Psychosocial correlates of long-term sick-leave among patients with musculoskeletal pain

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Abstract

We studied the associations between psychosocial variables and sick-leave among patients with musculoskeletal pain. Patients (n = 586) seeking care to relieve their pain at health care and physiotherapy centres, completed a questionnaire about such variables as clinical characteristics (e.g. pain intensity), psychological well-being (e.g. burnout, depression) and coping strategies. The results show that the patients who had been on sick-leave for >30 days (n = 217), were significantly more often divorced, immigrants, blue-collar workers and less educated than the rest of the sample. Compared with the rest of the patients, they rated their pain as significantly more severe, frequent, complex and functionally impairing. They reported using more pain medication and tranquillizers, and having undergone more somatic treatments. These patients also showed higher scores on job strain, more symptoms of burnout, anxiety/depression and posttraumatic stress reactions, and poorer coping capacity. Logistic regression analyses revealed that an index related to perceived disability was a major predictor of sick-leave within the group. After controlling for possible confounders, multivariate regression analyses showed that the strongest predictors of the disability index were symptoms of burnout and posttraumatic stress reactions. The results confirm that emotional distress, coping style and perceived disability are associated with sick-leave, after controlling for pain parameters and sociodemographic variables. The high levels of emotional distress and the poor coping capacity reported by the patients with a long history of absence due to illness suggest that cognitive behavioural interventions ought to be integrated in the treatment of musculoskeletal pain.

Keywords: Musculoskeletal pain; Psychosocial factors; Burnout; Posttraumatic stress; Coping

1. Introduction

Musculoskeletal disorders, e.g. low-back pain, are the most common and costly of the non-malignant conditions in the Western world. Epidemiological studies have estimated that 50–80% of the adult population will experience low-back pain at some time during their lives (e.g. Biering-Sørensen, 1982, 1983, 1984). In approximately 90% of these cases, substantial improvement occurs within 3–4 months. From 2 to 10% of the back pain sufferers develop chronic conditions, i.e. which continue for longer than 6 months, these incurring the largest costs in terms of health care consumption and loss of productivity within this population (Snook et al., 1984; Spengler et al., 1986). The course of back-pain is often recurrent, wherefore some authors (Von Korff and Saunders, 1996) have argued that it may be inadequate to classify patients as acute or chronic based on the duration of the first episode.

Generally, small or no differences have been observed in terms of physical findings between symptomatic and asymptomatic subjects (Rothman, 1984; Von Korff et al., 1988; Boden et al., 1990), as well as between patients who attend work in spite of pain and those who do not (Linton and Buer, 1995). Due to the weak associations between objective findings and functional impairment a large body
of literature has focused on identifying demographic and psychosocial variables related to the chronicity of pain, to treatment outcomes, and to adaptation, including work attendance.

Some epidemiological investigations have shown a higher prevalence of back pain among females than in males (Leino et al., 1994; Reisbord and Greenland, 1985; Lagerlöf, 1993; Harreby et al., 1996; Maclarlane et al., 1997). In a population-based study conducted in the US, the highest 1-year prevalence of back pain was observed among older, no-longer married women (Reisbord and Greenland, 1985). A study including 5000 subjects representative of the adult Finnish population found a higher 1-year prevalence of back pain and joint pain among women than among men. These findings are in line with results from a Dutch study investigating the 1-month prevalence of back-pain among 7669 adults registered with two family practices in a suburban area (Papageorgiou et al., 1995). Other studies have shown no gender differences in the prevalence of back pain (e.g. Deyo and Tsui-Wu, 1987; Leboeuf-Yde et al., 1996a,b). For instance, Deyo and Tsui-Wu found no sex differences in the life-time prevalence of back-pain, in a study including 10,404 subjects representative of the general, non-institutionalized American population. Von Korff et al. (1988) who conducted a study among 1016 subjects enrolled at a large health maintenance organization in Seattle, found that the 6-months prevalences of certain types of pain, i.e. headache, abdominal and facial pain were higher among females and among subjects below 65 years of age, whereas back pain and chest pain were unrelated to gender or age. Yet other studies (e.g. Lindal and Stefansson, 1996) have shown higher prevalences of back pain among men. These mixed results are likely to be due to variations in geographical location, sample characteristics, questionnaire methodology and type of prevalence under investigation.

Studies of the associations between educational level and back pain have yielded more consistent results. Subjects of a low educational level seem to be generally more afflicted by back pain than their more educated counterparts (e.g. Deyo and Tsui-Wu, 1987; Sivik et al., 1992; Andersson et al., 1993; Croft and Rigby, 1994). Also, smokers generally report more back pain than non-smokers (Frymoyer et al., 1980; Biering-Sørensen et al., 1989; Ernst, 1993; Leboeuf-Yde et al., 1996a,b; Lindal and Stefansson, 1996). Musculoskeletal pain symptoms, especially low-back pain, have been associated with physically strenuous work conditions (e.g. Bergenudd and Nilsson, 1988; Hildebrandt, 1995) and with psychosocial factors at work, such as high demands and low control in the work setting, i.e. job strain (Bongers et al., 1993; Lundberg et al., 1994; Lundberg, 1995; Ahlborg-Hultén et al., 1996; Melin and Lundberg, 1997; Toomingas et al., 1997). Johansson and Rubenowitz (1994) conducted a study among white- and blue-collar workers in eight different industries. Among white-collar workers, both physical (e.g. posture) and psychosocial factors at work were related to symptoms of pain in the neck, shoulders and low-back. Among blue-collar workers, significant positive associations were observed between mental workload and pain symptoms, but no associations were found between physical workload and symptoms (Johansson and Rubenowitz, 1994). An experiment conducted by Lundberg et al. (1994) has shown that mental stress alone induces elevations in catecholamines, cortisol, blood pressure and heart rate, as well as EMG-activity in the trapezius muscle. Interestingly, the increases in these stress markers were significantly more pronounced when mental stress was combined with physical load. The combination of job strain and physical load is also a major correlate of musculoskeletal pain among Swedish women in repetitive, low-status occupations, e.g. cash register operators (Melin, B., Palmerud, G., Lundberg, U., Kadedors, R., Hassmén, P. and Elfsberg-Dohns, L. Psychophysiological reactions and EMG activity of the trapezius muscle during and after laboratory induced stress in cashiers and controls. Submitted). The pathways linking psychosocial stress, such as job-strain, with symptoms of pain are poorly understood. According to Hägg (1991), physical and psychological workload may interact in the chronic activation of low-threshold motor units in the neck, shoulder and back musculature. It has also been proposed that elevated muscular tension may be a consequence of stress-induced hyperventilation which may decrease peak CO2 levels and increase the blood pH-level (Schliefer and Ley, 1994). Indahl et al. (1997) have suggested that ‘guarded’ behaviour among back pain patients, may further increase muscular activation, possibly perpetuating the ‘pain–spasm–pain’ cycle (Roland, 1986). This may lead to long-lasting pain even after the healing of any initial damage has taken place. Also, psychological characteristics make a significant contribution in the development of chronic disability due to musculoskeletal pain. According to the fear-avoidance model there are individual differences in the perception of fear in response to pain (Wadell et al., 1993). Besides experiencing severe pain, some patients also perceive strong fear of pain. The patients often attempt to manage this fear by means of coping strategies, which are geared at avoiding activities perceived as potentially painful. Helplessness and excessive reliance on others (Nicholas et al., 1992) also characterize this passive coping style. Passive coping may lead to physical inactivity, e.g. ‘guarded’ behaviour among back pain patients, may further increase muscular activation, possibly perpetuating the ‘pain–spasm–pain’ cycle (Roland, 1986).
intensity, psychological dysfunction, depression and absence due to illness (Jensen et al., 1991; Hill, 1993; Linton and Buer, 1995; Snow-Turek et al., 1996). Other studies have shown that job strain is an important predictor of sick-leave due to pain (e.g. Bongers et al., 1993). Although musculoskeletal pain is frequently associated with depression (Romano and Turner, 1985; Magni et al., 1990; Sullivan et al., 1992; Croft et al., 1995; Kessler et al., 1996) and has been observed in the presence of stress-related disorders, e.g. posttraumatic stress disorder (PTSD) (Muse, 1985, 1986), no attempts have been made to investigate the possible associations between burnout and sick-leave due to pain. Burnout is conceived of as a syndrome encompassing physical, emotional and cognitive exhaustion following chronic stress exposure (Melamed et al., 1992). Burnout has very seldom been studied in relation to somatic health outcomes. It is plausible to assume that musculoskeletal pain and burnout may be associated, since both seem to be influenced by psychosocial stress.

The aim of the present study was therefore, to investigate the associations between psychosocial variables, e.g. demographic, psychological well-being, coping, and frequency of sick-leave among patients with musculoskeletal pain. It was hypothesized that patients reporting a high frequency of absence due to illness during the previous 12 months would differ from other patients with respect to the following characteristics: (1) sociodemographics: the patients with the longest absence due to illness were hypothesized to be more often females, immigrants, blue-collar workers and less educated than the rest of the sample (2) clinical characteristics: the patients with the longest absence due to illness were hypothesized to rate their pain as more severe, frequent, complex and debilitating. They were also hypothesized to have undergone more somatic treatments before the present survey, and to use more medication than the rest of the sample (3) job strain: the patients with the longest absence due to illness were hypothesized to experience higher demands and lower degree of control in the work setting, i.e. high levels of job strain, than the rest of the sample (4) emotional distress: the patients with the longest absence due to illness were hypothesized to report higher levels of emotional distress, e.g. symptoms of burnout and anxiety/depression, than the rest of the sample and (5) coping: the patients with the longest absence due to illness were hypothesized to manifest a dysfunctional coping pattern, particularly more catastrophizing and a lower perceived self-efficacy for controlling and decreasing pain, than the rest of the sample.

2. Methods

2.1. Subjects

Criteria for inclusion in the study were: (1) seeking care to alleviate musculoskeletal pain from general practitioners (GPs) or physiotherapists (PHTs); and (2) aged between 18 and 64 years. Unemployed subjects were not excluded from the study since the unemployed are entitled to sickness benefit in Sweden1. Out of 780 consecutive patients approached, 586 participated in the study (response rate 75.1%). Analyses with ANOVA and χ²-tests revealed no significant differences between the responders and non-responders in terms of age, gender, ethnic background or diagnosis. The GPs and the PHTs recorded these four variables for all patients approached, in order to permit an analysis of the attrition (see Section 2.3). Thus, a total of 586 patients (421 females and 165 males) were studied (see Table 1). The mean age of this sample was 45 ± 11 years. The majority of the participants (72%) were females and 24% were of foreign background. Seventy-one percent were married and 26% had a high educational level. Fifty-nine percent of the sample had white-collar occupations. At the time of the survey, 29 (5%) subjects were unemployed (see Table 1). The most common diagnosis was back pain, present among 32% of the patients, followed by neck/shoulder pain (17%), and complex pain, i.e. pain at multiple sites (12%). Fibromyalgia, myalgia, lower limb pain, hip pain, traumatic injury, pain due to tension, herniated disk and ‘other’ accounted together for 22% of the diagnoses. A considerable proportion of patients (15%) had not been given any clear diagnosis. There were no significant differences between sick-leave groups in terms of back-pain or neck/shoulder pain. Comparisons between groups regarding other diagnoses were not performed due to the small sample size in each diagnostic category.

2.2. Measures

The patients’ diagnoses were established by GPs in accordance with the Swedish version of the International Classification of Diseases, Ninth Revision (ICD-9) (Socialstyrelsen, 1987). To avoid interfering with the GPs’ work, no reliability checks were performed during diagnosing. The degree of reliability of the diagnoses is, therefore, unknown.

The patients completed a 19-page questionnaire designed to assess demographics, i.e. age, gender, marital status, occupation, employment status, and ethnic background (i.e. whether the patient was of an ethnic origin other than Swedish), clinical characteristics (e.g. pain parameters, disability), job strain, burnout, anxiety/depression (GHQ), PTSS, and coping strategies. Each separate scale within the questionnaire was preceded by detailed instructions

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1 The Swedish welfare system is complex. Almost any kind of benefits are available ranging from motherhood benefits to help for burying a close relative. Almost any combination of benefits may occur. For instance, it is possible to be part-time sick listed, part-time unemployed and have a part-time job at the same time. Unemployed subjects who become ill are supported by sickness benefits for the duration of their illness, while remaining in the unemployment register. Afterwards they return to being supported by unemployment benefits.
about how to answer the questions. Sick-leave data were obtained with the question: ‘how many days have you been on sick-leave during the past 12 months?’. This was to be answered with one of the categories: ‘I have not been on sick-leave’, ‘1–7 days’, ‘8–30 days’, ‘31–80 days’, and ‘more than 90 days’. No reliability check was performed on the sick-leave data.

The patients were asked to complete the following measures within the questionnaire.

### 2.3. Pain questionnaire

This instrument (Arner, 1984; Carlsson, 1984) is currently used as a diagnostic tool at the Pain Management Clinic (Karolinska hospital, Stockholm). It contains questions about pain duration, pain intensity (visual analogue scale graded from 0 (no pain) to 10 (worst conceivable pain)); this scale was subsequently quantified according to the distance between the ratings), pain localization (pain drawing), pain quality (adjective checklist), pain complexity (one or several types of pain), pain frequency, previous somatic treatments and their effects, use of medication and other morbidity than pain. There is also a disability index, which consists of 15 items (yes/no answers) covering various aspects of disability due to pain, such as down-time, mobility and social life. High scores correspond to high disability. For the purpose of this investigation, the following variables were selected: pain duration, pain intensity, pain frequency, pain complexity, number of previous somatic treatments, use of analgesics and sedatives, and the disability index. Cronbach alpha for the disability index was 0.84. Reliability and validity for the entire Pain Questionnaire are reported in Arner (1984) and Carlsson (1984).

### 2.4. Job strain

This instrument (Karasek and Theorell, 1990) contains 11 items (graded 1—4) concerning work demands and control. Indices for work demands and control were calculated. By dividing demands with control a measure of job strain was obtained for each patient. High scores correspond to high demands, high control and high job strain. In previous research these indices have been shown to have high relia-

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>All (n = 586)</th>
<th>No sick leave (n = 165)</th>
<th>1–30 Days (n = 204)</th>
<th>&gt;30 Days (n = 217)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years) (N)</td>
<td>(585)</td>
<td>(164)</td>
<td>(204)</td>
<td>(217)</td>
</tr>
<tr>
<td>Mean (s.d.)</td>
<td>45.25 (11.04)</td>
<td>45.69 (11.39)</td>
<td>42.77 (10.29)</td>
<td>47.26 (11.06)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>421 (72%)</td>
<td>106 (64%)</td>
<td>152 (75%)</td>
<td>163 (75%)</td>
</tr>
<tr>
<td>Male</td>
<td>165 (28%)</td>
<td>59 (36%)</td>
<td>52 (25%)</td>
<td>54 (25%)</td>
</tr>
<tr>
<td>Educational level (N)</td>
<td>(585)</td>
<td>(164)</td>
<td>(204)</td>
<td>(217)</td>
</tr>
<tr>
<td>Mandatory</td>
<td>159 (27%)</td>
<td>39 (24%)</td>
<td>40 (20%)</td>
<td>80 (37%)</td>
</tr>
<tr>
<td>High School</td>
<td>233 (40%)</td>
<td>56 (34%)</td>
<td>97 (47%)</td>
<td>80 (37%)</td>
</tr>
<tr>
<td>University</td>
<td>150 (26%)</td>
<td>62 (38%)</td>
<td>51 (25%)</td>
<td>37 (17%)</td>
</tr>
<tr>
<td>Other</td>
<td>43 (7%)</td>
<td>7 (4%)</td>
<td>16 (8%)</td>
<td>20 (9%)</td>
</tr>
<tr>
<td>Foreign background (N)</td>
<td>(585)</td>
<td>(164)</td>
<td>(204)</td>
<td>(217)</td>
</tr>
<tr>
<td>Yes</td>
<td>140 (24%)</td>
<td>37 (22%)</td>
<td>33 (16%)</td>
<td>70 (32%)</td>
</tr>
<tr>
<td>No</td>
<td>446 (76%)</td>
<td>128 (78%)</td>
<td>171 (84%)</td>
<td>147 (68%)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>98 (17%)</td>
<td>25 (15%)</td>
<td>48 (23%)</td>
<td>25 (12%)</td>
</tr>
<tr>
<td>Married/cohabit</td>
<td>416 (71%)</td>
<td>125 (76%)</td>
<td>140 (69%)</td>
<td>151 (69%)</td>
</tr>
<tr>
<td>Divorced/separated</td>
<td>62 (10%)</td>
<td>14 (8%)</td>
<td>13 (6%)</td>
<td>35 (16%)</td>
</tr>
<tr>
<td>Widower</td>
<td>10 (2%)</td>
<td>1 (1%)</td>
<td>3 (2%)</td>
<td>6 (3%)</td>
</tr>
<tr>
<td>Occupation (N)</td>
<td>(544)</td>
<td>(144)</td>
<td>(195)</td>
<td>(205)</td>
</tr>
<tr>
<td>Blue-collar</td>
<td>204 (37%)</td>
<td>34 (24%)</td>
<td>63 (32%)</td>
<td>107 (52%)</td>
</tr>
<tr>
<td>Low white-collar</td>
<td>163 (30%)</td>
<td>47 (33%)</td>
<td>62 (32%)</td>
<td>54 (26%)</td>
</tr>
<tr>
<td>Intermediate/high white-collar</td>
<td>157 (29%)</td>
<td>55 (38%)</td>
<td>63 (32%)</td>
<td>39 (19%)</td>
</tr>
<tr>
<td>Own business</td>
<td>20 (4%)</td>
<td>6 (4%)</td>
<td>7 (4%)</td>
<td>5 (3%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>29 (5%)</td>
<td>14 (10%)</td>
<td>7 (4%)</td>
<td>8 (4%)</td>
</tr>
</tbody>
</table>
covery, as expressed by Cronbach alphas of 0.75 for demands and 0.76 for control (Theorell et al., 1993). Unemployed subjects were instructed to rate their last employment with respect to job strain.

2.5. Burnout

This instrument (Melamed et al., 1992) contains 22 items (graded 1–7) which measure different facets of the burnout syndrome, as expressed by the sub-scales burnout, tension, listlessness and cognitive difficulties. Lisspers, J. and Setterlind, S., Burnout and hardiness: some psychometric properties of different assessment instruments (in preparation), validated the questionnaire in a cross-sectional investigation among 268 Swedes (age-range 20 to 64 years; 68% females) in low and middle white-collar occupations. They found significant positive associations between the overall burnout index and the overall index for the Pines Burnout Measure (Pines et al., 1981) \( r = 0.738, P < 0.01 \), the emotional exhaustion sub-scale of the Maslach Burnout Inventory (Maslach, 1982) \( r = 0.737, P < 0.01 \), and the burnout sub-scale of the Stress Profile (Setterlind and Larsson, 1994) \( r = 0.749, P < 0.01 \). For purposes of data reduction the overall burnout index was calculated for each patient. High scores correspond to high burnout. Alpha coefficient for this index was 0.78.

2.6. Coping Strategies Questionnaire (CSQ)

The CSQ (Rosenstiel and Keefe, 1983) contains 44 items (graded 0–6) about eight strategies for coping with pain: reinterpret pain sensations, coping self-statements, ignore sensations, diverting attention, praying/hoping, catastrophizing, increased behavioural activities, and pain behaviours. The perceived effectiveness of the coping efforts was rated with two items: control over pain and ability to decrease pain. A principal component analysis (varimax rotation, 75% variance rule) of the CSQ sub-scales was conducted for purposes of data reduction. This analysis yielded three coping dimensions (i.e. conscious cognitive coping, pain avoidance and self-efficacy beliefs). The rotated factor scores for these coping dimensions are presented in Table 2. The dimension conscious cognitive coping loaded highest on coping self-statements, reinterpreting pain sensations and ignoring pain. High scores for conscious cognitive coping correspond to good coping capacity, since this factor reflects conscious efforts to master pain. Pain avoidance loaded highest on diverting attention and praying/hoping, but also on catastrophizing, increased behavioural activity and pain behaviours. High scores for pain avoidance correspond to poor coping capacity, since this factor reflects efforts to avoid pain in combination with catastrophizing cognitions about pain. Finally, self-efficacy beliefs loaded highest on control over pain and ability to decrease pain. This factor is reflective of perceived mastery over pain, wherefore high scores correspond to good coping capacity. The patient groups were compared on mean scores for each factor. The Swedish version of the CSQ has been shown to have a satisfactory internal consistency, i.e. Cronbach alphas ranging from 0.70 to 0.80 (Jensen and Linton, 1993). However, this version of the CSQ differs from the version employed in other studies (e.g. Snow-Turek et al., 1996) in which the pain behaviours scale was excluded.

2.7. General Health Questionnaire (GHQ-12)

The GHQ-12 (Goldberg, 1972; Goldberg, 1985; Goldberg and Williams, 1988) was used to measure minor psychiatric morbidity. It contains 12 items about symptoms of anxiety and depression. Scores of 0–2 correspond to no psychiatric morbidity (well-being) and scores of 3–12 correspond to increasing levels of psychiatric morbidity (low well-being). The Swedish version of the GHQ-12 has a good internal consistency, as expressed by Cronbach alphas ranging from 0.86 to 0.90 (Brenner et al., 1988).

2.8. Posttraumatic Symptom Scale (PTSS-10)

The PTSS-10 (Holm, 1990) was used to assess symptoms of posttraumatic stress. This instrument was developed to cover DSM-III criteria for post-traumatic stress disorder, such as nightmares, sleep difficulties, impaired memory, irritability, tendency to withdraw etc. (Holm, 1990). The respondent is instructed to rate the presence or absence of such symptoms in a ‘yes or no’ form. The PTSS-10 contains ten items and scores of 0–2 correspond to no stress reactions, while scores of 3–10 correspond to increasing levels of stress reaction. The alpha coefficient in the present study was 0.81.

2.9. Procedure

The study design was cross-sectional. The research was conducted at health care and physiotherapy centres serving a catchment area of approximately 250,000 people, situated in

| Table 2 | Rotated factor scores for the Coping Strategies Questionnaire (CSQ) (n = 586) |
|---|---|---|---|
| CSQ-scales | Conscious cognitive coping | Self-efficacy beliefs | Pain avoidance |
| Reinterpret pain sensations | 0.57 | -0.03 | 0.37 |
| Coping self-statements | 0.84 | -0.06 | 0.14 |
| Ignore sensations | 0.87 | -0.06 | 0.14 |
| Diverting attention | 0.49 | -0.10 | 0.07 |
| Praying/hoping | 0.13 | 0.06 | 0.70 |
| Catastrophizing | -0.11 | 0.52 | 0.61 |
| Increased behavioural activities | 0.50 | -0.08 | 0.64 |
| Pain behaviours | 0.01 | -0.02 | 0.74 |
| Control over pain | 0.20 | -0.81 | -0.03 |
| Ability to decrease pain | -0.03 | -0.87 | 0.06 |
the south Western part of Stockholm. The participation of the GPs and the PHTs in the study was based on informed consent. The patients were identified when keeping their appointments with the GPs and the PHTs during a period of 15 consecutive days. At this time, patients were examined by GPs and PHTs, who also provided the patients with the questionnaire and with written and oral information about the study. The patients were instructed to return the questionnaire by mail after completing it at home. All patients were volunteers and gave their consent. Confidentiality was guaranteed. After having examined each patient in accordance with the Swedish ICD-9 (Socialstyrelsen, 1987), the GPs and PHTs completed a short questionnaire about the patient’s age, gender, diagnosis and ethnic background (foreign background yes/no). Ethical Committee approval was sought and given. The associations between psychosocial variables and absence due to illness were examined by first dividing the patients \( n = 586 \) into three groups according to the number of days they had been on sick-leave during the 12 months prior to the present survey. For purposes of data reduction, patients in the categories ‘31 to 80 days’, and ‘more than 90 days’ were allocated to a combined group, i.e. ‘>30 days’. The statistical comparisons were, thus, performed between the following three groups: ‘no sick-leave’ \( n = 165 \), ‘1–30 days’ \( n = 204 \) and ‘>30 days’ \( n = 217 \).

2.10. Statistical analyses

A principal component analysis (varimax rotation, 75% variance rule) was applied to the CSQ questionnaire data. Differences between groups were evaluated by factorial analyses of variance (ANOVA) and chi-square tests \( \chi^2 \). Post hoc tests were performed according to Dunn’s method. Logistic regression analyses and multivariate regression analyses were used to identify predictors of lengthy sick-leave (>30 days) and high scores for the disability index. Pearson’s product moment correlation coefficients were computed in order to analyze associations between measures of coping, emotional distress and perceived disability due to pain. An alpha level of 0.05 was considered of statistical significance for all planned analyses, but not for the post hoc tests. In view of the large number of post hoc comparisons, a Bonferroni correction was applied to the analyses with Dunn, which were not considered significant unless their \( P \)-values were less than 0.0167.

Single data were lost for a number of instruments, possibly due to the fact that patients completed the questionnaire at home and did not feel compelled to answer each question. The patients \( n = 585 \) completed questions about age, and education, 544 patients answered questions about occupation, 537 patients completed the Burnout scale and 537 patients completed questions about demands and control in the work setting. Complete data were obtained for the GHQ and for PTSS. Complete data were also obtained for the CSQ, with the exception of control over pain and ability to decrease pain, which were completed by 570 and 571 patients, respectively.

3. Results

3.1. Demographic characteristics

The first hypothesis suggested that the patients with long absence due to illness, i.e. ‘>30 days’, would more often be females, immigrants, blue-collar workers and less educated than the rest of the sample. This hypothesis appears to have received support as illustrated in Table 1.

There were significant age differences between the patient groups \( F(2,582) = 9.14, P < 0.0001 \), which according to follow-up tests could be attributed to a higher mean age (47 ± 11 years) in the ‘>30 days’ group as compared with the ‘1–30 days’ (43 ± 10 years) group \( P < 0.0001 \). The mean age in the ‘no-sick-leave’ group \( 46 ± 11 \) was also significantly higher than in the ‘1–30 days’ group \( P < 0.0167 \).

The ‘no-sick-leave’ group had a significantly lower proportion of females \( 64\% \) than the ‘1–30 days’ \( 75\% \) and the ‘>30 days’ group \( 75\% \) \( \chi^2 (2) = 6.58, P < 0.05 \). A series of analyses with chi-square tests \( \chi^2 \) on other demographic variables demonstrated that patients in the group ‘>30 days’ were more often divorced \( \chi^2 (2) = 11.65, P < 0.01 \), immigrants \( \chi^2 (2) = 15.23, P < 0.0001 \), blue-collar workers \( \chi^2 (6) = 36.91, P < 0.0001 \) and less educated \( \chi^2 (6) = 36.31, P < 0.0001 \) than the rest of the patients. These patients were also to a lesser extent in full-time employment \( \chi^2 (20) = 251.33, P < 0.0001 \), i.e. they were more often on sick-leave or early retired. Subjects who where unemployed at the time of data collection \( n = 29 \) were more frequent in the ‘no sick-leave’ group \( n = 14 \) \( \chi^2 (2) = 7.50, P < 0.05 \). Patients in the ‘1–30 days’ group were to a larger extent single \( \chi^2 (2) = 11.30, P < 0.01 \). There were no other significant demographic differences between groups.

3.2. Clinical characteristics

The second hypothesis stated that patients with the longest absence due to illness, i.e. ‘>30 days’, would have a more severe clinical situation (e.g. stronger pain intensity and more disability) than the other patients. This hypothesis seems to have received support as shown in Table 3. A significant difference in perceived pain intensity \( F(2,564) = 8.79, P < 0.001 \) revealed higher pain scores in groups ‘>30 days’ and ‘1–30 days’ compared to group ‘no sick-leave’, with the highest scores in group ‘>30 days’. Post hoc tests (Dunn) showed that the pain intensity in the groups ‘>30 days’ \( P < 0.0167 \) and ‘1–30 days’ \( P < 0.0001 \) was greater than in the ‘no-sick-leave group’. Chi-square tests on other pain parameters indicated that patients in group ‘>30 days’, in contrast to the other groups, experienced their pain as more frequent \( \chi^2 (8) = 43.38 \),
and complex, i.e. had different types of pain ($\chi^2 (2) = 21.31, P < 0.0001$). They had also undergone more somatic treatments, such as physiotherapy, TNS, and acupuncture ($\chi^2 (2) = 21.47, P < 0.0001$). In addition, the patients in the ‘>30 days’ group had consumed more analgesics ($\chi^2 (4) = 47.61, P < 0.0001$) and sedatives ($\chi^2 (4) = 35.73, P < 0.0001$).

Finally, there was a significant difference between groups regarding the degree of perceived disability ($F(2,583) = 88.03, P < 0.0001$), with the largest perceived disability in the ‘>30 days’ group. Post hoc comparisons showed that this difference could be ascribed to significantly higher disability scores in the ‘>30 days’ group than in the groups ‘no sick-leave’ ($P < 0.0001$) and ‘1–30 days’ ($P < 0.0001$). There were no other significant differences between groups.

### 3.3. Demands, control and job strain

A third hypothesis suggested that patients in the ‘>30 days’ group would experience a lower degree of control and higher degrees of demands in the work setting, and thus more job strain as assessed by the job strain instrument developed by Karasek and Theorell (1990), than the other patient groups. As shown in Table 4, this hypothesis was supported by the data with respect to control and job strain, but not concerning demands. A significant difference between the patient groups in perceived control ($F(2,583) = 17.14, P < 0.0001$) showed lower scores for the ‘>30 days’ group as compared with the ‘no sick-leave’ and ‘1–30 days’ groups. Post hoc tests demonstrated that in the ‘>30 days’ group, scores for control were lower than those reported by the ‘no sick-leave’ ($P < 0.0167$) and the ‘1–30 days’ groups ($P < 0.0167$), indicating a lack of control in the work setting for this group. An overall difference was also observed with regard to scores for job strain ($F(2,534) = 10.90, P < 0.0001$), i.e. discrepancy between control and demands in the work setting. Follow-up tests showed that this difference was due to a more frequently experienced job strain among patients in the ‘>30 days’ group than among patients in the ‘no sick-leave’ ($P < 0.0167$) and the ‘1–30 days’ groups ($P < 0.0167$) (see Table 4).

---

**Table 3**

Clinical characteristics of patients with musculoskeletal disorders (all patients/by no sick leave/sick leave; during the 12 months prior to the present survey)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>All</th>
<th>No sick leave</th>
<th>1–30 Days</th>
<th>&gt;30 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain intensity (0–10) (N) (567)</td>
<td>(160)</td>
<td>(199)</td>
<td>(208)</td>
<td></td>
</tr>
<tr>
<td>Mean (s.d.)</td>
<td>7.37 (1.97)</td>
<td>6.92 (2.1)</td>
<td>7.42 (2.0)</td>
<td></td>
</tr>
<tr>
<td>Pain complexity (types)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One type</td>
<td>232</td>
<td>81</td>
<td>91</td>
<td>60</td>
</tr>
<tr>
<td>Several types</td>
<td>354</td>
<td>84</td>
<td>113</td>
<td>157</td>
</tr>
<tr>
<td>Pain frequency (N) (578) (159)</td>
<td>(202)</td>
<td>(217)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All the time</td>
<td>176</td>
<td>36</td>
<td>46</td>
<td>94</td>
</tr>
<tr>
<td>All the time'</td>
<td>73</td>
<td>20</td>
<td>22</td>
<td>31</td>
</tr>
<tr>
<td>Almost all the time</td>
<td>154</td>
<td>39</td>
<td>59</td>
<td>56</td>
</tr>
<tr>
<td>Almost every day</td>
<td>127</td>
<td>44</td>
<td>55</td>
<td>28</td>
</tr>
<tr>
<td>Almost every week</td>
<td>48</td>
<td>20</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>Number of treatments (N) (585)</td>
<td>(165)</td>
<td>(203)</td>
<td>(217)</td>
<td></td>
</tr>
<tr>
<td>Mean (s.d.)</td>
<td>1.8 (1.3)</td>
<td>1.78 (1.3)</td>
<td>1.5 (1.2)</td>
<td></td>
</tr>
<tr>
<td>Previous somatic treatments (N) (584)</td>
<td>(164)</td>
<td>(203)</td>
<td>(217)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>470</td>
<td>124</td>
<td>150</td>
<td>196</td>
</tr>
<tr>
<td>No</td>
<td>114</td>
<td>40</td>
<td>53</td>
<td>21</td>
</tr>
<tr>
<td>Use of analgesics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly</td>
<td>100</td>
<td>17</td>
<td>20</td>
<td>63</td>
</tr>
<tr>
<td>Occasionally</td>
<td>271</td>
<td>46</td>
<td>105</td>
<td>100</td>
</tr>
<tr>
<td>Never</td>
<td>215</td>
<td>40</td>
<td>79</td>
<td>54</td>
</tr>
<tr>
<td>Use of sedatives</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularly</td>
<td>22</td>
<td>3</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Occasionally</td>
<td>55</td>
<td>9</td>
<td>8</td>
<td>34</td>
</tr>
<tr>
<td>Never</td>
<td>509</td>
<td>87</td>
<td>149</td>
<td>166</td>
</tr>
<tr>
<td>Disability (0–15)</td>
<td>5.4</td>
<td>3.9</td>
<td>4.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Mean (s.d.)</td>
<td>(3.3)</td>
<td>(3.3)</td>
<td>(3.2)</td>
<td>(3.5)</td>
</tr>
</tbody>
</table>

*Except 1 h or so immediately after treatment.
3.4. Burnout and other emotional distress

A fourth hypothesis stated that the patients in the ‘>30 days’ group would have higher levels of burnout as assessed by the instrument developed by Melamed et al. (1992) and other emotional distress (i.e. GHQ and PTSS). This hypothesis was supported by the data (see Table 4).

3.5. Burnout

An overall difference was noticed between the groups with regard to the burnout index ($F(2,534) = 17.25, P < 0.0001$). Post hoc tests revealed that the difference was due to higher scores for burnout in the ‘>30 days’ group than in the ‘no sick-leave’ ($P < 0.0167$) and the ‘1–30 days’ groups ($P < 0.0167$), indicating higher levels of stress-related symptomatology in the ‘>30 days’ group.

3.6. GHQ

There was a significant difference between the patient groups with regard to psychiatric symptoms (i.e. anxiety and depression) ($F(2,583) = 17.14, P < 0.0001$). Post hoc comparisons showed that this difference was due to higher GHQ scores in the ‘>30 days’ group in contrast to the ‘no sick-leave’ ($P < 0.0167$) and the ‘1–30 days’ groups ($P < 0.0167$), indicating higher levels of emotional distress in the ‘>30 days’ group. There were no significant differences in GHQ scores between the ‘no sick-leave’ and ‘1–30 days’ groups.

An analysis of the GHQ data using 3 (points) as a cut-off point ($<3$ = high well-being and $>3$ = low well-being) revealed that elevated levels of psychiatric morbidity were exhibited by 58% of the total sample ($n = 225$). A chi-square analysis showed an overall difference between groups ($\chi^2(2) = 21, P < 0.0001$). That is to say, the levels of psychiatric morbidity were elevated among 51% of the patients in the ‘>30 days’ group ($n = 111$), compared with 31% of the patients in the ‘no sick-leave’ ($n = 51$) and 32.4% of the patients in ‘1–30 days’ groups ($n = 63$), respectively.

3.7. PTSS

An overall difference in scores for the PTSS was observed between the groups ($F(2,583) = 14.31, P < 0.0001$). Follow-up tests showed that this difference was related to higher scores for PTSS in the ‘>30 days’ group than in the ‘no sick-leave’ ($P < 0.0167$) and in the ‘1–30 days’ groups ($P < 0.0167$). This result indicates a higher level of posttraumatic stress symptomatology in the ‘>30 days’ group. No significant differences in PTSS scores were observed between the ‘no sick-leave’ and the ‘1–30 days’ groups.

An analysis of the PTSS data using 3 (points) as a cut-off point ($<3$ = no morbidity and $>3$ = increasing levels of morbidity) showed elevated levels of posttraumatic stress symptomatology in the ‘>30 days’ group.
symptomatology in 58% of the total sample (n = 341). A Chi-square analysis yielded an overall difference between groups (χ² (2) = 16, P < 0.001). That is to say, elevated levels of posttraumatic stress reactions were present among 68% of the patients in the ‘>30 days’ group (n = 148), compared to 48% of the patients in the ‘no sick-leave’ (n = 80) group and 55% of the patients in the ‘1–30 days’ group (n = 113).

3.8. Coping

A fifth hypothesis stated that patients in the group ‘>30 days’ would have a poorer ability to cope with pain than the patients in the other groups. As shown in Table 4, this hypothesis was confirmed by the data on two factors of the CSQ.

3.9. Pain avoidance

An overall difference in scores for pain avoidance was observed between the groups (F(2,583) = 12.89, P < 0.0001). Post hoc comparisons revealed that this difference was due to higher scores for pain avoidance in the ‘>30 days’ group compared with the ‘no sick-leave’ (P < 0.0167) and the ‘1–30 days’ groups (P < 0.0167), indicating that patients in the ‘>30 days’ group more often relied on pain avoidance and catastrophizing as a coping style for pain.

3.10. Self-efficacy beliefs

An overall difference in scores for self-efficacy beliefs was observed between the groups (F(2,568) = 4.68, P < 0.01). Follow-up tests showed that this difference could be attributed to lower scores for this variable in the ‘>30 days’ group compared with the ‘no sick-leave’ group (P < 0.0167). Patients in the ‘>30 days’ group thus rated their ability to control and decrease pain as lower.

3.11. Predictors of sick-leave

A series of logistic regression analyses were performed in order to identify statistical predictors of sick-leave longer than 30 days. For this purpose sick-leave was dichotomized into a dummy variable in which ‘0’ corresponded to the ‘no sick-leave’ and the ‘1–30 days’ groups, whilst ‘1’ corresponded to the ‘>30 days’ group.

In the first analysis, a model was constructed including the following predictor variables: age, gender, marital status, occupation, foreign background, diagnosis, pain intensity, and disability index. All categorical independent variables with more than two categories were transformed into n-1 ‘dummy variables’. Sick-leave was associated with scores for the disability index (OR = 0.01, 95% CI = 0.01–0.40, P < 0.0001), age (OR = 0.32, 95% CI = 0.12–0.85, P < 0.05), blue-collar occupation (OR = 4.54, 95% CI = 1.34–18.04, P < 0.05), and the diagnosis traumatic injury (OR = 8.51, 95% CI = 1.58–54.90, P < 0.01) (data not shown). Burnout, GHQ, PTSS, job strain, and the coping factors pain avoidance and self-efficacy beliefs were added to the model one at the time and alternated through the analyses. However, none of these measures proved to be significantly related to sick-leave after controlling for background variables, pain parameters and disability.

In the following, multivariate regression analyses were performed in order to predict high scores for the index related to perceived disability. Firstly, a model was constructed including age, gender, marital status, occupation, foreign background, pain intensity and diagnosis. This model, explained 26% of the variance in disability (R² = 0.26). It was found that disability was associated with foreign background (beta = 0.51, SE = 0.18, P < 0.01), pain intensity (beta = 0.56, SE = 0.07, P < 0.0001) and the diagnoses fibromyalgia (beta = –2.13, SE = 0.65, P < 0.01), complex pain (beta = –0.90, SE = 0.33, P < 0.01), herniated disk (beta = –1.49, SE = 0.61, P < 0.05), and lack of diagnosis (beta = –0.87, SE = 0.32, P < 0.01), indicating higher levels of perceived disability among patients with these diagnoses (data not shown).

In the following, burnout, GHQ, PTSS, job strain, and the coping factors pain avoidance and self-efficacy beliefs were added to the model one at the time. The results of these analyses showed that burnout (beta = 1.30, SE = 0.10, P < 0.0001), GHQ (beta = 0.49, SE = 0.04, P < 0.0001), PTSS (beta = 0.57, SE = 0.05, P < 0.0001), job strain (beta = 2.40, SE = 0.48, P < 0.0001), and the coping factors pain avoidance (beta = 1.26, SE = 0.14, P < 0.0001) and self-efficacy beliefs (beta = –0.57, SE = 0.12, P < 0.0001), were all significantly related to perceived disability (data not shown).

Burnout and PTSS contributed most to increase the percentage of variance in disability explained by the model, by increasing R² from 0.26 to 0.43, and 0.40, respectively. Repeating the multivariate analyses with unemployment (yes-no) entered along with the demographic variables did not affect the results. Pearson’s product moment correlations were computed in order to explore the relationships between the predictors: burnout, GHQ, PTSS, job strain, pain avoidance, self-efficacy beliefs, and the perceived disability index. As shown in Table 5, these analyses revealed strong positive associations between GHQ, PTSS, job strain, pain avoidance and the disability index. Self-efficacy beliefs were negatively correlated with pain avoidance and all measures of emotional distress, as well as the disability index.

4. Discussion

In this study we assessed the associations between psychosocial factors and absence due to illness among patients seeking care for musculoskeletal pain from GPs and PHTs.
The results show that patients reporting a high frequency of absence due to illness during the previous 12 months were more often immigrants, had a low educational level, and were more often in blue-collar occupations than the rest of the sample. Their clinical picture was more serious, as they rated their pain as more severe, frequent, complex and debilitating. They had also undergone more somatic treatments prior to the present survey, and reported using more medication than the rest of the sample. They experienced higher demands and lower degree of control in the work setting, i.e. high levels of job strain. They also reported higher levels of emotional distress and manifested a poorer coping capacity than the rest of the sample. Before interpreting the results in more detail, a discussion of the design is appropriate. Issues of causality cannot be solved by the cross-sectional study design. Conclusions as to whether job strain, emotional distress and poor coping within the sample are causes or effects of pain itself can only be speculative.

As opposed to the majority of investigations of the psychosocial correlates of musculoskeletal disorders, the study sample was heterogeneous in terms of pain localization. The sample was recruited from an area of Stockholm with a particular sociodemographic composition, i.e. a low status area with large number of citizens with immigrant rank and/or low educational level. Questionnaire data could not be validated with objective measures, and no reliability and validity data were available for the diagnoses given by the GPs. It could be argued that these caveats may undermine the generalizability of the results. It may, however, be speculated that objective measures would not add to our understanding of the observed differences between groups. As reflected in the present study, physical diagnoses are often vague and a considerable proportion of participants were not given any diagnoses. Many forms of physical measurements for, e.g. back pain are unreliable (Russel, 1983; Biering-Sørensen, 1984; Frymoyer et al., 1986; McCombe et al., 1989; Mellin, 1993). Studies have shown that a significant proportion of patients with back pain lack organic findings that would account for the presence of symptoms (e.g. Nachemson and Bigos, 1984; Borenstein and Wiesel, 1989). If organic findings are present, they contribute only to a small extent in explaining the reported symptoms (Rothman, 1984; Von Korff et al., 1988; Boden et al., 1990).

Table 5  Pearson’s product-moment correlations between predictors of sick-leave

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Perceived disability</th>
<th>GHQ</th>
<th>PTSS</th>
<th>Burnout</th>
<th>Pain avoidance</th>
<th>Self-efficacy beliefs</th>
<th>Job strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived disability</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GHQ</td>
<td>0.49***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTSS</td>
<td>0.49***</td>
<td>0.67***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burnout</td>
<td>0.51***</td>
<td>0.68**</td>
<td>0.63***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain avoidance</td>
<td>0.41***</td>
<td>0.24*</td>
<td>0.31**</td>
<td>0.28**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-efficacy beliefs</td>
<td>-0.02***</td>
<td>-0.24*</td>
<td>-0.18</td>
<td>-0.23**</td>
<td>-0.07</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Job strain</td>
<td>0.30**</td>
<td>0.36***</td>
<td>0.27**</td>
<td>0.43***</td>
<td>0.16</td>
<td>-0.20</td>
<td>1</td>
</tr>
</tbody>
</table>

GHQ, General Health Questionnaire; PTSS, Post Traumatic Stress Scale. 

*P < 0.05; **P < 0.01; ***P < 0.001.
of symptoms of burnout among these patients. Burnout, which is a possible outcome of chronic stress, has been described as a two-phase process (Melamed et al., 1992). The first phase is characterized by growing tension and anxiety as a response to unsuccessful coping with stress (tense burnout). The advanced phase is characterized by withdrawal, and social isolation (listless burnout). Melamed et al. (1992) found strong associations between tense burnout and increased risk for coronary heart disease (CHD). Appels and Mulder (1988), who conceptualize burnout as a state of ‘vital exhaustion’, show strong associations between this phenomenon and CHD. Given that both burnout and musculoskeletal disorders are influenced by stress, an association between the two seems likely.

In line with the fourth hypothesis of the present investigation, scores for burnout were elevated among patients with a high frequency of absence due to illness. However, this was also the case for the GHQ and the PTSS scores. The findings suggest a strong overlap between these constructs within the study sample, indicating the presence of a common dimension of emotional distress. Burnout and depressive symptomatology have been shown to be highly interrelated (for a review see Glass and McKnight, 1994). Listless burnout may be viewed as an aspect of depression, as can many of the items of the PTSS. Prospective studies may give more adequate information on the specific associations between burnout, viewed as a process, and health outcomes in the form of musculoskeletal pain. Not many studies have estimated the prevalence of posttraumatic stress reactions among patients with musculoskeletal disorders. Applying strict diagnostic criteria for PTSD in a sample comprising 64 patients, Muse (1985) estimated the prevalence as 9.4%. Although the PTSS does not allow a strict diagnosis of PTSD the present findings accentuate the importance of further research to assess this disorder in the pain population.

Results from the logistic regression analyses show that perceived disability, together with occupation and immigrant status, is an important predictor of sick-leave within the sample. Perceived disability, in turn, was significantly predicted by foreign background, occupation, diagnosis and pain intensity. Introducing measures of emotional distress (particularly burnout and PTSS), and coping, augmented the amount of explained variance in disability to a significant extent. Emotional distress and coping measures are thus substantially associated with perceived disability after controlling for such confounders as sociodemographics, including occupation, and pain parameters. These findings are in accord with data showing that the patients’ level of psychological distress and coping capacity are important determinants of subjective disability (e.g. Turner and Clancy, 1986; Jensen et al., 1991; Jensen and Karoly, 1992; Wadell et al., 1993). Kröner-Herwig et al. (1996) found that coping was the most important predictor of subjective disability in a study comparing patients with headaches and patients with back-pain. In the study by Kröner-Herwig et al. (1996), the introduction of catastrophizing in a multivariate regression analysis comprising pain parameters and coping strategies as measured with the Heidelberg Coping Inventory-Pain (Kröner-Herwig et al., 1996), raised the explained variance in subjective disability to approximately 55% in the whole study sample.

Catastrophizing, which is regarded as a maladaptive coping strategy by some authors (Rosenstiel and Keefe, 1983) and as a set of negative self-statements by others (Kröner-Herwig et al., 1996), has been linked to medically incongruent back-pain, depression, severe pain, and functional impairment (Reeser and Craig, 1988; Keefe et al., 1989; Sullivan and Deon, 1990; Jensen and Karoly, 1991). In a longitudinal study by Keefe et al. (1989) it was shown that catastrophizing predicted depression at 6-months follow-up, after controlling for initial levels of depression, pain and functional impairment.

Which interventions would be valuable for patients with high levels of psychological distress and a poor coping capacity? A number of controlled studies have shown that stress management and cognitive behavioural therapy are effective in terms of increasing the ability to manage pain (Turner, 1982; Linton and Götestam, 1984; Turner and Clancy, 1986; Keefe and Williams, 1989; Flor et al., 1992; Turner and Jensen, 1993; Linton, 1994a). These interventions often include relaxation training, which can be applied in everyday situations and which provides quick effects in terms of pain relief. This effect is achieved by decreased sympathetic activity. Decreased sympathetic activity is also incongruent with negative thoughts and emotions that often precede pain episodes (Linton, 1994a,b). Linton and Götestam (1984) have shown that muscle relaxation applied to ‘risk situations’ for pain has an effect equal to those of multicomponent pain interventions. Turner and Jensen (1993) evaluated the effects of cognitive therapy, relaxation training and the combination of these two among patients with chronic back pain. The authors observed decreases in pain and depression together with increases in functional status among all groups. These effects remained at the 6- and 12-month follow-ups. Cognitive behavioural interventions aimed at the modification of catastrophizing have shown positive results in terms of psychosocial adaptation (Turner and Clancy, 1986). Philips (1987) has shown positive effects of behavioural therapy in terms of decreased use of passive coping strategies and increased activity.

Considering that the patients in the ‘>30 days’ group reported having taken part in a great number of somatic treatments of limited effect, it could be argued that cognitive behavioural interventions aimed at improving coping capacity and decreasing emotional distress would be a more adequate treatment for these patients.

References


Leboeuf-Yde, C., Klosung, N. and Lauritzen, T., How common is low back pain in the Nordic population? Data from a recent study on a middle-aged general Danish population and four surveys previously conducted in the Nordic countries, Spine, 21 (1996a) 1525–1526.


