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## Pain and Health Status of Primary Care Patients with Low Back Pain

Hans J. M. van den Hoogen, PhD; Bart W. Koes, PhD; Jacques Th.M. van Eijk, PhD;  
Lex M. Bouter, PhD; and Walter Devillé, MD  
Amsterdam, the Netherlands

**BACKGROUND.** In addition to the pain caused by low back problems, suffering may also adversely affect other aspects of patients' lives. Since there is little knowledge about the suffering caused by low back pain, a prospective cohort study was undertaken to study pain intensity, perceived health, and daily functioning of consecutive patients with low back pain presenting in general practice.

**METHODS.** During a period of 2 years, 15 general practitioners enlisted consecutive patients with both chronic and recent-onset low back pain in the study. From the initial visit, each patient was monitored for a period of 6 months prospectively. The follow-up consisted of questionnaires mailed every 4 weeks to determine the intensity of the pain, perceived health, and daily functioning.

**RESULTS.** Of the 605 patients identified, 430 were included in the follow-up; 6 months after the initial visit, 167 patients were lost to follow-up. At baseline, the analyses did not reveal any important differences between acute, subacute, and chronic low back pain. Pain intensity, perceived health, and daily functioning in all patients tended to resolve over time. This tendency was strongest in patients with acute low back pain. The change in pain intensity was not strongly correlated with changes in perceived health and daily functioning.

**CONCLUSIONS.** All aspects of suffering caused by low back pain tend to diminish and resolve over time. No evidence was found of a relationship between perceived health or daily functioning and the duration of the low back pain.

**KEY WORDS.** Low back pain; activities of daily living; pain measurement; physicians, family. (*J Fam Pract* 1997; 44:187-192)

Low back pain is a frequently occurring patient complaint in general practice. Suffering caused by low back pain often involves more than just pain. Temporary or chronic low back pain may have considerable consequences that affect the lives of the patients involved.<sup>1,2</sup> As with other diseases or conditions, pain (in a circular process) induces distress that may induce disturbances in perceived health and illness behavior, which in turn may influence daily functioning, social interactions, and pain.<sup>2,5</sup> Consequently, the management of patients with low

back pain should not be restricted to management of the pain, but should also include management of possible disturbances in perceived health and daily functioning.

Experts in this field have argued that suffering may be divided into separate components that may differ in importance depending on the duration of low back pain.<sup>1,2,6</sup> In acute low back pain, for example, physical aspects are thought to dominate, whereas mental aspects, ie, emotional distress, depression, and social isolation, are thought to become apparent or even to dominate during the chronic phase. In patients with chronic low back pain, disturbances in perceived health and daily functioning often cannot be fully explained by the presence of a physical lesion.<sup>1,2,6</sup> Moreover, little is known about the extent, the course over time, and the coherence of the disturbances in perceived health and daily functioning due to low back pain.<sup>1,5,6</sup> The available information mainly concerns patients with chronic low back pain presenting in hospital

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From the Institute for Research in Extramural Medicine, the Department of General Practice, Nursing Home Medicine and Social Medicine (H.J.M. van den H. and J. Th. M. van E.), and the Department of Epidemiology and Biostatistics, Faculty of Medicine, Vrije Universiteit (B.W.K., L.M.B., and W.D.), Amsterdam, the Netherlands. Requests for reprints should be addressed to Hans van den Hoogen, EMGO Institute, Vrije Universiteit Van der Boechorstraat 7, 1081 BT Amsterdam, the Netherlands.

settings and specialized pain clinics.<sup>5</sup>

The present study addresses the following questions regarding low back pain in general practice. Does pain intensity, perceived health, and daily functioning differ in patients with acute, subacute, and chronic low back pain? Does pain intensity, perceived health, and daily functioning tend to improve over time in patients with low back pain of any duration? Is the change in pain intensity over time related to the change in patients' perceived health and daily functioning?

## METHODS

### STUDY DESIGN

The present study is a prospective cohort study on the course of pain intensity, perceived health, and daily functioning in consecutive patients with low back pain who present in general practice. The study included a 1-year follow-up of patients with acute, subacute, and chronic low back pain. Baseline data and data regarding the first 6 months of follow-up were used. The study did not interfere with the usual management of patients with low back pain by the general practitioners involved.

### STUDY SAMPLE

This study was carried out in 11 general practices, involving 15 general practitioners from Amsterdam and surrounding areas, with a catchment population of about 26,000. Patients were eligible for this study if they consulted any of these 11 practices for low back pain of any duration between May 1990 and May 1992. Additional inclusion criteria were: age over 16 years and complaints of pain in the back (or radiating from the back) in the area between the thoracic vertebra T-12 and the gluteal fold. Pregnant women were not eligible.

### MEASUREMENTS

At the initial visit, eligible patients were invited to participate in the follow-up study. They were asked to complete a questionnaire on the duration and intensity of low back pain and on their perceived health and daily functioning at that time.

The follow-up consisted of questionnaires mailed every 4 weeks to determine the intensity of the pain, perceived health, and daily functioning. The patients were sent a reminder if they did not respond within 2 weeks after each mailing. If they

did not respond to two successive questionnaires and reminders, they were excluded from the remaining part of the follow-up.

At the initial visit, patients were asked to state the duration of their low back pain. Three categories were distinguished: acute low back pain, with a duration of less than 6 weeks; subacute low back pain, with a duration of 6 to 12 weeks; and chronic low back pain, with a duration of more than 12 weeks.<sup>7,8</sup>

The measurement of the intensity of the low back pain was based on a visual analogue scale ranging from 0 to 50, where 0 is equal to "no pain" and 50 is equivalent to "unbearable pain." The visual analogue scale is widely used for measuring pain, and has been proved to be a reproducible and responsive measurement.<sup>9,10</sup>

The Nottingham Health Profile (NHP) was used to assess perceived health and daily functioning. The NHP was developed to screen populations on different aspects of perceived health and daily functioning.<sup>11</sup> It has been used in several studies on patients in general practice,<sup>12</sup> and consists of two parts. Part 1 contains 38 items that result in a weighted and separate score (range 0 to 100) on six aspects of perceived health: pain during daily activities, declined mobility, disturbed sleep, tiredness, emotional problems, and social isolation. Part 2 contains 7 items on different aspects of daily functioning that may be adversely affected because of poor health: paid employment, looking after the home, social life, home life, sex life, interests and hobbies, and holidays. According to the manual, perceived health is expressed as the weighted scores on each of the six dimensions of part 1 (range 0 to 100).<sup>13</sup> Disturbed daily functioning was defined as the number of adversely affected aspects of daily functioning in part 2 (range 0 to 7). For all seven outcome variables, higher scores indicate a greater degree of disturbances.

### ANALYSIS

The differences in pain intensity, perceived health, and daily functioning in patients with acute, subacute, and chronic low back pain at the initial visit were analyzed by using ANOVA on the log natural transformed means. The measurements at 4 weeks, 3 months, and 6 months after the initial visit were used to assess the tendency of pain intensity, perceived health, and daily functioning to improve

over time.

To assess the relationship between the change in pain intensity on the one hand and the changes in perceived health and daily functioning on the other hand, change rates were calculated on the difference between the measurements at the initial visit and the measurements 4 weeks, 3 months, and 6 months after the initial visit. In addition, Spearman correlation coefficients were calculated on the ranked change rates. The analyses were performed using the SPSS-PC 5.1 statistical software.<sup>14</sup>

## RESULTS

### STUDY POPULATION

We identified 605 eligible patients during the recruitment period. Of these, 430 (71%) consented to participate and completed the questionnaires at the initial visit. Patients who did not participate, compared with those who did, were more often men (58% and 48%, respectively), and they were more often suffering from nonradiating low back pain (47% nonparticipants and 37% study participants) with sudden onset (57% nonparticipants and 47% study participants) (all  $P < .05$ ). At 6 months after the initial visit, 167 of the 430 (39%) patients included were lost to follow-up. With regard to relevant patient characteristics recorded at the initial visit (age, sex, pain intensity, duration at initial visit, sciatica, type of onset, history of low back pain, and history of surgery), these 167 patients did not differ beyond chance ( $P < .05$ ) from those patients who did complete the follow-up.

### MEASUREMENTS AT INITIAL PATIENT VISIT

At the initial visit, 327 patients (76%) appeared to have acute low back pain, 31 (7%) had subacute low back pain, and 72 (17%) had chronic low back pain. The relevant patient characteristics of these three categories of patients are presented in Table 1. Patients with chronic low back pain, compared with patients with acute or subacute low back pain, were more often women; women also had fewer occurrences of low back pain with sudden onset.

The median scores on pain intensity, perceived health, and daily functioning at the initial visit for patients with acute, subacute, and chronic low back pain are presented in Table 2. The median score on the six aspects of perceived health that were measured by part 1 of the NHP (range 0 to

TABLE 1

Patient Characteristics at the Initial Visit of Patients with Acute, Subacute, and Chronic Low Back Pain (N=430)

Characteristic	Acute (n=327)	Subacute (n=31)	Chronic (n=72)
Age, y (median)	40	41	43
Male sex (%)	54	45	38
Pain intensity, median	25	21	20
Sciatica (%)*	46	36	53
Sudden onset (%)	56	41	19
History of surgery (%)	6	5	5

\*Sciatica was defined as low back pain radiating into one or both legs.  
 $P < .05$  for differences between recent onset, subacute, and chronic low back pain.

100) varied from 0 to 53. The median score on daily functioning (range 0 to 7) varied from 2 to 3. The category of "pain during daily activities" received the highest scores by patients. In most cases, the other aspects of perceived health and daily functioning at the initial visit appeared not to be substantially affected.

Moreover, the scores on "social isolation," "emotional problems," "tiredness," and "disturbed sleep" at the initial visit were often zero, indicating no disturbances in these aspects of perceived health. The proportion of patients scoring 0 for these four scales of the NHP varied from 40% on "tiredness" to 88% on "social isolation," both scores from patients with acute low back pain. The median scores for acute, subacute, and chronic low back pain do not seem to differ substantially at the initial visit. However, performing an analysis of variance revealed statistically significant differences between the categories of "declined mobility" ( $P = .005$ ) and "social isolation" ( $P = .049$ ) for patients with acute, subacute, and chronic low back pain at the initial visit.

### PATIENT MEASUREMENTS AT FOLLOW-UP

The scores on pain intensity, perceived health, and daily functioning at the initial visit and at 4 weeks, 3 months, and 6 months after the initial visit, for patients with acute, subacute, and chronic low back pain, are also presented in Table 2. In general, pain intensity, perceived health, and daily functioning all

TABLE 2

**Pain Intensity, Perceived Health, and Daily Functioning at the Initial Visit and After 4 Weeks, 3 Months, and 6 Months in Patients with Acute, Subacute, and Chronic Low Back Pain (in median percentile)**

Type of Back Problem	Pain Intensity	Perceived Health Categories*						Daily Functioning
		1	2	3	4	5	6	
Acute low back pain								
At initial visit, range	25	43	23	0	24	0	0	3
After 4 weeks	5	12	11	0	0	0	0	1
After 3 months	0	0	11	0	0	0	0	0
After 6 months	0	0	0	0	0	0	0	0
Subacute low back pain								
At initial visit, range	21	46	22	0	37	7	0	2
After 4 weeks	5	30	11	0	24	7	0	1
After 3 months	7	9	11	0	24	0	0	1
After 6 months	5	0	0	0	24	0	0	0
Chronic low back pain								
At initial visit, range	20	53	22	6	24	7	0	3
After 4 weeks	20	33	22	13	24	4	0	2
After 3 months	11	31	11	0	0	0	0	1
After 6 months	5	10	11	0	0	0	0	0

\*Using the Nottingham Health Profile, perceived health categories are: 1=pain during daily activities; 2=declined mobility; 3=disturbed sleep; 4=tiredness; 5=emotional problems; 6=social isolation.

categories of pain during daily activities, declined mobility, tiredness, and daily functioning, the changes at 4 weeks, 3 months, and 6 months after the initial visit are correlated to the changes in pain intensity, as measured by the visual analogue scale. For the categories of disturbed sleep, tiredness, emotional problems, and social isolation, the correlation is low, since most patients had not reported disturbances in these aspects at the initial visit.

Except for the categories of pain during daily activities and declined mobility, the correlation between the

appear to have improved after the initial visit. In some aspects of perceived health, ie, disturbed sleep, tiredness, emotional problems and social isolation, most patients could not improve because they had reported no problems regarding these aspects at the initial visit.

The general tendency to improve over time seems least apparent in patients with chronic low back pain and most apparent in patients with acute low back pain. In acute low back pain, 3 months after the initial visit almost all the median scores were already equal to zero, whereas at 6 months the median scores of pain during daily activities and declined mobility in patients with chronic low back pain were still equal to 10 and 11, respectively.

There was only one exception to this general tendency to improve over time. The median score on tiredness in subacute low back pain had not decreased any further at 3 and 6 months after the initial visit.

**CHANGES IN MEASURES BETWEEN INITIAL VISIT AND FOLLOW-UP**

Correlation coefficients of the ranked change rates in the total sample are presented in Table 3. In the

change in pain intensity and the change in the disturbances of perceived health and daily functioning appears to be rather weak. The correlation coefficients varied from -.07 to .64. Only between pain intensity and pain during daily activities, which could be argued to represent measurement of the same phenomenon in different ways, the correlation coefficient of 0.64 reflected a fairly high correlation.

**DISCUSSION**

Few studies have reported on pain intensity, perceived health, and daily functioning in patients with low back pain, although it seems obvious that low back pain may have important consequences for the lives of most of these patients and their families.<sup>1</sup> The present study presents data on these aspects in the first 6 months of a follow-up study of low back pain in consecutive patients in general practice.

The inclusion of consecutive patients with low back pain enables us to assess the possible differences in pain intensity, perceived health, and daily functioning in patients with low back pain of varying duration. Furthermore, the repeated measurements of the present study make it possible to assess the

changes over time.

A limitation of this study may be the number of dropouts during the follow-up period. The characteristics of the dropouts seem to indicate that patients with less severe low back pain participated less often and were less likely to complete the follow-up. This may have resulted in a selected study population with an overrepresentation of the more serious cases. Considering the baseline score (Table 1 and 2), however, even in this population the severity of low back pain in most patients was not particularly high.

The Nottingham Health Profile (NHP) was chosen to assess the disturbances in perceived health and daily functioning.<sup>8</sup> In the development of the NHP, a random sample of people were questioned about various important aspects of health that may be affected by disease. The answers to these questions formed the basis of the profile. Consequently, the NHP has a high face validity, and seemed to be a suitable measurement for the purpose of this study.

The sensitivity of the NHP to detect small disturbances, especially with regard to the category of social isolation, has been questioned,<sup>9,15</sup> and patients may tend to minimize the psychological and social aspects of their symptoms, focusing on the somatic experience of pain.<sup>2,4,5</sup> The large number of zero scores at the initial visit may be a reflection of both this low sensitivity to small disturbances and this focusing on the somatic experience. Possibly unrevealed and insignificant disturbances would be considered of little importance to the people involved, however, and this study was not designed to study social functioning from any other perspective than that of the patient.<sup>8,9</sup>

At the initial visit, patients were often suffering from chronic or sciatic low back pain, which may reflect the overrepresentation of the more serious cases in our study population. Patients with chronic low back pain were more often women and were less often suffering from low back pain with a sudden onset. The high percentage of women may reflect the general tendency of women to consult the general practitioner more often than men, or even may reflect that

women have worse prognoses than men.<sup>1,6,16,17</sup> The association between a sudden onset and acute low back pain has also been found in other studies.<sup>1</sup>

Our results seem to support the clinical opinion and results of other studies, ie, that suffering caused by low back pain is more than merely pain.<sup>1,2,5</sup> Apart from having pain, low back pain in general implies some decrease in mobility, some tiredness, and some disturbance in daily functioning. However, even in this study with its suspected overrepresentation of the more serious cases as well as cases of chronic low back pain, the results indicate that disturbances in perceived health and daily functioning are of minor importance to patients who present with low back pain in general practice. In general, the measurements of the disturbances in perceived health and daily functioning did not reach high levels.

The results of the research questions addressed in this study indicate the following. At the initial visit no clinically important differences in pain intensity, perceived health, and daily functioning were found in patients with acute, subacute, and chronic low back pain. The differences found were very small and were considered to have no clinical significance.

TABLE 3

Correlation Matrix on the Change in Pain Intensity and the Changes in Perceived Health and Daily Functioning at 4 Weeks, 3 Months, and 6 Months After the Initial Visit (Spearman Correlation Coefficients)

	Change in Pain Intensity		
	0-4 Weeks	0-3 Months	0-6 Months
Change in perceived health			
Pain during daily activities	.53*	.59*	.64*
Declined mobility	.44*	.36*	.50*
Disturbed sleep	.13*	.07	.32*
Tiredness	.22*	.13*	.28*
Emotional problems	.01	.09	.12
Social isolation	-.05	-.07	.05
Daily functioning	.34*	.53*	.45*

\*P <.05.

Pain intensity, perceived health, and daily functioning in low back pain of any duration seemed to improve over time after the initial visit, which is in accordance with the tendency of low back pain of any duration to resolve over time.<sup>1,6</sup> The changes in the disturbances in perceived health and daily functioning, except for the categories of pain during daily activities and for declined mobility, were only weakly correlated with the changes in the pain intensity.

These results do not correspond with our expectations. On theoretical grounds and guided by the opinions of experts in the field, we would have expected acute and chronic low back pain to have different consequences.<sup>1,5</sup> We expected that physical aspects, ie, pain during daily activities, disturbed physical mobility, and daily functioning, would mainly dominate the acute phase, whereas mental aspects, ie, tiredness, disturbed sleep, emotional problems, and social isolation, would tend to become more important in the chronic phase. This was not fully confirmed by the results of the present study, although at the initial visit patients in the subacute and chronic groups scored somewhat higher on "tiredness" and "emotional problems" than the acute group.

Most of the available information regarding the relative importance of the dominance of mental aspects concerns patients with long-standing chronic low back pain, usually of more than 1 year's duration, who seem incapable of coping because of their ongoing search for medical aid.<sup>1,2,5</sup> Moreover, patients with chronic low back pain have shown important pain-related, psychological, and social variability.<sup>18</sup> Consequently, the different importance of the dominance of mental factors in acute, subacute, and chronic low back pain may well be irrelevant for patients consulting a general practitioner.

The results of the present study indicate that patients with low back pain who present in general practice, irrespective of the duration of the low back pain, often suffer from decreased mobility, tiredness, and disturbed daily functioning. The prognosis in all cases seems favorable, which argues in favor of a restricted policy toward medical intervention, even

in cases of subacute and chronic low back pain. The main goal of medical management may be to convince patients that awaiting the favorable natural course may be preferred over any further medical intervention.<sup>1,2</sup>

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