

# **Low back pain and widespread pain in primary health care: Early access to physical therapy, treatment and prognostic factors**

Akademisk avhandling

som för avläggande av medicine doktorsexamen vid Sahlgrenska Akademin vid Göteborgs Universitet kommer att offentlig försvaras i hörsal Arvid Carlsson, Academicum, Medicinargatan 3, Göteborgs Universitet, Göteborg, fredagen den 8 april 2011 kl. 13.00

av

**Lena Nordeman**

Fakultetsopponent:

Professor Karin Harms-Ringdahl

Institutionen för neurobiologi, vårdvetenskap och samhälle  
Karolinska Institutet, Stockholm, Sverige

Avhandlingen baseras på följande arbete:

- I. Nordeman Lena, Gunnarsson Ronny, Mannerkorpi Kaisa. **Prevalence and characteristics of widespread pain in female primary health care patients with chronic low back pain.** Submitted
- II. Nordeman Lena, Gunnarsson Ronny, Mannerkorpi Kaisa. **Prognostic factors for activity and work status in women with chronic low back pain consulting primary health care: a two-year prospective longitudinal cohort study.** Submitted
- III. Mannerkorpi Kaisa, Nordeman Lena, Ericsson Anna, Arndorw Maudh, and the GAU Study Group. **Pool exercise for patients with fibromyalgia or chronic widespread pain: A randomized controlled trial and subgroup analyses.** J Rehabil Med 2009;41:751-760
- IV. Nordeman Lena, Nilsson Björn, Möller Margareta, Gunnarsson Ronny. **Early access to physical therapy treatment for subacute low back pain in primary health care. A prospective randomized clinical trial.** Clin J Pain 2006;22:505-511



UNIVERSITY OF GOTHENBURG

# Low back pain and widespread pain in primary health care: Early access to physical therapy, treatment and prognostic factors

**Lena Nordeman**

Department of Public Health and Community Medicine, Primary Health Care Unit, Institute of Medicine at Sahlgrenska Academy, University of Gothenburg, Sweden, 2011

Low back pain (LBP) and widespread pain (WP) are common and incur considerable costs to society mainly due to work disability. Identification of prognostic factors, intervention and early access to care seems important for influencing and preventing pain and disability in LBP and WP but further knowledge is warranted. The overall purpose of the present thesis was to obtain knowledge about a) prevalence and characteristics for WP in chronic LBP (CLBP), b) prognostic factors for activity and work status, c) the effect of function based intervention on health status and body functions in patients with WP or fibromyalgia, and d) the effect of early access to physical therapy for subacute LBP.

## **Study I**

The purpose was to estimate the prevalence of WP according to the American College of Rheumatology (ACR) 1990 criteria in women with CLBP consulting primary health care and to evaluate differences in body function, activity, participation, environmental factors, health-related quality of life and other health-related aspects between patients having CLBP with or without simultaneous WP. One hundred and thirty patients with CLBP were included in this cross-sectional study. Twenty-eight percent of the CLBP patients fulfilled the ACR's criteria of WP. The CLBP+WP group showed significantly more severe impairments in body functions, more severe activity limitations, and participation restrictions ( $p < 0.05$ ). Moreover, the CLBP+WP group reported significantly more negative environmental impact in terms of private social support, lower health-related quality of life and other health-related aspects compared to the CLBP group ( $p < 0.05$ ).

## **Study II**

This two-year prospective longitudinal cohort study of female patients with CLBP within primary health care investigated changes in body functions, activity, participation, environmental and other health-related factors. Prognostic factors were identified for activity and participation at the two-year follow-up. Ninety five percent (123/130) of the patients included in Study I were followed up at two years. Prognostic factors for later activity limitation (Roland Morris disability questionnaire (RMDQ)) and work ability (yes/no) were analyzed by multivariate regression analyses. Twenty eight percent ( $n=34$ ) fulfilled the criteria of WP at the first assessment and 29% ( $n=36$ ) at the two-year follow-up. The 6-minute walk test (6MWT) predicted both future activity limitation and work ability. Other variables with predictive ability for activity limitation were the Örebro musculoskeletal pain screening questionnaire (ÖMPSQ) and Stress and Crises Inventory (SCI-93). Higher performance in the 6MWT, earlier work ability and lower scores in the Hospital Anxiety and Depression Scale, depression (HADS-D) predicted work ability after two years. These three factors were used to construct a nomogram for assessing the probability for future work ability.

## **Study III**

The purpose was to evaluate the effect of pool exercise in patients with fibromyalgia (FM) or WP and to determine characteristics influencing the effects of treatment. A total of 134 women with FM and 32 with WP were randomized to a 20-session pool exercise and a 6-session education program or to a control group undertaking the same education program. The primary outcomes were the Fibromyalgia Impact Questionnaire (FIQ) total score and the 6MWT. The FIQ-total ( $p = 0.04$ ) improved in the intervention group, with an effect size of 0.32. Patients who had participated in at least 60% of the exercise sessions improved in the FIQ-total (effect size 0.44), the 6MWT (effect size 0.43) and FIQ-pain (effect size 0.69) compared with controls ( $p < 0.05$ ). The exercise-education program showed significant, but small, improvement in health status in patients with FM and WP, compared with education only. Patients with milder symptoms improved most with this treatment.

## **Study IV**

The purpose was to evaluate the effect of early access to physical therapy treatment for patients with subacute LBP compared to access with a four-week waiting list. Sixty consecutive primary health care patients with subacute LBP were randomized either to early access (EA) within two days for physical examination and individualized physical therapy treatment ( $n=32$ ) or a control group (CG) with a four-week waiting list ( $n=28$ ). The primary outcome measure was pain intensity (Borg's category scale for ratings of perceived pain). Secondary outcomes included ÖMPSQ, RMDQ, sick-leave, visits to health care and physical therapy. No significant differences in pain between the groups were shown at discharge. At 6 months, the reduction of pain was significantly greater in the EA compared to the CG ( $p=0.025$ ) indicating that early access to physical therapy resulted in greater improvement in perceived pain at 6 months compared to later access.

## **Conclusions**

The presence of widespread pain was found to negatively impact body function, activity, participation, environmental factors, health-related quality of life and other health-related aspects, and should therefore be assessed in female patients with chronic low back pain. Lower performance in walk test (6MWT), higher risk scores for future disability (ÖMPSQ) and more severe clinical stress symptoms (SCI-93) predicted activity limitation (RMDQ) at the two-year follow-up. Higher performance in walk test (6MWT), lower level of distress (HADS-D) and earlier work ability predicted future work ability. Probability of future work ability could be assessed by calculations based on these three factors (a nomogram). Education combined with pool exercise was found to improve the health status of patients with widespread pain or fibromyalgia and should be considered as an intervention alternative for these patient groups.

Early access to examination and individualized physical therapy treatment indicated clinical improvement for patients with subacute low back pain. An early physical therapist access model should be considered for the management of patients with low back pain in primary health care.

**Keywords:** Low back pain, widespread pain, fibromyalgia, physical therapy, primary health care, treatment, exercise therapy, education, early access, outcome assessment (health care) prognostic factors.