back pain raises an important question of whether early treatment can improve this picture and, hence, reduce the cumulative prevalence of low back pain and its accompanying social, economic, and medical consequences.

Contributors: PRC, AJS, and ACP designed the study protocol, discussed core ideas, coordinated the study, and participated in analysis and interpretation of data and writing the paper. GJM and ET discussed core ideas and participated in data analysis and interpretation and writing the paper. Malcolm Jayson participated in the design and development of the study. Margaret Carrington, Jane Barnett, and Hannah Chambers carried out the study interviews. The authors thank the partners, staff, and patients of the Brooklands and Bowland Medical Practices, Manchester, for help with conducting the study and Lesley Jordan for typing the manuscript. All the authors are guarantors for the paper.

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