

SHORT REPORT

Evaluation of a multidisciplinary treatment for patients with chronic non-specific upper-limb musculoskeletal disorders: a pilot study

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Background Upper-limb musculoskeletal disorders (ULMSDs) are considered a major health and socio-economic problem. However, knowledge about the effect of treatment programmes is scarce.

Objective To evaluate the effect of a multidisciplinary treatment programme on well-being, disability and return to work in patients with chronic non-specific upper-limb disorders.

Methods A longitudinal and uncontrolled design with pre–post measurements was used. Forty-one patients on long-term sick leave attended for multidisciplinary treatment aimed at training in personal coping strategies and improving activities of daily living. Outcome measures were generic well-being (SF-36), disability (DASH) and return to work (working hours).

Results General well-being improved significantly between pre-treatment and post-treatment. Level of disability declined significantly between pre-treatment and post-treatment. In 63% of the patients, return to own work was complete at follow up, 4 months post-treatment.

Conclusion The results of this uncontrolled intervention study suggest that multidisciplinary treatment programmes improve general well-being, reduce disability and facilitate return to work in patients with chronic non-specific ULMSDs.

Key words Disability; generic well-being; multidisciplinary treatment; return to work; upper-limb musculoskeletal disorders (ULMSDs).

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Introduction

Chronic non-specific upper-limb musculoskeletal disorders (ULMSDs) are a major problem in clinical as

well as non-clinical settings [1,2]. The problem of chronic non-specific ULMSDs puts a considerable burden on both patient and society. The aetiology of chronic non-specific ULMSDs is thought to be multifactorial in nature [3]. The literature describes a wide variety of treatment options for chronic non-specific ULMSDs, ranging from ergonomic adjustments of the work place, to physiotherapy and cognitive behavioural therapy. Considering the multifactorial nature of chronic non-specific ULMSDs, a multidisciplinary approach seems most effective in treating ULMSD patients [4–6].

Studies that evaluate the effect of multidisciplinary treatment of ULMSDs on symptom relief, improvement

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of activities of daily living and return to work are scarce. One study found a significant improvement in coping with pain and a significant decrease in the percentage of sick leave at post-treatment follow up [7]. Another study that used a randomized clinical trial design showed that the cognitive behavioural treatment of ULMSD improved coping strategies and resulted in a decrease of the number of days of sickness absence [8].

In this pilot study, the effect of a multidisciplinary treatment programme for patients with chronic non-specific ULMSDs on return to work, well being and disability is evaluated.

Methods

Subjects

Forty-one patients [20% males, 80% females, mean age 34 years (SD 9.1)] were included in this study. All patients were on 100% sick leave for 5 months or longer (SD 4.5) due to chronic non-specific ULMSDs. According to the patients these complaints occurred as a consequence of VDU work activities. The patients were referred by their occupational physician and were motivated to attend for treatment. The treatment was provided in an occupational health setting.

Design and outcome measures

An uncontrolled pilot study with pre- and post-treatment measurement was conducted. The patients were assessed at baseline (1 week before the treatment) and at follow-up (6 months after the baseline, i.e. 4 months after treatment).

Related to the goal of the intervention, outcome measures included three subscales (physical functioning, pain, and vitality) of the SF-36 [9,10], the total score of the DASH scale (Disabilities of the Arm, Shoulder and Hand) [11] and degree of return to work (working hours). The SF-36 is a widely used instrument that measures the most important dimensions of subjective health. The DASH scale measures disability in daily functioning due to neck and shoulder complaints. Pre-post effects were tested through paired *t*-tests.

The multidisciplinary treatment

The main goal of the treatment was to enhance coping strategies and to improve activities of daily living. The treatment covered 13 full time days of four treatment sessions in which the use of graded activity and the acquirement of strategies to cope with stress were central themes. The sessions concerned with coping with stress consisted of cognitive techniques, health education, medication reduction, relaxation techniques, goal setting and planning return to work. The last phase of the

program consisted of 2.5 days return to work sessions over a period of 3 weeks. In the multidisciplinary treatment, a psychologist, physiotherapist, orthopaedic surgeon and occupational therapist were involved as primary or co-chaired session leaders. All session leaders adhered to the treatment protocol. The sessions were provided in groups of at the most eight persons and lasted 1.5 h each.

Results

The scores on the three SF-36 subscales improved significantly (paired *t*-test, $P < 0.001$). Patients reported a significant higher degree of general well-being at post-measurement as compared to pre-treatment. Scores on the DASH declined significantly up to 60–70% between the pre- and post-treatment measurement (paired *t*-test, $P < 0.001$). Patients reported significantly less disability in arm, shoulder and head on the post-treatment measurement as compared with the pre-treatment measurement.

Twenty-six patients (63%) returned to their own work full time (for 100%) at 6 months follow up, nine patients (22%) returned to work, but not full time and six patients (15%) adjusted their amount of contractual working hours. All patients had returned to work at the end of the treatment period. The results are summarized in Table 1.

Conclusion

The results of this pilot study provide suggestive evidence that multidisciplinary treatment of patients with chronic non-specific ULMSDs improves general functional status and reduces disability. Moreover, the results seem to indicate that multidisciplinary treatment facilitates return to work, as nearly two-thirds of the patients returned to their own job completely after treatment.

Table 1. Mean scores (and SD) before and after treatment on the three SF-36 subscales, DASH total score and degree of return to work ($n = 41$)

Outcome measurements	Before treatment, mean (SD)	After treatment, mean (SD)	Paired <i>t</i> -test value
SF-36			
Physical functioning	65.4 (18.1)	71.7 (35.9)	-10.0*
Pain	34.2 (12.0)	64.1 (14.7)	-9.7*
Vitality	49.7 (18.9)	68.9 (13.8)	-6.7*
DASH	45.1 (17.7)	18.1 (16.9)	8.7*
Return to work			
Full time		$n = 26$ (63%)	
Part time		$n = 9$ (22%)	
Contractually adjusted working hours		$n = 6$ (15%)	

* $P < 0.001$.

From a theoretical point of view, decreased levels of activity and unfavourable strategies for coping with stress are core biobehavioural mechanisms in the development of chronic non-specific ULMSDs. Because the multidisciplinary treatment under study targeted coping with stress skills and used graded activity as a core component, theoretically it seems valid to ascribe the observed effects to the treatment. However, because no control group was included in this study, empirically it is not possible to ascribe the observed effects to the treatment. At the moment, we are conducting a randomized clinical trial in which the programme of this pilot study will be further evaluated.

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