Pain 111 (2004) 245–252

PAIN

www.elsevier.com/locate/pain

Self-efficacy, fear avoidance, and pain intensity as predictors of disability in subacute and chronic musculoskeletal pain patients in primary health care

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Received 1 December 2003; received in revised form 17 June 2004; accepted 6 July 2004

Abstract

This study examined the relations between disability, as measured by the Pain Disability Index (PDI) and self-efficacy, fear avoidance variables (kinesiophobia and catastrophizing), and pain intensity, using a prospective design. Two primary health care samples ($n_1 = 210$; $n_2 = 161$) of patients with subacute, chronic or recurring musculoskeletal pain completed sets of questionnaires at the beginning of a physiotherapy treatment period. Multiple hierarchial regression analyses showed that self-efficacy explained a considerably larger proportion of the variance in disability scores than the fear avoidance variables in the first sample. This finding was replicated in the second sample. Pain intensity explained a small, but significant proportion of the variance in disability scores in one sample only. Gender, age, and pain duration were not related to disability. These findings suggest that self-efficacy beliefs are more important determinants of disability than fear avoidance beliefs in primary health care patients with musculoskeletal pain. The findings also suggest that pain-related beliefs, such as self-efficacy and fear avoidance, in turn, are more important determinants of disability than pain intensity and pain duration in these patients.

Keywords: Disability; Musculoskeletal pain; Primary health care; Self-efficacy; Fear avoidance

1. Introduction

Disability is proposed to be an important outcome in pain research (Deyo et al., 1994), and 30% of persons with neck, shoulder, or back pain may be expected to report limitations in daily life (Picavet and Schouten, 2003). Psychological factors are related to both the onset and development of spinal pain and disability (Linton, 2000). Self-efficacy, i.e. one's confidence in performing a particular behavior and in overcoming barriers to that behavior (Bandura, 1977, 1997), is believed to be an important mediator of disability related to pain. Self-efficacy was found to influence adjustment to a pain condition (Jensen et al., 1991), and pain-related disability (Estlander et al., 1994; Lackner et al., 1996), to mediate the relationship between pain intensity, disability, and depression (Arnstein, 2000; Arnstein et al., 1999), to predict lifting capacity (Lackner and Carosella, 1999), and pain behaviour and avoidance (Asghari and Nicholas, 2001) in chronic pain patients.

During the last decade, fear avoidance (Kori et al., 1990; Vlaeyen et al., 1995) has gained increased empirical support as a mediator of disability in chronic pain (Vlaeyen and Linton, 2000). Empirical support for fear avoidance in relation to disability comes from several studies (Al-Oubadi et al., 2000; Buer and Linton, 2002; Crombez et al., 1999; Fritz and George, 2002; Fritz et al., 2001; Geisser et al., 2000; Picavet et al., 2002). In a primary health care setting, however, van den Hout et al. (2001) showed that pain intensity and pain catastrophizing were better predictors of disability than pain-related fear. When prediction of disability by both self-efficacy and fear avoidance was examined simultaneously, self-efficacy was found to be the more powerful predictor (Ayre and Tyson, 2001).

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doi:10.1016/j.pain.2004.07.001

Most studies concerning self-efficacy, fear avoidance, and disability have been conducted in secondary or tertiary health care settings where patients are highly selected due to the referral filtering process (Turk and Rudy, 1990). However, most MSP patients are managed in primary health care, and results from secondary or tertiary settings may not necessarily generalise to primary health care patients. Specifically, patients who remain in primary health care may be expected to be less disabled than patients who are referred to specialised pain clinics or rehabilitation clinics. Since self-efficacy may explain why patients persist in confronting daily activities in the face of obstacles such as pain, we argue that it is a more important predictive factor than fear avoidance in primary health care clients. Thus, the purpose of this study was (1) to test the hypothesis that self-efficacy is a better predictor of disability than fear avoidance variables and pain intensity in a primary health care sample of patients with subacute, chronic or recurring MSP, and (2) to replicate the findings in a second sample.

2. Methods

2.1. Settings and samples

Data reported here are part of a larger project which also seeks to define subgroups based on the same set of variables used in this study, the main goal being development of a short screening questionnaire for use in the clinical management of MSP patients. The local ethics committee approved the project.

Participants were recruited among persons seeking care at physical therapy departments within three county council primary health care units and one occupational health care organisation. The inclusion criteria were: age 18–65, MSP, no signs of trauma, no malignant, infectious or systemic disease, ability to understand written and spoken Swedish, and a duration of MSP for at least 4 weeks. Exclusion criteria were rheumatoid arthritis, osteoarthritis and fibromyalgia. Thus, both subacute (4 weeks–3 months) and chronic (>3 months) MSP patients were included. Persons seeking care were informed both verbally and in writing about the objectives of the study. After giving their informed consent to participate, subjects filled out the questionnaires and a brief form to obtain demographic and background data. All questionnaires were returned to the first author by mail.

The setting of *Sample 1* was a Swedish university town and three surrounding rural communities with a total population of 240,000. Subjects were recruited from March 2000 to December 2000. In Sample 1, 280 subjects agreed to participate and, 215 returned the questionnaires, making the response rate 77%. Five subjects were excluded in the data analysis phase due to outlying scores, leaving a final sample of 210 subjects. The settings of *Sample 2* were three other university towns and surrounding areas with a total population of 285,000. In this sample, subjects were recruited within two different county primary health care organisations and one occupational health care organisation. Subjects were recruited from September 2001 to June 2003. In Sample 2, 218 subjects agreed to participate and, 161 returned the questionnaires, making the response rate 74%.

In Sample 1, the mean age was 45 years (SD 13, range 19–65), and the median duration of pain was 12 months (25th = 4, 75th = 48, range 1–240). In Sample 2, the mean age was 47 years (SD 11, range 20–65), and the median duration of pain was 12 months (25th = 4, 75th = 60, range 1–364). Further details about the samples are given in Table 1.

2.2. Measures

2.2.1. The Pain Disability Index

The Pain Disability Index (PDI) asks subjects to rate the degree to which activities in each of seven domains are interfered with because of chronic pain (Chibnall and Tait, 1994). The PDI was chosen in the present study because it is

Table 1
Demographic and background data for the two samples

Background data	Frequency (%)[a]	
	Sample 1 (*N* = 210)	Sample 2 (*N* = 161)
Female/male	159/51 (76/24)	104/57 (65/35)
Married/single	156/50 (74/24)	111/46 (69/29)
Live with parents	3 (1.5)	3 (2)
Education		
Nine-year school	80 (38)	64 (40)
Senior high-school	77 (37)	67 (42)
University	51 (24)	30 (18)
Pain site		
Low back	46 (22)	30 (19)
Neck	11 (5)	8 (5)
Shoulder	26 (12)	4 (2)
Head	2 (1)	3 (2)
Multiple	100 (48)	101 (63)
Other	2 (1)	15 (9)
Subacute/chronic	36/170 (17/81)	27/132 (17/82)
Course of pain last 5 years		
First episode	69 (33)	39 (24)
Occasionally recurrent	43 (20)	37 (23)
Frequently recurrent	94 (45)	83 (52)
Work		
Working	83 (40)	74 (46)
Sick-listed	80 (38)	60 (37)
Unemployed	10 (5)	11 (7)
Early retirement	14 (7)	12 (7)
Student	15 (7)	4 (0.2)

[a] When numbers do not add to *N* or 100% there are missing values in the background data.

general rahter than specific to, for example, low back pain or neck pain. The areas covered are family/home responsibilities, recreation, social activity, occupation, sexual behaviour, self-care, and life-supporting activities. The response format is a numerical rating scale where 0 = no disability and 10 = total disability. The total range is 0–70 points with higher scores indicating more perceived disability. The time frame is not defined. The PDI was translated into Swedish by the first author, and a bilingual person whose native language is English checked the translation. The PDI has shown good reliability and validity in several studies (Grönblad et al., 1993; Tait et al., 1987, 1990). The internal consistency in Sample 1 was good (alpha = 0.85), as well as in Sample 2 (alpha = 0.86).

2.2.2. The Catastrophizing subscale of The Coping Strategies Questionnaire

The Catastrophizing subscale (CAT) of The Coping Strategies Questionnaire (CSQ) aims to measure negative self-statements, catastrophizing thoughts and ideation in patients with chronic pain (Rosenstiel and Keefe, 1983). The Swedish version of CSQ (Jensen and Linton, 1993) was administered in its entirety, but only the CAT subscale was used in the analyses. The CAT subscale consists of six items describing catastrophic cognitions, and subjects indicate how often they experienced such thoughts in a 0–6 response format where 0 = seldom and 6 = all the time. The internal consistency of the CAT subscale in Sample 1 was good (alpha = 0.85) as well as in Sample 2 (alpha = 0.86).

2.2.3. The Tampa Scale for Kinesiophobia

The Tampa Scale for Kinesiophobia (TSK) was designed to measure fear of movement/(re)injury in individuals with pain (Kori et al., 1990). The TSK consists of 17 items scored in a 4-grade format where 1 = strongly disagree and 4 = strongly agree. The individual scores of items 4, 8, 12, and 16 are reversed, and then a total score, ranging from 17 to 68 points, is calculated. A higher score indicates a higher degree of fear. The time frame is not defined. Following the advice of Vlaeyen and Linton (2000) we used the total scale score. The TSK was translated into Swedish by the first author, and a bilingual person whose native language is English checked the translation. The internal consistency in Sample 1 was satisfactory (alpha = 0.74) and good in Sample 2 (alpha = 0. 83).

2.2.4. The Self-Efficacy Scale

The Self-Efficacy Scale (SES) was initially designed to measure perceived self-efficacy in performing 20 common activities relevant to patients with chronic low back pain (Altmaier et al., 1993). In this study a Swedish version, with the wording of the introductory text changed to ‘people who have pain’ was used, thus making it more general. Subjects are asked to rate how confident they are to perform each of a number of activites in spite of pain. The activities covered are: taking out the trash, concentrating on a project, going shopping, playing cards, shoveling snow, driving the car, eating in a restaurant, watching television, visiting friends, working on the car, raking leaves, writing a letter, doing a load of laundry, working on a house repair, going to a movie, washing the car, riding a bicycle, going on vacation, going to a park, and visiting relatives. The response format is 11-grade numerical rating scales where 0 = not at all confident and 10 = very confident. The total range is 0–200 points with higher scores indicating higher perceived self-efficacy. The time frame is not defined. The SES was translated into Swedish by the first author, and a bilingual person whose native language is English checked the translation. The internal consistency in both samples was good (Sample 1, alpha = 0.93; Sample 2, alpha = 0. 95).

2.2.5. Pain intensity

A numerical rating scale (NRS) with anchors 0 = no pain and 10 = worst pain imaginable was used to measure perceived pain intensity (Jensen and Karoly, 1992). Due to practical reasons, the subjects in Sample 1 were asked to rate their average pain during the last 3 days, and the subjects in Sample 2 were asked to rate their average pain during the last week.

2.3. Data analysis

To obtain complete data sets, the median subscale or scale score in individual subjects substituted occasional missing items. This was done for about 20% of the subjects in each sample, i.e. 0.7% of all items were substituted by such individually derived raw scores. All statistical analyses were computed separately in each sample, using the Statistical Packages for the Social Sciences (SPSS).

Means and standard deviations were calculated for the variables. None of the variables in the model deviated from univariate normal frequency distribution. Bivariate correlations among the variables in the model were computed using the Pearson product moment correlation. Correlation of the variables in the model with pain duration was examined by Spearman rank correlation due to significant skewness of the pain duration variable.

Hierarchial regression analysis was used to investigate the proportions of explained variance in disability. To obtain normally distributed standard residuals and homoscedastity, five subjects in Sample 1 with standard residual scores in excess of three standard deviations were excluded from the analysis of Sample 1 data. Because pain catastrophizing and pain-related fear are distinct components within the fear avoidance model (Vlaeyen and Linton, 2000), this model may be best represented by component measures of pain catastrophizing and pain-related fear, and thus these two variables were entered together in the analyses. Three hierarchial regression analyses were performed: in the first analysis, the self-efficacy scores were entered last, after the fear avoidance variables and pain intensity. In the second analysis, the fear

Table 2
Means and standard deviations in disability, pain intensity, self-efficacy, fear of movement/(re)injury, and catastrophizing in Sample 1 ($N=210$) and Sample 2 ($N=161$)

Measures[a]	Sample 1		Sample 2	
	M	SD	*M*	SD
PDI	26.7	14.1	22.5	14.0
NRS pain	4.8	1.9	6.0	2.0
SES	132.8	37.2	136.7	40.2
TSK	35.1	7.6	34.1	8.6
CAT	11.9	7.1	12.2	7.6

[a] PDI = The Pain Disability Index, NRS pain = 0–10 Numerical Rating Scale, SES = The Self-Efficacy Scale, TSK = The Tampa Scale for Kinesiophobia, CAT = Catastrophizing subscale of The Coping Strategies Questionnaire.

avoidance variables scores were entered last, after self-efficacy and pain intensity. In the third analysis, the pain intensity scores were entered last, after self-efficacy and the fear avoidance variables. In each regression model, gender and age were entered first. The level of significance was set at $P<0.05$.

3. Result

3.1. Descriptive data regarding disability, pain intensity, the fear avoidance variables, and self-efficacy in the two samples

Means and standard deviations for both samples in the fear avoidance variables and self-efficacy scores are reported in Table 2. Similar mean scores were found in all scales in the two samples.

3.2. Bivariate correlations between disability, pain intensity, fear avoidance variables, self-efficacy, and pain intensity

Pearson correlations among the variables are shown in Table 3. The PDI scores correlated significantly with all other scale scores. The associations were positive except for self-efficacy, and the pattern of correlations was the same in both samples. The self-efficacy scores correlated negatively with all other scores, whereas the correlations among the other variables were positive. The correlations between the TSK scores and the self-efficacy scores were low, but significant (and negative) in both samples (Table 3).

None of the variables in the model correlated significantly with pain duration in any of the samples.

3.3. Contributions of self-efficacy, fear avoidance variables, and pain intensity to the prediction of disability in Sample 1

The results of the regression analyses predicting disability in Sample 1 are shown in Table 4. Age and gender did not contribute significantly to the prediction of disability as measured by the PDI scores. When the self-efficacy scores were entered last, the fear avoidance variables and pain intensity explained 37% of the variance in the PDI scores ($P<0.001$), and the self-efficacy scores then explained an additional 24% of the PDI scores ($P<0.001$). When the fear avoidance variables scores were entered last, self-efficacy and pain intensity explained an additional 54% of the PDI scores ($P<0.001$), and fear avoidance variables then explained an additional 7% of the PDI scores ($P<0.001$). When the pain intensity scores were entered last, the fear avoidance variables and self-efficacy explained an additional 61% of the PDI scores, while pain intensity did not contribute to any further F change. Variance inflation factors were small, ranging from 1.16 to 1.49, suggesting that collinearity among the independent variables was not a problem.

3.4. Contributions of self-efficacy, fear avoidance variables, and pain intensity to the prediction of disability in Sample 2

The results of the regression analyses predicting disability in Sample 2 are shown in Table 5. The pattern of the results in Sample 1 was replicated in Sample 2, except that the pain intensity scores, when entered last, after the fear avoidance variables scores and self-efficacy scores, explained a small (1%) but significant proportion of the PDI scores ($P<0.01$). In this sample, the variance inflation factors were small too, ranging from 1.27 to 1.72.

Table 3
Correlations (r_{xy}) between disability, pain intensity, self-efficacy, fear of movement/(re)injury, and catastrophizing in Sample 1 ($N=210$) and Sample 2 ($N=161$)

Measures[a]	PDI	NRS pain	SES	TSK	CAT
PDI		0.43***	−0.72***	0.53***	0.53***
NRS pain	**0.34*** **		−0.35***	0.23**	0.41***
SES	**−0.73*** **	**−0.32*** **		−0.38***	−0.44***
TSK	**0.47*** **	**0.23** **	**−0.32*** **		0.52***
CAT	**0.53*** **	**0.29*** **	**−0.44*** **	**0.47*** **	

Note. The correlation coefficients of Sample 1 are shown in bold text, and the coefficients of Sample 2 are shown in plain text.
[a] PDI = The Pain Disability Index, NRS pain = 0–10 Numerical Rating Scale, SES = The Self-Efficacy Scale, TSK = The Tampa Scale for Kinesiophobia, CAT = Catastrophizing subscale of The Coping Strategies Questionnaire. ** = $P<0.01$, *** = $P<0.001$.

Table 4
Hierarchial regression analysis in Sample 1 ($N=210$). Dependent variable disability (Pain Disability Index scores)

Step and variable	R^2	R^2 change	F change	Beta[a]	t
1. Age	0.01	0.01	1.31	−0.00	−0.07
Gender				−0.06	−1.42
Self-efficacy entered last					
2. Fear avoidance variables and pain intensity	0.38	0.37	109.46***		
3. Self-efficacy	0.62	0.24	128.52***	−0.59	−11.34***
Fear avoidance variables entered last					
2. Self-efficacy and pain intensity	0.55	0.54	241.37***		
3. Fear avoidance variables	0.62	0.07	18.24***		
Pain catastrophizing				0.18	3.33***
Kinesiophobia				0.18	3.47***
Pain intensity entered last					
2. Fear avoidance variables and self-efficacy	0.62	0.61	274.64***		
3. Pain intensity	0.62	–	–	0.07	1.57

[a] Standardized regression coefficient. ***$P<0.001$.

4. Discussion

The results of this study confirmed our hypothesis that self-efficacy is a better predictor of disability than fear avoidance variables and pain intensity in a primary health care sample of patients with subacute, chronic, or recurring musculoskeletal pain. The results were replicated in a second sample. Gender, age, and pain duration were not significantly correlated to any of the variables in the regression model.

Bivariate correlation analyses showed that self-efficacy was significantly, and negatively, associated with disability, which is in accordance with the results reported by Arnstein (2000), Arnstein et al. (1999), and Lackner et al. (1996). In both samples self-efficacy showed the highest correlations with disability, as compared to pain catastrophizing and kinesiophobia. Self-efficacy correlated (negative association) with pain catastrophizing ($r=-0.44$, $P<0.001$), and kinesiophobia (negative association) in both samples ($r=-0.32$ and -0.38, $P<0.001$). The latter finding is consistent with the results of Ayre and Tyson (2001) who found a significant negative correlation between self-efficacy and fear avoidance in a sample of patients with chronic low back pain. However, the squared correlation coefficients,

Table 5
Hierarchial regression analysis in Sample 2 ($N=161$). Dependent variable disability (Pain Disability Index scores)

Step and variable	R^2	R^2 change	F change	Beta[a]	t
1. Age	0.01	0.01	0.92	0.03	0.59
Gender				−0.06	−1.22
Self-efficacy entered last					
2. Fear avoidance variables and pain intensity	0.42	0.41	36.71***		
3. Self-efficacy	0.63	0.21	87.63***	−0.54	−9.36***
Fear avoidance variables entered last					
2. Self-efficacy and pain intensity	0.57	0.56	101.17***		
3. Fear avoidance variables	0.63	0.06	25.53***		
Pain catastrophizing				0.20	3.21**
Kinesiophobia				0.14	2.14*
Pain intensity entered last					
2. Fear avoidance variables and self-efficacy	0.62	0.61	81.26***		
3. Pain intensity	0.63	0.01	6.78**	0.14	2.60**

[a] Standardized regression coefficient. *$P<0.05$, **$P<0.01$, ***$P<0.001$.

representing 10 and 15% of shared variance, respectively, in the two samples in the present study indicate that these two constructs were not overlapping to a great extent.

The bivariate analyses also showed positive and significant associations of fear avoidance variables with disability. This is in accordance with other studies reporting significant bivariate correlations (positive associations) between pain catastrophizing or pain-related fear, and disability (Crombez et al., 1999; Fritz and George, 2002; Fritz et al., 2001; Koho et al., 2001; van den Hout et al., 2001).

The hierarchial regression analyses in Sample 1 showed that self-efficacy explained a considerably larger proportion of the variance (24%) in PDI scores after controlling for all other variables than did the fear avoidance variables (7%). This finding was replicated in Sample 2 (21% versus 6%) and suggests that self-efficacy was the more important predictor of disability, which is consistent with the results reported by Ayre and Tyson (2001), who seem to have used an occupational health care sample. One possible explanation of this finding is the proposed strong influence of enactive mastery experiences upon self-efficacy beliefs (Bandura, 1977, 1997), which would logically form a strong link between the activities that patients do and their confidence in performing the behaviours required in such activities. An alternative explanation to the high correlations between self-efficacy and disability is the possibility of overlapping content in the PDI and the SES. Although the PDI asks patients to rate the degree to which activities are interfered with because of chronic pain, and the SES asks patients to rate their confidence in performing activites in spite of pain, the subjects might not have made this distinction and thus the two constructs may not be entirely independent. A further alternative explanation is the wide range of scores in the SES (0–200) in comparison to the other measures, enabling very large variances in this measure. Theoretically, this could yield some spurious results. However, we first controlled for this by performing the regression analyses on z-scores, which yielded the same results as analyses of the raw scores. Because the amount of variation would be preserved in z-scores, we also recoded the self-efficacy scores into a 20-grade scale, thus reducing variation substantially, while leaving the other measures unchanged. The regression analyses still yielded very similar results. Thus, it is unlikely that the much wider range of scores in the self-efficacy measure has influenced the results.

The fear avoidance variables did predict a unique proportion of the variation in PDI scores in both samples, albeit considerably smaller than did self-efficacy. One explanation may be that fear avoidance is a more important construct in patients who are more dysfunctional and therefore managed in secondary and tertiary health care settings. Much of the work regarding fear avoidance and disability comes from pain clinic or rehabilitation program samples, e.g. Crombez et al. (1999), Vlaeyen et al. (1995), and Waddell et al. (1993), where patients are highly selected. The primary health care samples in the present study are likely to be more functional and better adjusted than the samples used to develop the fear avoidance construct. van den Hout et al. (2001), using a primary health care sample found, for example, that pain-related fear was a less important predictor of disability than pain intensity and pain catastrophizing. Fear avoidance has, however, been shown to predict disability (Picavet et al., 2002) and activities of daily living (Buer and Linton, 2002) in population-based samples, and to be present in acute stages of low back pain (Fritz et al., 2001). Thus, fear avoidance seems to be present in patients in different stages of MSP and at different levels of health care. Further research involving both self-efficacy and fear avoidance in different types of samples and settings will clarify this matter.

Pain intensity did not emerge as a consistently-significant predictor of disability in the two samples, which is contrary to the results reported by van den Hout et al. (2001). Because van den Hout et al. measured pain by the McGill Pain Questionnaire, which is a measure of both pain intensity and pain quality, the different modes of pain measurement may explain the differing results. Another possible explanation is that all subjects in the study of van den Hout et al. (2001) were sick-listed at entry of the study, as compared to about 37% of the subjects in both our samples (Table 1), indicating that our samples may have been less influenced by pain intensity.

Pain duration did not correlate significantly with any of the variables in the model, although pain duration ranged from 1 month to several years in both samples. Patients who are able to cope with their pain are likely to remain in primary health care (Turk and Rudy, 1990), and for those patients, pain duration may not be of great importance.

The samples in this study were recruited in different settings and at different times. Both samples were mainly female, with chronic pain at two or more pain sites, and with a variable course of symptoms. MSP has been reported to be the most common type of pain (Andersson, 1994; Andersson et al., 1999; Gureje et al., 1998) with about two thirds of patients assumed to have pain in more than one location (Gureje et al., 1998). Picavet and Schouten (2003) found in their population-based study that recurrent pain was the most frequent category regarding the course of pain, as is also the case in the two samples in this study. Based on these comparisons, the two samples are most likely representative of a primary health care population, which would make a strong case for the generality of the findings.

Some limitations of the study deserve discussion. First, the study was cross-sectional and correlational. The term predictor is therefore used in its statistical sense only, and interpretation of the results in causal terms is not appropriate. Second, all variables in the regression model were measured by self-report questionnaires. However, all variables except disability represent beliefs, cognitions and sensory interpretations of nociceptive signals and are only accessible by self-report. The reliability coefficients reported in the present samples support the reliability of the measures, and factor analyses of the disability, self-efficacy, kinesiophobia, and catastrophizing scores in both samples support the construct validity of the questionnaires in the Swedish versions [Denison E, unpublished data]. Third, we did not control for depression in our study. Depression is common in primary health care patients (Posse and Hällström, 1998), and because depression may influence patients' activity levels, it may be a potential confounder.

The implications of the findings for future research on disability in MSP patients are that both self-efficacy and fear avoidance seem relevant to pain-related disability. Studying the two constructs together in different settings, e.g. primary health care, specialized pain clinics, rehabilitation clinics, will most likely enhance our understanding in this area. Because self-efficacy and the fear avoidance variables seemed to be only moderately related in this study (less than 20% of shared variance), the two constructs may be assumed to be relatively independent predictors of disability, explaining different aspects of the disablement process.

The clinical implications of the results in this study involve the need for primary health care professionals to focus on pain-related beliefs rather than on pain intensity reports in these patients. By relying on knowledge of pain duration and assessment of pain intensity alone to guide management, clinicians are likely to overlook important aspects of disability, and subsequently to engage in ineffective treatment strategies. As an alternative, systematic assessment of self-efficacy beliefs and fear avoidance beliefs regarding activities relevant for daily living would make a better starting point in the management process. Treatment strategies should focus on improving functional abilities related to specific and prioritised activities, using a small-steps approach to ensure success, thus enhancing self-efficacy and reducing fear.

Acknowledgements

This project was supported by The Swedish Foundation for Health Sciences and Allergy Research, grant No. V99/027.

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